

Father Involvement in Mexican American Families

by

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## ABSTRACT

Research demonstrating the importance of the paternal role has been largely conducted using samples of Caucasian men, leaving a gap in what is known about fathering in minority cultures. Family systems theories highlight the dynamic interrelations between familial roles and relationships, and suggest that comprehensive studies of fathering require attention to the broad family and cultural context. During the early infancy period, mothers' and fathers' postpartum adjustment may represent a critical source of influence on father involvement. For the current study, Mexican American (MA) women ( $N = 125$ ) and a subset of their romantic partners/biological fathers ( $N = 57$ ) reported on their depressive symptoms and levels of father involvement (paternal engagement, accessibility, and responsibility) during the postpartum period. Descriptive analyses suggested that fathers are involved in meaningful levels of care during infancy. Greater paternal postpartum depression (PPD) was associated with lower levels of father involvement. Maternal PPD interacted with paternal gender role attitudes to predict father involvement. At higher levels of maternal PPD, involvement increased among fathers adhering to less segregated gender role attitudes and decreased among fathers who endorsed more segregated gender role attitudes. Within select models, differences in the relations were observed between mothers' and fathers' reports of paternal involvement. Results bring attention to the importance of examining contextual influences on early fathering in MA families and highlight the unique information that may be gathered from separate maternal and paternal reports of father involvement.

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## **Introduction**

Once viewed largely through the lens of the maternal role, family research has widened its scope in recognition of the critical role fathers assume within the family context (Goeke-Morey & Cummings, 2007). One of the most influential developments to follow from dedicated study of fatherhood is the introduction of the father involvement construct, a tripartite conceptualization of the paternal role that encompasses paternal engagement, accessibility, and responsibility (Lamb, Pleck, Charnov, & Levine, 1987; Pleck, 2007). This multidimensional view of the father role replaced overly simplistic measures of father absence/presence and revealed the positive impact involved fathering has on family functioning and child well-being (Flouri, 2005); however, studies that assess father involvement have largely used samples of Caucasian fathers (Downer, Campos, McWayne, & Gartner, 2008). Although the father role is particularly prominent within Hispanic families, much less is known about paternal involvement within this ethnic group. Moreover, research on Hispanic father involvement has generally utilized elementary-age children and adolescents (Campos, 2008). Less is known about father involvement during early infancy, a pivotal period during which fathers are challenged by new roles, responsibilities, and patterns of interaction that emerge within the developing family system.

Family systems theory posits interdependencies between the roles and relationships of all family members (Broderick, 1993), suggesting that the determinants of father involvement are best studied with attention to the broad family context. Maternal postpartum depression (PPD), though frequently studied for its impact on the mother-infant or marital relationship, may also influence the paternal role during the

early infancy period. The contextual influence of mothers' mental health status on the paternal role is particularly relevant within ethnic minority families. Studies have observed rates of PPD in Hispanic women to be considerably higher than women in the majority culture, with estimates ranging from 28-64% (Chaudron et al., 2005; Kuo et al., 2004; Le, Perry, & Ortiz, 2010; Martinez-Schallmoser, Telleen, & MacMullen, 2003) as compared to prevalence rates of 7-19% among Caucasian women (Gavin et al., 2005). Although less studied, new fathers are also at risk for PPD (Paulson & Bazemore, 2010). As members of the largest and most rapidly expanding ethnic group in the United States and Arizona specifically (U.S. Census Bureau Population Division, 2006), the postpartum mental health of Hispanic families represents a public health issue deserving of special attention. The proposed study focuses upon Mexican Americans (MAs), the predominant background of Hispanic individuals in the United States (U.S. Census Bureau Population Division, 2006).

The relation of maternal and paternal postpartum mental health to father involvement has been relatively unexplored, especially within MA families. Preliminary research with majority culture samples has observed lower (Goodman, 2008) and higher (Field, Hossain, & Malphurs, 1999) levels of paternal involvement in the context of maternal PPD, with little understanding of the factors that shape how fathers respond to maternal distress following childbirth. Among MA fathers living in the U.S., adoption of traditional versus contemporary cultural gender role attitudes may uniquely impact father involvement in the context of maternal PPD. Emerging research suggests paternal PPD may also adversely affect father involvement (Paulson, Dauber, & Leiferman, 2006).

The elevated rates of PPD that have been observed among low-income, MA women, in combination with strong MA cultural values about fatherhood and the importance of family bonds, highlight the need to examine culturally-relevant processes that influence father involvement and well-being within the MA family system during the early infancy period; however, studies that address MA fathers' early involvement in the paternal role and postpartum experience are scarce. The current study addressed these limitations with an investigation of father involvement in low-income MA families and the influence of maternal and paternal PPD on father involvement during the early infancy period.

## **Background**

### **An Overview of the Father Involvement Construct**

Prior to the mid-1980s, fathers were rarely included in family process and child development research (Flouri, 2005). As fathering research grew, simple measures of father presence/absence or frequency of child contact predominated (Day & Lamb, 2004), especially among low-income, ethnic minority fathers (Hossain, Field, Pickens, Malphurs, & Del Valle, 1997). Much needed dimensionality was added by the construct of father involvement, consisting of paternal *engagement*, *accessibility*, and *responsibility* (Lamb et al., 1987). This tripartite conceptualization highlighted the significant variability with which fathers assume the parental role (Gorvine, 2010) and captured the concepts relevant to positive fathering (Doherty, Kouneski, & Erickson, 1998).

Lamb's tripartite theoretical conceptualization of paternal involvement has been widely used in empirical research with fathers; however, specific interpretations and operationalizations of the components have varied across studies (Pleck, 2010) and the

field continues to lack a reliable and valid measure of father involvement (Palkovitz, 2002). *Engagement* is generally assessed by evaluating the type/frequency of activities through which fathers directly interact with their children. *Accessibility* is measured as the amount of time fathers spend in the child's presence and available to respond to the child's needs, but not interacting with the child (e.g., father is nearby as child engages in solitary play). As compared to engagement and accessibility, responsibility has been the most difficult component of paternal involvement to operationalize and remains the least understood (Doherty et al., 1998; Pleck & Masciadrelli, 2004). *Responsibility* has been hypothesized to reflect the "managerial" tasks of fatherhood, such as arranging resources, planning for the child's future, and other types of indirect care (Stueve & Pleck, 2003). Less commonly, research has related responsibility to the abstract value, meaning, and sense of identity men ascribe to the father role (Hawkins & Palkovitz, 1999).

Fathers' involvement in household duties and childcare is a primary source of support for mothers during the early postpartum period (Belsky, 1984). In the early months of life, rapid infant development and family role changes may contribute to shifting needs and increasing opportunities for paternal involvement (Feldman, Greenbaum, Mayes, & Erlich, 1997). Early research estimated fathers spent 45 to 50 minutes in direct engagement with their infants and were accessible for approximately three hours per day (Ninio & Rinott, 1988). Recent studies suggest that children of all ages are spending increasing amounts of time with their fathers (Habib & Lancaster, 2005; Hofferth & Sandberg, 2001). Using a nationally representative sample of White, Hispanic, and African-American men in the United States, fathers were found to engage with their children for approximately 2 hours per day (Hofferth, Davis-Kean, Davis, &

Finkelstein, 1999). Using a similar national sample, Yeung, Sandberg, Davis-Kean, and Hofferth (2001) estimated paternal engagement ranged from 1.25 hours per weekday to 2.5 hours per weekend day. More consistent than the quantity of time fathers spend with their infants are the type of parenting behaviors in which fathers are involved. Fathers tend to be engaged in more physically active play activities, enrichment, and socialization with their infants (e.g., tickling, reading, singing songs, etc.) than basic caregiving activities (e.g., bathing, feeding, dressing, etc.; Bailey, 2001).

Research on father involvement is limited in a number of ways. First, the majority of research has been conducted using Caucasian families, with less attention to involvement among minority fathers (Parke et al., 2004). In the absence of such research, simplified stereotypical views of minority fathers (e.g., “absent” or “present”) may predominate. The current research study addresses the scarcity of culturally-informed, reliable measures of father involvement that are necessary to inform a more accurate and comprehensive understanding of how minority fathers enact the paternal role. Second, many studies focus only on observable engagement or accessibility components of father involvement with little attention to paternal responsibility (Parke, 2000). As a more indirect form of father involvement, paternal responsibility may be more difficult to conceptualize and measure; however, responsibility is an important aspect of the paternal role, particularly among low-income minority fathers for whom direct forms of father involvement may be limited by occupational responsibilities. Limited data has been inconclusive regarding the overall structure of father responsibility; both single- and multiple-factor models have found empirical support in the literature (Pleck, 2010). Notably, few studies have explored the dimensionality of paternal responsibility during

early infancy, despite the significance of this transition period for the family unit (for review, see Pleck, 2010). Third, existing research has primarily relied upon maternal reports for information about paternal involvement (Coley, 2001). Mother and father reports of father involvement have been found to differ (Mikelson, 2008) and tend to be especially divergent in low-income, minority samples (Coley & Morris, 2002). The current study addressed the numerous limitations in existing research by investigating MA father involvement and exploring the underlying structure of paternal responsibility with culturally-informed assessments collected from mothers and fathers.

### **Father Involvement in Mexican American Families**

Although father involvement includes elements that transcend across cultures (Flouri, 2005), there are also ways in which cultural values uniquely influence fathering behavior. The definition of a “good father” and expectations for father involvement may vary among cultures and with prevailing societal trends (Townsend, 2002). MA families represent a particularly salient environment in which to study fathers and the relation between paternal involvement and maternal and paternal PPD. Mirandé (1997) observed “a distinct Latino cultural ethic surrounding masculinity and fatherhood” (p. 115).

Cultural values may encourage MA men to assume a particularly prominent paternal role as providers, teachers, role models, and disciplinarians to their offspring (Cervantes, 2009; White, Roosa, Weaver, & Nair, 2009). Yet MA fathers, especially those who have immigrated to the United States, may also encounter frequent stressors and structural barriers (e.g., unemployment, inadequate community resources) that negatively affect their transition to parenting and present a challenge to meeting the responsibilities associated with the traditional provider role (Capps, Bronte-Tinkew, & Horowitz, 2010).

