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Partner and Family Relationships and Postpartum Mental Health in Latina and Non-Hispanic White Mothers

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Partner and Family Relationships and Postpartum Mental Health

in Latina and Non-Hispanic White Mothers

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Psychology

by

Lynlee Renee Tanner Stapleton

2012

ABSTRACT OF THE DISSERTATION

Partner and Family Relationships and Postpartum Mental Health

in Latina and Non-Hispanic White Women

by

Lynlee Renee Tanner Stapleton

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2012

Professor Christine Dunkel Schetter, Co-chair

Professor Thomas Bradbury, Co-chair

Pregnancy and postpartum are critical periods for child and family development and portend risk for maternal mental health disturbances, with potential for long-term effects of maternal adjustment on child development. Although the predictors and sequelae of maternal postpartum depression and anxiety are often the subject of inquiry, much remains to be learned about the role of the social environment and ethnicity/culture. The current research addresses gaps in our understanding of perinatal partner and family relationship functioning and the influence of these close relationships on postpartum mental health. Additionally, it explores how these associations might differ for Latina and non-Hispanic White women, in light of differences in socio-demographic background, such as income, education, immigration, and acculturation. Study 1 presents data from a multi-site, community-based participatory research project that

describe the postpartum partner and family relationship functioning of 308 Latina and 190 non-Hispanic White women and compare associations between relationship functioning and postpartum mental health (depressive symptoms, posttraumatic stress symptoms, and generalized anxiety) across groups. Study 1 also presents multivariate models of socio-demographic variables, acculturation, and partner and family relationships predicting maternal postpartum mental health. Study 2 draws from a longitudinal sample of 81 Latina and 63 non-Hispanic White to examine the ways in which longitudinal changes in partner relationship quality from pregnancy to postpartum are associated with maternal depression in both ethnic groups.

Findings underscore the robust influence of partner and family relationship functioning on maternal postpartum mental health across widely varying levels of socio-demographic background and point to surprising similarity in patterns of association for Latinas and non-Hispanic White women. Variables such as parity, marital status, income, and age repeatedly accounted for more between-group differences in relationship functioning and maternal mental health than did ethnicity. This research adds to our understanding of the psychosocial contributors to postpartum mental health in Latina women and suggests that efforts to reduce strain and improve the quality of partner and family relationships before and after pregnancy could have beneficial influence on postpartum depression and anxiety for both Latinas and NH-Whites.

The dissertation of Lynlee Renee Tanner Stapleton is approved.

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2012

I dedicate this dissertation to my family, especially my mother, Diana, and my late grandmother, Mary. This work and the many steps that have preceded it would never have come to fruition without their unceasing confidence in my abilities, belief in the power and importance of education, and many sacrifices along the way. I also wish to thank my amazing husband, Brad, and our faithful companion, O'Malley, who were always there during the long nights to bring a hot cup of tea and many warm smiles. Finally, I honor the Stapletons for their unfathomable generosity and always welcoming demeanor.

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CHAPTER 1

Introduction

Maternal postpartum depression and anxiety have been identified as significant health problems that affect not only millions of women in the United States, but also their children and families. A rather large literature has amassed documenting various correlates of postpartum mental health, with social relationships (and their associated resources and strains) commonly identified as robust predictors. However, well-controlled, multivariate studies that differentiate the influence of specific close relationships and various indicators of relationship quality are more rare. Additionally, most models of close relationships and their mental health correlates across pregnancy and postpartum have been developed using samples of married, middle-class, Caucasian women. Given significant disparities in maternal postpartum mental health by race, ethnicity, and socio-economic class, much remains to be learned about the experiences of other ethnic groups during pregnancy and postpartum and the degree to which predictors of postpartum depression and anxiety vary by ethnicity and socio-demographic background.

The current paper investigates the specific problem of maternal depression and anxiety following childbirth and how important close relationships, particularly with the intimate partner and family, affect these mental health outcomes. Central to this investigation are two foci: 1) the close relationship and mental health functioning of Latina women during pregnancy and the postpartum period, as they compare to those of more frequently studied non-Hispanic White women, and 2) the influence of socioeconomic, demographic, and cultural factors in explaining the experiences of women from both groups. (For the purposes of this paper, the term "Latina" is used to denote women of Latin American ethnic origin or descent, and "White" denotes women of Caucasian or other non-Hispanic White background, based on self-identification.)

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Hispanics/Latinos currently comprise the fastest growing ethnic group in the United States (U.S. Census Bureau, 2007) and over 50% of new births in California are babies of Latino descent (Hayes-Bautista, Hsu, Perez, & Kahramanian, 2003), yet little is understood about the development and health of these families. Below is an interdisciplinary overview of the current literature pertaining to intimate partner and family relationships as they influence maternal postpartum mental health, as well as ethnic, socio-demographic, and cultural factors that might modify these relationships.

Maternal Depression and Anxiety during Pregnancy and Postpartum

The problem of postpartum depression is of extreme importance in the field of mental health. Depression is a costly, prevalent, and recurrent illness with broad effects (e.g., Judd et al., 2000) and can cause significant individual and social impairments, even at sub-syndromal levels (Gotlib, Lewinsohn, & Seeley, 1995; Wells et al., 1989). These costs are magnified in the context of pregnancy and postpartum, as maternal depression has severe repercussions on the current and future mental health of her partner and child (e.g., Beardslee, Versage, & Gladstone, 1998; Field, 1992). For example, male partners of women with postpartum depression are themselves more likely to experience depression and fatigue than men without depressed partners (Roberts, Bushnell, Collings, & Purdie, 2006), and there are indications that couple similarity in depressive symptoms increases across the transition to parenthood for first-time parents, in part due to changes in their relationship (Matthey, Barnett, Ungerer, & Waters, 2000). Parental depression in the first year postpartum, particularly maternal depression, is also associated with reduced parenting sensitivity, more difficult infant temperament, and poorer child cognitive and linguistic development (Cummings & Davies, 1994; Feldman et al., 2009). In addition to knowing the risks associated with this crucial time, it is also important to understand

predictors of and protective factors against these difficulties since parenthood may also represent a promising window for intervention and prevention with couples (Glade, Bean, & Vira, 2005).

According to O'Hara and Swain (1996), 13% of women experience significant mood disturbance in the weeks immediately following childbirth, and many experience persistent problems and recurrence of episodes (Wisner, Perel, Peindl, & Hanusa, 2004; Yonkers et al., 2001). The prevalence of significantly elevated postpartum depressive symptoms appears even higher among members of ethnic minority groups, particularly those with fewer social and economic resources, with estimates ranging from 26-53% for Latina or Hispanic women (Kuo et al., 2004; Martinez-Schallmoser, Telleen, & MacMullen, 2003; Yonkers et al., 2001). Postpartum depression symptoms and other mental health disturbances may be reported or experienced differently among different groups (Chaudron et al., 2005), but it is not known to what extent these differences reflect reporting biases, variations in specific symptoms, or contextual differences, such as more chronic stress, that portend increased difficulties for minority populations. To further complicate the picture, socioeconomic status (SES) is often confounded with ethnicity and must be accounted for in models exploring ethnic differences. Relatively little research has addressed the ways in which Latina culture and socio-demographic variables might influence the experience of postpartum depression, though recent reviews have called for more directed study of underlying mechanisms and risk factors in diverse populations (Halbreich & Karkun, 2006; Ross, Campbell, Dennis & Blackmore, 2006). The present work is predicated on this premise and attempts to address this gap.

Depression is by far the most studied form of mental illness in postpartum women. However, as noted above, symptoms of depression may not be recognized or reported as such, particularly across ethnic groups. Anxiety, in particular, shares many diagnostic symptoms with

depression with similar costs to society (Lecrubier, 2001), and some evidence suggests that Latinos may particularly emphasize somatic symptoms and worry which are more associated with anxiety than depression (Ritsher, Struening, Hellman, & Guardino, 2002). However, anxiety has been relatively understudied in the context of pregnancy and postpartum. Some estimates place prevalence at 5-8% of mothers experiencing diagnostic levels of anxiety during this time, with the postpartum period carrying increased risk for generalized anxiety and obsessive-compulsive disorders (Ross & McLean, 2006; Smith, Poschman, Cavaleri, Howell, & Yonkers, 2006; White, Matthey, Boyd, & Barnett, 2006), but it not known to what extent these cases represent comorbidity with depression. Indeed, maternal anxiety has been found to precede and co-occur with postpartum depression (Grant, McMahon, & Austin, 2008). Less is known about the psychosocial risk factors, such as social support, for maternal anxiety surrounding pregnancy and postpartum and whether there are discrepancies in prevalence by ethnicity, but preliminary evidence suggests that these patterns may be similar to those seen in postpartum depression (Gurung et al., 2005; Ross & McLean, 2006). Given evidence for the long-term consequences of prenatal anxiety on child behavioral and emotional functioning independent of maternal depression (O'Connor, Heron, Glover, & ALSPAC Study Team, 2002), it is important to examine both depression and anxiety in tandem in order to expand and integrate our understanding of maternal mental health during pregnancy and postpartum and its predictors.

The Role of Social Support and Relationships as Protective Factors

To many, having a child is a joyous occasion for which there is much cultural and social support and encouragement despite the personal and interpersonal challenges it represents. A primary model of postpartum adjustment proposes that social support acts as a "buffer", which lessens the negative impact of stress and challenges on health by increasing maternal resources

and aiding coping efforts (Cohen & Wills, 1985). However, it may be equally accurate to consider the lack of positive social support during pregnancy and postpartum a direct risk factor for poorer mental health. Research exploring postpartum mental health has repeatedly found that higher maternal perceptions of social support are a protective factor in minimizing depression, which tends to increase for mothers with poor support networks (Beck, 2001; Robertson, Grace, Wallington, & Stewart, 2004). Social support may have direct effects on maternal health in the absence of particular stressors in that it serves to establish and maintain positive interpersonal relationships within the social network more generally, particularly as the demands of parenthood increase.

Despite the robust benefits of general social support, particularly perceived support, during pregnancy and postpartum (Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Cutrona, 1984), relatively little research has focused on specific sources of support, such as the intimate partner and family, or other aspects of these relationships as they might contribute to maternal mental health. Mothers' relationships with their intimate partners are of particular interest given the salience of the partner as father and co-parent of the new baby in ongoing relationships. The few studies that have differentiated sources of maternal social support indicate that support from a woman's partner and her own mother are especially influential in predicting postpartum depression (e.g., Dennis & Letourneau, 2007; Pajulo, Savonlahti, Sourander, Helenius, & Piha, 2001). Cutrona and colleagues (2005) posit in their relationship enhancement model that consistent and effective support behaviors from the partner increase general perceptions of the partner as supportive, dependable, and trustworthy, which in turn enhance relationship satisfaction and improve psychological (and potentially physical) well-being. Partner relationship conflict and strain are also frequent antecedents and consequences of depression

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(Eberhart & Hammen, 2006; Hammen, 2003). Although these models refer to partner relationship processes in general, there is growing evidence that the overall quality of the partner relationship and relationship satisfaction are important predictors of maternal postpartum mental health (Beck, 2001; Robertson et al., 2004; Whisman, Davila & Goodman, 2011).

In the context of pregnancy, additional considerations such as the consistency of the partner relationship may be important. For instance, new mothers whose partner relationship quality declines across the transition to parenthood have poorer mental health adjustment than those whose relationships remain steady or improve (Florsheim et al., 2003). Marital or relationship status and commitment and father involvement in pregnancy planning and parenting are also factors that hold particular significance during this time as safety and security of the child become central. Thus, when considering the contribution of the partner relationship to maternal postpartum mental health, it is important to include a range of indicators of quality and satisfaction to determine whether they operate as a whole or whether particular aspects are more central than others.

Findings related to the significant influence of mothers' own mothers on maternal mental health highlight the role of the family in postpartum adjustment. The family of origin may be an especially strong influence on mental health in cultures which place high value on collective well-being and close interpersonal relationships in broad kinship networks, as reflected in concepts such as *familism*. Indeed, endorsement of values related to exchanging support among extended family members, prioritizing positive relationships with family, and sense of obligation among family members tends to be higher among Latinas than European Americans and has been associated with higher ratings of social support and lower stress and anxiety during pregnancy (Campos et al., 2008).

The combined influence of relationships with a partner and the broader family network have not often been studied in the context of pregnancy and postpartum, but there is some indication each relationship type may contribute independently to maternal mental health. For example, McVey and Tuohy (2007) found that decline in partner relationship quality and low satisfaction with support from multiple sources, including family and friends, each had significant effects on postpartum depressive symptoms. Another study found that poor marital quality, conflict with network members, and lack of informational support in the network were all significant predictors of postpartum depression, controlling for depression during pregnancy (Seguin, Potvin, St. Denis, & Loiselle, 1999). These studies support the investigation of multiple sources of support in the prediction of postpartum mental health, but more complex models of how these variables work together have not yet been considered.

Just as high levels of life stress may serve as a risk condition under which social support has a stronger relationship with postpartum mental health (e.g., Norbeck & Tilden, 1983), additional network resources, such as family relationships, could serve as "risk-activated moderators" (e.g., Masten, 2001) that are enacted under conditions of a poor partner relationship and mitigate the effect of this relationship on psychological symptoms. This is consistent with Hobfoll's Conservation of Resource theory (Hobfoll, Freedy, Lane, & Geller, 1990) which proposes that individuals will substitute resources from other sources (e.g., the family) when existing resources (e.g., from the intimate partner) are insufficient or inappropriate, thereby reducing the negative effects of resource loss. Preliminary empirical support for a moderation model comes from an observed interaction between family support and partner support predicting the mental health of mothers with ill children, such that those mothers low on both fared significantly worse than those who were higher in at least one area (Rini et al., 2008).

The Influence of Ethnicity on Close Relationships and Postpartum Mental Health

Examination of close relationships may prove particularly important when considering the postpartum experiences of Latina women. Latina women in the United States, as members of a minority group, often experience disproportionate socio-demographic, economic, and other contextual factors such as fewer neighborhood and healthcare resources, lower income, and less education that place them at greater risk for postpartum psychopathology than members of the majority group (e.g., Aguirre-Molina & Molina, 2003). However, there is some evidence that immigrant Latina women in the U.S. do not experience many of the negative health and birth outcomes associated with these risks that afflict other minority groups, a phenomenon known as the "Latina Paradox" (McGlade, Saha, & Dahlstrom, 2004). One explanation for this discrepancy is that traditional Latino culture entails strong cultural values such as strong emphasis on family relationships and kinship ties (*familism*), cultural support of the maternal role (*marianismo* and observance of *La Cuarenta*, a 40-day period of postpartum rest and family aid for mothers common in more rural Mexico), and more collectivist attitudes, compared to White Americans, which may be protective against other socio-economic stressors that contribute to adverse health outcomes (e.g., Campos et al., 2008; McGlade et al., 2005; Posmontier & Andrews Horowitz, 2004; Rodriguez, Mira, Paez, & Myers, 2007).

The research to date is equivocal regarding the specific ways in which Latinas' important interpersonal relationships might differ from those of Whites, given these cultural traditions and disparities in social-economic status. Because one's cultural beliefs can influence perceptions of relationship quality (Endo, Heine, & Lehman, 2000), this topic deserves further attention in the Latina context. While expectations of close community and the preeminence of the family (*familism)* might promote relationship-enhancing behaviors and perceptions, more traditional sex

roles and expectation of female *respeto*, or respect, for the male's authority in the relationship could undermine expectations of partner equity encountered in the United States (Hirsch, 2003). As indicated above, lower socioeconomic status and higher levels of chronic stress, as associated with immigration and minority status, have been found to predict higher levels of intimate relationship distress and dissolution (Bramlett & Mosher, 2002). Additionally, acculturation to the U.S. among Latino couples has been associated with increased marital conflict and aggression, and differences in acculturation between spouses are related to lower marital quality (Flores, Tschann, VanOss Marín, & Pantoja, 2004). In spite of these difficulties, Latinos tend to divorce at lower rates than do Whites in the U.S. (Bramlett & Mosher, 2002). Such discrepancies point to the need to more thoroughly explore the associations between socio-demographic variables (e.g., income, education, immigration status, and acculturation), cultural attitudes and beliefs (e.g., familism and collectivism), and relationship quality in order to explain more clearly observed differences in relationships by ethnicity.

Cultural emphasis on the family and kinship networks points to family relationships as central to the experiences of Latinas surrounding childbirth and may also help clarify their partner relationship experiences. In a seminal study, Sagrestano et al. (1999) found that pregnant Latina women had higher frequency and quality of family contact than did Whites, but they also reported less support from their intimate partners and friends, and less satisfaction with support from their partners. However, Latina reports of support from the partner and family were consistently higher than those of other minority (i.e., African-American) women. Thus, positive family relationships may provide additional protective resources under conditions of stress for Latina women (Vega, 1990) or serve to supplement or complement the role of a partner in the context of raising children. Traditional Latina women may also value parenthood and the

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building of a family as an integral part of their partner relationships rather than view this transition as an impediment to intimacy and closeness with their partners (e.g., Hirsch, 2003).

The degree to which ethnic differences in partner and family relationships are associated with maternal postpartum mental health also deserves further attention. Marital strain has been associated with depressive symptoms to similar degrees in Mexican-American and Anglo-American wives (Vega, Kolody, & Valle, 1988), though Campos et al. (2008) found that ethnically-rooted familism was associated with increased social support and decreased stress and anxiety for Latinas, compared to Whites, mid-pregnancy. Another finding that pregnant Latina women may romanticize their partner relationships more than other groups (East, 1998) suggests that the quality of this relationship might be particularly central to Latina's adjustment postpartum; increased emphasis on the partner would be beneficial and protective when the partner relationship is of high quality, but may portend increased difficulties if the relationship does not fulfill expectations. To date, only one study was found that specifically examined the influence of global social support and partner relationship quality on perinatal depressive symptoms among low-income Latinas (Diaz, Le, Cooper, & Munoz, 2007). These authors found that Latina women's higher relationship satisfaction promoted a decline in depressive symptoms across pregnancy into postpartum, while women in less satisfying partner relationships maintained higher levels of depression. Social support also predicted declines in depression, though only for women with clinically elevated depressive symptoms in early pregnancy. This study provides evidence of the importance of the partner relationship in combination with a broader network of relationships to determine postpartum mental health outcomes, but further work examining how different relationships might work together in predicting adjustment for both Latina and White women is still needed.

In conclusion, several factors pertaining to women's mental health adjustment following pregnancy deserve empirical attention. First, experiences in the intimate partner relationship are conceptually crucial to maternal mental health postpartum, but the specific contribution of this relationship remains unknown. Second, children are born into an extended family structure, but the ways in which a mother's relationships with family beyond the partner might additionally contribute to her adjustment are relatively unexplored. Third, postpartum mental health and relationship experiences may differ according to ethnic and cultural background, so it is important to pursue and clarify variations in these processes. A more thorough understanding of these variables and how they affect maternal mental health is essential for developing effective and relevant interventions and promoting systemic policies that enhance family and child well-being.

The current research aims to address these issues and to help clarify how partner and family relationships influence maternal depression and anxiety after childbirth. This work draws from two larger studies of socio-economically and ethnically diverse pregnant and postpartum women to explore associations between close relationship functioning and maternal mental health operate and whether these patterns differ for Latina and non-Hispanic White women. Chapter 2 presents findings from a multi-site community-based participatory research project that address 1) similarities and differences in partner and family relationship functioning of Latina and non-Hispanic White women during the postpartum period, 2) how partner and family relationship functioning, independently and in combination, relate to maternal postpartum mental health in both ethnic groups, and 3) the role of socio-demographic characteristics and acculturation in understanding the experiences of these two ethnic groups (Study 1). Chapter 3 expands on this foundation to explore the ways in which longitudinal changes in partner

relationship quality from pregnancy to postpartum are associated with maternal depression using a separate community-based dataset (Study 2). Chapter 4 provides a general discussion and conclusions from findings of both studies, with references following.

CHAPTER 2

Study 1 -- Postpartum Relationship Functioning of Latina and White Mothers

and Associations with Postpartum Mental Health

To address postpartum-specific gaps highlighted in the introduction, Study 1 explored Latinas' and NH-White mothers' postpartum partner and family relationship functioning, associations between postpartum relationship functioning and postpartum mental health, and the role of ethnicity and acculturation in shaping postpartum relationships and mental health. This study is separated into three sections. Section 1 includes data describing multiple aspects of Latinas' and NH-Whites' postpartum partner and family relationship functioning and compares functioning across ethnic groups, both before and after considering socio-demographic background. Section 2 investigates the degree to which each aspect of relationship functioning was associated with three facets of postpartum mental health (depressive symptoms, trauma symptoms, and generalized anxiety) and whether the strength of these associations varied by ethnicity or acculturation. Section 3 then explores the combined influence of partner and family relationship functioning on postpartum mental health and variations in these models by ethnicity.

Specifically, the following hypotheses were tested:

Section 1: Ethnic Differences In Partner And Family Relationship Functioning

Hypothesis 1a

Latina mothers will report poorer postpartum partner (partner relationship quality, violence, and strain) and family relationship functioning (non-partner family violence and strain) than NH-White mothers if socio-demographic covariates are not considered.

Hypothesis 1b

Postpartum relationship functioning will be similar for Latinas and NH-Whites after considering the influence of age, income, years of education, immigrant status, primiparity, and marital status; that is, socio-demographic variables will explain the association between ethnicity and relationship functioning (see Figure 1).

Figure 1. Hypothesized Model of Ethnic Differences in Relationship Functioning
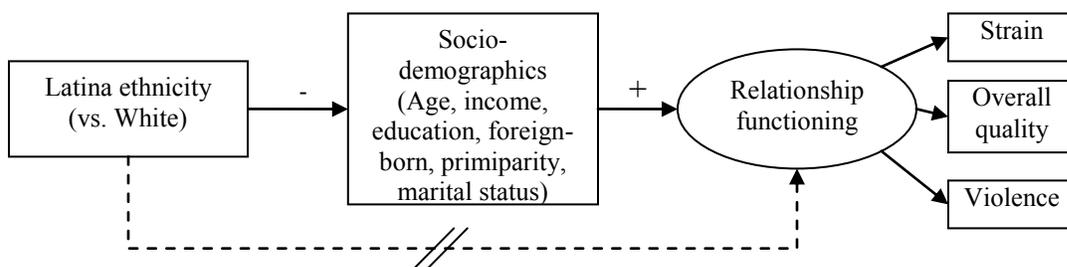
Section 2: Associations between Relationship Functioning and Mental Health

Hypothesis 2a

Better postpartum partner and family relationship functioning (partner relationship quality, partner violence, partner strain, family violence, and family strain) will be associated with lower postpartum depressive symptoms, trauma symptoms, and generalized anxiety.

Hypothesis 2b

Acculturation will moderate the association between relationship functioning and mental health, such that less U.S.-acculturated Latinas will experience the strongest associations between relationship functioning and postpartum mental health, followed by more U.S.-acculturated Latinas and NH-Whites (see Figure 2). These group differences may be explained by socio-demographic characteristics.

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Figure 2. Hypothesized Interaction between Relationship Functioning and Acculturation
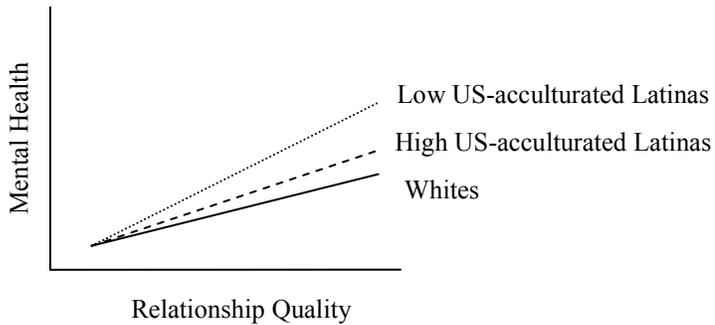
Mental Health

Low US-acculturated Latinas

High US-acculturated Latinas

Whites

Relationship Quality

Hypothesis 2c

Partner relationship functioning will be more strongly associated with maternal mental health among NH-Whites compared to Latinas, and family relationship functioning will be more strongly associated with maternal mental health for Latinas compared to Whites, after accounting for socio-demographic variables (see Figure 3).

Figure 3. Hypothesized Relative Associations of Partner and Family Relationship Functioning
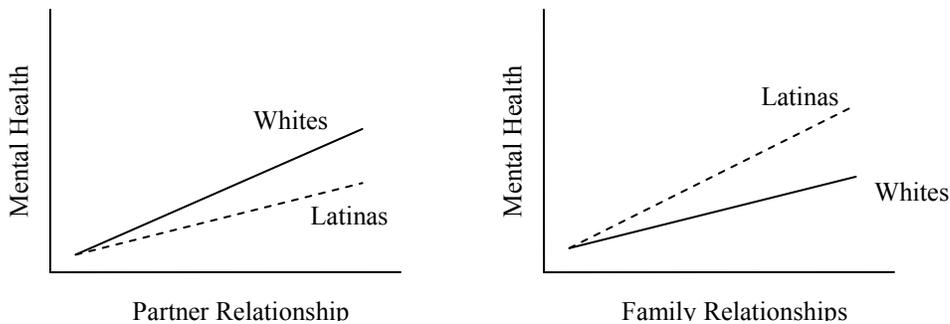
Mental Health

Whites

Latinas

Partner Relationship

Mental Health

Latinas

Whites

Family Relationships

Section 3: Multivariate Models of Partner and Family Relationship Functioning Predicting Postpartum Mental Health

Hypothesis 3a

The association between partner relationship functioning and maternal postpartum mental health will be moderated by the quality of family relationship functioning. Specifically, higher functioning family relationships will buffer the negative associations between poor partner

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relationship function and depressive symptoms, trauma symptoms, and generalized anxiety (see

Figure 4). Conversely, the combination of poor partner relationship functioning and poor family

relationship functioning may predict the worst mental health outcomes.

Figure 4. Hypothesized Interaction between Partner and Family Relationship Functioning

Hypothesis 3b

Based on earlier hypotheses of differential associations between relationship functioning

and mental health outcomes by ethnicity/acculturation (Hyp. 2b/c) and of an interaction between

partner and family relationships (Hyp. 3b) in predicting mental health, it is expected that there

will be a 3-way interaction between partner relationship functioning, family relationship

functioning, and ethnicity in predicting maternal postpartum mental health. That is, the degree to

which family relationships modify any negative association between partner relationship

functioning and mental health symptoms will differ by ethnic group such that family

relationships will be more protective against a poorer partner relationship for Latina mothers

than for White mothers (see Figure 5).

Figure 5. Hypothesized Three-Way Interaction between Partner Relationship, Family Relationship, and Ethnicity
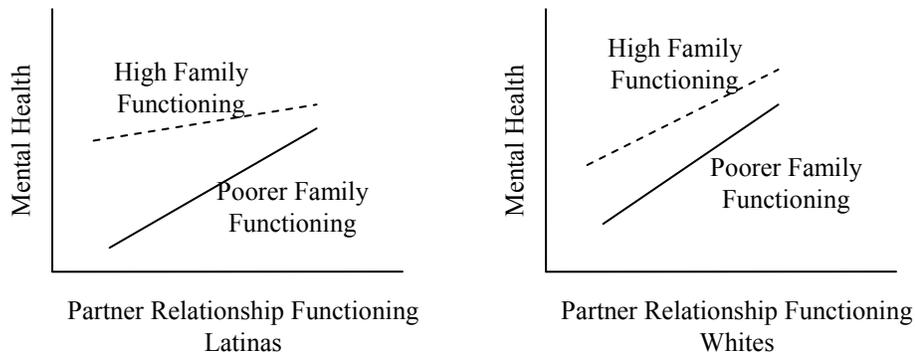
Method

Parent Study

Design and recruitment. The current study was a part of the Community Child Health Network (CCHN), a collaborative, multi-site research network conducted through community-academic partnerships to study disparities in maternal health, birth outcomes, and child outcomes, particularly among poor and non-poor underrepresented ethnic and cultural groups, and to test stress and resilience as predictors of physical health. Data on parents were collected from five field sites across the United States (Los Angeles, Chicago, Washington, D.C., Baltimore, and eastern North Carolina). Mothers were recruited in-hospital following childbirth or in prenatal care settings in one site (NC). Interviews and biomarker collection were conducted for up to two years, including through any subsequent pregnancies.

Inclusion criteria for mothers were 18-40 years of age, self-identification as either non-Hispanic White (NH-White)/Caucasian, Latina/Hispanic, and/or African-American/Black, ability to complete interviews in either English or Spanish, residence in one of the identified communities for at least 6 months, having 4 or fewer children including the new infant, and lack

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of plans to be surgically sterilized following birth of that child. Recruitment of mothers oversampled for minority ethnicity (Latina, African-American), preterm births, and low socioeconomic status to ensure sufficient numbers of at-risk participants. If the mother provided permission to contact the baby's father and he was at least 18 years old, he was also invited to enroll, regardless of relationship status with the baby's mother.

Procedures. CCHN obtained data from mothers and fathers regarding individual, interpersonal, and community-level stress and resilience, relationship characteristics, physical and mental health, and sociodemographic information across the postpartum period. Interview-based assessments for mothers and fathers at all sites were conducted by trained interviewers in either English or Spanish in the home (or another convenient, private setting) at up to three time points: 2-16 weeks (T1), 6-10 months (T2), and 12-15 months postpartum (T3). An additional phone follow-up was conducted at 18-21 months postpartum (T4), and an in-person follow-up was completed at select sites at 24-29 months postpartum (T5). Mothers were also asked to provide saliva, blood samples, and physiological measurements.

CCHN sample. The full CCHN sample is composed of 2448 mothers and 1349 fathers. Over half of mothers (54%; n = 1314) identified as African Americans, 24% (n = 594) identified as NH-White, and 22% (n = 540) identified as Hispanic. Distribution of fathers was similar in ethnic background. Fourteen percent of mothers and 15 percent of fathers were interviewed in Spanish at Time 1, which was their language of choice, and the remainder of each group was interviewed in English. On average, mothers were 26 years old, had 13 years of education, and 13 percent had delivered their most recent infant preterm. Fathers were 29 years old and had 13 years education on average.

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Current Sample

The sample for the current study represents a subsample of the larger five-site national CCHN maternal cohort. Only mothers from the Los Angeles, Lake County, IL (greater Chicago area), and Washington, D.C., sites were selected, because these sites each recruited substantial numbers of both Latina and NH-White participants. Maternal inclusion in the current study required primary self-identification as either Hispanic/Latina or NH-White, being in a relationship with the baby's father at T2, and provision of data regarding relationship functioning at T2. Mothers self-identifying as multi-racial were excluded, as comparison of ethnic groups was inherent to the current investigation.

A total of 907 mothers who enrolled in the study from the 3 identified sites self-identified as Hispanic/Latina or NH-White (n = 591 Latina, 316 NH-White). Of these, 343 (n = 236 Latina, 107 NH-White) did not complete the entire T1 and/or T2 assessment. An additional 66 participants (n = 47 Latina, 19 NH-White) reported no relationship (n = 47), separation from baby's father (n = 7), or a partner relationship with someone other than baby's father (n = 12) and were excluded from current analyses. This resulted in a total of 498 mothers (308 Latina, 190 NH-White) who met criteria for inclusion in the current sample.

Measures

Socio-demographic information. During recruitment (T0), mothers provided information via interview and/or chart review regarding their date of birth, self-identified ethnicity, parity, their infant's sex, and whether they delivered preterm (prior to 37 weeks). Parity was re-coded as a dichotomous variable to reflect whether this baby was the mother's first (primiparity) or a later child (multiparity). Mothers also answered interview questions at T1 regarding their years of education, household income, household size, country of origin, and

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parents' country of origin. Country of origin was re-coded to reflect whether the participant was an immigrant (born outside U.S.).

Based on reported income and household size, a per-capita index of annual income adjusted for household size was also computed; missing data on this variable was imputed using other related demographic and socio-economic variables, and the upper-end of the distribution was truncated at $75,000 due to extreme outliers beyond this level. Participants were also categorized as poor ($\leq$ 200% of the federal poverty line) or non-poor (> 200% federal poverty line). Due to high overlap in continuous per-capita income and poor status ($r = .69$), only the continuous variable was used for analyses. This resulted in age, income, years of education, immigrant status, primiparity, and marital status as the socio-demographic variables used in all analyses.

Partner relationship functioning

Partner relationship status. All mothers reported at T1 whether they were married to the baby's father, in an unmarried relationship with baby's father, or not in a relationship with baby's father; the latter group was not included in the current study. Mothers also reported at T1 whether they were cohabiting with the baby's father full-time, part-time, or not at all. Changes to relationship status (e.g., separated, got engaged, got married) were reported at T2.

Partner relationship quality. Mothers and fathers completed the Dyadic Adjustment Scale (DAS; Spanier, 1976) at T2. Respondents were given the option to complete the DAS verbally or via written questionnaire. This measure consists of 32 items assessing the couple's level of agreement about several topics, degree of closeness, conflict, and shared activities in the relationship, as well as the two items assessing overall happiness in the relationship and confidence in the relationship's future. Response options were simplified to 5-point scales

(*always agree* to *never agree*; *all the time* to *never*, etc.) across sections, except for two

dichotomous yes/no items ("In the past few weeks, was being too tired for sex an issue in your

relationship?", "… was not showing love an issue…?"). Total possible scores ranged from 30 –

152. Cronbach alpha coefficients for the scale were .92 in English and .93 in Spanish for

mothers. Alphas were .92 for both Latina and NH-White mothers.

Partner violence. Mothers completed the HITS (Sherin et al., 1998) at T1, a 4-item

measure which asks how often their partner, a family member, or someone else in the household

Hit or physically hurt, Insulted or talked down to, Threatened with harm, and Screamed or cursed

at them. Items were rated on a 5-point scale, with options of *never, rarely, sometimes, fairly*

often, and *frequently*. Total possible scores ranged from 4 to 16. Only responses reflecting

behavior by the woman's spouse/partner were coded for the partner violence scale. Cronbach

alpha coefficients for the scale were .65 in both English and Spanish. Alphas were .60 for

Latinas and .70 for NH-Whites. Given significant positive skew of the data, this variable was

dichotomized to indicate whether the participant reported total absence versus presence of any

partner violence; this dichotomous variable was used in all analyses unless otherwise noted.

Partner relationship strain. Participants completed a semi-structured interview at T2

based on the UCLA Life Stress Interview (Hammen et al., 1987), which was developed in the

1980's to elicit contextual information about chronic stressors. The original instrument assesses

chronic stress and strain by examining ongoing conditions in each of several key life domains

(such as marital relationship, work), with severity scores assigned for each domain based on

behaviorally-anchored scales using standardized scoring procedures for independent raters who

are extensively trained for reliability.

The UCLA LSI was adapted in consultation with the author (Hammen, personal communication) to reduce interviewer and participant burden and to probe only a few selected areas of chronic strain. The three domains selected from the original instrument were neighborhood, family relationships, and intimate partner relationship. In addition, a new domain of co-parenting was added for this study. The interview contained a series of open-ended questions based on the original LSI with standard probes to gain sufficient information. Additional specific questions and probes were added to assist interviewers without a clinical background in administration of the interview and to maintain some standardization in administration, although interviewers were allowed flexibility to probe more or less, as in the original procedures, until they gained sufficient information. Participants answered the questions in their own words, and their responses were rated by interviewers according to level of strain reflected.

Each domain was split into sub-sections which were each given separate ratings, and each domain was rated for overall chronic strain. The overall rating was not a mathematical summary of the other ratings, rather a judgment made by the interviewer in light of all the information they obtained within that section. Within the partner relationship domain, subsections included commitment/stability, closeness/trust/confiding, support/dependability, conflict/resolution and an overall rating of partner strain. The co-parenting domain probed for involvement of the partner in the parenting role, working together, criticism of participant's parenting by partner, and conflict or disagreement about parenting; interviewers made only a single summary rating for this section. In each domain and sub-section, interviewers made ratings on a scale of 1 (exceptionally good) to 5 (exceptionally poor). Interviewers were permitted to assign half-point ratings (e.g., 2.5) if participant responses fell between defined whole-number ratings. Only the single overall

chronic strain ratings were used as primary variables in the current study. The partner

relationship and co-parenting ratings were correlated highly at $r = .56$ in the current sample and

therefore were combined into a single partner relationship strain variable ranging from $1 - 5$,

with possible non-integer scores.

Family relationship functioning

Non-partner family violence. Mothers' responses from the T1 HITS measure (see

above), were coded to reflect verbal or physical violence experienced from non-partner family

members. If the participant mentioned in-law family members as aggressors under the "other

member of your household" category, this response was re-coded as family violence. As above, a

non-partner family violence dimensional score ranging from 4-16 was calculated. Cronbach

alpha coefficients for the continuous scale were .58 in English and .83 in Spanish for mothers.

The "threaten with harm" question had zero variance among participants responding in Spanish

and was not included in reliability analysis. Alphas were .68 for Latinas and .53 for NH-Whites.

Given significant positive skew of the data, this variable was dichotomized to indicate whether

the participant reported total absence versus presence of any non-partner family violence; this

dichotomous variable was used in all analyses unless otherwise noted.

Family relationship strain. Using the adapted Life Stress Inventory (LSI) at T2, as

described above, interviewers rated each participants' responses in the family relationship

domain. Specific components assessed within this domain were availability and frequency of

contact with family, closeness and trust, acceptance, support, and conflict/resolution. An overall

rating from 1 to 5, with half-points possible, was made by interviewers to capture total family

strain.

Mental health outcomes. All mental health outcomes for the current study were assessed at T2 interviews.

Depressive symptoms. Participants completed the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987), a screening instrument validated for use during the first year postpartum by both mothers and fathers. Respondents had the option of completing the EPDS verbally or via written questionnaire. The EPDS consists of 10 items that pertain to the severity of common depressive symptoms (e.g., feeling sad or miserable, looking forward with enjoyment to activities, self-blame) on a 0-3 scale. Respondents are asked to choose one option out of four for each item that best describes how they have been feeling in the past 7 days. Total possible scale scores range from 0 to 30. Cronbach alpha coefficients for the scale were .81 in English and .78 in Spanish for mothers. Alphas were .80 for both Latina and NH-White mothers. Severity of depression was also categorized as not depressed (scores 0-8), possible depression (scores 9-12), or probable depression (scores of 13 or greater, or endorsement of suicidal thoughts).

Trauma symptoms. The Posttraumatic Checklist – Civilian Version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993) was used to assess symptoms of Posttraumatic Stress Disorder (PTSD), including intrusive reexperiencing, avoidance and numbing, and hyperarousal symptoms. The PCL-C asks about symptoms in relation to "stressful experiences" and is intended for use with broad populations who may have symptoms due to multiple traumatic events. Items ask how often in the past month the respondent was bothered by each of the 17 core symptoms of PTSD (e.g., "repeated, disturbing memories, thoughts, or images of a stressful experience from the past," "avoid activities or situations because they remind you of a stressful experience from the past"). Response options are given on a 5-point scale from *not at all* to

extremely. Total possible scores range from 17 to 85. Cronbach alpha for the scale was .88 in English and .90 in Spanish for mothers. Cronbachs were .90 for Latina and .85 for NH-White women. The percentage of participants exceeding the cut-off for likely PTSD was calculated using a cut score of 30 or higher (Walker, Newman, Dobie, Ciechanowski, & Katon, 2002). As items correspond to DSM-IV diagnostic criteria for Posttraumatic Stress Disorder, percent of respondents likely meeting criteria for PTSD diagnosis was also calculated.

Generalized anxiety. Generalized anxiety, or excessive worry and non-specific anxiety, was assessed using a module from the *Mini International Neuropsychiatric Interview* (MINI; Sheehan et al., 1998). Using several guided questions ("Have you worried excessively or been anxious about several things over the past six months?", "Are these worries present most days?"), this instrument determines whether a likely diagnosis of Generalized Anxiety Disorder (GAD) is present. The instrument is discontinued once responses indicate GAD is not present. No dimensional ratings or symptom scores are given.

Acculturation. At T2, all participants provided information regarding their first language learned, language spoken most often at home when growing up, language spoken most often at home currently, and language preference. For participants who reported any Spanish language background or usage, the Bidimensional Acculturation Scale for Hispanics (BAS; Marin & Gamba, 1996) was administered. This measure assesses degree of acculturation to Hispanic and non-Hispanic cultures using 12 items in three language-based areas (spoken language, written language, and media usage) for each domain. Sample items include "How often do you speak English (Spanish)?" and "How well do you understand music in Spanish (English)?" Each item was rated on a 4-point scale, and total scale score was averaged across items within each acculturation domain. For this study, participants' use of Spanish across the three areas was

labeled "Spanish-acculturation", and use of English was labeled "English/U.S.-acculturation". No NH-White participants reported a Spanish language background; therefore they did not complete this measure. Latinas who reported only English language background (n = 25) were coded at the highest end of the English dimension (score = 4) and at the lowest end of the Spanish dimension (score = 1). Cronbach alpha coefficients for the English subscale were .87 for mothers interviewed in English and .95 for mothers interviewed in Spanish. Alphas were .88 for mothers interviewed in English and .81 for mothers interviewed in Spanish. English and Spanish scales were correlated highly at r = -.68. Latinas were also classified as high or low U.S.-acculturated based on responding above or below the midpoint (2.5) of the English acculturation subscale.

Data Analysis

Data describing the current sample are presented first. Results are then provided according to each hypothesis. Analytic procedures in each section progress from more general to more specific and are detailed for each hypothesis. Primary analytic approaches included bivariate and partial correlations and multiple regression. Due to the relatively large sample size and number of analyses conducted, findings that did not meet the $p < .05$ significance threshold are not interpreted in text, and analyses meeting the $p < .01$ threshold are highlighted in the discussion. Marginally-significant values ($p < .10$) are noted in tables to facilitate identification of patterns across tests.

To manage minor scattered missing items within scales, mean replacement was used to calculate total scale scores if at least 70% of items was complete ($\leq 30\%$ missing). For the total scale scores, amount of missing data points in the current sample was as follows: HITS partner violence (35), LSI partner relationship strain (26), HITS non-partner family violence (35), LSI

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family relationship strain (20), GAD diagnosis (1). Missingness for HITS scale was due to mothers not being alone during the interview, and missingness for LSI scale was due to changes in administration procedures early in the CCHN network. The "Hotdeck" procedure (Myers, 2011) was used to impute missing values into the above scale scores of interest, using maternal age, educational degree, poverty status, marital status, and partner cohabitation to match cases. The Hotdeck procedure replaces missing values with randomly selected values from similar cases matched on designated variables. This method was used because of the low percentage of missing values and ease of implementation. For the two dichotomous items on the Dyadic Adjustment Scale (not showing love, too tired for sex), the response for one item was substituted for the other if one was missing (n = 4 cases). If both dichotomous items were missing, they were both coded as 1 if the "happiness" item was 4 or 5, and both were coded as 0 if happiness was ≤ 3 (n = 3 cases).