The intersection of cultural values surrounding the family and the lived experiences of MA fathers in the United States supports the dedicated study of the paternal role within this ethnic group, distinct from studies of fatherhood in the majority population.

Cultural beliefs surrounding the family, or *familism*, may also relate to how MA fathers approach and enact the father role (Parke et al., 2004), particularly the aspect of paternal responsibility. *Familism* is believed to be one of the most important Hispanic cultural values, representing “a strong sense of identification and attachment of individuals with their families (nuclear and extended)” (Sabogal, Marín, Otero-Sabogal, Vanoss Marín, & Perez-Stable, 1987, p. 398). *Familism* values espouse the provision of economic and emotional support to family members and emphasize a sense of obligation, loyalty, and respect within family relations (Germán, Gonzales, & Dumka, 2009). Prior research has suggested that *familism* values impact fathers’ attitudes toward parenthood and the provision of resources to support MA mothers (Campos, Dunkel Schetter, & Abdou, 2008). As an indication of men’s duties to the family and their commitment to the provider role, MA fathers’ *familism* values may reflect a culturally-specific representation of the responsibility component of father involvement as conceptualized by Lamb et al. (1987). Including the principles of *familism* in the assessment of MA paternal responsibility has the potential to capture cultural concepts relevant to this difficult-to-measure component of father involvement. Among low-income MA fathers, paternal responsibility may relate to involved fathering in a manner that is distinct from paternal engagement and accessibility. During periods of financial hardship, fathers’ engagement and accessibility may be limited by greater time commitments to employed work, however their sense of responsibility may be unaffected (Parke et al., 2004).

Comprehensive study of paternal engagement, accessibility, and responsibility is necessary to elucidate the unique and important qualities of the MA paternal role.

The rapid population growth of MA families in the U.S., in combination with the significant influence fathers exert on child and family functioning, support the necessity of research on the MA paternal role (Cabrera, Shannon, West, & Brooks-Gunn, 2006); however, empirical studies of father involvement among Hispanic men are extremely limited. A review of father involvement research published between 1990 and 2005 found that less than 4% of studies had samples comprised of at least 50% Latino participants (Downer et al., 2008) and most studies focused on isolated parenting behaviors and lacked a theoretical conceptualization of paternal involvement (Campos, 2008).

### **Father Involvement and Maternal Postpartum Depression**

Emerging research indicates that maternal PPD affects qualities of the paternal role, although the direction of effects has varied across studies. Partners of mothers experiencing depressive symptoms have been found to interact more positively and establish a more secure attachment with their infants than partners of nondepressed mothers (Edhborg, Lundh, Seimyr, & Widström, 2003; Field et al., 1999; Hossain, Field, Gonzalez, Malphurs, Del Valle, & Pickens, 1994), potentially demonstrating fathers' efforts to "compensate" for PPD-related deficits in maternal caregiving (Field et al., 1999). Conversely, *less* optimal father-child interactions among partners of depressed mothers have also been observed (Goodman, 2008; Paulson et al., 2006). Smith and Howard (2008) found that higher levels of maternal PPD were associated with lower levels of paternal instrumental support at six months postpartum. In some families,



maternal PPD may create additional stress within the home, negatively affecting fathers (“spillover”) and hindering their ability to bond with infants.

Importantly, these relations have not been addressed within the context of culturally-relevant gender role attitudes. Prior research has referenced cultural ideals of *machismo* and *marianismo* to suggest that MA mothers and fathers operate within sharply divided spheres of parenting duties whereby men and women assume distinct roles of family economic provider and family caregiver, respectively (Pinto & Coltrane, 2009); however, recent research suggests that traditional *machismo* (e.g., hypermasculinity, male dominance, rigid patriarchal authority) reflects an oversimplified cultural stereotype that neglects the positive qualities that can be associated with MA men’s strong commitment to the family (Saracho & Spodek, 2008). A contemporary view of *machismo* indicates that it is multidimensional in nature, with qualities that may also promote men’s involvement in caregiving, emotional sensitivity and connection to the family, and egalitarian attitudes toward the division of parenting tasks (Arciniega, Anderson, Tovar-Blank, & Tracey, 2008; Saracho & Spodek, 2008), even among otherwise low acculturated men (Coltrane, Parke, & Adams, 2004). In a qualitative study with MA fathers residing in the U.S., Taylor and Behnke (2005) observed that some men ascribed to *gender essentialism* views, whereas others held *gender progressive* attitudes. Whereas *gender essentialism* promoted distinct roles for women and men (with fathers assuming the traditional provider role), *gender progressive* views were associated with a collaborative orientation toward the division of household and childrearing tasks and men’s capacity for involvement in typically “feminine” parenting activities. Men’s descriptions of fatherhood clearly demonstrated the heterogeneous views on the paternal

role within MA culture. Overall, existing theoretical and empirical literature suggests that fathers' gender role attitudes may influence the nature of the relation between maternal PPD and father involvement. Thus, the current study hypothesized that MA fathers with more progressive, egalitarian gender role attitudes would demonstrate greater involvement in the context of maternal PPD.

### **Paternal Postpartum Depression**

Recent research suggests that mental health problems during the postpartum period may not be unique to new mothers, but studies of PPD in new fathers are limited. A call has been made for research that recognizes and informs the field of paternal PPD (Madsen & Juhl, 2007). The current study offered the opportunity to document paternal PPD in an understudied population, in addition to exploring its relations with paternal involvement.

In a recent review of the literature, Paulson and Bazemore (2010) reported rates of paternal PPD ranging from 8-26%, with the highest incidence documented between three and six months postpartum. Much like the relation of maternal PPD to maternal parenting behaviors, paternal PPD has been linked to deficits in the quality of the father-infant relationship. Depressed fathers demonstrate lower levels of interaction with their infants (Bronte-Tinkew, Moore, Matthews, & Carrano, 2007), engage in fewer enrichment activities (e.g., reading, singing, talking; Davis, Davis, Freed, & Clark, 2011; Paulson et al., 2006), and demonstrate more intrusive parenting behaviors (McElwain & Volling, 1999). In a meta-analytic review, Wilson and Durbin (2010) found a significant relation of paternal depression to lower quality paternal parenting, especially decreased positive behaviors (e.g., involvement).

The limited research that has been conducted suggests that maternal and paternal PPD may be associated, however questions of causality remain difficult to answer given the cross-sectional design of the majority of the studies in this area (Paulson & Bazemore, 2010). Goodman reviewed evidence suggesting that fathers' depression develops later in the postpartum period as compared to mothers' depression, with maternal PPD contributing to its onset. A number of studies have observed significantly elevated risk of paternal PPD among partners of women experiencing depressive symptoms during the postpartum period (Ballard, Davis, Cullen, Mohan, & Dean, 1994; Deater-Deckard, Pickering, Dunn, & Golding, 1998; Soliday, McCluskey-Fawcett, & O'Brien, 1999; Dudley, Roy, Kelk, & Bernard, 2001) with risk increasing throughout the first year following childbirth (Matthey, Barnett, Kavanuagh, & Howie, 2001).

Existing studies of paternal PPD have been primarily conducted with middle-class, Caucasian fathers (Goodman, 2004); however, the topic merits attention among MA fathers. Economic stressors have been associated with depression in MA men (Parke et al., 2004) and the birth of a child may compound financial problems, increasing risk for maladjustment among low-income MA fathers during the postpartum period. In a nationally representative survey of fathers at 12 months postpartum, Hispanic men evidenced higher rates of depression than any other ethnic group (Bronte-Tinkew et al., 2007). Limited research has also found paternal PPD in MA fathers to be negatively associated with paternal caregiving during infancy (Cabrera et al., 2006).

### **The Present Study**

The present research presented a unique opportunity to expand upon preliminary investigations into MA paternal involvement and provide a research dialogue upon which

future studies will build. Guided by the tripartite conceptualization of father involvement, the study assessed father involvement in a sample of MA fathers during the early postpartum period using measures of paternal engagement, accessibility, and a culturally-informed measure of responsibility collected from mothers' and fathers' reports. Within a cultural-contextual framework, targeted attention was given to the influences of maternal and paternal PPD on father involvement. First, descriptive analyses and correlations explored the qualities of father engagement, accessibility, responsibility, and financial support. Factor analyses were conducted to characterize the structure underlying paternal responsibility. Second, the influence of paternal PPD on each component of father involvement was evaluated. Finally, analyses of moderation explored the effect of maternal PPD on father involvement, hypothesizing that maternal PPD would predict higher levels of father involvement among fathers with more egalitarian gender role attitudes.

### **Method**

Data for the proposed study was partially drawn from an ongoing, NIH-funded longitudinal study of PPD in MA women. The larger study prospectively investigates the prevalence of maternal PPD and the influence of cultural, biological, and psychosocial risk and protective factors on the trajectory of maternal PPD. The present study used mothers' self-reports of PPD collected by the parent project during telephone interviews conducted at 15 weeks postpartum. Supplemental data collected by the current research study included all father involvement measures (mother- and father-report), and measures of paternal PPD, gender role attitudes, and demographic information (father-report only).

The current study collected supplemental maternal and paternal data during telephone interviews conducted with each parent at 15 and 21 weeks postpartum.

### **Sample**

The present investigation included 125 self-identified Mexican American women participating in the aforementioned longitudinal study and 57 self-identified Mexican American romantic partners of women (and biological fathers of infants) in the larger study. Proxy reports of fathering were collected from the remaining 68 women whose partners did not participate in the present study. Only women who identified a father were considered for inclusion in the current study. Eligibility criteria for men were (1) self-identification as MA, (2) English or Spanish language fluency and (3) age 18 or older. Eligibility criteria for women involved in the parent study included the aforementioned items (1) through (3), as well as (4) low-income status (self-reported income below \$25,000 or Medicaid eligibility), and (5) delivery of a healthy, singlet baby. Sample characteristics for mothers and fathers are presented in Table 1.

Chi-square and t-test analyses found no differences between women with partners participating in paternal data collection and women with non-participating partners in age ( $p = .79$ ), economic hardship ( $p = .42$ ), education level ( $p = .27$ ), number of biological children ( $p = .44$ ), and depressive symptoms at 15 weeks ( $p = .72$ ) or 21 weeks ( $p = .91$ ) postpartum.