Distribution of relationship and mental health variables were significantly skewed from normal. In the cases of partner violence and non-partner family violence, only a minority of cases endorsed any experience of violence; therefore these two variables were dichotomized. Attempts to use logarithmic data transformations to normalize data were insufficient to produce true normal distributions due to floor (partner and family strain variables, depressive and trauma symptoms) and ceiling effects (partner relationship quality). Analyses conducted with transformed versus raw scores produced highly comparable results, and transformation did not result in substantive differences in inferential conclusions. Therefore, raw scores are used throughout the study for ease of interpretation. Similarly, multivariate outliers were examined for regression analyses, and models were re-run excluding multivariate outliers with standardized residuals greater than +/- 3. Exclusion of these cases, which varied by analysis, generally did not

change substantive findings; therefore all available cases are used for all analyses unless specifically noted.

<div align="center">**Results**</div>

Demographic Characteristics

Demographic data are presented in Table 1 and described below.

Latinas. Latinas in the current sample (n = 308) were predominantly immigrants (76%, with an additional 20% 2nd generation) and mono- or bilingual Spanish-speaking (91% list Spanish as first language; 73% currently prefer Spanish). Approximately two-thirds (64%) of Latinas' interviews were conducted in Spanish. Most foreign-born Latinas were Mexican (64%), with sizeable subgroups of El Salvadorians (18%) and other Central Americans (from Guatemala, Honduras, Nicaragua, Belize, and Costa Rica; 12%). Most Latinas were poor (85% at or below 200% of federal poverty line; median per capita household income = $5,625; range $0 - $13,333) and had little formal education (78% obtained high school diploma or less; range 2-19 years education). Approximately 40% of Latinas identified as high (above the mid-point on the BAS scale) in both English and Spanish acculturation; another 50% identified as high Spanish/low English acculturation, with the remainder reporting primary English acculturation.

NH-Whites. In comparison to Latinas, NH-White women in this sample were predominantly U.S.-born (89%; n = 169) and the large majority were English-speaking (4% preferred a language other than English). All interviews were conducted in English. Half of NH-White women born outside the U.S. were from central or eastern Europe (e.g., Russia, Poland, Ukraine; n = 10), with scattered others from England, Canada, western Europe, Scandinavia, Israel, Iran, South Africa and Ecuador. NH-White participants tended to report middle-to-high income (25% below 200% federal poverty line; median per-capita household income = $27,803;

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range \$63 - \$500,000) and higher education (18% obtained high school diploma or less; range 10-23 years education).

Nearly all participants (95% of Latinas; 94% of NH-Whites) reported no change in relationship status over time from T1 (2-16 weeks postpartum) to T2 (6-10 months postpartum), and there were no group differences in likelihood of relationship status stability, increase in stability (e.g., got married or engaged, moved in together), or decrease in stability (e.g., separated, moved out; $\chi^2(2) = 0.39$, $p = .83$).

Table 1. Socio-Demographic Descriptives for Current Sample

	Latinas	**Whites**
N	308	190
Site % (Chi/LA/DC)	56/23/21 [a]	73/20/7 [b]
Language Preference	27% English [a]	96% English [b]
% Immigrants	76% [a] (20% 2nd gen)	11% [b] (5% 2nd gen)
Age @ T0 [M(SD)]	25.6 (5.1) [a]	31.6 (5.2) [b]
Years of Education [M(SD)]	11.0 (3.0) [a]	16.2 (2.7) [b]
Highest Degree	39% none [a] 39% HS/GED 17% AA or eq. 6% ≥ BA	1% none [b] 17% HS/GED 24% AA or eq. 57% ≥ BA
Per Capita Household Income [M (SD)]	\$9,930 [a] (\$14,212)	\$38,070 [b] (\$56,613)
Poverty (Household ≤ 200%FP)	85% [a]	25% [b]
T1 Relationship Status with Baby's Father (BF)	44% married [a]	81% married [b]
T1 Cohabitating w/ BF	89% FT [a]	94% FT [a]
Infant Sex (% male)	56% [a]	52% [a]
% Primiparous	17% [a]	16% [a]
Preterm birth	17% [a]	18% [a]

Note: Differing subscripts indicate groups significantly differ on value at *p* < .05.

Attrition. Mothers in the current sample differed from those not completing one or more assessment points (n = 343) in the following ways. The current sample was more likely to be NH-White (38% vs. 31%; $\chi^2(1) = 4.30$, $p = .04$), more likely to be married to the baby's father (59% vs. 51%; $\chi^2(2) = 20.19$, $p < .001$), more likely to have delivered a preterm baby (17% vs. 11%; $\chi^2(1) = 7.22$, $p < .01$), and less likely to be primiparous (16% vs. 47%; $\chi^2(1) = 27.95$, $p < .001$). These groups did not differ in their mean age, years of education, per-capita household income, immigrant status, language preference, or infant's sex.

Mothers excluded due to partner status (n = 66) differed from the current sample in that the current sample was older ($t(562) = 3.11$, $p < .01$) and had more education ($t(103.0) = 3.28$, $p < .01$). They did not differ in ethnicity, per-capita household income, immigrant status, language preference, preterm delivery, primiparity, or infant's sex.

Cross-site differences. One-way ANOVAs with posthoc Tamhane comparisons (appropriate for unequal variances) were conducted to test whether there were significant differences in participants' socio-demographic backgrounds across study sites. ANOVAS indicated there were site-based differences in ethnicity, language preference, immigrant status, age, years of education, per-capita household income, marital status, primiparity, and acculturation (all ps < .05). There were no differences in rates of preterm delivery across sites.

Posthoc comparisons indicated that the DC site provided a higher within-site proportion of Latinas to NH-Whites than did the LA and Chicago sites. DC mothers were also more likely to prefer Spanish to English, more likely to be immigrants, and less likely to be married, and had less education than mothers from other sites. DC mothers were younger than LA mothers. LA mothers reported higher per-capita household income than DC and Chicago mothers. Chicago mothers were less likely to be primiparous than LA and DC mothers.

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Partner ethnicity. Partner ethnicity data was available for 74% of Latina (227) and 75% of NH-White (143) mothers; data was only available if the partner enrolled in the study. The vast majority of mothers (91% of Latinas, 88% of NH-Whites) had partners that were of the same ethnic background as themselves. T-tests indicated that Latinas who had a partner of a different ethnicity endorsed higher English ($t(28.1) = 8.36$, $p < .001$) and lower Spanish ($t(16.07) = 4.02$, $p = .001$) acculturation than did Latinas with a Latino partner. Mothers of both ethnicities with partners from a different ethnic background did not differ in their reports of relationship satisfaction, partner or family violence, or partner or family relationship strain.

Of the 20 partners of Latinas of a different ethnic background, 14 self-identified as non-Hispanic White, three as African-American/Black, and three as multiracial or "other" (African-American/White, African-American/Hispanic, and Belizean). Of the 17 partners of NH-White mothers of a different ethnic background, six self-identified as Hispanic/Latino, four as Asian-American/Pacific Islander, two as African-American/Black, one as multiracial White/Asian, and four as "other" (Belizean, Middle Eastern, Filipino, and Indian).

Section 1: Ethnic Differences In Partner And Family Relationship Functioning

Hypothesis 1a. *Latina mothers will report poorer postpartum partner (partner relationship quality, violence, and strain) and family relationship functioning (non-partner family violence and strain) than NH-White mothers if socio-demographic covariates are not considered.*

Ethnic group differences in marital status and partner/family relationship functioning were examined using independent samples t-tests for continuous variables and chi-square tests for categorical variables. Descriptive data for these variables are presented in Table 2.

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Partner relationship quality. No differences were found in mean partner relationship quality at T2 (t(461.4) = .17, p = .86); however, Latinas had wider variability in their responses. Analysis of DAS subscales indicated that Latinas reported lower satisfaction in their relationships compared to NH-Whites (t(458.8) = -2.63, p < .01). There were no significant ethnic differences in affective expression (t(452.1) = 1.85, p = .07), consensus (t(478.8) = 1.64, p = .10), and cohesion (t(496) = .61, p = .55). Reports of satisfaction, affective expression, and consensus were more variable among Latinas than NH-Whites.

Partner violence. A greater percentage of NH-White mothers (35%) reported some experience of partner violence than did Latina mothers (23%) when dichotomously-coded (χ^2(1) = 9.66, p < .01). Latina mothers also reported significantly lower mean levels of partner violence compared to NH-Whites (t(318.9) = -2.43, p = .02) and had less variability in their responses. Item analysis of the HITS indicated that differences on the HITS partner violence scale were largely attributable to Latina mothers endorsing significantly lower levels of partners insulting or talking down to them and lower levels of partners screaming or cursing at them.

Partner relationship strain. Latinas were rated as experiencing significantly higher mean levels of partner relationship strain than NH-Whites at T2 (LSI; t(496) = 3.05, p < .01). Distributions of responses did not differ between groups. Subsections of the partner relationship domain indicated that Latina mothers were rated as having significantly higher relationship strain in the areas of relationship commitment and stability, emotional closeness and openness, and feelings of support. Significant differences were not observed in the areas of partner conflict/resolution or co-parenting strain.

Non-partner family violence. Significantly more Latina mothers (11%) reported presence of non-partner family violence than did NH-White mothers (6%) when dichotomously-coded

$(\chi^2(1) = 4.40, p < .04)$, but continuous mean scores showed non-significant differences $(t(491.99) = 1.92, p = .06)$. Latinas had wider variability in their responses. Item analysis of the HITS indicated that differences on the HITS non-partner family violence scale were largely attributable to Latina mothers endorsing significantly higher levels of family members screaming or cursing at them compared to NH-Whites.

Family relationship strain. Latina and NH-White mothers were rated as having similar levels of family relationship strain at T2 (LSI; $t(496) = 1.75, p = .08$). There were no significant differences in sub-ratings in the LSI family domain. Distributions did not differ by ethnic group.

Table 2. Descriptive Data and Ethnic Comparisons of Relationship Functioning

	Partner Quality (DAS; T2)	Partner Violence (HITS; T1)	Partner Strain (LSI; T2)	Non-Partner Family Violence (HITS; T1)	Family Strain (LSI; T2)
LATINA					
Valid n	308	307	308	307	308
Mean	121.46[a]	4.52[a]	1.74[a]	4.27[a]	1.75[a]
95% CI	119.57-123.35	4.39-4.66	1.65-1.83	4.16-4.39	1.66-1.83
SD	16.89	1.22	.76	1.02	.76
NH-WHITE					
Valid n	190	190	190	190	190
Mean	121.22[a]	4.86[b]	1.54[b]	4.13[a]†	1.63[a]†
95% CI	119.27-123.17	4.62-5.09	1.45-1.63	4.05-4.22	1.53-1.73
SD	13.64	1.63	.63	.58	.68

Note. Differing subscripts across ethnic groups indicate that groups differ at $p < .05$. † indicates means differ at $p < .10$.

Hypothesis 1b. *Postpartum relationship functioning will be similar for Latinas and NH-Whites after considering the influence of age, income, years of education, immigrant status, primiparity, and marital status; that is, socio-demographic variables will explain the association between ethnicity and relationship functioning.*

To determine the extent to which socio-demographic variables (age, per-capita annual household income, years of education, immigrant status, primiparity, and marital status) were

related to partner and family relationship variables, zero-order Pearson product-moment correlations were examined in the sample as a whole. Among Latinas only, English and Spanish acculturation were also examined as correlates of relationship variables. A series of multiple regressions was then conducted to determine the degree to which socio-demographic variables accounted for observed differences in partner and family relationship functioning by ethnic group. Ethnicity was entered in the first step, followed by socio-demographic variables in a second step. Linear and logistic regressions were conducted for continuous and dichotomous dependent variables, respectively. Results are presented only for variables on which unadjusted group differences were found. No ethnic-based differences emerged in partner relationship quality or family strain after accounting for socio-demographic variables.

Bivariate correlations (Table 3) indicated that being married was significantly associated with older age, higher income, more education, non-immigrant status, and multiparity. Cohabitation with the baby's father was significantly associated with older age, higher education and being married. Higher partner relationship quality was significantly associated with being married, but not with other socio-demographic variables. Partner violence was significantly associated with non-immigrant status. Higher partner relationship strain was significantly associated with younger age, lower income, and being unmarried. Non-partner family violence was associated with significantly younger age, lower income, less education, and being unmarried. Higher family relationship strain was significantly associated with younger age, lower income, less education, and being unmarried.

Among Latinas, higher English acculturation was associated with lower partner relationship quality, higher likelihood of IPV, and higher partner relationship strain. Higher Spanish acculturation was associated with higher partner relationship quality, lower likelihood of

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partner violence, and lower partner relationship strain. English acculturation was not associated

with family relationship variables. Spanish acculturation was associated with lower family

relationship strain.

Table 3. Correlations Between Socio-demographic and Relationship Functioning Variables

	Marital Status	Partner Relationship Quality	Partner Violence	Partner Strain	Non-Partner Family Violence	Family Strain
Age	.50**	.05	-.04	-.16**	-.18**	-.11*
Income	.34**	.06	.08	-.09*	-.11*	-.09*
Years Education	.41**	-.03	.07	-.09†	-.12*	-.12*
Immigrant Status	-.14**	.07	-.15**	.02	-.04	-.03
Primiparity	-.09*	.02	-.03	.04	.07	.04
Marital Status	--	.14**	-.03	-.20**	-.10*	-.22**
English Accult.	.02	-.12*	.20**	.16**	.06	.09
Spanish Accult.	.01	.15*	-.18**	-.12*	-.10†	-.14*

† $p < .10$. * $p < .05$. ** $p < .01$.

Predicting marital status. Logistic regression analysis (Table 4) found that, after

including socio-demographic variables, ethnicity was no longer a significant predictor of marital

status. Marriage was associated with older age, higher education, and multiparity.

Table 4. Predictors of Marital Status

Predictor	B	$SE\ B$	e^B	χ^2 (df)	% Married
Latina ethnicity	-0.50	0.37	.61		
Age	0.15	0.03	1.16**		
Income	0.00	0.00	1.00		
Years Education	0.16	0.04	1.17**		
Immigrant Status	0.54	0.32	1.72†		
Primiparity	-0.71	0.33	.49*		
Constant	-5.82			175.06 (6)	59%

† $p < .10$. * $p < .05$. ** $p < .01$.

Predicting partner violence. Logistic regression analysis (Table 5) found that, after considering socio-demographic variables, ethnicity remained a significant predictor of partner violence. That is, Latina mothers were significantly less likely to report experiencing partner violence than were NH-White mothers, even after considering socio-demographic ethnic differences. Younger age was also significantly associated with presence of partner violence.

Table 5. Predictors of Partner Violence

Predictor	B	$SE\ B$	e^B	χ^2 (df)	% reporting IPV
Latina ethnicity	-0.72	0.34	.49*		
Age	-0.05	0.02	.95*		
Income	0.00	0.00	1.00		
Years Education	-0.01	0.04	.99		
Immigrant Status	-0.32	0.28	.73		
Primiparity	-0.32	0.29	.72		
Marital Status	-0.24	0.25	.79		
Constant	1.22			22.26 (7)	27%

† $p < .10.$ *$p < .05.$ **$p < .01.$

Predicting partner relationship strain. Linear regression analysis (Table 6) found that, after considering socio-demographic variables, ethnicity was not a significant predictor of partner relationship strain. That is, mean partner strain was no longer significantly higher among Latinas after socio-demographic variables were included. Marital status was the only significant predictor of lower partner relationship strain.

Table 6. Predictors of Partner Relationship Strain

Predictor	B	SE B	β	R^2	F (df)
Latina ethnicity	0.20	0.11	.14†	.05	3.85** (7, 490)
Age	-0.01	0.01	-.05		
Income	0.00	0.00	-.01		
Years Education	0.01	0.01	.06		
Immigrant Status	-0.11	0.09	-.07		
Primiparity	0.01	0.09	.01		
Marital Status	-0.23	0.08	-.16**		

† $p < .10$. * $p < .05$. ** $p < .01$.

Predicting non-partner family violence. Logistic regression analysis (Table 7) found that, after considering socio-demographic variables, ethnicity was no longer a significant predictor of non-partner family violence. That is, Latinas were no longer more likely to report non-partner family violence after socio-demographic variables were included. Immigrant status (being foreign-born) was significantly associated with lower likelihood of non-partner family violence.

Table 7. Predictors of Non-partner Family Violence

Predictor	B	SE B	e^B	χ^2 (df)	% reporting Family Violence
Latina ethnicity	0.27	0.52	1.31		
Age	-0.08	0.04	.93†		
Income	0.00	0.00	1.00		
Years Education	-0.09	0.06	.92		
Immigrant Status	-0.82	0.41	.44*		
Primiparity	0.44	0.40	1.56		
Marital Status	0.10	0.36	1.10		
Constant	0.99			23.64 (7)**	27%

† $p < .10$. * $p < .05$. ** $p < .01$.

Acculturation among Latinas. Multiple regressions were also conducted separately for Latinas only to determine whether English and Spanish acculturation, entered simultaneously, remained significant predictors of relationship outcomes, after considering other socio-demographic information. Acculturation did not significantly predict marital status, partner relationship quality, partner violence, or partner relationship strain after controlling for socio-demographic variables. Acculturation was also not significantly associated with non-partner family violence or family relationship strain after controls were included.

Hypotheses 1a and 1b: Summary of Results. Table 8 provides an overview of section 1 results. Before socio-demographic covariates (age, per-capita household income, education, immigrant status, primiparity, and marital status) were included, Latinas were significantly less likely to be married, were less likely to report partner violence, and were rated as having higher partner relationship strain, compared to NH-Whites. For family functioning, Latinas were significantly more likely to report non-partner family violence than NH-Whites, but groups did not differ in family relationship strain. Thus, Hypothesis 1a was supported for three out of six relationship functioning outcomes. Two outcomes showed no group differences, and one outcome (partner violence) showed group differences in the opposite direction than predicted.

After accounting for socio-demographic variables, Latinas and NH-Whites no longer significantly differed in marital status, partner relationship strain, or non-partner family violence presence. Latinas continued to report significantly lower likelihood of partner violence, even after socio-demographic differences were taken into account. No significant group differences in partner relationship quality or family relationship strain emerged after accounting for covariates. Thus, Hypothesis 1b was supported for five out of six relationship functioning outcomes. One

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outcome (partner violence) continued to show group differences in the opposite direction than was predicted, such that Latinas reported lower likelihood than NH-Whites.

Table 8. Summary of Section 1 Hypotheses and Findings

	Marital Status	Partner Rel. Quality	Partner Violence	Partner Strain	Non-partner family violence	Family Strain
Hyp 1a Latinas have poorer relationship functioning	✓	✗	≈	✓	✓	✗
Hyp 1b No differences when account for socio-demographics	✓	✓	≈	✓	✓	✓

Note. ✗ indicates no support for hypothesis. ✓ indicates support for hypothesis. ≈ indicates unexpected direction of effects.

Section 2: Associations between Relationship Functioning and Mental Health

     Mental health outcome descriptive data. Means, standard deviations, ranges, and number of cases above clinical cut-off for the three mental health outcome variables at T2 (depressive symptoms, trauma symptoms, and GAD diagnosis) are presented by ethnic group in Table 9.

     Independent samples t-tests (for continuous variables) and chi-square tests (for categorical variables) were conducted to determine whether ethnic groups differed in their reports of mental health symptoms or problems. Latinas and NH-Whites did not differ significantly in their reports of depressive symptoms ($t(496) = 0.75$, $p = .46$) or in depression probability group (not depressed, possible depression, probable depression; $\chi^2(2) = 4.21$, $p = .12$). Latinas did however report significantly higher trauma symptoms ($t(480.79) = 3.55$, $p <$

.001) and were significantly more likely to score above the clinical cut-off of 30 (recommended

for community samples; Walker et al., 2005; $\chi^2(1) = 11.57$, $p < .01$) compared to NH-Whites.

Latinas and NH-Whites did not differ significantly in their likelihood of PTSD diagnosis ($\chi^2(1) =$

2.32, $p = .13$). Analysis of trauma symptom clusters indicated that Latinas reported significantly

higher re-experiencing and avoidance symptoms, but not hyperarousal symptoms, than did NH-

Whites. Latinas and NH-Whites did not significantly differ in their likelihood of Generalized

Anxiety Disorder (GAD) diagnosis ($\chi^2(1) = 0.00$, $p = .96$).

Table 9. T2 Mental Health Variables Descriptives

	EPDS Depressive Symptoms	PCL-C Trauma Symptoms	MINI GAD Diagnosis
LATINA			
Valid n	308	308	307
Mean	5.17[a]	26.00[a]	n/a
95% CI	4.70-5.64	25.0-27.0	n/a
SD	4.23	8.92	n/a
Observed range	0-23	17-72	0-1
% above cut-off	83% not depressed 9% possible depression 8% probable depression	6% likely PTSD dx 28% above cut-off	6% likely GAD [a]
WHITE			
Valid n	190	190	190
Mean	4.89[a]	23.53[b]	n/a
95% CI	4.37-5.42	22.59-24.47	n/a
SD	3.70	6.57	n/a
Observed range	0-16	17-51	0-1
% above cut-off	89% not depressed 7% possible depression 4% probable depression	3% likely PTSD dx 15% above cut-off	6% likely GAD [a]

Note. Differing subscripts across ethnic groups indicate that groups differ at $p < .05$.

Hypothesis 2a. *Better postpartum partner and family relationship functioning (partner*

relationship quality, partner violence, partner strain, non-partner family violence, and family

strain) will be associated with lower postpartum depressive symptoms, trauma symptoms, and

generalized anxiety.

To test Hypothesis 2a, zero-order Pearson product-moment correlations between partner and family relationship variables (partner relationship quality, partner violence, partner relationship strain, non-partner family violence, and family relationship strain) and mental health outcomes (depressive symptoms, trauma symptoms, GAD diagnosis) were conducted within each ethnic group. Correlations appear in Table 10.

Among Latinas, all indicators of partner relationship functioning and family relationship functioning were significantly associated with depressive symptoms; partner relationship quality was associated with lower depressive symptoms, and violence and strain were associated with higher symptoms. All partner relationship variables were significantly associated with trauma symptoms as well, in the same direction. Family relationship strain was significantly associated with higher trauma symptoms, but non-partner family violence was not. Only partner violence and partner relationship strain were significantly associated with higher likelihood of GAD diagnosis. Patterns of correlation were similar among NH-Whites, with the exceptions that 1) partner violence was not significantly associated with depressive or trauma symptoms, 2) non-partner family violence was significantly associated with higher trauma symptoms, and 3) no relationship functioning variables were significantly associated with GAD diagnosis.

Table 10. Zero-Order Correlations among Relationship and Mental Health Variables

	Depressive Symptoms	Trauma Symptoms	GAD Diagnosis
LATINAS			
Partner Relationship Quality	-.45**	-.35**	-.10†
Partner Violence	.26**	.33**	.13*
Partner Relationship Strain	.35**	.33**	.22**
Non-partner Family Violence	.15*	.11†	.10†
Family Relationship Strain	.24**	.26**	.06
NH-WHITES			
Partner Relationship Quality	-.37**	-.35**	-.14†
Partner Violence	.12	.14†	.06
Partner Relationship Strain	.33**	.29**	.06
Non-partner Family Violence	.20**	.20**	.05
Family Relationship Strain	.22**	.21**	.08

† $p < .10$. *$p < .05$. **$p < .01$.

Partial correlations including socio-demographic covariates (age, per-capita household income, years of education, immigrant status, primiparity, and marital status) were conducted to investigate whether observed patterns of association between relationship functioning and mental health outcomes were robust across socio-demographic characteristics (see Table 11). Overall, patterns of significance for partial correlations were highly similar to those for zero-order correlations.

Among Latinas, the same indicators of partner and family relationship functioning were associated with depressive symptoms and trauma symptoms as before. Different predictors of GAD emerged, however: partner relationship quality was associated with lower likelihood of GAD, and partner violence and non-partner family violence were associated with higher likelihood of GAD. Patterns of partial correlations were also similar to zero-order results for NH-

Whites, with the exceptions that 1) non-partner family violence was not significantly associated with trauma symptoms (though $p < .10$), and 2) partner relationship strain showed a significant, positive association with likelihood of GAD.

Table 11. Partial Correlations among Relationship and Mental Health Variables, with Socio-demographic Covariates

	Depressive Symptoms	Trauma Symptoms	GAD Diag
LATINAS			
Partner Relationship Quality	-.45**	-.36**	-.12*
Partner Violence	.26**	.32**	.15**
Partner Relationship Strain	.33**	.29**	.09
Non-partner family violence	.13*	.08	.13*
Family Relationship Strain	.22**	.24**	.06
NH-WHITES			
Partner Relationship Quality	-.30**	-.28**	-.07
Partner Violence	.13†	.08	.02
Partner Relationship Strain	.31**	.26**	.17*
Non-partner family violence	.14†	.15*	.00
Family Relationship Strain	.21**	.17*	.04

† $p < .10$. *$p < .05$. **$p < .01$.

Hypothesis 2a: Summary of findings. Results largely support Hypothesis 2a. Partner and family relationship functioning was consistently associated with depressive and trauma symptoms for both ethnic groups, and these associations were largely robust across socio-demographic covariates. Non-partner family violence was a relatively weaker predictor of depressive and trauma symptoms for Latinas, compared to other indicators, and partner violence was a relatively weaker predictor of depressive and trauma symptoms for NH-Whites. Evidence for associations between relationship functioning and GAD was much weaker, with only two out

of ten correlations reaching significance. Associations with GAD became slightly stronger when socio-demographic covariates were considered.

Hypothesis 2b. *Acculturation will moderate the association between relationship functioning and mental health, such that less U.S.-acculturated Latinas will experience the strongest associations between relationship functioning and postpartum mental health, followed by more U.S.-acculturated Latinas and NH-Whites. These group differences may be explained by socio-demographic characteristics and/or relationship beliefs and attitudes.*

Multiple regression analyses were used to determine whether ethnicity and acculturation status moderated the associations between relationship variables and mental health outcomes. Two dummy codes were used to identify 1) high US-acculturated Latinas (based on high English acculturation scores on the BAS) and 2) low US-acculturated Latinas, with NH-Whites as the reference group. First, the predictor of interest, and the two acculturation-based dummy codes were entered in the first step of the regression equation. Then, two interaction terms between the dummy variables and the predictor were entered in the second. If the second step resulted in a significant change in R^2 for the model, specific contrast terms were examined to investigate the simple slopes across groups. Models were also tested after controlling for all socio-demographic covariates, entered simultaneously. Results are presented according to dependent variable.

Predicting depressive symptoms. Results of the moderated regression analysis predicting depressive symptoms from relationship quality are presented in Table 12. There were no significant main effects of acculturation in the first or second step, and addition of the interaction terms did not result in significant change in R^2 of the model. That is, the significant, negative association between relationship quality and depressive symptoms did not vary significantly by

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ethnicity or acculturation status. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 12. Moderated Regression of Depressive Symptoms on Partner Relationship Quality by Acculturation

Predictor	B	SE B	β	ΔF (df)	ΔR^2
Step 1				37.00** (3, 494)	.18
Relationship Quality	-0.11	0.01	-.43**		
High Acculturation	0.26	0.39	.03		
Low Acculturation	0.35	0.40	.04		
Step 2				2.07 (2, 492)	.01
Relationship Quality	-0.10	0.02	-.39**		
High Acculturation	0.22	0.39	.03		
Low Acculturation	0.32	0.40	.04		
DAS x High Accult.	-0.04	0.03	-.09		
DAS x Low Accult.	0.01	0.03	.03		

† $p < .10$. * $p < .05$. ** $p < .01$. DAS = Dyadic Adjustment Scale.

Results of the moderated linear regression analysis predicting depressive symptoms from partner violence are presented in Table 13. There were no significant main effects of acculturation in the first or second step. Addition of the interaction terms did not result in a significant change in R^2 of the model, but this was significant when three multivariate outliers were removed. These results are presented below. A significant interaction effect emerging for high-acculturated Latinas compared to NH-White mothers. Thus, partner violence was not uniformly associated with higher depressive symptoms; the association was significantly stronger for high-acculturated Latinas than for NH-White mothers (Figure 6). No other specific

contrasts between groups were significant. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 13. Moderated Regression of Depressive Symptoms on Partner Violence by Acculturation

Predictor	*B*	*SE B*	*β*	ΔF (df)	ΔR^2
Step 1				7.85** (3, 490)	.05
Partner Violence	1.88	0.39	.22**		
High Acculturation	0.33	0.41	.04		
Low Acculturation	0.40	0.42	.05		
Step 2				3.45* (2, 488)	.01
Partner Violence	1.04	0.57	.12†		
High Acculturation	-0.37	0.49	-.05		
Low Acculturation	0.18	0.48	.02		
IPV x High Accult.	2.25	0.88	.17*		
IPV x Low Accult.	0.38	1.02	.02		

† $p < .10$. *$p < .05$. **$p < .01$. IPV = Intimate partner violence.

Figure 6. Interaction between Partner Violence and Acculturation, Predicting Depressive Symptoms
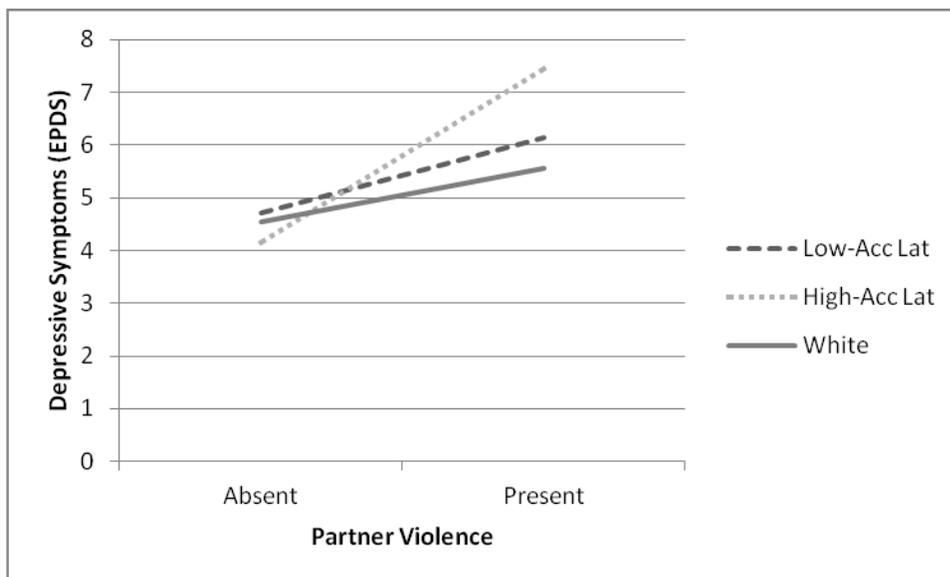
Results of the moderated linear regression analysis predicting depressive symptoms from partner relationship strain are presented in Table 14. There were no significant main effects of acculturation in the first or second step. Addition of the interaction terms resulted in a significant change in R^2 of the model, with a significant interaction effect contrasting low- to high-acculturated Latinas. Thus, partner relationship strain was not associated with higher depressive symptoms to the same degree for all groups; the association was significantly stronger for high-acculturated Latinas than for low-acculturated Latinas (see Figure 7). Low-acculturated Latinas appeared to be less negatively affected by partner relationship strain. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 14. Moderated Regression of Depressive Symptoms on Partner Relationship Strain by Acculturation

Predictor	B	$SE\ B$	β	ΔF (df)	ΔR^2
Step 1				21.02** (3, 494)	.11
Partner Strain (LSI)	1.89	0.24	.34**		
High Acculturation	-0.11	0.44	-.01		
White ethnicity	0.05	0.42	.01		
Step 2				3.40* (2, 492)	.01
Partner Strain (LSI)	0.93	0.45	.17*		
High Acculturation	-0.18	0.44	-.02		
White ethnicity	0.08	0.42	.01		
LSI x High Accult.	1.50	0.58	.18**		
LSI x White	1.09	0.63	.11†		

† $p < .10$. *$p < .05$. **$p < .01$. LSI = Life Stress Inventory.

Figure 7. Interaction between Partner Strain and Acculturation, Predicting Depressive

Symptoms

Results of the moderated linear regression analysis predicting depressive symptoms from presence of non-partner family violence are presented in Table 15. There were no significant main effects of acculturation in the first or second step. Addition of the interaction terms resulted in a marginally-significant change in R^2 of the model, with a significant interaction effect emerging between low-acculturated Latinas and NH-Whites. Thus, family partner violence was not uniformly associated with higher depressive symptoms; the association was significantly weaker for low-acculturated Latinas than for NH-White mothers. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 15. Moderated Regression of Depressive Symptoms on Non-partner Family Violence by Acculturation

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				2.93** (3, 493)	.02
Family Violence	1.77	0.62	.13**		
High Acculturation	0.23	0.43	.03		
Low Acculturation	0.09	0.44	.01		
Step 2				2.68† (2, 491)	.01
Family Violence	3.68	1.24	.27**		
High Acculturation	0.30	0.45	.04		
Low Acculturation	0.39	0.46	.04		
FamV x High Accult.	-1.67	1.55	-.08		
FamV x Low Accult.	-3.82	1.67	-.16*		

† $p < .10$. *$p < .05$. **$p < .01$. FamV = Non-partner Family Violence

Figure 8. Interaction between Non-partner Family Violence and Acculturation, Predicting Depressive Symptoms
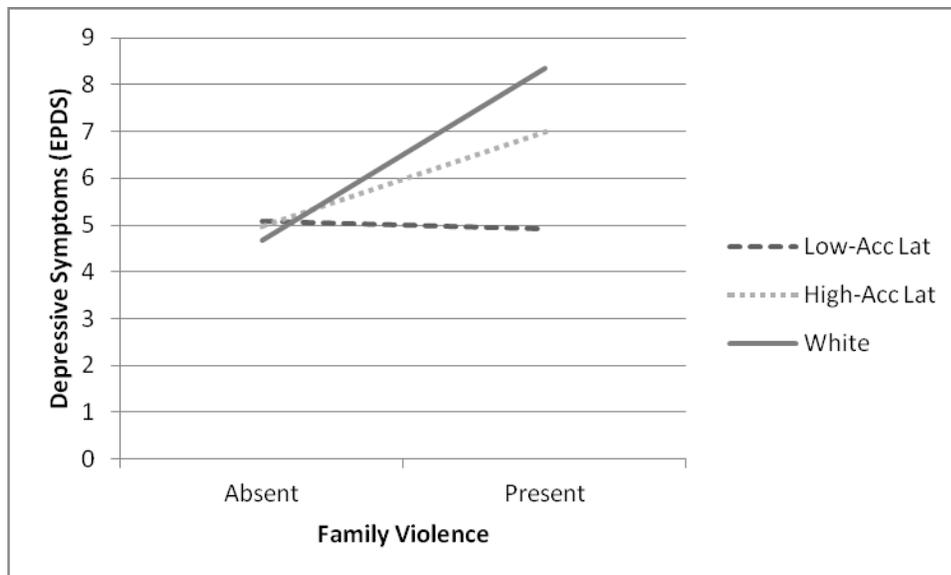
Results of the moderated linear regression analysis predicting depressive symptoms from family relationship strain are presented in Table 16. There were no significant main effects of acculturation in the first step or second step. Addition of the interaction terms did not result in a significant change in R^2 of the model. Thus, family relationship strain was similarly associated with higher depressive symptoms for all acculturation groups. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 16. Moderated Regression of Depressive Symptoms on Family Relationship Strain by Acculturation

Predictor	B	$SE\ B$	β	ΔF (df)	ΔR^2
Step 1				9.67** (3, 494)	.06
Family Strain (LSI)	1.28	0.24	.23**		
High Acculturation	0.15	0.42	.02		
Low Acculturation	0.10	0.43	.01		
Step 2				0.13 (2, 492)	.00
Family Strain (LSI)	1.20	0.42	.22**		
High Acculturation	0.14	0.42	.02		
Low Acculturation	0.10	0.43	.01		
LSI x High Accult.	0.25	0.58	.03		
LSI x Low Accult.	-0.02	0.62	.00		

† $p < .10$. *$p < .05$. **$p < .01$. LSI = Life Stress Inventory.

Predicting trauma symptoms. Results of the moderated regression analysis predicting trauma symptoms from relationship quality are presented in Table 17. There was a significant main effect of acculturation in the first and second step, such that high and low US-acculturated Latinas reported more trauma symptoms than NH-White mothers when controlling for relationship quality. Addition of the interaction terms did not result in significant change in R^2 of

the model, indicating that the association between relationship quality and trauma symptoms did not vary by acculturation status. When socio-demographic variables were included, main effects of acculturation (partialling out relationship quality) were non-significant. The significance of interaction terms did not change.

Table 17. Moderated Regression of Trauma Symptoms on Relationship Quality by Acculturation

Predictor	*B*	*SE B*	*β*	ΔF (df)	ΔR^2
Step 1				28.24** (3, 494)	.14
Relationship Quality	-0.18	0.02	-.35**		
High Acculturation	1.91	0.81	.11*		
Low Acculturation	3.19	0.83	.18**		
Step 2				0.52 (2, 492)	.00
Relationship Quality	-0.17	0.04	-.32**		
High Acculturation	1.93	0.82	.11*		
Low Acculturation	3.23	0.84	.18**		
DAS x High Accult.	0.00	0.06	.00		
DAS x Low Accult.	-0.05	0.05	-.05		

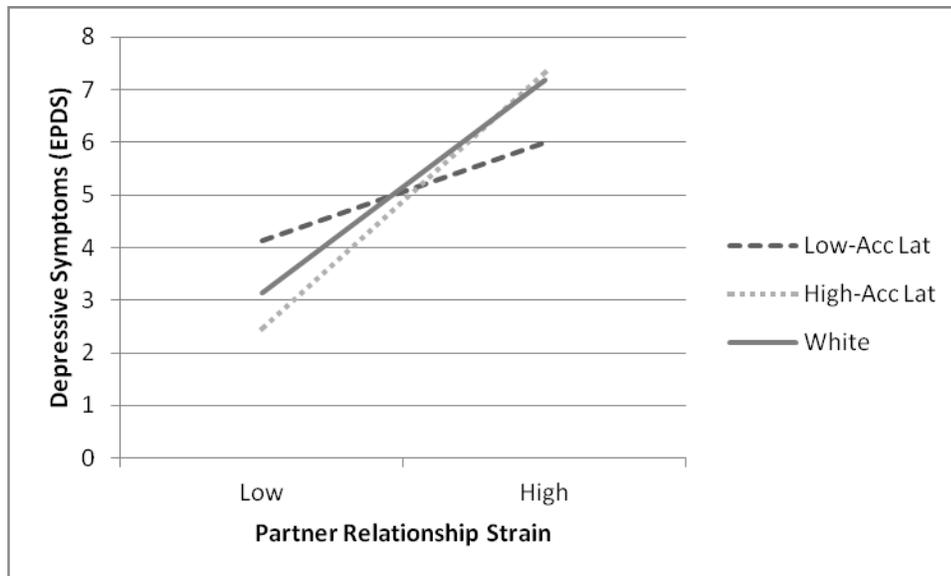† $p < .10$. *$p < .05$. **$p < .01$. DAS = Dyadic Adjustment Scale.

Results of the moderated linear regression analysis predicting trauma symptoms from partner violence presence are presented in Table 18. There was a significant main effect of acculturation in the first and second steps; after controlling for interaction terms, low-acculturated Latinas reported higher trauma symptoms than NH-Whites. Addition of the interaction terms resulted in a significant change in R^2 of the model, with significant interaction effects emerging for low-acculturated Latinas compared to NH-Whites. These effects were no longer significant after six multivariate outliers were removed; results with outliers removed are presented below. Thus, the association between partner violence and trauma symptoms initially

did not significantly differ by acculturation. However, when socio-demographic variables were included, the interaction contrast between low-acculturated Latinas and NH-Whites was significant, with low-acculturated Latinas showing a significantly stronger, positive association between partner violence and trauma symptoms (Figure 9).

Table 18. Moderated Regression of Trauma Symptoms on Partner Violence by Acculturation

Predictor	B	$SE\ B$	β	ΔF (df)	ΔR^2
Step 1				11.19** (3, 487)	.06
Partner Violence	3.52	0.73	.22**		
High Acculturation	2.05	0.76	.13**		
Low Acculturation	3.01	0.80	.19**		
Step 2				2.39† (2, 485)	.01
Partner Violence	1.82	1.07	.11†		
High Acculturation	1.12	0.92	.07		
Low Acculturation	2.11	0.91	.13*		
IPV x High Accult.	2.87	1.65	.11†		
IPV x Low Accult.	3.59	1.93	.10†		
With Covariates					
Partner Violence	1.46	1.07	.09		
High Acculturation	-0.48	1.18	-.03		
Low Acculturation	0.38	1.48	.02		
IPV x High Accult.	2.80	1.64	.11†		
IPV x Low Accult.	4.03	1.92	.12*		

† $p < .10$. *$p < .05$. **$p < .01$. IPV = Intimate partner violence.

Figure 9. Interaction between Partner Violence and Acculturation, Predicting Trauma Symptoms, Controlling for Covariates
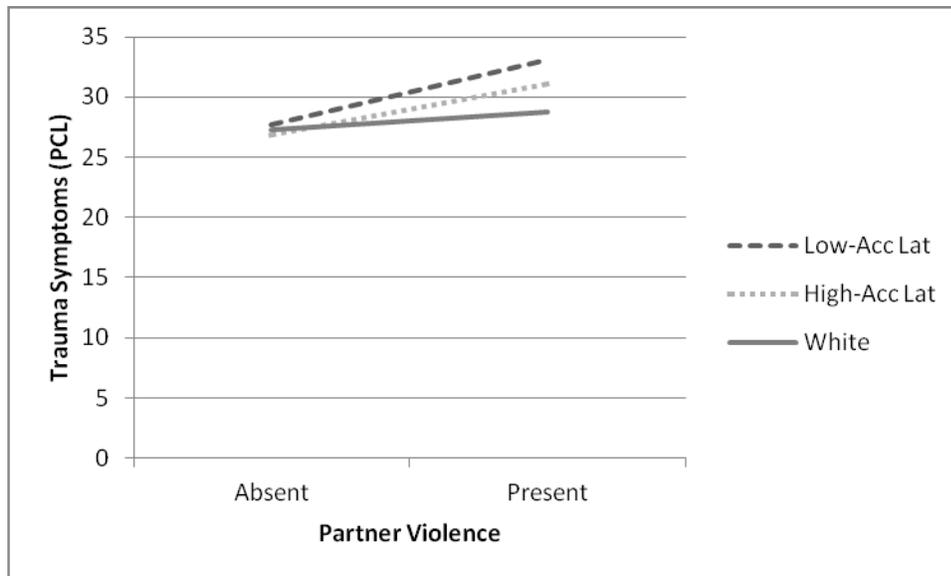
Results of the moderated linear regression analysis predicting trauma symptoms from partner relationship strain are presented in Table 19. There was a significant main effect of acculturation in the first and second step such that low-acculturated Latinas had higher levels of trauma symptoms than NH-Whites. Addition of the interaction terms did not result in a significant change in R^2 of the model, and no interaction terms were significant. Thus, the association between partner relationship strain and higher trauma symptoms did not vary in strength across acculturation groups. When socio-demographic variables were included, the main effect of acculturation (partialling out effect of partner strain) was non-significant. The significance of interaction terms did not change.