### **Procedure**

Women were recruited into the larger longitudinal study first, after which permission was requested to contact the biological father of their infant. Recruitment of women for the parent project occurred at the prenatal clinic at Maricopa Integrated

Health Services, a community clinic that serves low-income populations. During prenatal care appointments, pregnant women (prior to 34 weeks gestation) were invited to participate by a female, bilingual interviewer if the aforementioned eligibility requirements were met. Following a woman's recruitment into the parent project, female interviewers requested her permission to speak with the father of her child about the current study during a 6 week home visit interview. If permission was received, bilingual male interviewers contacted eligible fathers by telephone to extend a separate invitation for participation. If recruited, fathers were mailed 2 informed consent forms and a self-addressed stamped envelope in which to return one signed form prior to the first telephone interview at 15 weeks postpartum. If the signed form was not returned prior to the first telephone interview, the consent forms was read aloud and fathers' verbal consent was recorded using a digital telephone recording system (Konnex) before beginning the interview. Bilingual male interviewers read questions aloud to fathers in the language of his choice and responses were entered into a computer-based survey system during 15- to 30-minute interviews. Fathers were compensated \$20 for each telephone interview.

A total of 116 fathers were identified for possible recruitment following the mothers' 6 week home visit interviews. Of these, 4 fathers (3.4%) were incarcerated, 23 (19.8%) could not be contacted, 23 (19.8%) declined to participate, 1 (0.9%) was recruited but could not be contacted for his interview, and 1 (0.9%) declined to participate after recruitment. Seven women (6.0%) declined to have their partners contacted for potential recruitment. The final sample was comprised of 57 (49.1%) fathers.

As part of their involvement in the larger study, mothers were assessed during multiple home visit and telephone interviews within the first two postpartum years, however the current study used maternal data collected during telephone interviews conducted at 15 and 21 weeks postpartum only. Study questions were read aloud to women by bilingual interviewers in the language with which she was most comfortable and responses were recorded onto project laptops using a computer-assisted interview system. Mothers were compensated \$10 for each telephone interview.

## **Measures**

**Maternal depressive symptoms.** Maternal depressive symptoms were assessed with the 10-item Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987). The EPDS has demonstrated moderate to good test-retest reliability, adequate internal consistency and concurrent validity (Boyd, Le, & Somberg, 2005), and has been validated in Spanish-speaking samples (Garcia-Esteve, Ascaso, Ojuel, & Navarro, 2003).

**Paternal depressive symptoms.** The EPDS was also used to assess paternal postpartum depressive symptoms. The EPDS has been shown to be a valid and reliable measure of paternal PPD among English- (Matthey et al., 2001) and Spanish-speaking (Escribá-Agüir, Gonzalez-Galarzo, Barona-Vilar, & Artazcoz, 2007) fathers.

**Father involvement.** Guided by the Lamb et al. (1987) tripartite conceptualization of paternal involvement, mothers' observations and fathers' self-reports of paternal *engagement, accessibility, and responsibility* were collected at 15 and 21 weeks postpartum with specific reference to the recently born infant. In light of the absence of "gold standard" assessments of father involvement, the current study relied upon strong theoretical grounding and previous empirical research to develop a culturally-sensitive

assessment of the three components of involvement.

**Engagement.** Engagement was assessed with six items from the Who Does What? Questionnaire - Infant Form (Cowan & Cowan, 1988), a widely-used measure of the division of childcare tasks between parents. Mothers and fathers were asked to indicate the level of involvement of fathers in six tasks that involve direct engagement (feeding, changing diapers, etc.) on a scale of one (mother does it all) to nine (father does it all). The measure has demonstrated high reliability in use with MA families (Cowan, Cowan, Pruett, Pruett, & Wong, 2009). In recognition of the high value Latino parents place on literacy activities (Ortiz, 2004), three additional items assessed the frequency with which fathers read books, told stories, and sang songs to their children (Cabrera et al., 2006; Capps et al., 2010).

**Accessibility.** Accessibility was measured by asking mothers and fathers to estimate the amount of time fathers spend available to attend to the child's needs in the absence of direct interaction. Bilingual interviewers directed mothers and fathers to recall the most recent typical weekday during the previous week, review fathers' and infants' activities, and report the number of hours fathers spent in the presence of, but not interacting with, infants. A separate estimate was obtained for paternal accessibility during a typical weekend day (Hofferth & Sandberg, 2001). Although prior studies have assessed accessibility using time diaries and frequency of activity measures, these tools are not well-aligned with the Lamb conceptualization and overlap with time spent in engagement (Pleck & Masciadrelli, 2004). Self-reports of accessible hours have been suggested as a measurement strategy (Pleck & Masciadrelli, 2004) and a similar approach has been used previously with MA fathers (Coltrane et al., 2004). To assess father's



general presence in the home, additional items assessed the number of days per week and hours per day fathers spent in employed work (Campos, 2008; Landale & Oropesa, 2001).

**Responsibility.** Many existing measures of responsibility measure how “responsible” fathers are for performing childcare tasks, overlapping with measures of engagement and obstructing its clear assessment (Pleck & Masciadrelli, 2004). To circumvent these limitations, responsibility was assessed with a combination of 24 items supported by theory and prior empirical research. First, because theory suggests that *familism* reflects a culturally-specific representation of paternal responsibility, 10 items from the *familism* scales of the Mexican American Cultural Values Scale (MACVS; Knight et al., 2010) were included. The MACVS, as currently written, assesses individuals’ *beliefs* in specific cultural values, rather than actual behaviors. Thus, items were modified to evaluate the degree to which fathers enact culturally-relevant behaviors reflective of paternal responsibility (e.g., “I [My partner] make[s] great sacrifices to make sure my child has a better life”). With input from an expert on MA family dynamics and mental health, seven items were written for the present study to measure strength, bravery, and other culturally-specific qualities that are theoretically associated with paternal duty in MA families (e.g., “I [My partner] do[es] what is needed to keep my [our] family safe”). Second, seven items were included from existing scales that are consistent with the Lamb et al. conceptualization of responsibility (i.e., indirect care activities to ensure children’s basic welfare), including five items from the Who Does What? measure (e.g., Dealing with my child’s doctor: Cowan et al., 1988) and two items

from the Paternal Involvement Scale (e.g., Planning for my child's future; Bruce & Fox, 1997).

**Financial support.** Finally, although monetary contributions are often excluded from measures of father involvement, financial support of the family is an important indirect pathway through which low-income fathers are involved in the paternal role (Tamis-Lemonda & McFadden, 2010). Therefore, items were included to assess the frequency with which fathers purchased childcare items for their baby (e.g., diapers, food, clothing, etc.) on a scale from 1 (never) to 3 (regularly; Bronte-Tinkew, Moore, & Halle, 2002).

**Acculturation.** The Acculturation Rating Scale for Mexican Americans II (ARSMA II; Cuéller, Arnold, & Maldonado, 1995) was administered at 15 weeks postpartum to assess fathers' integration and assimilation into Mexican and American societies. The ARSMA-II consists of two subscales, a 13-item Anglo Orientation Subscale and a 17-item Mexican Orientation Subscale that measure how frequently individuals engage in activities associated with each culture. The scale has demonstrated good reliability and validity among English- and Spanish-speaking samples (Cuéller et al., 1995).

**Segregated gender role attitudes.** Fathers' gender role attitudes were evaluated with a 14-item measure developed by Pinto and Coltrane (2009). The measure included seven items about fathers' views about masculinity, five items on gendered work and family roles for women and men, and two items on provider role ideals for fathers. Higher scores reflect endorsement of more segregated gender roles. The measure has demonstrated high reliability among Mexican and MA men (Pinto & Coltrane, 2009).

**Demographic information.** During the 15 week postpartum telephone interview, information was obtained on fathers' employment status, occupation, education, income, marital/partnership status, household composition, other biological children, and migration history.

**Translation.** All study measures were adapted for Spanish-speaking participants. Several scales have already been translated for use by the parent project. For new measures, the translation process followed the procedures used by the parent study, including translation, back-translation, and recentering of items, and field testing to ensure items were culturally-sensitive and appropriate to the local community (Behling & Law, 2000).

### **Data Analysis**

First, descriptive statistics explored the nature and quality of paternal engagement, accessibility, and financial support as reported by mothers and fathers (Aim 1). Correlations between maternal and paternal reports of father involvement were also calculated. Because previous studies have not examined the underlying structure of paternal responsibility in Mexican American families and the present study constructed a novel, culturally-sensitive measure of responsibility, additional exploratory analyses were undertaken to characterize paternal responsibility in the present study. Given the limited sample size obtained through fathers' self-report of paternal responsibility, Exploratory Factor Analyses (EFA) in MPlus software (Version 6.1, Muthèn & Muthèn, 2010) were conducted with mothers' reports only. Full information maximum likelihood was used to account for missing data and geomin rotation (a type of oblique rotation) allowed for correlations among the factors. Results of the EFA were then evaluated in conjunction

with prevailing theory and empirical support to inform and test a model with Confirmatory Factor Analysis (CFA) in Mplus software. Descriptive statistics, correlations, and reliabilities were calculated with the paternal responsibility factors extracted through the factor analyses.

Second, regression analyses in Mplus tested the main effects of paternal PPD and interactive effects of maternal PPD and paternal segregated gender role attitudes on four father involvement outcomes of interest: engagement, responsibility factors (behavioral responsibility and positive *machismo*), and financial support (Aims 2 and 3). In light of theoretically- and empirically-supported differences between maternal and paternal reports of fathering, each model treated mother and father reported father involvement outcomes as separate dependent variables. The skewness and kurtosis of several key study variables were elevated, therefore a Maximum Likelihood Robust estimator was used throughout the analyses to account for the non-normality of the data. Auxiliary variables and covariates were included as described in the following paragraphs.

Significant interactions between maternal PPD and paternal gender role attitudes were probed using the MODEL CONSTRAINT command to generate simple intercepts and simple slopes at the mean level of gender role attitudes and at one standard deviation above and below the mean of gender role attitudes.