Table 19. Moderated Regression of Trauma Symptoms on Partner Relationship Strain by

Acculturation

Predictor	*B*	*SE B*	*β*	Δ*F* (df)	Δ*R²*
Step 1				21.42** (3, 494)	.12
Partner Strain (LSI)	3.49	0.49	.31**		
High Acculturation	1.12	0.84	.06		
Low Acculturation	2.49	0.85	.14**		
Step 2				0.13 (2, 492)	.00
Partner Strain (LSI)	3.45	0.89	.30**		
High Acculturation	1.16	0.85	.07		
Low Acculturation	2.50	0.86	.14**		
LSI x High Accult.	-0.17	1.17	-.01		
LSI x White	0.42	1.28	.02		

† *p* < .10. **p* < .05. ***p* < .01. LSI = Life Stress Inventory.

Results of the moderated linear regression analysis predicting trauma symptoms from presence of non-partner family violence are presented in Table 20. There were significant main effects of acculturation in the first and second step such that low- and high-acculturated Latinas reported higher trauma symptoms than NH-Whites. Addition of the interaction terms resulted in a significant change in *R²* of the model, with a significant interaction effect emerging between low-acculturated Latinas and NH-Whites. Thus, family partner violence was not associated with higher trauma symptoms for all groups; the association was significantly weaker for low-acculturated Latinas than for NH-Whites (see Figure 10). When socio-demographic variables were included, the main effect of acculturation (partialling out effect of non-partner family violence) was non-significant. The significance of interaction terms did not change.

Table 20. Moderated Regression of T2 Trauma Symptoms on Non-partner family violence by

Acculturation

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				5.09** (3, 493)	.03
Family Violence	2.42	1.26	.09†		
High Acculturation	1.92	0.87	.11*		
Low Acculturation	2.78	0.89	.16**		
Step 2				3.02* (2, 491)	.01
Family Violence	6.82	2.50	.24**		
High Acculturation	2.15	0.91	.12*		
Low Acculturation	3.40	0.92	.19**		
FamV x High Accult.	-4.21	3.14	-.10		
FamV x Low Accult.	-8.29	3.38	-.17*		

† $p < .10$. *$p < .05$. **$p < .01$. FamV = Non-partner Family violence.

Figure 10. Interaction between Non-partner Family Violence and Acculturation, Predicting
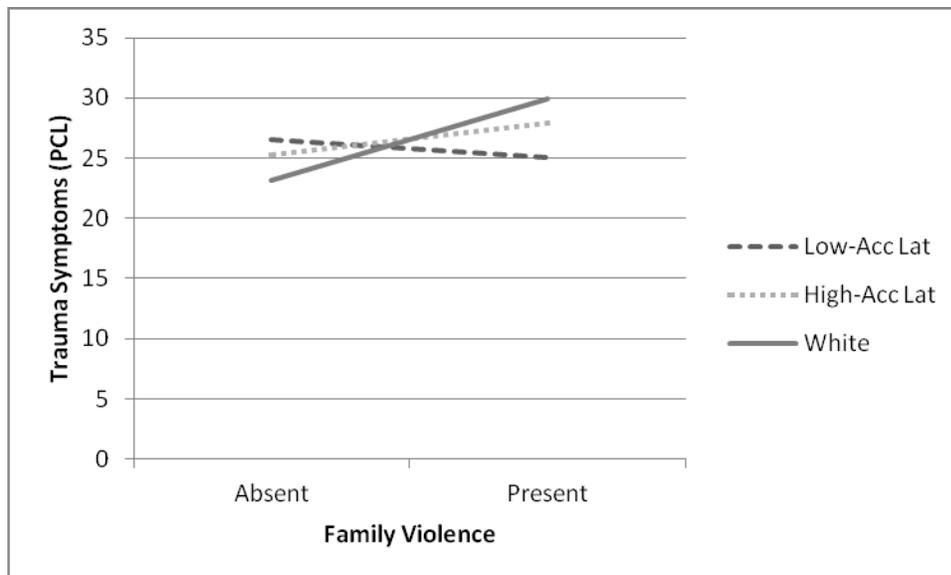
Trauma Symptoms

Results of the moderated linear regression analysis predicting trauma symptoms from family relationship strain are presented in Table 21. There were significant main effects of acculturation in the first step and second steps, such that low-acculturated Latinas reported significantly higher trauma symptoms than NH-Whites. Addition of the interaction terms did not result in a significant change in R^2 of the model. Thus, family relationship strain was similarly associated with higher trauma symptoms for all acculturation groups. When socio-demographic variables were included, the main effect of acculturation (partialling out effect of family strain) was non-significant. The significance of interaction terms did not change.

Table 21. Moderated Regression of Trauma Symptoms on Family Relationship Strain by Acculturation

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				15.09** (3, 494)	.08
Family Strain (LSI)	2.78	0.48	.25**		
High Acculturation	1.61	0.85	.09†		
Low Acculturation	2.74	0.86	.15**		
Step 2				0.94 (2, 492)	.00
Family Strain (LSI)	2.01	0.84	.18*		
High Acculturation	1.58	0.85	.09†		
Low Acculturation	2.79	0.87	.16**		
LSI x High Accult.	1.56	1.15	.09		
LSI x Low Accult.	0.60	1.23	.03		

† $p < .10$. *$p < .05$. **$p < .01$. LSI = Life Stress Inventory.

Predicting GAD diagnosis. Results of the moderated logistic regression analysis predicting Generalized Anxiety Disorder diagnosis from relationship quality are presented in Table 22. There were no significant main effects of acculturation in the first or second step.

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Addition of the interaction terms did not result in significant change in χ^2 of the model. That is, the significant, negative association between relationship quality and GAD did not vary by acculturation status. Consideration of socio-demographic variables resulted in a significant main effect of acculturation, such that low US-acculturated Latinas had lower likelihood of GAD than other groups after considering covariates. Interaction terms remained non-significant.

Table 22. Moderated Regression of GAD on Relationship Quality by Acculturation

Predictor	*B*	*SE B*	e^B	χ^2(df)
Step 1				5.51 (3)
Relationship Quality	-0.03	0.01	.98*	
High Acculturation	-0.03	0.46	.97	
Low Acculturation	-0.07	0.45	.93	
Step 2				0.71 (2)
Relationship Quality	-0.04	0.02	.97†	
High Acculturation	0.05	0.47	1.06	
Low Acculturation	0.01	0.49	1.01	
DAS x High Accult.	0.02	0.03	1.02	
DAS x Low Accult.	0.01	0.02	1.00	

† *p* < .10. *p* < .05. **p* < .01. DAS = Dyadic Adjustment Scale.

Results of the moderated logistic regression analysis predicting Generalized Anxiety Disorder diagnosis from partner violence presence are presented in Table 23. There were no significant main effects of acculturation in the first or second step. Addition of the interaction terms did not result in significant change in χ^2 of the model, and specific contrasts did not reach significance. That is, the association between partner violence and GAD did not vary by acculturation status, and the association between partner violence and GAD was non-significant after considering acculturation. However, a significant main effect of low acculturation

(predicting lower GAD likelihood) and a significant interaction by low acculturation emerged after considering socio-demographic covariates. Thus, when group differences in socio-demographic background were taken into account, low US-acculturated Latinas had lower likelihood of GAD overall than both high-acculturated Latinas and NH-Whites, and they demonstrated a significantly stronger positive association between partner violence and GAD than did NH-Whites (Figure 11).

Table 23. Moderated Regression of GAD on Partner violence by Acculturation

Predictor	B	$SE\ B$	e^B	$\Delta\chi^2$(df)
Step 1				3.33 (3)
Partner Violence	0.72	0.39	2.05†	
High Acculturation	0.05	0.45	1.05	
Low Acculturation	0.12	0.47	1.13	
Step 2				4.80† (2)
Partner Violence	0.29	0.61	1.34	
High Acculturation	0.07	0.55	1.07	
Low Acculturation	-0.59	0.64	.56	
IPV x High Accult.	-0.19	0.94	.83	
IPV x Low Accult.	1.77	0.94	5.86†	
With Covariates				
Partner Violence	0.18	0.62	1.19	
High Acculturation	-0.90	0.71	.41	
Low Acculturation	-2.64	1.00	.07**	
IPV x High Accult.	-0.08	0.96	.92	
IPV x Low Accult.	1.94	0.98	6.97*	

† $p < .10$. *$p < .05$. **$p < .01$. IPV = Intimate Partner Violence.

Figure 11. Interaction between Partner violence and Acculturation, Predicting GAD,

Controlling for Socio-Demographic Covariates
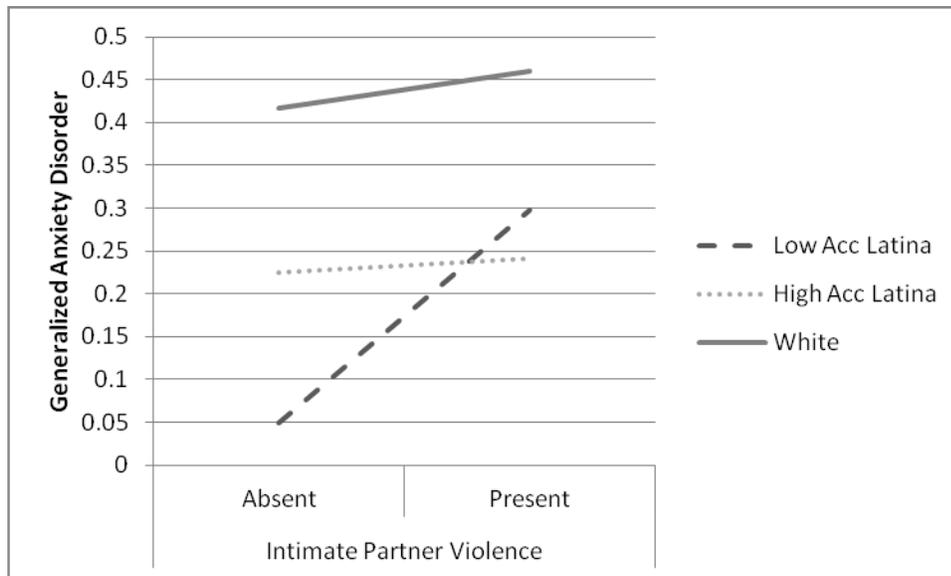
Note. Y-axis indicates likelihood of GAD diagnosis.

Results of the moderated logistic regression analysis predicting Generalized Anxiety

Disorder diagnosis from partner relationship strain are presented in Table 24. There were no

significant main effects of acculturation in the first or second step. Addition of the interaction

terms did not result in significant change in χ^2 of the model, and specific contrasts did not reach

significance. That is, the association between partner relationship strain and GAD did not vary

by acculturation status. Consideration of socio-demographic variables resulted in a significant

main effect of acculturation, such that low US-acculturated Latinas had lower likelihood of GAD

than other groups after considering covariates. Interaction terms remained non-significant.

Table 24. Moderated Regression of GAD on Partner Relationship Strain by Acculturation

Predictor	*B*	*SE B*	e^B	$\Delta\chi^2$(df)
Step 1				5.42 (3)
Partner Strain (LSI)	0.52	0.21	1.68*	
High Acculturation	-0.20	0.45	.82	
Low Acculturation	-0.10	0.46	.90	
Step 2				3.69 (2)
Partner Strain (LSI)	0.99	0.36	2.70**	
High Acculturation	-0.10	0.49	.90	
Low Acculturation	0.04	0.48	1.04	
LSI x High Accult.	-0.48	0.49	.62	
LSI x Low Accult.	-1.15	0.65	.32†	

† $p < .10$. *$p < .05$. **$p < .01$. LSI = Life Stress Interview.

Results of the moderated logistic regression analysis predicting Generalized Anxiety Disorder diagnosis from presence of non-partner family violence are presented in Table 25. There were no significant main effects of acculturation in the first or second step. Addition of the interaction terms did not result in significant change in χ^2 of the model. Thus, acculturation status did not affect the association between non-partner family violence and GAD. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 25. Moderated Regression of GAD on Non-partner family violence by Acculturation

Predictor	B	SE B	e^B	$\Delta\chi^2$(df)
Step 1				0.49 (3)
Family Violence	0.41	0.56	1.51	
High Acculturation	-0.05	0.45	.96	
Low Acculturation	-0.05	0.46	.95	
Step 2				1.60 (2)
Family Violence	1.32	0.85	3.76	
High Acculturation	0.16	0.47	1.17	
Low Acculturation	0.08	0.49	1.08	
FamV x High Accult.	-1.65	1.37	.19	
FamV x Low Accult.	-1.14	1.39	.32	

† $p < .10$. *$p < .05$. **$p < .01$. FamV = Family violence.

Results of the moderated logistic regression analysis predicting Generalized Anxiety Disorder diagnosis from family relationship strain are presented in Table 26. There were no significant main effects of acculturation in the first or second step. Addition of the interaction terms did not result in significant change in χ^2 of the model. Thus, family relationship strain was not a significant predictor of GAD for any acculturation group. Consideration of socio-demographic variables resulted in a significant main effect of acculturation, such that low US-acculturated Latinas had lower likelihood of GAD than other groups after considering covariates. Interaction terms remained non-significant.

Table 26. Moderated Regression of GAD on Family Relationship Strain by Acculturation

Predictor	B	$SE\ B$	e^B	$\Delta\chi^2$(df)
Step 1				1.97 (3)
Family Strain (LSI)	0.33	0.22	1.39	
High Acculturation	-0.09	0.45	.92	
Low Acculturation	-0.05	0.46	.95	
Step 2				2.23 (2)
Family Strain (LSI)	0.41	0.39	1.51	
High Acculturation	-0.19	0.48	.83	
Low Acculturation	-0.05	0.47	.95	
LSI x High Accult.	0.20	0.52	1.22	
LSI x Low Accult.	-0.70	0.67	.50	

† $p < .10$. *$p < .05$. **$p < .01$. LSI = Life Stress Interview.

Hypothesis 2b: Summary of Findings. Findings for tests of acculturation moderating the associations between relationship functioning and mental health outcomes are summarized below (Table 27). No evidence for moderation was found for associations between partner relationship quality or family relationship strain and any indicator of mental health. The hypothesis that low US-acculturated Latinas would demonstrate the strongest associations between relationship functioning and mental health was supported for partner violence when predicting trauma symptoms and GAD; however, these effects were significant only when socio-demographic covariates were included. The hypothesis was partially supported when depressive symptoms were regressed on partner violence, as high-acculturated Latinas showed a stronger association compared to NH-Whites, but low-acculturated Latinas did not significantly differ from either group. Associations of partner relationship strain and non-partner family violence with depressive symptoms and of non-partner family violence and trauma symptoms were moderated

by acculturation, but in the opposite direction as expected. For these pairings, low US-acculturated Latinas demonstrated weaker associations between relationship functioning and mental health compared to other groups, such that they seemed to be protected against higher mental health symptoms in the context of poorer relationship functioning. Overall, three of 15 tests supported the proposed hypothesis (in part), three of 15 tests found effects in the unexpected direction, and 9 tests found no evidence of moderation. Thus, acculturation was not a universal moderator but had selective effects. Further, in no cases did socio-demographic variables explain observed interaction effects; in fact, two interactions went from non-significant marginal to significant after socio-demographic variables were included.

Table 27. Summary Table for Moderation Findings Related to Hypothesis 2b

	Depressive Symptoms	Trauma Symptoms	GAD Diagnosis
Partner Relationship Quality	✘	✘	✘
Partner Violence	✓*	✓*	✓*
Partner Relationship Strain	≈	✘	✘
Non-partner family violence	≈	≈	✘
Family Relationship Strain	✘	✘	✘

Note. ✘ indicates no support for hypothesis. ✓ indicates support for hypothesis. ≈ indicates unexpected direction of effects. * indicates a caveat to findings.

Hypothesis 2c. *Partner relationship functioning will be more strongly associated with maternal mental health among NH-Whites compared to Latinas, and family relationship functioning will be more strongly associated with maternal mental health for Latinas compared to Whites, after accounting for socio-demographic variables.*

To test hypothesis 2c, partial correlations between relationship variables and mental health outcomes (Table 28) were examined separately for each ethnic group, controlling for sociodemographic variables of adjusted age, per capita household income, years of education, immigrant status, primiparity, and marital status. First, coefficients for each relationship-mental health association were transformed with Fisher r-to-z transformation and compared across ethnic groups to determine whether associations were stronger for one group (Cohen, Cohen, West, & Aiken, 2003). Then, transformed correlation coefficients between partner and family components of the HITS household violence measure and of the LSI strain measure were compared within each ethnic group to test whether they differed statistically using z-tests (Steiger, 1990).

Table 28. Partial Correlations of Partner and Family Relationship Variables with Mental Health Outcomes, controlling for Socio-demographic Variables

	Latinas			NH-Whites		
Predictor	EPDS	PCL-C	GAD	EPDS	PCL-C	GAD
Relationship quality	-.45**	-.36**	-.13*	-.31**	-.30**	-.09
Partner violence	.25**	.25**	.14*	.14†	.08	.01
Partner relationship strain	.33**	.30**	.08	.31**	.28**	.17*
Non-partner family violence	.08	.02	.01	.19**	.19*	.08
Family relationship strain	.23**	.25**	.07	.18*	.16*	.04

† *p* < .10. **p* < .05. ***p* < .01. EPDS = Edinburgh Postnatal Depression Scale. PCL-C = Posttraumatic Checklist – Civilian. GAD = Generalized Anxiety Disorder diagnosis.

Ethnic group comparisons. Comparisons of strength of relationship-mental health associations across ethnic groups indicated that none of the relationship variables were differentially associated with mental health outcomes for Latinas versus NH-Whites.

Relationship quality was a similar predictor of depressive symptoms ($z = 1.73$; $p = .08$), posttraumatic stress symptoms ($z = 0.71$; $p = .48$), and likelihood of GAD diagnosis ($z = 0.43$; $p = .67$) for both ethnic groups. Partner violence was a similar predictor of depressive symptoms ($z = 1.21$; $p = .23$), posttraumatic stress symptoms ($z = 1.85$; $p = .06$), and likelihood of GAD diagnosis ($z = 1.38$; $p = .17$) for both ethnic groups. Partner relationship strain was a similar predictor of depressive symptoms ($z = 0.24$; $p = .81$), posttraumatic stress symptoms ($z = 0.23$; $p = .82$), and likelihood of GAD diagnosis ($z = -.97$; $p = .33$) for both ethnic groups.

For family variables, non-partner family violence was a similar predictor of depressive symptoms ($z = -1.19$; $p = .24$), posttraumatic stress symptoms ($z = -1.82$; $p = .07$), and likelihood of GAD diagnosis ($z = -0.74$; $p = .46$) for both ethnic groups. Family relationship strain was a similar predictor of depressive symptoms ($z = 0.55$; $p = .58$), posttraumatic stress symptoms ($z = 0.99$; $p = .32$), and likelihood of GAD diagnosis ($z = 0.32$; $p = .75$) for both ethnic groups.

Relationship type comparisons. Among Latinas, partner violence was significantly more strongly associated with depressive symptoms ($z = 2.18$; $p = .03$) and posttraumatic stress symptoms ($z = 2.93$; $p < .01$) than was non-partner family violence. Partner and non-partner family violence were similarly associated with GAD diagnosis ($z = 1.63$; $p = .10$). Partner and family relationship strain were similarly associated with depressive symptoms ($z = 1.67$; $p = .09$), posttraumatic stress symptoms ($z = 0.83$; $p = .40$) and GAD diagnosis ($z = 0.16$; $p = .87$). Thus, partner relationship variables were similar or stronger predictors of mental health outcomes than were family relationship variables for Latinas.

Among NH-White mothers, experience of partner violence and non-partner family violence did not differ in their associations with depressive symptoms ($z = -0.53$; $p = .60$), posttraumatic stress symptoms ($z = -1.16$; $p = .25$), or GAD diagnosis ($z = -0.73$; $p = .47$).

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Partner relationship strain and family relationship strain also did not differ in their associations with depressive symptoms ($z = 1.58$; $p = .11$), posttraumatic stress symptoms ($z = 1.45$; $p = .15$), or GAD diagnosis ($z = 1.53$; $p = .13$). Thus, there was no evidence that partner relationship variables were stronger predictors of mental health outcomes than were family relationship variables for NH-White mothers.

Hypothesis 2c: Summary of Findings. Contrary to expectations, none of the relationship functioning variables differentially predicted mental health outcomes for Latinas compared to NH-Whites. Within-ethnic groups, comparisons of partner relationship-mental health correlations and family relationship-mental health correlations were also similar, with only two comparisons out of twelve reaching significance. These two significant findings were in the opposite direction than expected, such that partner violence was a stronger predictor of depressive and trauma symptoms than was non-partner family violence for Latinas.

Section 3: Multivariate Models of Partner and Family Relationship Functioning Predicting Postpartum Mental Health

This section includes tests of models combining partner relationship functioning, family relationship functioning, and ethnicity in the prediction of maternal mental health.

Hypothesis 3a. *The association between partner relationship functioning and maternal postpartum mental health will be moderated by the quality of family relationship functioning. Specifically, higher functioning family relationships will buffer the negative associations between poor partner relationship function and depressive symptoms, trauma symptoms, and generalized anxiety. Conversely, the combination of poor partner relationship functioning and poor family relationship functioning may predict the worst mental health outcomes.*

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Multiple regression analyses were used to determine whether family relationship functioning (non-partner family violence and family strain) moderated the associations between partner relationship functioning (relationship quality, partner violence, and partner strain) and mental health outcomes (depressive symptoms, trauma symptoms, and GAD). First, the partner relationship predictor of interest and potential family relationship moderator (both grand mean centered) were entered in the first step of the regression equation. Then, the interaction term between these two variables was entered in the second step. If the second step resulted in a significant change in R^2 for the model, this was considered evidence of moderation, and simple slopes were graphed. Models were also tested after controlling for all socio-demographic covariates, entered simultaneously. Results are presented according to dependent variable.

Predicting depressive symptoms. Results of the moderated regression analysis predicting depressive symptoms from partner relationship quality and non-partner family violence are presented in Table 29. There was a significant main effect of partner relationship quality in the predicted direction, but the effect of non-partner family violence was non-significant. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, negative association between partner relationship quality and depressive symptoms did not vary significantly by presence of non-partner family violence. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 29. Moderated Regression of Depressive Symptoms on Partner Relationship Quality by

Non-partner family violence

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				55.79** (2, 494)	.18
Partner Relationship Quality	-0.11	0.01	-.41**		
Family Violence	0.96	0.57	.07†		
Step 2				0.10 (1, 493)	.00
Partner Relationship Quality	-0.11	0.01	-.41**		
Family Violence	0.89	0.61	.06		
DAS x Family Violence	-0.01	0.03	-.02		

† $p < .10$. *$p < .05$. **$p < .01$. DAS = Dyadic Adjustment Scale.

Results of the moderated regression analysis predicting depressive symptoms from relationship quality and family strain are presented in Table 30. There were significant main effects of partner relationship quality and family strain. Addition of the interaction term did not result in significant change in R^2 of the model; however, removal of four multivariate outliers resulted in a significant interaction. These results are presented below. Thus, the negative association between higher relationship quality and lower depressive symptoms was significantly more negative when family strain was high. Partner quality and family strain also had additive main effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 30. Moderated Regression of Depressive Symptoms on Partner Relationship Quality by

Family Strain

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				74.45** (2, 491)	.23
Partner Relationship Quality	-0.11	0.01	-.43**		
Family Strain	0.89	0.21	.17**		
Step 2				4.30* (1, 490)	.01
Partner Relationship Quality	-0.10	0.01	-.41**		
Family Strain	0.86	0.21	.16**		
DAS x Family Strain	-0.03	0.01	-.08*		

† $p < .10$. *$p < .05$. **$p < .01$. DAS = Dyadic Adjustment Scale.

Figure 12. Interaction between Partner Relationship Quality and Family Strain, Predicting

Depressive Symptoms
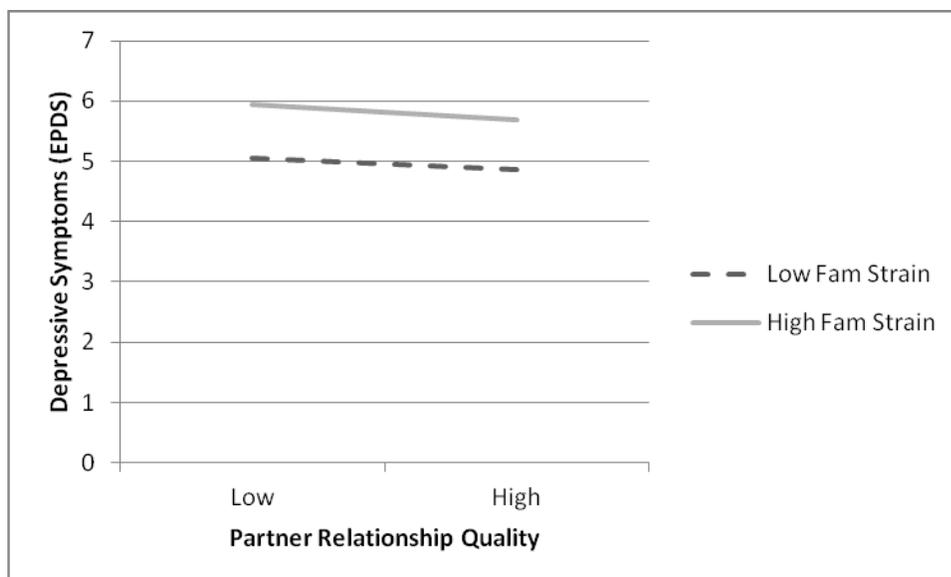
Results of the moderated regression analysis predicting depressive symptoms from partner violence and non-partner family violence are presented in Table 31. There were

significant, positive main effects of partner violence and non-partner family violence in the first step (non-partner family violence became a marginal predictor after inclusion of the interaction term). Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, negative association between partner violence and depressive symptoms did not vary significantly by presence of non-partner family violence. Instead, partner and family violence had additive main effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 31. Moderated Regression of Depressive Symptoms on Partner Violence by Non-partner Family Violence

Predictor	*B*	*SE B*	*β*	Δ*F* (df)	Δ*R*²
Step 1				14.38** (2, 494)	.06
Partner Violence	1.77	0.40	.20**		
Family Violence	1.54	0.61	.11*		
Step 2				0.03 (1, 493)	.00
Partner	1.74	0.42	.19**		
Family Violence	1.45	0.79	.11†		
IPV x Family Violence	0.21	1.25	.01		

† $p < .10$. * $p < .05$. ** $p < .01$. IPV = Intimate partner violence.

Results of the moderated regression analysis predicting depressive symptoms from partner violence and family strain are presented in Table 32. There were significant, positive main effects of partner violence and family strain in the first and second steps. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner violence and depressive symptoms did not vary by presence of family strain; rather, relationship functioning predictors had additive effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 32. Moderated Regression of Depressive Symptoms on Partner Violence by Family Strain

Predictor	B	$SE\ B$	β	ΔF (df)	ΔR^2
Step 1				24.44** (2, 494)	.09
Partner Violence	1.69	0.39	.19**		
Family Strain	1.20	0.24	.22**		
Step 2				1.22 (1, 493)	.00
Partner Violence	1.64	0.39	.18**		
Family Strain	1.03	0.28	.19**		
IPV x Family Strain	0.57	0.52	.06		

† $p < .10$. * $p < .05$. ** $p < .01$. IPV = Intimate partner violence.

Results of the moderated regression analysis predicting depressive symptoms from partner relationship strain and non-partner family violence are presented in Table 33. There were significant, positive main effects of partner strain and non-partner family violence in the first step (non-partner family violence became a marginal predictor after inclusion of the interaction term). Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner strain and depressive symptoms did not vary by presence of non-partner family violence; rather, relationship functioning predictors had additive effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 33. Moderated Regression of Depressive Symptoms on Partner Strain by Non-partner family violence

Predictor	B	$SE\ B$	β	ΔF (df)	ΔR^2
Step 1				33.65** (2, 494)	.12
Partner Strain	1.80	0.24	.32**		
Family Violence	1.20	0.59	.09*		

|					
Step 2				0.13 (1, 493)	.00
Partner Strain	1.77	0.25	.32**		
Family Violence	1.13	0.62	.08†		
Partner Strain x FamV	0.26	0.73	.02		

† $p < .10$. *$p < .05$. **$p < .01$. FamV = Family violence.

Results of the moderated regression analysis predicting depressive symptoms from partner strain and family strain are presented in Table 34. There were significant, positive main effects of partner strain and family strain in the first and second steps. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner strain and depressive symptoms did not vary by presence of family strain; rather, relationship functioning predictors had additive effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 34. *Moderated Regression of Depressive Symptoms on Partner Strain by Family Strain*

Predictor	*B*	*SE B*	*β*	Δ*F* (df)	ΔR^2
Step 1				35.01** (2, 495)	.12
Partner Strain	1.61	0.26	.69**		
Family Strain	0.63	0.25	.12*		
Step 2				0.01 (1, 494)	.00
Partner Strain	1.60	0.27	.29**		
Family Strain	0.63	0.26	.12*		
Partner x Family Strain	0.02	0.24	.00		

† $p < .10$. *$p < .05$. **$p < .01$.

Predicting trauma symptoms. Results of the moderated regression analysis predicting trauma symptoms from partner relationship quality and non-partner family violence are presented in Table 35. There was a significant main effect of partner relationship quality in the

expected direction, but the main effect of non-partner family violence was non-significant. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, negative association between partner relationship quality and trauma symptoms did not vary by presence of non-partner family violence. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 35. Moderated Regression of Trauma Symptoms on Partner Relationship Quality by Non-partner family violence

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				34.95** (2, 494)	.12
Partner Relationship Quality	-0.18	0.02	-.34**		
Family Violence	1.31	1.20	.05		
Step 2				1.01 (1, 493)	.00
Partner Relationship Quality	-0.19	0.02	-.36**		
Family Violence	1.76	1.28	.06		
DAS x Family Violence	0.07	0.07	.05		

† $p < .10$. *$p < .05$. **$p < .01$. DAS = Dyadic Adjustment Scale.

Results of the moderated regression analysis predicting trauma symptoms from partner relationship quality and family strain are presented in Table 36. There were significant main effects of partner relationship quality and family strain in the expected directions. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, negative association between partner relationship quality and trauma symptoms did not vary by level of family strain; rather, relationship functioning predictors had additive effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

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Table 36. Moderated Regression of Trauma Symptoms on Partner Relationship Quality by

Family Strain

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				47.35** (2, 495)	.16
Partner Relationship Quality	-0.16	0.02	-.31**		
Family Strain	2.27	0.47	.20**		
Step 2				1.32 (1, 494)	.00
Partner Relationship Quality	-0.16	0.02	-.31**		
Family Strain	2.24	0.47	.20**		
DAS x Family Strain	-0.03	0.03	-.05		

† $p < .10$. *$p < .05$. **$p < .01$. DAS = Dyadic Adjustment Scale.

Results of the moderated regression analysis predicting trauma symptoms from partner violence and non-partner family violence are presented in Table 37. There was a significant, main effect of partner violence in the first step in the expected direction, and the positive association between non-partner family violence and trauma symptoms became significant after inclusion of the interaction term. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner violence and trauma symptoms did not vary by presence of non-partner family violence; rather, relationship functioning predictors had additive effects. Consideration of socio-demographic variables resulted in the effect of non-partner family violence no longer being significant but did not change interaction results.

Table 37. Moderated Regression of Trauma Symptoms on Partner Violence by Non-partner Family Violence

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				9.78* (2, 494)	.04
Partner Violence	3.13	0.81	.17**		
Family Violence	2.25	1.25	.08†		
Step 2				0.86 (1, 493)	.00
Partner	3.40	0.87	.19**		
Family Violence	3.19	1.61	.11*		
IPV x Family Violence	-2.37	2.56	-.06		

† $p < .10$. *$p < .05$. **$p < .01$. IPV = Intimate partner violence.

   Results of the moderated regression analysis predicting trauma symptoms from partner violence and family strain are presented in Table 38. There were significant main effects of partner violence and family strain in the first and second steps in expected directions. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner violence and trauma symptoms did not vary by level of family strain; rather, relationship functioning predictors had additive effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 38. Moderated Regression of Trauma Symptoms on Partner Violence by Family Strain

Predictor	B	SE B	β	ΔF (df)	ΔR²
Step 1				24.11** (2, 494)	.09
Partner Violence	2.85	0.79	.16**		
Family Strain	2.68	0.48	.24**		
Step 2				0.29 (1, 493)	.00
Partner Violence	2.82	0.80	.15**		
Family Strain	2.51	0.58	.23**		
IPV x Family Strain	0.57	1.05	.03		

† $p < .10$. *$p < .05$. **$p < .01$. IPV = Intimate partner violence.

Results of the moderated regression analysis predicting trauma symptoms from partner relationship strain and non-partner family violence are presented in Table 39. There was a significant main effect of partner strain in the expected direction, but no effect of non-partner family violence. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner strain and trauma symptoms did not vary by presence of non-partner family violence. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 39. Moderated Regression of Trauma Symptoms on Partner Strain by Non-partner Family Violence

Predictor	B	SE B	β	ΔF (df)	ΔR^2
Step 1				28.23** (2, 494)	.10
Partner Strain	3.49	0.49	.31**		
Family Violence	1.55	1.22	.06		
Step 2				1.12 (1, 493)	.00
Partner Strain	3.68	0.52	.33**		
Family Violence	1.97	1.28	.07		
Partner Strain x FamV	-1.58	1.49	-.05		

† $p < .10$. * $p < .05$. ** $p < .01$. FamV = Family violence.

Results of the moderated regression analysis predicting trauma symptoms from partner strain and family strain are presented in Table 40. There were significant main effects of partner strain and family strain in the first and second steps in expected directions. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner strain and trauma symptoms did not vary by level of family strain; rather, relationship functioning predictors had additive effects. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 40. Moderated Regression of Trauma Symptoms on Partner Strain by Family Strain

Predictor	B	$SE\ B$	β	ΔF (df)	ΔR^2
Step 1				33.17** (2, 495)	.12
Partner Strain	2.88	0.53	.25**		
Family Strain	1.67	0.52	.15**		
Step 2				0.37 (1, 494)	.00
Partner Strain	2.78	0.55	.25**		
Family Strain	1.61	0.53	.14*		
Partner x Family Strain	0.30	0.48	.03		

† $p < .10$. *$p < .05$. **$p < .01$.

Predicting GAD. Results of the moderated linear regression analysis predicting GAD

from partner relationship quality and non-partner family violence are presented in Table 41.

There was a significant, negative main effect of partner relationship quality, but the effect of

non-partner family violence was non-significant. Addition of the interaction term did not result

in significant change in R^2 of the model. That is, the significant, negative association between

partner relationship quality and GAD did not vary by presence of non-partner family violence.

Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 41. Moderated Regression of GAD on Partner Relationship Quality by Non-partner

Family Violence

Predictor	B	$SE\ B$	e^B	χ^2(df)
Step 1				5.83† (2)
Partner Rel. Quality	-0.03	0.01	.98*	
Family Violence	0.20	0.57	1.22	
Step 2				0.70 (1)
Partner Rel. Quality	-0.02	0.01	.98*	
Family Violence	0.10	0.72	1.10	
DAS x Fam Violence	-0.01	0.03	.99	

† $p < .10$. *$p < .05$. **$p < .01$. DAS = Dyadic Adjustment Scale.

Results of the moderated regression analysis predicting GAD from partner relationship quality and family strain are presented in Table 42. There was a significant main effect of partner relationship quality in the expected direction but no effect of family strain; the effect of partner relationship quality became marginal after inclusion of the interaction term. Addition of the interaction term did not result in significant change in R^2 of the model. Thus, the significant, negative association between partner relationship quality and GAD did not vary by level of family strain. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 42. Moderated Regression of GAD on Partner Relationship Quality by Family Strain

Predictor	B	$SE\ B$	e^B	$\Delta\chi^2$(df)
Step 1				6.51* (2)
Partner Rel. Quality	-0.02	0.01	.98*	
Family Strain	0.24	0.23	1.27	
Step 2				0.55 (1)
Partner Rel. Quality	-0.02	0.01	.98†	
Family Strain	0.17	0.26	1.19	
DAS x Family Strain	-0.01	0.01	.99	

† $p < .10$. * $p < .05$. ** $p < .01$. DAS = Dyadic Adjustment Scale.

Results of the moderated regression analysis predicting GAD from partner violence and non-partner family violence are presented in Table 43. There were no significant main effects of partner violence or non-partner family violence in the first or second step. Addition of the interaction term did not result in significant change in R^2 of the model. That is, there was not a significant association between partner violence and GAD at either level of non-partner family violence. Consideration of socio-demographic variables resulted in partner violence exerting a significant main effect on GAD. Significance of the interaction term did not change.

Table 43. Moderated Regression of GAD on Partner Violence by Non-Partner Family Violence

Predictor	B	$SE\ B$	e^B	$\Delta\chi^2(df)$
Step 1				3.51 (2)
Partner Violence	0.68	0.38	1.97†	
Family Violence	0.29	0.57	1.34	
Step 2				0.09 (1)
Partner Violence	0.72	0.41	2.06†	
Family Violence	0.36	0.78	1.59	
IPV x Family Violence	-0.34	1.13	.71	

† $p < .10$. * $p < .05$. ** $p < .01$. IPV = Intimate partner violence.

Results of the moderated regression analysis predicting GAD from partner violence and family strain are presented in Table 44. There were no significant main effects of partner violence or family strain in the first or second step. Addition of the interaction term resulted in a significant change in χ^2 of the model. That is, the association between partner violence and GAD was significantly more positive when family strain was higher (see Figure 13). Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 44. Moderated Regression of GAD on Partner Violence by Family Strain

Predictor	B	$SE\ B$	e^B	$\Delta\chi^2(df)$
Step 1				4.75† (2)
IPV	0.66	0.38	1.93†	
Family Strain	0.29	0.23	1.33	
Step 2				7.21** (1)
IPV	0.42	0.44	1.52	
Family Strain	-0.39	0.41	.68	
IPV x Family Strain	1.32	0.53	3.74*	

† $p < .10$. * $p < .05$. ** $p < .01$. IPV = Intimate partner violence.

Figure 13. Interaction between Partner violence and Family Strain, Predicting GAD

Results of the moderated regression analysis predicting GAD from partner relationship strain and non-partner family violence are presented in Table 45. There was a significant, positive main effect of partner strain, but no effect of non-partner family violence. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner strain and GAD did not vary by presence of non-partner family violence. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 45. Moderated Regression of GAD on Partner Strain by Non-partner Family Violence

Predictor	B	$SE\ B$	e^B	$\Delta\chi^2(df)$
Step 1				5.39† (2)
Partner Strain	0.49	0.21	1.63*	
Family Violence	0.23	0.57	1.26	
Step 2				0.03 (1)
Partner Strain	0.48	0.22	1.61*	
Family Violence	0.17	0.68	1.18	
Partner Strain x FamV	0.10	0.61	1.11	

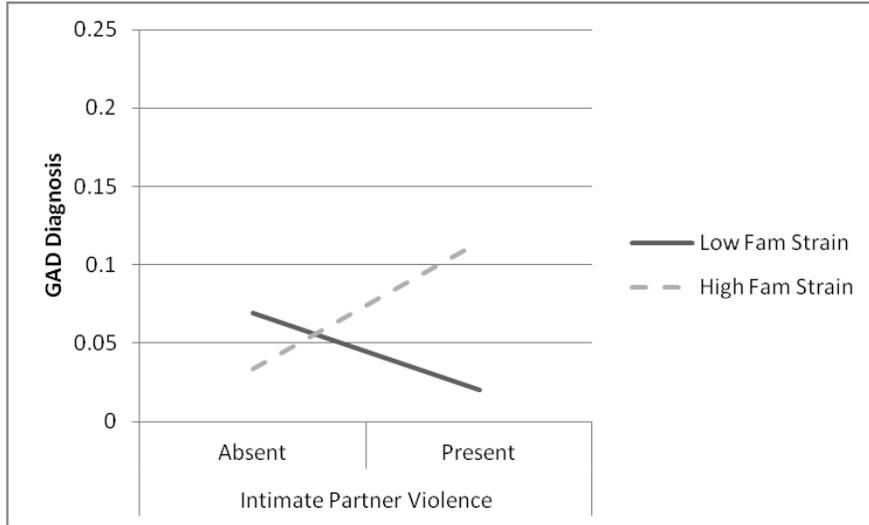† $p < .10$. *$p < .05$. **$p < .01$. FamV = Non-partner family violence.

Results of the moderated regression analysis predicting GAD from partner strain and family strain are presented in Table 46. There was a significant main effect of partner strain in the expected direction in the first step but no effect of family strain; the effect of partner strain became non-significant when the interaction term was entered. Addition of the interaction term did not result in significant change in R^2 of the model. That is, the significant, positive association between partner strain and trauma symptoms did not vary by level of family strain. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 46. Moderated Regression of GAD on Partner Strain by Family Strain

Predictor	B	SE B	e^B	$\Delta\chi^2$(df)
Step 1				5.45† (2)
Partner Strain	0.45	0.23	1.57*	
Family Strain	0.12	0.25	1.13	
Step 2				0.42 (1)
Partner Strain	0.40	0.26	1.49	
Family Strain	0.05	0.29	1.05	
Partner Strain x Fam Strain	0.12	0.19	1.13	

† $p < .10$. * $p < .05$. ** $p < .01$.

Hypothesis 3a: Summary of findings. Below is a table (Table 47) that summarizes the findings for tests of family relationship functioning moderating the associations between partner relationship functioning and mental health outcomes. No evidence for moderation was found when predicting trauma symptoms. One interaction was significant (between partner relationship quality and family relationship strain) when predicting depressive symptoms and one was significant (between partner violence and family relationship strain) when predicting GAD diagnosis. In both cases, the associations between poorer partner relationship functioning and mental health problems were stronger when family strain was high. Overall, only two out of 18

tests provided evidence for moderation, however, indicating these findings should be interpreted with caution. Instead, results indicated that effects of partner relationship functioning and family relationship functioning are primarily direct and additive in predicting maternal postpartum mental health.

Table 47. Summary Table for Moderation Findings Related to Hypothesis 3a

	Depressive Symptoms	Trauma Symptoms	GAD Diagnosis
Partner Relationship Quality			
x Family Violence	✘	✘	✘
x Family Strain	✓	✘	✘
IPV x Family Violence	✘	✘	✘
IPV x Family Strain	✘	✘	✓
Partner Strain x Family Violence	✘	✘	✘
Partner Strain x Family Strain	✘	✘	✘

Note. ✘ indicates no support for hypothesis. ✓ indicates support for hypothesis. ≈ indicates unexpected direction of effects.