**Auxiliary variables.** Auxiliary variables were included in models examining the influence of maternal and paternal postpartum depression on indices of father involvement. An auxiliary variable is one that is not of specific interest to the hypotheses, but is included to improve the performance of the model when missing data is present (Collins, Schafer, & Kam, 2001). Auxiliary variables may be a correlate of missingness

or correlated with variables in the substantive model, reducing biases due to a missing not at random mechanism and increasing power lost due to missingness (Graham, 2009). The Mplus software package uses the saturated correlates model approach whereby correlations are specified between an auxiliary variable and all other auxiliary variables, independent variables, and the residuals of dependent variables (see Figure 1 for a conceptual model of the relations). Importantly, the saturated correlates model improves the accuracy of model estimates in the presence of missing data without affecting model fit or the interpretation of the parameters (Enders, 2010). In the present analyses, a number of mother-reported variables were evaluated as potential auxiliary variables because they were hypothesized to correlate with missing father reports (e.g., marital status, cohabitation, family size) or correlate with missing variables (e.g., maternal proxy-report of father involvement indices). Following observed correlations, the following were included as auxiliary variables in models predicting father involvement outcomes: maternal employment status (*rs* ranging from .10 to .27), country of birth (*rs* ranging from .07 to .42), and language preference (*rs* ranging from .004 to .30). Although the strength of the correlations between the chosen auxiliary variables and the missing analyses variables varied by model, prior research indicates that there is no detriment to including auxiliary variables that may be weakly correlated with the missing variables (Enders, 2006). To remain consistent and simplify model testing, the same auxiliary variables were retained across all models.

**Covariates.** A number of variables were evaluated as potential covariates in separate models testing the predictive influence of maternal PPD and paternal PPD based upon whether they bore a significant association with father involvement. Indices of father

involvement were not related to fathers' orientation to Mexican (*ps* ranging from .38 to .75) or Anglo (*ps* ranging from .11 to .96) culture, language (*ps* ranging from .26 to .99), age (*ps* ranging from .26 to .97), economic hardship (*ps* ranging from .39 to .90), employment status (*ps* ranging from .17 to .54), marital status (*ps* ranging from .48 to .92), or first-time fatherhood (*ps* ranging from .47 to .90). Fathers' education was associated with financial support of the infant, with greater economic contributions observed among men who had attained higher levels of education ( $r = .28, p = .05$ ). Paternal education was not associated with any other father involvement outcomes (*ps* ranging from .17 to .85). Thus, education was included as a covariate in models examining the influence of maternal and paternal PPD on paternal financial support.

## **Results**

### **Aim 1: Maternal and Paternal Reports of Father Involvement**

**Paternal engagement.** The measure of paternal engagement used with mothers and fathers was written such that lower values indicated greater maternal engagement (and lower paternal engagement), values at the mid-point of the scale indicated that mothers and fathers engaged in the task in approximately equal proportions, and higher values indicated greater paternal engagement (and lower maternal engagement). Results indicated that mothers were more likely to engage in direct interaction as compared to fathers during the first six postpartum months. Only 4.8% ( $n = 6$ ) of mothers and 3.5% ( $n = 2$ ) of fathers reported that direct interaction activities were more frequently completed by fathers than mothers at 15 weeks postpartum. Similarly at 21 weeks postpartum, 2.4% ( $n = 3$ ) of mothers and 7.0% ( $n = 4$ ) of fathers reported engagement activities were higher among fathers as compared to mothers. At 15 weeks postpartum, maternal and paternal

reports of father engagement were not significantly correlated ( $r = .13, p = .49$ ), however a significant correlation was observed at 21 weeks postpartum ( $r = .46, p < .01$ ; see Table 3). Within-reporter consistency was observed in the average levels of father engagement across time points (mother  $r = .80, p < .01$ ; father  $r = .69, p < .01$ ).

**Accessibility.** As originally written, the measure of accessibility included two empirically- and theoretically-based items that assessed fathers' general availability to attend to infant needs. Mothers and fathers were asked to estimate the number of hours that fathers were in the presence of the infant and able to respond to his/her needs (but not necessarily interacting with the infant) during a typical weekday and weekend day; however, these items proved to be confusing and subject to varying interpretations among participants, as some individuals provided a response of "0 hours" to indicate that fathers were "never inaccessible" (or always accessible) and other participants responded to the items with an estimate of "24 hours" to indicate that fathers were "always accessible" (or never inaccessible). These two items were dropped in light of the inconsistencies, leaving a single item that assessed the number of hours per week fathers spent in employed work. Higher values indicate that fathers spent a greater number of hours in employed work (and were thus less accessible to their infants). Existing literature does not support using employment hours as the sole measure of paternal accessibility and as such, evidence to support the testing of its relation with maternal and paternal postpartum depression is lacking. Thus, paternal accessibility is described in descriptive terms only and is not included as an outcome in models testing the influence of maternal and paternal PPD on father involvement (see below).

Informant reports from mothers indicated that fathers' worked an average of 37.88 hours per week at 15 weeks postpartum ( $SD = 17.67$ ,  $Range = 0-96$ ) and an average of 39.24 hours per week at 21 weeks postpartum ( $SD = 17.27$ ,  $Range = 0-84$ ). Fathers self-reported an average of 41.41 hours of employed work per week at 15 weeks postpartum ( $SD = 18.14$ ,  $Range = 0-84$ ) and an average of 45.90 hours of employed work per week at 21 weeks postpartum ( $SD = 12.94$ ,  $Range = 0-78$ ; see Table 2 for descriptive statistics). Maternal and paternal reports suggested an increase in fathers' work hours over time (indicating a decrease in accessibility), however the growth was not significant ( $p = .52$  and  $p = .10$  for maternal and paternal reports, respectively). All within- and between-reporter correlations were significant ( $r$ s ranging from .30 to .70,  $p < .05$ ; see Table 3).

**Responsibility.** EFA results indicated a select number of problematic items that did not load well on any factor, regardless of the number of factors extracted. Review of the items suggested they largely lacked applicability given the developmental stage of infants and family structure/residency status of the current sample. For example, an item assessing the degree to which fathers scheduled childcare loaded poorly. This is most likely due to the infrequency with which childcare is used during the first several months of infancy, particularly among low-income populations. Loadings were also low for items measuring the extent to which fathers encouraged older children in the family to care for the infant, facilitated close relationships between the infant and members of the extended family, and brought the extended family together for important holidays and celebrations. For first-time parents and families from Mexico that do not have relatives residing in the United States, these items may have lacked relevance.



The preliminary EFA loadings were examined while considering the two main categories into which the responsibility items could be classified: 1) items drawn from existing scales previously used in majority culture samples (Who Does What? and Paternal Involvement Scale) and 2) new items written for the current study and items modified from the MACVS to assess culturally-specific qualities associated with paternal responsibility in MA families. Based on the results of the EFAs and the aforementioned classification strategy, CFA was used to test a two-factor model with 19 items (five items were omitted based on the low EFA loadings). For the current analyses, fit indices (RMSEA, CFI, and SRMR values) and critical evaluation of the substantive content of the items that loaded on each factor were used to support the final factor solution (see Table 4).

The first factor, *Behavioral Responsibility*, consisted of 6 items from the Who Does What? measure and Paternal Involvement Scale that captured actions performed by the father in indirect service for the infant (see Table 4). The second factor, *Positive Machismo*, consisted of 13 new and MACVS-modified items. The initial CFA provided marginal fit according to the RMSEA fit index and acceptable to good fit according to the SRMR and CFI fit indices (RMSEA = .10, 90% CI RMSEA = .08-.11, SRMR = .04, CFI = .94). One MACVS-modified item that was originally specified on the *Positive Machismo* factor (*Thinks about our baby when making important decisions*) was observed to bear content similar to *Behavioral Responsibility* items that assessed paternal decision-making. Fit was improved slightly when the CFA was run allowing the modified MACVS item to load on the *Behavioral Responsibility* factor instead of the *Positive Machismo* factor (RMSEA = .09, 90% CI RMSEA = .07-.11, CFI = .95, SRMR = .04).

All loadings exceeded .50 and were significant at  $p < .01$ . Although the RMSEA estimate for this model exceeds the proposed cutoff of .08 (Fabrigar et al., 1999), empirical support for the use of universal RMSEA cutoffs is limited (Chen, Curran, Bollen, Kirby, & Paxton, 2008) and suggests the use of other goodness-of-fit measures (i.e., CFI, SRMR) to inform global model fit. Given theoretical support for the two-factor model of paternal responsibility and the fact that the small sample size used in the study may limit the identification of highly significant effects, all subsequent analyses proceeded utilizing the 7-item *Behavioral Responsibility* factor and the 12-item *Positive Machismo* factor. Among mothers, reliabilities for the *Behavioral Responsibility* and *Positive Machismo* factor were .90 and .97, respectively. Among fathers, reliabilities were .58 and .69 for the *Behavioral Responsibility* and *Positive Machismo* factors, respectively.

**Financial support.** Informant and self-reports collected from mothers and fathers suggested a consistently high degree of financial contributions to infant care across time. On a scale ranging from 1 (indicating that fathers never purchase childcare items) to 3 (indicating that fathers regularly purchase childcare items), mean level of financial support was 2.67 ( $SD = .50$ ) at 15 weeks postpartum and 2.66 ( $SD = .46$ ) at 21 weeks postpartum, per maternal report. Similarly, fathers reported frequently purchasing childcare items at 15 weeks postpartum ( $M = 2.72$ ,  $SD = .38$ ) and 21 weeks postpartum ( $M = 2.83$ ,  $SD = .26$ ; See Table 2). Correlations within-reporter across time were significant among mothers ( $r = .72$ ,  $p < .01$ ), but not among fathers ( $r = .14$ ,  $p = .33$ ). Maternal and paternal reports of paternal financial support were not correlated at 15 weeks postpartum ( $r = .07$ ,  $p = .66$ ) or 21 weeks postpartum ( $r = -.23$ ,  $p = .11$ ; See Table 3).

## **Aim 2: Paternal Postpartum Depression and Father Involvement**

Fathers' scores on the measure of postpartum depressive symptoms ranged from 0 to 13 ( $M = 5.30$ ,  $SD = 3.21$ ) and 10.0% of fathers in the current study met criteria for PPD at 15 weeks postpartum based on an optimal cut-off of  $\geq 10$  recommended by Matthey, Barnett, Kavanagh & Howie (2001). Results of regression analyses predicting maternal and paternal reports of father involvement from paternal PPD are summarized below and presented in Table 5.

**Model 1: Engagement.** Paternal PPD at 15 weeks was marginally associated with father reported paternal engagement at 21 weeks postpartum. Direct infant interaction decreased as paternal depressive symptoms increased ( $p = .08$ ). A stronger negative relation was observed between paternal PPD and mothers' reports of paternal engagement ( $p = .02$ ).

**Model 2: Behavioral responsibility.** Greater paternal depressive symptoms at 15 weeks postpartum predicted significantly lower levels of fathers' behavioral responsibility at 21 weeks postpartum per paternal reports ( $p < .01$ ). Analyses revealed a negative but nonsignificant relation between paternal PPD and maternal reports of father behavioral responsibility ( $p = .12$ ).

**Model 3: Positive *machismo*.** The relation of paternal PPD to positive *machismo* was nearly significant per fathers' self-reports ( $p = .06$ ) and significant per mothers' informant reports ( $p = .02$ ). Across reporters, fathers who experienced greater depressive symptoms at 15 weeks following the birth of their infant were engaged in lower levels of culturally-specific indirect care activities at 21 weeks postpartum.

**Model 4: Financial support.** Controlling for paternal education, fathers' economic contributions to infant care at 21 weeks postpartum were not predicted by paternal PPD at 15 weeks postpartum (paternal report:  $p = .34$ , maternal report:  $p = .33$ ).

### **Aim 3: Maternal Postpartum Depression, Paternal Gender Role Attitudes, and Father Involvement**

Maternal reports of postpartum depressive symptoms ranged from 0 to 14 ( $M = 2.98$ ,  $SD = 3.75$ ) and 9.4% of women met criteria for PPD at 15 weeks postpartum based on a cut-off score of  $\geq 10$  (Dennis, 2004). Results of regression analyses predicting mother and father reported father involvement outcomes from the interaction of maternal PPD and paternal gender role attitudes are summarized below and presented in Table 6.

**Model 1: Engagement.** Analyses for the first model yielded a significant interaction of maternal PPD at 15 weeks and paternal segregated gender role attitudes on levels of father reported paternal engagement at 21 weeks, indicating that the influence of PPD on engagement varied with fathers' gender role attitudes ( $p = .04$ ). Probing of simple slopes found a positive association that neared significance at one standard deviation below the mean of gender role segregation, indicating that men who ascribed to less segregated gender roles provided higher levels of "hands on" infant care at 21 weeks when mothers reported greater depressive symptoms ( $B = .08$ ,  $SE = .04$ ,  $t = 1.78$ ,  $p = .07$ ). The regression of maternal PPD on father engagement was negative but nonsignificant at one standard deviation above the mean of segregated gender role attitudes ( $B = -.04$ ,  $SE = .04$ ,  $t = -.93$ ,  $p = .35$ ), suggesting a lesser impact of maternal PPD on father engagement for men with more segregated gender role attitudes. Results are displayed graphically in Figure 2.

A similar pattern of results was observed when mother reported paternal engagement served as the dependent variable. A significant interaction term ( $p < .01$ ) was probed to reveal a positive relation at one standard deviation below the mean of gender role attitudes ( $B = .06, SE = .04, t = 1.72, p = .09$ ) and a negative relation at one standard deviation above the mean of gender role attitudes ( $B = -.226, SE = .08, t = -2.83, p = .01$ ). When maternal PPD was greater, direct interaction with infants was higher among fathers who endorsed less segregated gender role attitudes and lower among fathers who reported more segregated gender role attitudes according to maternal reports (see Figure 3).

**Model 2: Behavioral responsibility.** The interaction of 15 week maternal PPD and father gender role attitudes neared significance in the prediction of fathers' behavioral responsibility at 21 weeks per paternal report ( $p = .07$ ). At higher levels of maternal PPD, fathers with less segregated gender role attitudes performed more indirect infant care activities, however the effect was marginally significant ( $B = .03, SE = .02, t = 1.81, p = .07$ ). Conversely, relations were negative but not significant among fathers at one standard deviation above the mean of segregated gender role attitudes: Levels of indirect responsibility activities declined among fathers with more segregated gender role attitudes when maternal PPD was greater ( $B = -.05, SE = .04, t = -1.34, p = .18$ ; see Figure 4).

Conversely, maternal PPD and paternal gender role attitudes did not interact to predict maternal reports of behavioral responsibility ( $p = .33$ ). The relation of PPD and mother reported behavioral responsibility was graphed at low, average, and high levels of fathers' gender role attitudes to provide a comparison to analyses that utilized father reports as the dependent variable. Overall, Figure 5 suggests a negative main effect such

that maternal PPD predicted lower levels of behavioral responsibility across all levels of paternal gender role segregation.

**Model 3: Positive *machismo*.** Fathers' gender role attitudes did not significantly moderate the influence of maternal PPD at 15 weeks on father ( $p = .75$ ) or mother ( $p = .53$ ) reported positive *machismo* at 21 weeks and the main effects of maternal PPD (father:  $p = .93$ , mother:  $p = .41$ ) and segregated gender role attitudes (father:  $p = .77$ , mother:  $p = .74$ ) were also nonsignificant. When the interaction term was removed, the relation between maternal PPD and fathers' self-reported positive *machismo* remained nonsignificant ( $p = .14$ ); however, a significant negative relation emerged between maternal PPD and mothers' reports of positive *machismo* and ( $p = .04$ ), suggesting positive *machismo* behaviors declined at higher levels of maternal PPD per maternal report. Gender role attitudes remained a nonsignificant predictor across reporters when the interaction term was removed (father:  $p = .32$ , mother:  $p = .96$ ).

**Model 4: Financial support.** Fathers' self-reported economic contributions at 21 weeks were predicted by the interaction of maternal PPD and paternal segregated gender role attitudes ( $p = .02$ ). Consistent with prior models, probing of the interaction revealed that paternal financial support increased with higher levels of maternal PPD among fathers with less segregated gender role attitudes ( $B = .02$ ,  $SE = .01$ ,  $t = 2.14$ ,  $p = .03$ ). The relation of maternal PPD to financial support was negative but not significant among fathers with more segregated gender role attitudes ( $B = -.01$ ,  $SE = .01$ ,  $t = -.89$ ,  $p = .37$ ). Figure 6 provides a graphical representation of the results. The moderated effect of gender role attitudes appeared greatest at lower levels of maternal PPD. Comparison of the simple intercepts (i.e., levels of paternal financial support when mothers reported no

symptoms of PPD) revealed that fathers who endorsed gender role attitudes at one standard deviation below the mean reported significantly lower economic support than those reporting gender role attitudes at the mean or one standard deviation above the mean (all  $ps < .01$ ).

Maternal PPD and paternal segregated gender role attitudes did not interact to predict mothers' reports of paternal financial contributions ( $p = .45$ ). Despite the nonsignificant interaction, a graphical representation of the relations among maternal PPD, gender role attitudes, and economic support was constructed to compare maternal and paternal reports (see Figure 7). Consistent with prior models of mother reported father involvement outcomes, maternal depressive symptoms appeared negatively associated with paternal economic support irrespective of fathers' gender role beliefs. Mothers reported that fathers with low, average, and high levels of gender role segregation provided lower levels of financial support when maternal PPD was greater.

### **Discussion**

A changed landscape on fathering is emerging from the past several decades of family process research. No longer is the paternal role deemed ancillary to the maternal role; rather, fathers are recognized for their strong and enduring influence on family functioning. However, research contributing to this updated perspective has been dominated by studies conducted with Caucasian fathers of older children. The objectives of the present research address critical limitations in research on minority fathers during the infancy period. Building upon a longitudinal study of maternal PPD in MA women, the current study recruited and collected supplemental data from a subsample of MA romantic partners and biological fathers of mothers and infants participating in the larger

project. Aims of the current study were three-fold: examine the nature of father involvement using theoretically- and empirically-informed measures of paternal engagement, accessibility, responsibility, and financial support, investigate the contextual influence of paternal PPD on father involvement, and evaluate the interaction of maternal PPD and fathers' segregated gender role attitudes on father involvement. In recognition of the unique perspectives which may be garnered from maternal and paternal reports of fathering, all analyses were conducted with each parents' data serving as separate dependent variables. Results of the current study are an important contribution toward the development of a comprehensive understanding of the paternal role in MA families and its relation to the larger family system, with important implications for preventive and intervention efforts to promote involved fathering in minority families.

### **Maternal and Paternal Reports of Father Involvement**

Prior conceptualizations of MA men as uninvolved or uninterested in the paternal role are stereotypical views that fail to appreciate their important contributions to the family environment (Cabrera & Bradley, 2012). In support, direct comparisons across racial and ethnic groups often find higher rates of involvement among Latino fathers as compared to fathers of other ethnic backgrounds (Cabrera, Hofferth, & Chae, 2011). Analyses addressing the first aim of the study demonstrated that MA fathers interact with their infants with relative frequency. On a nine-point scale measuring engagement, mothers and fathers reported levels of "hands on" fathering in the moderate range, slightly less than the scale's midpoint (which represented an equal amount of infant interaction by mothers and fathers). Although newborn and infant care needs are often considered to be under the sole purview of the maternal role, such findings suggest that fathers provide



meaningful levels of care during the first several months of life. Notably, paternal engagement may be higher for certain parenting tasks as compared to others. Research during the toddler and early childhood years has found the majority of fathering to be conducted in the form of “rough and tumble” play and leisure activities (Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). Similar patterns may be observed in early infancy; in the current study, maternal and paternal reports of paternal engagement were highest for active behaviors, including “taking the baby out” (mother  $M = 4.19$ , father  $M = 5.26$ ) and “playing with the baby” (mother  $M = 4.57$ , father  $M = 4.78$ ). Although still in the moderate range, average levels of paternal involvement in feeding, bathing, and responding to the baby’s cries were among the lowest observed among all engagement activities. The variability across paternal engagement activities may be partly attributed to fathers’ employment status (i.e., it may be easier for fathers to engage in “time-flexible activities,” such as outings or play outside of work hours than “time-inflexible activities,” such as feeding or bathing; Cabrera, Hofferth, & Chae, 2011). The different levels of engagement across tasks may also reflect men’s preference for interacting with their infants in accordance with traditional gender roles (Leavell, Tamis-LeMonda, Ruble, Zosuls, & Cabrera, 2012).