Hypothesis 3b. *Based on earlier hypotheses of differential associations between relationship functioning and mental health outcomes by ethnicity/acculturation (Hyp. 2b/c) and of an interaction between partner and family relationships (Hyp. 3b) in predicting mental health, it is expected that there will be a 3-way interaction between partner relationship functioning, family relationship functioning, and ethnicity in predicting maternal postpartum mental health. That is, the degree to which family relationships modify any negative association between partner relationship functioning and mental health symptoms will differ by ethnic group such that family relationships will be more protective against a poorer partner relationship for Latina mothers than for White mothers.*

Multiple regression analyses were used to determine whether significant interactions between partner relationship functioning (relationship quality, partner violence, and partner strain) and family relationship functioning (non-partner family violence and family strain) were moderated by ethnicity in predicting mental health outcomes (depressive symptoms, trauma symptoms, and GAD). Only two such interactions were found under Hypothesis 3a; therefore, only results for those predictor combinations are presented here. First, the partner relationship indicator, family relationship indicator (both grand mean centered), and dummy code for ethnicity were entered in the first step of the regression equation. All two-way interaction terms between these variables were entered in the second step. The three-way interaction term was entered in the third step. If the third step resulted in a significant change in R^2 for the model, this was considered evidence for a three-way interaction, and simple slopes were graphed. Models were also tested after controlling for all socio-demographic covariates, entered simultaneously. Analyses of other predictor combinations did not return any additional three-way interactions.

Interaction of partner relationship quality x family strain x ethnicity. Results of the moderated regression analysis predicting depressive symptoms from relationship quality, family strain, and ethnicity are presented in Table 48. There were significant main effects of partner relationship quality and family strain in all steps, but no main effect of ethnicity. There were no significant two-way interactions. Addition of the three-way interaction term resulted in a significant change in R^2 of the model. Specifically, the extent to which high family strain contributed to a more negative association between partner relationship quality and depressive symptoms was greater for NH-White mothers than for Latinas (see Figure 14). Patterns of significance were unchanged after inclusion of socio-demographic variables.

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Table 48. Three-Way Moderated Regression of Depressive Symptoms on Partner Relationship Quality, Family Strain, and Ethnicity

Predictor	*B*	*SE B*	*β*	*ΔF*	*ΔR²*
Step 1				43.96**	.21
				(3, 494)	
Partner Relationship Quality	-0.10	0.01	-.40**		
Family Strain	0.92	0.22	.17**		
NH-White Ethnicity	-0.19	0.33	-.02		
Step 2				1.11	.01
				(3, 491)	
Partner Relationship Quality	-0.10	0.01	-.39**		
Family Strain	0.89	0.27	.16**		
NH-White Ethnicity	-0.17	0.33	-.02		
Partner Rel x Fam Strain	-0.02	0.01	-.07†		
Partner Rel x White	0.01	0.02	.01		
Fam Strain x White	0.00	0.47	.00		
Step 3				5.59*	.01
				(1, 490)	
Partner Relationship Quality	-0.10	0.01	-.40**		
Family Strain	0.91	0.27	.17**		
NH-White Ethnicity	-0.31	0.34	-.04		
Partner Rel x Fam Strain	-0.01	0.01	-.03		
Partner Rel x White	0.00	0.02	.01		
Fam Strain x White	-0.09	0.47	-.01		
Partner Rel x Fam Strain x White	-0.09	0.04	-.10*		

† $p < .10$. *$p < .05$. **$p < .01$. DAS = Dyadic Adjustment Scale.

Figure 14. Three-Way Interaction between Partner Relationship Quality, Family Strain, and Ethnicity Predicting Depressive Symptoms
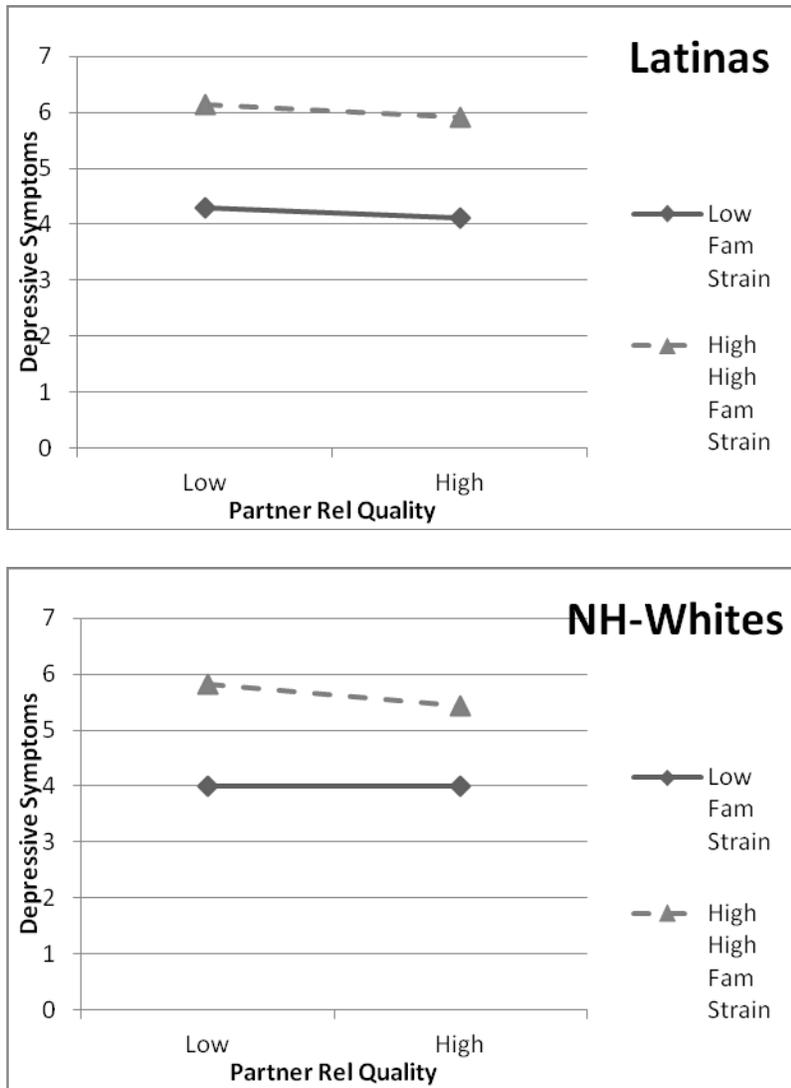
Interaction of partner violence x family strain x ethnicity. Results of the moderated logistic regression analysis predicting GAD from relationship quality, family strain, and ethnicity are presented in Table 49. There were no significant main effects of partner relationship quality, family strain, or ethnicity. As in previous analyses, there was a significant two-way interaction between partner violence and family strain such that the association between partner violence

and GAD was significantly more positive when family strain was higher. Addition of the three-way interaction term did not result in a significant change in R^2 of the model. Therefore, the interaction between partner violence and family strain did not vary by ethnicity. Patterns of significance were unchanged after inclusion of socio-demographic variables.

Table 49. Three-Way Moderated Regression of GAD on Partner Violence, Family Strain, and Ethnicity

Predictor	B	SE B	e^B	$\Delta\chi^2$(df)
Step 1				4.76 (3)
Partner Violence	0.66	0.39	1.94†	
Family Strain	0.28	0.23	1.33	
NH-White Ethnicity	-0.03	0.39	.97	
Step 2				7.78† (3)
Partner Violence	0.70	0.57	2.01	
Family Strain	-0.48	0.47	.62	
NH-White Ethnicity	0.23	0.51	1.26	
IPV x Fam Strain	1.30	0.53	3.67*	
IPV x White	-0.66	0.89	.52	
Fam Strain x White	0.27	0.54	1.23	
Step 3				2.65 (1)
Partner Violence	0.79	0.54	2.20	
Family Strain	-0.14	0.45	.87	
NH-White Ethnicity	-0.07	0.64	.94	
IPV x Fam Strain	0.73	0.60	2.07	
IPV x White	-0.83	1.01	.44	
Fam Strain x White	0.88	0.99	.41	
IPV x Fam Strain x White	1.93	1.25	6.87	

† $p < .10$. *$p < .05$. **$p < .01$. IPV = Intimate Partner Violence.

Hypothesis 3b: Summary of findings. Overall, there was little support for hypothesis 3b. First, only two significant two-way interactions between partner and family relationship predictor variables were found from which to base inquiry of three-way interactions. Only one of these two tests found a significant 3-way interaction, and the effect appeared small. Therefore, evidence suggests that partner relationship functioning and family relationship functioning operate similarly across Latina and NH-White mothers to predict maternal mental health.

Overview of Study 1 Findings

Results from Study 1 show that Latina and non-Hispanic White mothers in the current sample experienced dramatically different socio-economic circumstances, and some of these discrepancies were reflected in higher partner relationship strain and higher likelihood of non-partner family violence after the birth of a child. After between-group differences in age, income, education, immigration status, primiparity, and marital status were controlled, mean differences in relationship functioning were no longer significant. Socio-demographic background also explained between-group differences in marital status. However, it should be noted that Latinas showed more heterogeneity in their reports of partner and family relationship functioning (except partner violence), indicating that groups means alone do not paint the full picture. Regardless, in most areas of the areas assessed by the current study, socio-demographic differences between ethnic groups seemed to be the driving force behind any disparities in relationship functioning between Latinas and NH-Whites. Therefore, socio-demographic correlates of relationship functioning are critical to consider before presuming that cultural or other factors related to ethnicity, per se, underlie observed group differences. It is also of note that no differences in overall partner relationship quality were noted between groups.

Of interest is that Latinas were *less* likely to report partner violence than NH-Whites, despite Latinas being younger, which was a risk factor for more partner violence. This is in contrast to other reports that Latinas experience higher levels of partner violence than NH-White and Black women (Caetano, Field, Ramisetty-Mikler, & McGrath, 2005). A few possible factors may be contributing. First, inter-item reliability on the partner violence scale was low for Latinas, suggesting they experience various aspects of partner violence to different degrees. This is consistent with lower reports of partners screaming or insulting among Latinas. This could reflect true differences in the relationship experiences of Latina mothers, which would be consistent with general cultural values of *sympático* and *respeto*, or pursuit of harmonious interpersonal interactions and mutual respect (Holloway, Waldrip, & Ickes, 2009). Relatedly, there may be culturally-based barriers that limit Latinas' willingness to report partner violence (Rizo & Macy, 2011). Further, it is possible that the postpartum period is one of relative protection for Latina women in which high-level conflict between partners is reduced. Finally, the HITS measure captures a only a few types of partner behavior that vary widely in range of severity and therefore may be different than what is assessed in other studies.

Conversely, Latinas did report higher likelihood of non-partner family violence compared to NH-Whites, specifically in the area of family members screaming or cursing at the participant. However, ethnic differences were no longer significant after including socio-demographic covariates. Instead being an immigrant to the U.S. was a significant protective factor against non-partner family violence, and the protective influence of older age approached significance.

When examining mental health outcomes, it was noted that nearly all aspects of partner and family relationship functioning investigated in the current study were significantly associated with depressive and trauma symptoms (which overlapped moderately; rs = .61 for

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Latinas and .53 for NH-Whites). However, associations between relationship functioning and GAD were less consistent. This finding could be due to measurement and sampling issues, considering GAD diagnosis is a dichotomous variable with rather low prevalence (6%). It is also possible that the lack of consistent associations between relationship functioning and GAD reflects simply a lack of support for the hypotheses, and the associations between relationship functioning and generalized worry and anxiety are weaker than for depression and posttraumatic stress.

Associations between relationship functioning and mental health were moderated by acculturation in several instances, but not always in the predicted direction. Thus, the role ethnicity and acculturation play in postpartum mental health appears complex. For example, low-acculturated Latinas showed greater risk for anxiety (trauma symptoms and GAD), but not depression, compared to NH-Whites when they experienced partner violence; however, this effect only emerged after controlling for socio-demographic background. At other times, low-acculturated Latinas demonstrated some protection against negative effects of poorer relationship functioning (partner strain, non-family partner violence). In over half of the tests, however, no evidence of moderation was found, suggesting that relationship functioning is similarly associated with postpartum mental health for all acculturation groups. Therefore, contrary to predictions, there was no consistent variability in the strength of associations between relationship functioning and postpartum mental health by acculturation or ethnicity.

Some interesting effects did emerge when examining partner versus family violence. Low-acculturated Latinas showed a positive association between partner violence and trauma symptoms, but little association between non-partner family violence and trauma symptoms. In contrast, NH-Whites showed little variation in trauma symptoms as a function of partner

violence but were at much higher risk of trauma symptoms when they reported non-partner family violence. This difference in findings could be related to differential experiences and interpretations of violence and high-level conflict in close relationships or differential expectations for partners versus other family. Findings that partner violence more strongly predicted depressive and trauma symptoms for Latinas than for NH-Whites supports moderation by ethnicity for this result, consistent with hypotheses.

There was little evidence that partner and family relationship functioning interact to predict postpartum mental health. Typically, partner and family relationship predictors had independent, additive effects on mental health outcomes. However, there was some limited evidence that family violence and family strain might intensify negative mental health effects of poor partner relationship functioning. The multivariate models of partner and family relationship functioning predicting postpartum mental health overall did not vary by ethnicity.

In sum, despite very sharp differences in socio-economic and socio-demographic background between Latinas and NH-Whites, and some mean between-group differences in partner relationship functioning and mental health, the patterns of association between relationship functioning and postpartum mental health were consistent for Latinas and Whites. Better partner and family relationship functioning was reliably associated with better mental health for both ethnicities and, in most cases, across acculturation status. These findings are in contrast to some contemporary assumptions that culturally-competent mental health care requires different models that are specific to an ethnic background. Rather, this study suggests that attending to socio-demographic factors such as poverty and low education, regardless of ethnicity, would be more important in understanding and improving these mothers'experiences. It may also be true that the specific characteristics that contribute to perceptions of high quality

relationships differ by ethnic groups, but the current study suggests that the importance of

partner and family relationships in predicting postpartum mental health is similar for Latinas and

NH-White women.

CHAPTER 3

Study 2 – Longitudinal Changes in Partner Relationship Quality and Their Influence on

Postpartum Depression

To complement the predominantly cross-sectional findings in Study 1, Study 2 examines changes in partner relationship quality and depressive symptoms from pregnancy to postpartum and how these longitudinal changes compare in Latinas and non-Hispanic White women.

Hypothesis 1a

There will be a decline in the reported quality of the partner relationship from pregnancy to postpartum for Latina and for White women. Relationship satisfaction tends to decline, on average, upon the birth of the first child; however, this slope is expected to be flatter (less of a decline) for parents who are multiparous and for Latinas, compared to Whites, after accounting for socio-demographic covariates. This hypothesis is based on stronger traditional cultural norms valuing motherhood and the role of parenting in the partner relationship among Latinas.

Hypothesis 1b

Higher quality partner relationships during pregnancy will be associated with more negative slopes of change in depressive symptoms into postpartum. That is, mothers who have higher quality partner relationships will experience less of an increase or more of a decrease in symptoms from pregnancy to postpartum than will mothers who have relatively poorer relationships.

Hypothesis 1c

Longitudinal associations between partner relationship quality and changes in depressive symptoms from pregnancy to postpartum will be stronger for Latinas than for White women.

This hypothesis is based on stronger Hispanic cultural values emphasizing the importance of close relationships and evidence showing that endorsement of *familism*, which tends to be higher among Latinas, is associated with lower pregnancy stress.

Method

Parent Study

Design and recruitment. Study 2 draws data from the Behavior in Pregnancy Study (BIPS), a three-year, prospective, longitudinal investigation of psychosocial factors and birth outcomes in the Los Angeles area. A large sample of pregnant women were recruited from public and private prenatal clinics, hospitals, and large HMOs. Inclusion criteria included being 18 years of age or older, having a singleton, intrauterine pregnancy, and speaking either English or Spanish. Data were collected via in-depth interview by trained research staff at each recruitment site. All interviewers were trained and fluent in the assessment language; several were bilingual. BIPS participants were assessed three times during pregnancy and once postpartum. The Time 1 assessment occurred at 16-21 weeks gestation, the Time 2 assessment occurred at 24-31 weeks gestation, the Time 3 assessment occurred at 33-38 weeks gestation, and Time 4 assessment occurred at 6-12 weeks postpartum.

BIPS sample. The full BIPS sample included 186 Latina and 117 White women. Slightly more than half of the women were married (55% of Latinas; 81% of Whites), and 34% of Latinas and 58% of Whites were expecting their first child. The sample was moderate in education ($M=$ 13.06 years, $SD=$ 2.39) and most had a low annual family income (73% earned less than $40,000 per year). One-quarter of Latinas and no Whites preferred to speak Spanish over English while an additional 50% of Latinas reported they spoke English and Spanish equally well. Interviews were conducted in the participant's language of choice (Spanish or English). Over half of Latinas

(58%) were born in Mexico or other Latin-American countries, and their average length of time living in the United States was 18 years.

Current Sample

The current study focuses on non-Hispanic White and Latina women who provided relationship satisfaction reports during pregnancy and postpartum. Therefore, only women of these ethnicities who provided data on the Marital Adjustment Test at T2 (n = 108 Latina, 79 NH-White) and T4 (n = 100 Latina, 73 NH-White) were included in the current sample. This resulted in a total of 144 women (81 Latina, 63 NH-White) who completed both assessments who comprised the current sample.

Measures

Mental health. Maternal depressive symptoms were measured using the Mental Health Inventory – 5 (MHI-5; Berwick et al., 1991) at T1 and the Center for Epidemiological Studies – Depression Scale (CES-D; Radloff, 1977) at T4.

The MHI-5 is a 5-item screening instrument for DSM-IV diagnoses and is part of the Medical Outcome Study instruments (e.g., SF-36). This instrument asks respondents to indicate how much of the time in the past month they have been nervous, calm and peaceful, downhearted and blue, a happy person, and so down in the dumps that nothing could cheer them up. Validity studies indicate the MHI-5 is particularly suited to identify mood disorders and major depression (Berwick et al., 1991; Rumpf, Meyer, Hapke, & John, 2001). For the current study, only the three items reflecting depressed mood were used ("felt downhearted and blue", "been a happy person"(reverse), "felt so down in the dumps that nothing could cheer you up"). Cronbach alpha coefficients were .67 for Latinas and .78 for NH-Whites. Alphas were .72 in English and .52 in Spanish.

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The CES-D is a 20-item measure designed to assess frequency of depressive symptoms (e.g., loss of appetite, crying spells, hopelessness about the future) in non-clinical samples during the last week. Items were rated on a scale of 1 (rarely or none of the time) to 4 (most or all of the time). Two items that corresponded to physical symptoms of pregnancy or the postpartum period (i.e., "I felt that everything I did was an effort" and "My sleep was restless") were excluded from these analyses to provide a conservative, unconfounded measure of depressive mood (cf. Matthey & Ross-Hamid, 2011). The remaining 18 items were averaged. A cut-off score of 16 is indicative of clinically significant symptoms. Cronbach alpha coefficients were .89 for Latinas and .88 for NH-Whites. Alphas were .89 in English and .80 in Spanish.

Partner relationship quality. Participants provided updates regarding the status of their relationship with the baby's father and frequency of contact at each time point. Relationship quality and satisfaction was assessed at T2 and T4 using the Marital Adjustment Test (MAT; Locke & Wallace, 1959), with modified language to reflect both married and unmarried relationships. The MAT is a well-validated 15-item measure of relationship quality measuring global partner relationship quality and satisfaction. Items concern the degree of happiness and agreement between partners on various issues, with varying response scales. Items were weighted and summed as suggested by Freeston and Pléchaty (1997). Cronbach alpha coefficients (based on standardized items, given variable weighting) were .83 (T2) and .76 (T4) for Latinas and .72 (T2) and .59 (T4) for NH-Whites. Alphas were .80 (T2) and .72 (T4) in English and .86 (T2) and .66 (T4) in Spanish.

Socio-demographics and cultural variables. Information was collected about the participants' self-reported ethnicity, income, education, immigration status, and parity. These

socio-demographic variables help provide a fuller picture of the broad context in which participants are situated and serve as covariates during data analysis.

Data Analysis

Data describing the current sample are presented first. Results are then provided according to each hypothesis. Analytic procedures in each section progress from more general to more specific and are detailed for each hypothesis. Primary analytic approaches included bivariate and partial correlations and multiple regression. Due to the number of analyses conducted, findings that did not meet the $p < .05$ significance threshold are not interpreted in text, and analyses meeting the $p < .01$ threshold are highlighted in the discussion. Marginally-significant values ($p < .10$) are noted in tables to facilitate identification of patterns across tests.

For missing data on the CES-D and MHI-5, mean replacement was used to calculate total scale scores if at least 70% of items was complete ($\leq$ 30% missing). Missing items or items marked as "not applicable" on the Marital Adjustment Test were re-coded as the midpoint of that item's scale, as each section of the measure has a different weighting scheme. Multivariate outliers were examined for regression analyses, and models were re-run excluding multivariate outliers with standardized residuals greater than +/- 3. Exclusion of these few cases, which varied by analysis, did not change substantive findings; therefore all available cases were used for all analyses.

<div align="center">

Results

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Demographic Characteristics

Demographic data are presented in Table 1 and described below.

Latinas. Just over half (57%) of Latinas in the current sample (n = 81) were immigrants, from Mexico (46%), El Salvador (20%), Guatemala (11%), Cuba (2%), and other Latin-

American or Caribbean countries (15%). Half (51%) of Latinas reported they spoke both Spanish and English equally well, 17% spoke mostly or only Spanish, and 33% spoke mostly or only English.

NH-Whites. Approximately one-quarter (22%) of non-Hispanic Whites in the current sample (n = 63) were immigrants, primarily from Europe (57%), with a few from the Middle East (21%), Canada (7%), or other Latin-American or Caribbean countries (14%). NH-White women were all English-speaking. As seen in Table 1, NH-White women were significantly older than Latinas, had more education and household income, were less likely to be immigrants, were more likely to be married to and living with the baby's father, and were more likely to be expecting their first child.