Fathers’ weekly employment hours provided a general measure of paternal accessibility, defined as the degree to which fathers were physically available to respond to their child’s needs, regardless of actual contact with the infant (e.g., father is nearby as infant is sleeping, engaged in solitary play, etc.). Although the reported employment hours were in the range of a typical 40-hour workweek, the averages mask significant variability in fathers’ work hours, as a range of up to 96 hours was observed during the

postpartum period. Latinos report greater difficulty securing stable, full-time employment as compared to Caucasians and may be forced to accept part-time or seasonal work (Hernandez & Brandon, 2002). Illustratively, nearly one-third of fathers in the current sample were employed part-time, occasionally, or not at all. A nonsignificant increase in employment hours was reported by mothers and fathers from 15 to 21 weeks postpartum. Although the increase in hours may reflect fathers' efforts to bring in additional income to support the family during the postpartum period, MA fathers' limited employment opportunities may not afford this degree of choice or flexibility. It may also be the case that fathers are able to spend additional time outside the home later in the postpartum period, as adjustment to parenthood progresses.

A variety of different strategies have been used to gather a comprehensive measure of paternal accessibility, ranging from detailed time diaries (Hofferth & Sandberg, 2001) to broad measures of co-residence or frequency of contact (D'Angelo, Palacios, & Chase-Landsdale, 2012). In addition to reporting fathers' employment hours, mothers and fathers in the current study were asked to estimate the number of hours on a typical weekday/weekend day that fathers were "accessible, but not necessarily directly interacting" with their child. Evaluating the pattern of responses to the accessibility questions suggested that these items were not well understood or easy for participants to answer. Men participating in the present study often worked unpredictable hours or took job opportunities that required intermittent travel, which may have made it difficult to draw conclusions about fathers' general day-to-day availability in the home. Future research with low-income and minority fathers that evaluates paternal accessibility on a

more expansive weekly or monthly basis, or assesses the frequency of separation periods may gather more meaningful estimates of fathers' availability.

Compared to paternal engagement and accessibility, responsibility is the most difficult component of paternal involvement to measure and as such, has been the least studied (Cabrera, Tamis-Lemonda, Bradley, Hofferth, & Lamb, 2000; Parke, 2000). As part of the first objective to comprehensively describe MA father involvement, the current study developed and tested the factor structure of an adapted measure of paternal responsibility with items that were: 1. Consistent with prior research and existing theory that defines paternal responsibility as "indirect care" and 2. Adapted from a validated measure of *familism* or written for the current study to reflect cultural values relevant to the paternal role. Following preliminary exploratory factor analyses and evaluation of the pattern of factor loadings, confirmatory factor analyses supported two factors of paternal responsibility consistent with the aforementioned classifications, *Behavioral Responsibility*, and *Positive Machismo*.

Prior research has typically employed a unidimensional definition of responsibility as the "managerial" or "indirect supervisory" aspects of fatherhood. In support of this existing conceptualization, the *Behavioral Responsibility* factor reflects the frequency of fathering activities that indirectly serve the child and facilitate healthy development (e.g., *Deals with the doctor regarding the child's health*, *Plans for the child's future*). A single behavioral factor may fail to capture the powerful cultural concepts that shape paternal responsibility within MA families, however. In particular, MA *familism* values promote strong familial bonds, emotionally supportive family relationships, and a sense of self that is partly defined by fulfilling one's role within the

family (Fuller & Garcia Coll, 2010; Knight et al., 2010). *Familism* values bear similarity to the construct of paternal responsibility by calling for individuals to act in service of the family and describing an abstract significance that is garnered by belonging to the family network. Results of the current study support a second component of paternal responsibility among MA men, *Positive Machismo*, that is informed by and consistent with *familism* values. Together, results of the factor analyses suggest that a multidimensional framework may contribute to a more comprehensive, culturally-informed evaluation of paternal responsibility. Among MA fathers, paternal responsibility may manifest as a behavior-based component that is shared cross-culturally (*Behavioral Responsibility*) and an element strongly informed by the familistic orientation characteristic of Latino families (*Positive Machismo*). Although the current study did not test the factor structure with other racial/ethnic groups and cannot determine if a value-based component of paternal responsibility is unique to MA fathers, the current findings support the necessity of considering the broader sociocultural context when evaluating father involvement.

Diverging from prior research that has examined men's economic assets as a predictor of father involvement, the present study explored material contributions as a unique component of involvement. Although updated conceptualizations of the paternal role have moved from defining fathers solely as "family breadwinners," the provision of economic resources continues to be an important component of fathering (Coley & Schindler, 2008; Waller, 2010). Making purchases for the family may be an especially important component of involvement among low-income MA fathers as limited employment opportunities lead them to accept positions that require long hours,

undesirable shifts, or temporary relocation (Saracho & Spodek, 2008). Occupational responsibilities may restrict fathers' availability and time for direct engagement with their children; thus, providing for children's material needs may be a primary means through which MA fathers remain connected and involved. In the current sample, data collected from both parents suggested fathers are strongly committed to providing material support despite reporting low incomes. Financial insecurity and a lack of monetary success may heighten men's desire to provide their children with a "better life," including economic stability and resources that fathers did not have (Knight et al., 2010).

Fathering research has been criticized for its overreliance on mother reports of father involvement, primarily due to concerns of bias and misrepresentation (Hernandez & Coley, 2007). Whereas some research has shown a correlation between mother and father reports of involvement (Seltzer & Brandreth, 1994), other studies indicate discrepancies between maternal and paternal data (Coley & Morris, 2002) and differences in the predictive value of father involvement on child outcomes by reporter (Hernandez & Coley, 2007). In its first aim to describe the nature of MA father involvement, the present study is strengthened by data collected from both mothers and fathers, and suggests a complex relation between parental reports of involvement. Maternal and paternal reports of engagement and positive *machismo* were significantly correlated, however there was a lack of concordance in reports of behavioral responsibility and financial support. The observable, tangible qualities of paternal engagement behaviors and broad applicability of cultural values that are captured by positive *machismo* may have facilitated reporter agreement within these subtypes of father involvement. Conversely, mothers may not have had firsthand knowledge of how fathers partake in

abstract, indirect responsibility behaviors (e.g., *Thinks about the baby when making important decisions*), contributing to the lack of correlation in reports of behavioral responsibility. Surprisingly, maternal and paternal reports of fathers' material contributions to the family were also uncorrelated. Although the nonsignificant correlation may be attributed to low scale variability, the measure asked each parent to indicate how frequently fathers *provided* (not purchased) different items for the infant. The ambiguous wording may have contributed to differences in how mothers and fathers interpreted the intent of the measure. In addition to correlations *between* reporters, the pattern of correlations *within* reporter is also informative. Correlations among the subtypes of paternal involvement were generally modest, particularly within fathers' self-reports (father *rs* ranging from -.03 to .42, mother *rs* ranging from .43 to .83), supporting a multidimensional conceptualization of father involvement. Rather than simply being "involved" or "uninvolved," fathers' involvement may vary by domain or subtype.

### **Paternal Postpartum Depression and Father Involvement**

Following descriptive analyses of father involvement, the current study addressed the second aim by testing the contextual influence of paternal depressive symptoms at 15 weeks postpartum on father engagement, behavioral responsibility, positive *machismo*, and financial contributions at 21 weeks postpartum. Rates of PPD across studies are challenging to compare given differences in assessment tools, cutoffs, and timing of measurements; however, a recent meta-analysis reported approximately 10% of new fathers will experience depression in the first postpartum year (Paulson & Bazemore, 2010). Observed rates of paternal PPD in the present study (10%) are consistent with the aforementioned meta-analysis and comparable to prior rates observed within the first

several postpartum months (Edmonson, Psychogiou, Vlachos, Netsi, & Ramchandani, 2010; Edeka, Petrou, & Ramchandani, 2011). Notably, the observed prevalence of paternal PPD is twice as high as the 12-month base rate of depression in the general population of men (4.8%; Kessler et al., 2003). Paternal depressive symptoms that develop during the early postpartum period may persist throughout the first year (Zelkowitz & Milet, 2001), providing further support for paternal PPD as a significant public health concern.

Early exposure to paternal depressive symptoms has been shown to negatively impact children's emotional and behavioral development (Ramchandani et al., 2008), an effect that may be at least partially explained by the detrimental influence of depressive symptoms on father involvement. In the present research, paternal depressive symptoms at 15 weeks postpartum significantly predicted lower levels of father's self-reported behavioral responsibility at 21 weeks. Marginally significant effects in the same direction were observed for father's self-reports of engagement and positive *machismo* behaviors, however paternal PPD was not associated with financial support. Limited prior research has found paternal PPD to negatively impact the quality of parenting (Davis, Davis, Freed, & Clark, 2011) and engagement in positive enrichment activities (Paulson, Dauber, & Leiferman, 2006), however samples were comprised of predominantly Caucasian men (Wilson & Durbin, 2010). Results of the current study extend findings to MA fathers during the early infancy period.

The impact of paternal PPD on father involvement varied with the specific subtype under analysis. In particular, the negative association between paternal depressive symptoms and paternal involvement was strongest when predicting fathers'

behavioral responsibility. Behavioral responsibility reflects parenting-related judgment, decision-making, and planning for the future; the strong relation with paternal PPD may reflect the influence of depressive symptoms on cognitive functioning. Conversely, paternal PPD was unrelated to fathers' material contributions to the family. Although paternal depression may be associated with unemployment and loss of income (Fitzgerald, Roy, Anderson, & Letiecq, 2012; Ramchandani & Psychogiou, 2009), the current study only assessed the frequency with which fathers provided material resources. Although paternal PPD does not appear to change the regularity with which material items are purchased for infant care, a more comprehensive measure of financial support may reveal negative effects of paternal PPD on fathers' economic involvement in the family.

A similar pattern of results emerged when maternal, rather than paternal, reports of father involvement served as the dependent variable. Fathers' self-reported depressive symptoms predicted significantly lower levels of mother reported paternal engagement and positive *machismo*. Consistent with fathers' reports, the relation between paternal PPD and fathers' financial contributions was also nonsignificant per mothers' reports. Unlike the model predicting father reported behavioral responsibility, there was a nonsignificant association between paternal PPD and mother reported behavioral responsibility; however, it is difficult to conclude that a true discrepancy exists between maternal and paternal models of behavioral responsibility. The direction of the effect was the same across reporters, but the model utilizing mothers' data failed to reach statistical significance.



## **Maternal Postpartum Depression, Paternal Gender Role Attitudes, and Father Involvement**

Maternal PPD may represent another particularly salient source of influence on fathering during the early infancy period. Whereas some research has observed higher levels of father-infant interaction in the context of maternal depression (“compensatory effects”; Edhborg, Lundh, Seimyr, & Widström, 2003; Hossain, Field, Gonzalez, Malphurs, & Del Valle, 1994), other studies have reported that mothers’ PPD is nonsignificantly (Chabrol, Bron, & Le Camus, 1996) or negatively (Goodman, 2008) associated with fathering behavior. As part of the final aim, it was hypothesized that the endorsement of segregated versus egalitarian gender role attitudes would shape the direction of the relation between maternal depressive symptoms and father involvement in MA families.

Gender ideology may be particularly salient to fathering in MA families. It has been assumed that traditional MA values promote a high degree of masculinity for men and femininity for women, manifesting in gendered, unidimensional parenting roles for fathers (“economic providers”) and mothers (“caregivers”; Torres, Solberg, & Carlstrom, 2002); however, the cultural backdrop surrounding the MA paternal role is neither straightforward nor homogenous. *Familism* values remain important in Latino cultures and may draw MA men into more involved fathering (Glass & Owen, 2010). A recent reconceptualization of the masculine *machismo* stereotype highlights a positive dimension that promotes men’s empathy, warmth, and egalitarian attitudes toward the division of parenting responsibilities (Arciniega, Anderson, Tovar-Blank, & Tracey,

2008). Indeed, MA men with stronger identification to these cultural values demonstrate higher levels of paternal involvement (Coltrane, Park, & Adams, 2004; Cruz et al., 2011). MA fathers residing in the United States may also adopt the more egalitarian gender role values found in mainstream society (Leavell, Tamis-Lemonda, Ruble, Zosuls, & Cabrera, 2012). For some MA men, fathering may reflect a “hybrid style” of culturally-informed traditional and modern parenting practices (Cabrera & Bradley, 2012).

Consistent with study hypotheses, fathers’ segregated gender role attitudes interacted with maternal PPD to predict father reported engagement and material support. Fathers who endorsed a less segregated and more egalitarian perspective on maternal and paternal roles provided higher levels of direct interaction and material resources when maternal depressive symptoms were greater. Lower levels of engagement and material support were observed when maternal depressive symptoms were higher among fathers ascribing to more segregated attitudes. A similar marginally significant interaction was observed in the model predicting paternal behavioral responsibility. Maternal PPD has been associated with lower quality mother-infant interactions and negative maternal parenting behaviors (Beck, 1995). In the current study, fathers with more progressive gender role attitudes may have felt inclined to “compensate” for parenting deficits associated with maternal depression by increasing their levels of involvement. Conversely, maternal parenting problems following from mothers’ PPD may have contributed to higher levels of parenting stress for fathers with more segregated gender role attitudes. Parenting stress, in turn, has been associated with lower levels of father involvement (Bronte-Tinkew, Horowitz, & Carrano, 2010). Interestingly, fathers’ self-reported positive *machismo* was not predicted by the main or interactive effects of

maternal PPD and paternal gender role attitudes. Positive *machismo* reflects culturally-informed aspects of fathering and a familistic orientation that may be deeply-rooted components of the paternal identity among MA men. As a fundamental, value-based subtype of father involvement, positive *machismo* may be less vulnerable to the external influence of maternal PPD. Additionally, the compensatory effects hypothesized to explain higher levels of paternal engagement, behavioral responsibility, and financial support in the context of maternal PPD may not be readily applicable to positive *machismo*. Unlike the other forms of father involvement, greater levels of positive *machismo* may not be perceived by fathers as providing direct compensatory benefits to depressed mothers and infants.

Consistent with the model of father reported engagement, mother reported paternal engagement was predicted by the interaction of maternal PPD and gender role attitudes, with greater levels of direct interaction among fathers who ascribed to less segregated gender role attitudes and lower levels of interaction among those who endorsed more segregated gender role attitudes when maternal PPD was greater. Fathers' engagement with infants may be a salient form of instrumental support for mothers during the early postpartum period and depressed mothers may be particularly attuned to subtle changes in the frequency or amount of fathers' direct interaction.

Not all findings were similar across mother and father reported outcomes, however. In contrast to analyses that utilized father reports of involvement, maternal PPD and fathers' segregated gender attitudes did not interact to predict maternal reports of paternal behavioral responsibility or financial support. Graphical representations of the relations suggest that maternal PPD exerted a main effect on these father involvement

subtypes, with higher levels of depressive symptoms contributing to lower involvement per maternal report. Maternal PPD was also negatively associated with mothers' report of positive *machismo*. Mothers may hold unique perspectives on the various subtypes of father involvement that explain these discrepant results. In particular, mothers may define paternal engagement as involvement in pleasurable, leisure-type interaction activities and view paternal behavioral responsibility, positive *machismo*, and financial support as "chores," or aspects of father involvement that are less enjoyable, but equally important. Independent of fathers' gender role attitudes, mothers suffering from symptoms of postpartum depression may be more likely to report that their partners are involved in lower levels of father involvement subtypes that are considered more effortful or obligatory.

It is important to note that there are limitations to maternal perspectives of father involvement and mothers' reports may be subject to biases. Similarly, validity issues may emerge within fathers' reports of their own involvement. The nature of self and informant reports of parenting is such that we may never be able to declare one to be "right" and the other to be "wrong." In the current study, a systems perspective on family relationships highlights the importance of understanding each parent's unique perception of father involvement and its relation to parental postpartum adjustment, distinct from forming conclusions about the accuracy of data collected from each reporter. The current study is strengthened by its ability to examine similarities and differences that emerge in models of maternal and paternal reports of father involvement.

## **Limitations**

The current study has a number of limitations that should be considered, particularly as a guide for future research. First, the study provided a targeted examination of early fathering within MA families; generalizability to other Latinos may be limited given cultural heterogeneity across subgroups. Moreover, MA men recruited for the current study were a subset of biological fathers/romantic partners of infants and mothers participating in the larger longitudinal project. Studies of the paternal role may be characterized by a selection bias among fathers who agree to participate (Costigan & Cox, 2001) and prior research has found that familial and environmental stressors may negatively influence MA fathers' decisions to participate in research (Wong, Roubinov, Gonzales, Dumka, & Millsap, in press). Thus, levels of father involvement and paternal depressive symptoms in the current study may not be representative of families experiencing higher levels of adversity. Men participating in the current research were also primarily resident fathers from two-parent families; results may not apply to different family structures (e.g., divorced, step-parent) or fathers who do not reside with their children. The sample size was small, particularly of MA fathers. Although advanced analytic strategies were used to increase power and reduce bias (e.g., modeling with auxiliary variables using the larger sample of mother reports), continued efforts to recruit larger and more representative samples of Latino fathers is necessary to advance a comprehensive understanding of fathering and support the generalizability of the findings. The current study used culturally-adapted measures of father involvement for MA families. In particular, extensive modifications were made to the paternal responsibility scale and subsequent exploratory and confirmatory factor analyses were conducted with mother reports only given the limited number of father reports. Although

the measure is strongly supported by theory and prior empirical research, it has yet to be validated. Additional testing of the psychometric properties of the scale with a larger sample of mothers and fathers will enhance support for its continued use with MA families. As previously noted, measurement considerations also arose when attempting to assess paternal accessibility with mothers' and fathers' broad estimations of paternal availability in the home. Although the current findings contribute to the development of culturally-informed paternal involvement measures, further research is needed to build upon and refine the preliminary work begun by the present research.

The current study provided an in-depth examination of fathering and its relation to parental depressive symptoms during the early postpartum period. The assessments of maternal and paternal PPD in the present research were timed in accordance with prior studies that observed higher rates of disorder during the first three to six months following the birth of the child (Nonacs, 2005; Paulson & Bazemore, 2010); however, the onset and trajectory of parental PPD is variable during the first postpartum year (Letourneau et al., 2012) and relations with fathering may shift with rapid developmental changes that occur during infancy. Given fathers' tendency to engage in physical, activity-based parenting behaviors, stressful contextual influences on paternal involvement may become particularly evident as infants gain motor skills and begin to explore their surrounding environment. Future longitudinal examinations that gather successive assessments across the first postpartum year are well-suited to examining the complexity of these processes as they unfold over time. Importantly, longitudinal designs also offer the opportunity to explore reciprocal effects between maternal PPD and fathering that are supported by a family systems perspective. Although the current study

focused upon the influence of maternal depressive symptoms on father involvement, the quality of fathering may impact the development and recovery from maternal PPD (Smith & Howard, 2008). Finally, fathering outcomes are complex and multiply determined. Other influences on fathering not tested by the current study (e.g., child characteristics, maternal gatekeeping, parenting self-efficacy) represent fruitful areas for future research of the paternal role (Cabrera & Bradley, 2012).

### **Summary and Conclusion**

Updated conceptualizations of the paternal role necessitate research that examines the nuances of father involvement and its relation to processes within the broader family system. The current study addressed critical gaps in extant research with an in-depth exploration of fathering and its determinants in understudied minority families. Findings support a significant role for MA fathers during the early postpartum period and suggest that involvement spans wider domains than previous stereotypes would imply; however, patterns of early father involvement do not develop in a vacuum and may be particularly influenced by maternal and paternal postpartum psychological health. In the current study, paternal PPD exerted a negative influence on father involvement. Additionally, the high prevalence rate of paternal PPD suggests that MA fathers are at significant risk for maladjustment following the birth of their child and supports the clinical utility of PPD screenings among new mothers *and* fathers. Findings also demonstrated lower levels of paternal involvement as a consequence of maternal PPD, particularly among men who endorsed more segregated gender role attitudes.