Table 1. Socio-Demographic Descriptives for Current Sample

	Latinas	**Whites**
N	81	63
% Immigrants	57% [a]	22% [b]
Age @ T1 [M(SD)]	27.1 yrs [a] (5.7)	30.8 yrs [b] (4.3)
Education [M(SD)]	12.37 [a] (2.5)	15.35 [b] (1.8)
	7.5% B.A. or higher	56% B.A. or higher
Annual Household Income	46% < $20,000	8% < $20,000
	15% > $50,000	63% > $50,000
	Median = $20-30,000 [a]	Median = $60,-70,000 [b]
% Married/Cohabiting	T1: 62% [a] / 79% [a]	T1: 83% [b] / 95% [b]
	T4: 64% / 86%	T4: 89% / 97%
% Primiparous	42% [a]	60% [b]

Note: Differing subscripts indicate groups significantly differ on value at $p < .05$.

Excluded participants. Latina and non-Hispanic women in the current sample (n = 144) differed from those not completing the MAT (n = 170) in the following ways. Participants in the current sample were significantly older (mean difference = 1.22 years; $t(299) = 1.96$, $p = .05$), completed more education (mean difference = 1.06 years; $t(312) = 3.42$, $p = .001$), had higher household income ($\chi^2(12) = 36.38$, $p < .01$), and were less likely to be Latina (56% vs. 67%; $\chi^2(1) = 3.87$, $p = .05$) than those not included. They did not significantly differ in primiparity or immigrant status.

Hypothesis 1a

There will be a decline in the reported quality of the partner relationship from pregnancy to postpartum for Latina and for White women. Relationship satisfaction tends to decline, on average, upon the birth of the first child; however, this slope is expected to be flatter (less of a decline) for parents who are multiparous and for Latinas, compared to Whites, after accounting for socio-demographic covariates.

To test this hypothesis, partner quality scores on the MAT during pregnancy (T2), during postpartum (T4), and change from pregnancy to postpartum (T4 minus T2) were compared across ethnic group and primiparity using independent samples t-tests. Multiple regression was then conducted to determine the degree to which socio-demographic variables (age, income, education, immigrant status, primiparity, marital status) accounted for observed differences by ethnic or primiparity.

Means and standard deviations for partner relationship quality scores on the MAT are given for each time point in Table 2. White women reported significantly higher pregnancy relationship quality ($t(139.82) = 2.96$, $p < .01$); however, differences in postpartum quality ($t(139.46) = 1.68$, $p = .10$) and decline in quality over time ($t(142) = 1.93$, $p = .07$) were non-

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significant. Latinas' reports of pregnancy and postpartum relationship quality were significantly more variable than those of NH-Whites. Primiparous women (n = 72) reported significantly higher pregnancy relationship quality ($t(125.57) = 4.17$, $p < .001$) than multiparous women (n = 70), and primiparas reported greater declines in relationship quality over time ($t(123.35) = -4.96$, $p < .001$). Primiparous women's reports of relationship quality during pregnancy and over time were less variable than those of multiparous women. Primiparas did not significantly differ from multiparas in postpartum relationship quality ($t(140) = 0.51$, $p = .61$).

Table 2. Means and Standard Deviations in Partner Relationship Quality by Ethnicity and Primiparity

	Pregnancy MAT	Postpartum MAT	Change in MAT
LATINA			
Mean	112.58[a]	106.65†	-5.93†
95% CI	106.57-119.08	101.34-11.96	-11.06 - -1.30
SD	28.30	24.01	22.62
NH-WHITE			
Mean	124.52[b]	112.78†	-12.22†
95% CI	119.58-129.46	108.70-116.85	-15.74 - -7.75
SD	19.62	16.17	16.51
PRIMIPARA			
Mean	126.44[a]	110.51[a]	-15.93[a]
95% CI	121.70-131.17	105.65-115.37	-19.42 - -12.44
SD	20.15	20.69	14.85
MULTIPARA			
Mean	109.39[b]	108.72[a]	-0.67[b]
95% CI	102.76-116.03	103.64-113.80	-5.72 – 4.38
SD	27.82	21.32	21.18

Note. Differing subscripts across ethnic groups indicate that groups differ at $p < .05$. † indicates means differ at $p < .10$. MAT = Marital Adjustment Test.

Multiple regressions including socio-demographic covariates. Results from multiple regression analyses testing the contribution of socio-demographic variables to group differences in pregnancy relationship quality, postpartum relationship quality, and change in quality over time are presented below. Only comparisons with initial group differences are given.

Predicting pregnancy relationship quality. Linear regression analysis found that, after including socio-demographic variables, ethnicity was no longer a significant predictor of pregnancy relationship quality (β = .03, p = .76). Pregnancy relationship quality was associated with significantly associated with primiparity (β = .27, p = .001) in this model. After including socio-demographic variables, primparity remained a significant predictor of pregnancy relationship quality (β = .28, p = .001), with higher household income an additional significant predictor (β = .22, p = .05).

Predicting change in relationship quality. Linear regression analysis found that, after including socio-demographic variables, primparity remained a significant predictor of greater decline in partner relationship quality (β = .34, p < .001). No other socio-demographic predictors were significant.

Hypothesis 1a: Summary of findings. Examination of partner relationship quality during pregnancy and postpartum showed that NH-White women and primiparous women reported higher relationship quality during pregnancy than their counterparts but experienced noticeable drops in relationship quality into the postpartum period. Ethnic-based differences in partner relationship quality appeared due to the higher percentage of primiparity among NH-White women. The degree of change in relationship quality over time was significantly greater for primiparas compared to multiparas, even after controlling for other socio-demographic variables.

Hypothesis 1b

Higher quality partner relationships during pregnancy will be associated with more negative slopes of change in depressive symptoms into postpartum. That is, mothers who have higher quality partner relationships will experience less of an increase or more of a decrease in

symptoms from pregnancy to postpartum than will mothers who have relatively poorer relationships.

Hypothesis 1c

Longitudinal associations between partner relationship quality and changes in depressive symptoms from pregnancy to postpartum will be stronger for Latinas than for White women.

To test hypotheses 1b and 1c, descriptive data was first examined for the two measures of depressive symptoms. Correlations between pregnancy and postpartum depressive symptoms and socio-demographic covariates were then examined, as well as associations between depressive symptoms and partner relationship quality. Finally, multiple regressions were conducted to determine the extent to which partner relationship quality influenced change in depressive symptoms, and the extent to which this influence varied by ethnicity. Multiple regressions controlled for socio-demographic covariates (age, income, education, immigration status, primiparity, and marital status).

Depressive symptom descriptive data. Means, standard deviations, ranges, and number of cases above clinical cut-off (for the CES-D) for depressive symptom variables are presented by ethnic group in Table 3. Independent sample t-tests indicated that Latinas reported significantly higher postpartum depressive symptoms than did NH-White women ($t(141.99) = 2.31, p = .02$), but reports of depressive symptoms in early pregnancy did not significantly differ ($t(141.93) = 1.77, p = .08$). At both time points, Latina women showed greater variance than NH-Whites in their symptoms. Nearly twice as many Latinas as NH-White women exceeded the clinical cut-off on the CES-D at postpartum.

Table 3. Descriptive Data for Measures of Depressive Symptoms

	Pregnancy Depressive Symptoms (MHI-5; T1)	Postpartum Depressive Symptoms (CES-D; T4)
LATINA		
Mean	6.80†	10.47[a]
95% CI	6.19-7.74	8.57-12.36
SD	2.78	8.57
Observed range	3-14	0-36
% above cut-off	N/A	27%
WHITE		
Mean	6.08†	7.52[b]
95% CI	5.55-6.51	5.83-9.22
SD	2.11	6.72
Observed range	3-13	0-27
% above cut-off	N/A	14%

Note. Differing subscripts across ethnic groups indicate that groups differ at $p < .05$. † indicates means differ at $p < .10$.

Socio-demographic correlates of postpartum mental health. Lower income and being an immigrant were associated with significantly higher postpartum depressive symptoms for Latinas (rs = -.23, -.26, respectively; ps < .05). Lower income was not significantly associated with higher postpartum symptoms for NH-Whites ($r = -.18, p = .15$). Age, education, parity, and marital status were not associated with postpartum depressive symptoms for either ethnic group.

Relationship satisfaction predicting depressive symptoms. Zero-order Pearson product-moment correlations and partial correlations controlling for socio-demographic covariates are presented in Table 4. For Latinas, partner relationship quality during pregnancy was associated with significantly lower depressive symptoms during pregnancy and postpartum. Pregnancy relationship quality remained significantly associated with pregnancy, but not postpartum depressive symptoms after controlling for covariates. For NH-White women, partner relationship quality during pregnancy was not significantly associated with depressive symptoms during pregnancy before or after controls, but it was significantly associated with postpartum

depressive symptoms both before and after covariates were included. None of the correlation

coefficients were significantly different for Latinas than for NH-Whites (all ps > .07).

Table 4. Zero-Order between Partner Relationship Quality and Depressive Symptoms,

and Partial Correlations with Socio-demographic Covariates

| | Zero-Order | | Partial | |
	T1 Depressive Symptoms (MHI-5)	T4 Depressive Symptoms (CES-D)	T1 Depressive Symptoms (MHI-5)	T4 Depressive Symptoms (CES-D)
LATINAS				
T2 MAT	-.41**	-.24*	-.39**	-.19
T4 MAT	-.31**	-.42**	-.28*	-.38**
Change in MAT	.18	-.15	.17	-.22†
NH-WHITES				
T2 MAT	-.17	-.33**	-.14	-.34**
T4 MAT	-.15	-.54**	-.17	-.53**
Change in MAT	.05	-.13	-.06	-.16

† p < .10. *p < .05. **p < .01.

Results of the multiple linear regression predicting changes in depressive symptoms from

pregnancy to postpartum among Latinas are presented in Table 5. Partner relationship quality

during pregnancy was not a significant predictor of postpartum depressive symptoms, controlling

for pregnancy depressive symptoms. However, postpartum partner relationship quality was

significantly associated with increased depressive symptoms (β = -.34, p < .001). Postpartum

relationship quality also significantly predicted increased depressive symptoms when controlling

for relationship quality during pregnancy, indicating that the degree to which reports of partner

quality decreased over time predicted higher depressive symptoms over time. These associations

remained significant after including socio-demographic covariates, with lower income and being

married as additional significant predictors of change in depressive symptoms. The model

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accounted for 26% of the variance in postpartum depressive symptoms prior to including covariates and 39% after including covariates.

Table 5. Multiple Regression Predicting Postpartum Depressive Symptoms for Latinas

Predictor	*B*	*SE B*	*β*	*ΔF*	*ΔR²*
Step 1				12.95** (1, 79)	.14
T1 Depressive Symptoms (MHI)	1.157	.321	.38**		
Step 2				0.87 (1, 78)	.01
T1 Depressive Symptoms (MHI)	1.024	.352	.33**		
T2 Relationship Quality (MAT)	-.032	.035	-.11		
Step 3				11.42** (1, 77)	.11
T1 Depressive Symptoms (MHI)	.945	.331	.31**		
T2 Relationship Quality (MAT)	.052	.041	.17		
T4 Relationship Quality (MAT)	-.157	.046	-.44**		

† *p* < .10. **p* < .05. ***p* < .01. MHI = Mental Health Inventory. MAT = Marital Adjustment Test.

Results of the multiple linear regression predicting changes in depressive symptoms from pregnancy to postpartum among NH-White women are presented in Table 6. This model is highly similar to that observed for Latinas. Partner relationship quality during pregnancy and postpartum were each significant predictors of postpartum depressive symptoms, controlling for pregnancy depressive symptoms, when entered independently. Postpartum relationship quality also significantly predicted increased depressive symptoms when controlling for relationship quality during pregnancy, indicating that the degree to which reports of partner quality decreased over time predicted higher depressive symptoms over time. These associations remained significant after including socio-demographic covariates, though no covariates were significantly associated with increases in depressive symptoms. The model accounted for 42% of the variance in postpartum depressive symptoms prior to including covariates and 48% after including covariates.

Table 6. Multiple Regression Predicting Postpartum Depressive Symptoms for NH-White Women

Predictor	B	SE B	β	ΔF	ΔR²
Step 1				14.88** (1, 61)	.20
T1 Depressive Symptoms (MHI)	1.41	.37	.44**		
Step 2				5.64* (1, 60)	.07
T1 Depressive Symptoms (MHI)	1.27	.36	.40**		
T2 Relationship Quality (MAT)	-.09	.04	-.27*		
Step 3				15.86** (1, 59)	.16
T1 Depressive Symptoms (MHI)	1.19	.32	.37**		
T2 Relationship Quality (MAT)	.02	.04	.04		
T4 Relationship Quality (MAT)	-.21	.05	-.51**		

† $p < .10$. *$p < .05$. **$p < .01$. MHI = Mental Health Inventory. MAT = Marital Adjustment Test.

Hypotheses 1b and 1c: Summary of findings. Consistent with expectations, poorer partner relationship quality during pregnancy was associated with significantly higher levels of postpartum depressive symptoms, for both Latinas and for NH-Whites. However, pregnancy relationship quality was only associated with significantly greater stability or increase in depressive symptoms from pregnancy to postpartum among NH-White women, not Latinas. For both ethnic groups, postpartum relationship quality, and the degree to which relationship quality was stable from pregnancy to postpartum, were associated with higher postpartum depressive symptoms. Predictive models and strength of effects were similar for Latinas and NH-White women, though coefficients were slightly higher for NH-Whites. When a single model was tested for Latina and NH-White women together, ethnicity was not a significant predictor of outcome and did not change patterns of effects.

Overview of Study 2 Findings

Results from Study 2 replicate those from Study 1 in several ways. First, Latina and non-Hispanic White women again showed significant discrepancies in their socio-economic circumstances surrounding childbirth, and these socio-demographic differences contributed to mean differences in reports of partner relationship quality during pregnancy. However, ethnic group differences in partner relationship quality were explained by group differences in primiparity. Parity appeared to be a much more robust predictor than was ethnicity of partner relationship quality during pregnancy and of declines in relationship quality over time; this is consistent with findings in the transition to parenthood literature that first-time parents experience significant drops in satisfaction from pregnancy to postpartum (Lawrence, Cobb, Rothman, Rothman, & Bradbury, 2008). This suggests that whether a mother is expecting her first child or a subsequent child is a crucial variable to consider when studying partner relationships during the perinatal period. Further, it should be noted that neither Study 1 nor Study 2 found significant differences between Latinas and Whites in maternal reports of partner relationship quality in the postpartum period.

Second, this study also found significant associations between partner relationship quality in the postpartum period and postpartum depressive symptoms that remained after controlling for socio-demographic covariates. Furthermore, the strength of these associations was comparable in each ethnic group, indicating that partner relationship quality is a consistent predictor of postpartum depressive symptoms for Latinas and NH-Whites.

Study 2 extended Study 1 by examining the contribution of pregnancy relationship quality and changes in relationship quality over time as predictors of postpartum depressive symptoms. Results showed that partner relationship quality during pregnancy was significantly

associated with postpartum depressive symptoms for both ethnic groups, and with a relative increase in depressive symptoms over time for NH-White women only. However when both pregnancy and postpartum relationship quality were entered separately and simultaneously as predictors of depressive symptoms in NH-Whites, only postpartum relationship quality showed a significant association. The finding that postpartum partner relationship quality was the strongest predictor of postpartum depressive symptoms, and of changes in symptoms over time, may in part reflect common method variance due to higher associations between variables assessed at the same point in time. In combination with observed changes in partner relationship quality, however, they also suggest that attention should be paid to relative declines in partner relationship quality as a potential risk factor for greater postpartum depression. Such declines in relationship quality have been documented in the transition to parenthood literature, but their associations with changes in depressive symptoms for mothers of different ethnic and socio-demographic backgrounds have not.

Overall, results from Study 2 replicate the findings that Latina ethnicity was associated with significantly higher postpartum depressive symptoms and that there was a trend toward lower ratings of partner relationship quality even with controls in the model. However, the predicted associations between relationship quality and depressive symptoms did not vary by ethnicity in either cross-sectional or longitudinal tests. Therefore, the evidence suggests that women's perceptions of the partner relationship in the perinatal period are similarly important for Latinas and NH-Whites in predicting risk for or protection against depressive symptoms in the postpartum period.

CHAPTER 4

General Discussion and Conclusions

First, findings in the current paper underscore the robust influence of partner and family

relationship functioning on maternal postpartum mental health and extend research to

examination of it in a more sociodemographically diverse group than studied previously. These

samples varied in income, education, age, parity, and marital status and included Latinas varying

in acculturation and immigration status, as well as non-Hispanic White women. Second, despite

controlling for these powerful socio-economic predictors of mental health, higher partner

relationship quality was consistently associated with lower maternal depressive symptoms,

posttraumatic stress symptoms, and generalized anxiety. Similarly, partner and family

relationship strain and violence were consistently linked to higher levels of postpartum emotional

distress. Therefore, continued investigation into women's close relationships across pregnancy

and postpartum holds significant promise for understanding and potentially reducing the

development of postpartum depression and anxiety.

Further, results show that partner and family relationships operate primarily in an

additive manner to predict postpartum mental health. This is consistent with prior evidence that

partner relationship functioning and social support from the broader network have independent

effects on postpartum depression (McVey & Tuohy, 2007; Seguin et al., 1999). In some select

instances, higher levels of family strain also contributed to a greater negative impact of poor

partner relationship functioning; however, the lack of reliable interaction effects across multiple

tests suggests that findings of family relationship functioning moderating the influence of partner

relationships on postpartum mental health should be viewed as preliminary evidence needing

replication. Partner relationship functioning may be a slightly more robust predictor of postpartum mental health than are family relationship strain and violence, but future research should incorporate stress and support conferred by the broader family system into predictive models to improve our understanding of psychosocial contributors to postpartum depression and anxiety.

When examining the role of ethnicity, results of Study 1 and Study 2 provide consistent evidence that, although Latinas on average in the U.S. and in this sample experience greater socio-economic disadvantage compared to non-Hispanic White women, their close relationship functioning predicts postpartum mental health in very similar ways. That is, socio-economic and demographic factors may place Latinas at greater risk for poorer postpartum relationship functioning and mental health, but the extent to which high quality close relationships provide protection against depression and anxiety is comparable for both groups. These findings bode well for general models of relationship science and mental health, at least for the groups studied. Furthermore, it is crucial to understand the economic and social conditions of different ethnic and cultural groups, as these conditions are likely to significantly shape how women experience close relationships and support surrounding pregnancy and how relationships contribute to their risk for depression and anxiety. For both studies, variables such as parity, marital status, income, and age repeatedly accounted for more between-group differences in relationship functioning and maternal mental health than did ethnicity, a notable and important finding for those studying effects on physical and mental health of ethnicity and socioeconomic status.

This pattern of results has significant implications for the development of psychosocial interventions aimed at reducing maternal postpartum depression and anxiety. While efforts to adapt interventions for specific ethnic and cultural and groups may be important in promoting

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those groups' initial engagement in and acceptability of certain interventions (e.g., Bernal, 2006), there is little evidence in the current findings that working to reduce strain and improve the quality of partner and family relationships before and after pregnancy would have differential effects on mental health outcomes for Latinas and NH-Whites. Further, addressing socio-economic stressors and barriers to healthier relationship functioning may have significant benefit to maternal postpartum mental health in both ethnic groups.

One factor that may be important as a distinct influence on close relationship functioning and its associations with postpartum mental health is acculturation. The current paper found some evidence of differential importance of relationship functioning, specifically partner and non-partner family violence, on depression and anxiety based on degree of acculturation to the United States; however, the direction of these effects was mixed. Lower U.S. acculturation may be protective for Latinas against the negative influence of non-partner family violence on postpartum depressive and trauma symptoms, but lower acculturation seemed to exaggerate the negative association between partner violence and trauma symptoms and generalized anxiety. Moderating effects of acculturation on the association between partner and family relationship functioning and postpartum mental health may reflect closer, strong connections to protective social relationships in less-acculturated Latinas that are lost as Latinas become more acculturated to mainstream U.S. culture (e.g., Fuentes-Afflick & Lurie, 1997; Page, 2004). It is also possible that findings are a product of the specific instrument used to assess partner and family violence, which may pull for differential response styles or meanings imparted to the behaviors queried (e.g., yelling and screaming) across acculturation groups.

While the current set of findings provides important new insights into the ways in which partner and family relationship functioning is associated with postpartum maternal mental health,

some limitations deserve note. First, the current findings are based on subsamples of women who were in relatively stable partner relationships across pregnancy and the first several months postpartum. Therefore, their experiences likely do not generalize to women who experience less consistency in their relationships during this potentially stressful transition or who are not engaged in an ongoing partner relationship with their baby's father. Relatedly, the community samples used for these studies provide an unusual depth of information that can be difficult to obtain in research, yet levels of relationship and mental health distress were relatively low for most women studied. In addition, these women were all recruited through hospital and prenatal care settings, which restricts the sample somewhat to those with at least moderate personal and financial resources and possibly better mental health. The use of such community-based samples therefore does not permit extension of findings to women experiencing higher levels of postpartum depression and anxiety or to women seeking mental health treatment. In addition, results are based on maternal self-reports, so it is possible that common method variance may account for some of the observed associations. The correlational nature of these studies should further be interpreted with caution and not be taken as clear evidence of causal relationships between variables.

Despite these limitations, the current studies provide important new evidence about the ways in which partner and family relationship functioning during pregnancy and the first postpartum year work together to predict maternal depression and anxiety. Overall, findings highlight more similarities than differences in the quality of Latinas' and non-Hispanic White women's close relationships surrounding pregnancy and childbirth, and the importance of these relationships for postpartum mental health. Of note, dysfunctional relationships such as those characterized by violence or poor quality are detrimental to postpartum mental health and high

quality relationships are beneficial. Additional research is needed to continue exploring the ways in which socio-demographic background affect maternal adjustment in the perinatal period across ethnic groups in order to produce more sophisticated explanatory frameworks and interventions for improving postpartum mental health.

CHAPTER 5

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