The focus of the current study has been on paternal involvement and its early influences, however understanding fathering “in context” has broad implications for the

family system. Mothers and fathers influence child development and overall family functioning in an interactive, rather than additive, manner. Research that takes a family systems approach to examining the paternal role is optimally positioned to advance literature and public policy on fatherhood, motherhood, and family well-being; however, studies that apply this framework to investigations of minority fathering are scarce. The current study used a systems approach to describe a multidimensional nature of paternal involvement in MA families and identify contextual factors that may shape fathering during infancy. Results may inform preventive and intervention programs for MA fathers by encouraging efforts that address both individual and familial influences on a range of paternal involvement domains, particularly fathers' direct engagement activities and indirect support for the infant. When implemented early in the postpartum period, programmatic efforts may promote a trajectory of involved fathering throughout infancy and childhood. In light of the dynamic interrelations within the family system, the benefits of high-quality fathering may extend beyond children's development to support other family members and strengthen the overall family unit.



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Table 1

*Sample Characteristics*

Variable	Mothers ( <i>n</i> = 125)		Fathers ( <i>n</i> = 57)	
	<i>n</i>	%	<i>n</i>	%
<b>Family income</b>				
Less than or equal to \$5,000	15	12	0	0
\$5,001-\$10,000	26	21	7	12
\$10,001-\$15,000	35	28	6	11
\$15,001-\$20,000	15	12	15	26
\$20,001-\$25,000	12	10	7	12
\$25,001-\$30,000	9	7	8	14
\$30,001-\$35,000	6	5	6	11
\$35,001-\$40,000	1	1	1	2
\$40,001-\$45,000	0	0	1	2
\$45,001-\$50,000	0	0	1	2
\$60,001-\$65,000	1	1	0	0
\$90,001-\$95,000	1	1	0	0
Missing	4	3	5	9
<b>Education</b>				
Did not attend school	1	1	0	0
1-11 years	79	63	35	61
High school graduate/GED	34	27	12	21
Some college/vocational school	5	4	1	2
Vocational school graduate	2	2	1	2
Associate's degree	0	0	2	4
College degree	1	1	3	5
Master's degree	1	1	0	0
Missing	2	2	3	5
<b>Country of birth</b>				
Mexico	106	85	47	83
United States	12	10	7	12
Other	5	4	0	0
Missing	2	2	3	5
<b>Language</b>				
Spanish	108	86	44	77
English	12	10	10	18
Missing	5	4	3	5
<b>Marital status</b>				
Married and living together	44	35	28	49
Married but not living together	1	1	0	0
Living with partner but not married	66	53	24	42
Not married/not living with partner	8	6	1	2
Separated	2	2	1	2
Missing	4	3	3	5
<b>Postpartum employment status</b>				
Not employed	111	89	---	---
Unemployed and looking for work	---	---	4	7
Employed occasionally or day laborer	---	---	6	11
Employed part-time	5	4	7	12
Employed full-time	7	6	37	65
Missing	2	2	3	5
Number of other biological children <i>M (SD)</i>	2.20 (1.60)		2.80 (1.60)	
Number of children in the home <i>M (SD)</i>	2.30 (1.80)		<i>Not collected</i>	
Age <i>M (SD)</i>	28.50 (6.00)		31.40 (8.20)	
Age at immigration <i>M (SD)</i>	16.20 (7.90)		17.6 (8.20)	

Table 2

*Descriptive Statistics of All Study Variables*

Variable	Reporter	Time (Weeks)	<i>N</i>	<i>M</i>	<i>SD</i>	Possible range	Cronbach's alpha	Skewness	Kurtosis
EPDS	MR	15	121	2.98	3.75	0-30	.83	1.39	1.06
EPDS	MR	21	114	3.24	3.91	0-30	.82	1.53	2.11
EPDS	PR	15	50	5.30	3.21	0-30	.68	.47	-.45
EPDS	PR	21	54	4.37	3.75	0-30	.78	1.10	.79
Engagement	MR	15	73	3.64	1.49	1-9	.87	.07	.45
Engagement	MR	21	94	3.55	1.18	1-9	.77	-.60	.09
Engagement	PR	15	47	3.97	.96	1-9	.62	-.23	2.10
Engagement	PR	21	48	3.98	.90	1-9	.59	.49	.47
Accessibility	MR	15	102	37.88	17.76	---	---	.05	1.08
Accessibility	MR	21	110	39.24	17.27	---	---	-.32	.40
Accessibility	PR	15	49	41.41	18.14	---	---	-.05	.27
Accessibility	PR	21	50	45.90	12.94	---	---	-.73	2.81
Behavioral responsibility	MR	15	105	3.68	1.17	1-5	.90	-.96	-.04
Behavioral responsibility	MR	21	112	3.73	1.06	1-5	.88	-1.10	.76
Behavioral responsibility	PR	15	54	4.26	.52	1-5	.61	-.33	-.74
Behavioral responsibility	PR	21	53	4.24	.44	1-5	.58	-.38	-.51
Positive <i>machismo</i>	MR	15	106	4.36	1.10	1-5	.97	-2.11	3.40
Positive <i>machismo</i>	MR	21	113	4.40	1.05	1-5	.97	-2.20	4.01
Positive <i>machismo</i>	PR	15	54	4.83	.23	1-5	.72	-1.59	1.75
Positive <i>machismo</i>	PR	21	53	4.86	.20	1-5	.69	-2.39	6.39
Financial support	MR	15	106	2.67	.50	1-3	.89	-1.98	3.34
Financial support	MR	21	115	2.66	.46	1-3	.87	-2.03	4.30
Financial support	PR	15	54	2.72	.38	1-3	.85	-2.35	7.26
Financial support	PR	21	50	2.83	.26	1-3	.73	-1.85	3.30
Gender role attitudes	PR	15	51	38.75	8.16	14-60	.73	.46	-.01
ARSMA Mexican orientation	PR	21	54	4.23	.57	1-5	.91	.11	-.96
ARSMA Anglo orientation	PR	21	54	2.89	.85	1-5	.86	-1.17	1.52

*Note.* Accessibility is calculated as hours worked per week. ARSMA = Acculturation Rating Scale for Mexican Americans; EPDS = Edinburgh Postnatal Depression Scale; MR = Maternal report; PR = Paternal report.

Table 3

*Correlations among Key Study Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Engagement (MR)	1.00												
2 Accessibility (MR)	-.25*	1.00											
3 Behavioral responsibility (MR)	.59**	-.15	1.00										
4 Positive <i>machismo</i> (MR)	.56**	.11	.83**	1.00									
5 Financial support (MR)	.43**	.17 <sup>†</sup>	.67**	.75**	1.00								
6 Engagement (PR)	.46**	-.17	-.10	-.04	-.30*	1.00							
7 Accessibility (PR)	-.06	.57**	.09	.21	.42**	-.15	1.00						
8 Behavioral responsibility (PR)	.50**	-.27	.08	.03	.01	.42**	-.14	1.00					
9 Positive <i>machismo</i> (PR)	.18	.17	.40**	.39**	.46**	.10	.00	.42**	1.00				
10 Financial support (PR)	.20	-.28	-.07	-.23	-.23	.08	-.13	.41**	-.03	1.00			
11 PPD (MR)	-.05	.12	-.23*	-.21*	-.17 <sup>†</sup>	.04	.01	-.01	-.29*	.11	1.00		
12 PPD (PR)	-.33*	.01	-.19	-.27 <sup>†</sup>	-.08	-.22	-.08	-.33*	-.06	-.23	.25 <sup>†</sup>	1.00	
13 Gender role attitudes (PR)	.01	.03	-.06	.05	.00	-.15	-.07	.09	-.18	.30*	.03	.10	1.00

Note. Postpartum depression (PPD) and gender role attitudes measured at 15 weeks; father involvement outcomes measured at 21 weeks. MR = Maternal report; PR = Paternal report; PPD = Postpartum depression. <sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ .

Table 4

*Standardized Loadings of 2-Factor Confirmatory Factor Analysis of Paternal**Responsibility Items*

Item	Behavioral Responsibility	Positive <i>Machismo</i>
Makes plans for the baby's future	.82	
Chooses toys for the baby	.71	
Thinks about the baby when making important decisions	.86	
Makes important decisions for the baby	.94	
Deals with the doctor regarding the baby's health	.67	
Does household chores for the baby	.51	
Decides how to respond to the baby's cries	.67	
Keeps the family united		.94
Provides a sense of security for the family		.92
Puts the family's needs above his own		.64
Works hard to provide for the family		.86
Is strong and brave for the family		.96
Encourages the family to be loving and affectionate		.91
Keeps the family safe		.86
Sacrifices things for the baby		.92
Puts the family first		.85
Would risk his own safety to protect the family		.85
Works hard to support partner so she can be a good mother		.86
Takes responsibility as a father seriously		.83

Table 5

*Paternal Postpartum Depression and Father Involvement Model Results*

Model	Paternal Report of Father Involvement						Maternal Report of Father Involvement					
	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>
Model 1: Engagement												
Paternal PPD	-.070	.040	-.228	-1.76	.08	.052	-.144	.061	-.397	-2.37	.02	.158
Model 2: Behavioral responsibility												
Paternal PPD	-.046	.017	-.340	-2.68	< .01	.116	-.081	.051	-.245	-1.57	.12	.060
Model 3: Positive <i>machismo</i>												
Paternal PPD	-.018	.009	-.250	-1.88	.06	.063	-.118	.048	-.377	-2.45	.02	.142
Model 4: Financial Support												
Paternal Education	.129	.065	.235	1.99	.05	.088	-.161	.142	-.167	-1.14	.26	.046
Paternal PPD	-.011	.012	-.139	-.954	.34		-.024	.025	-.171	-.972	.33	

Note. PPD = Postpartum depression.

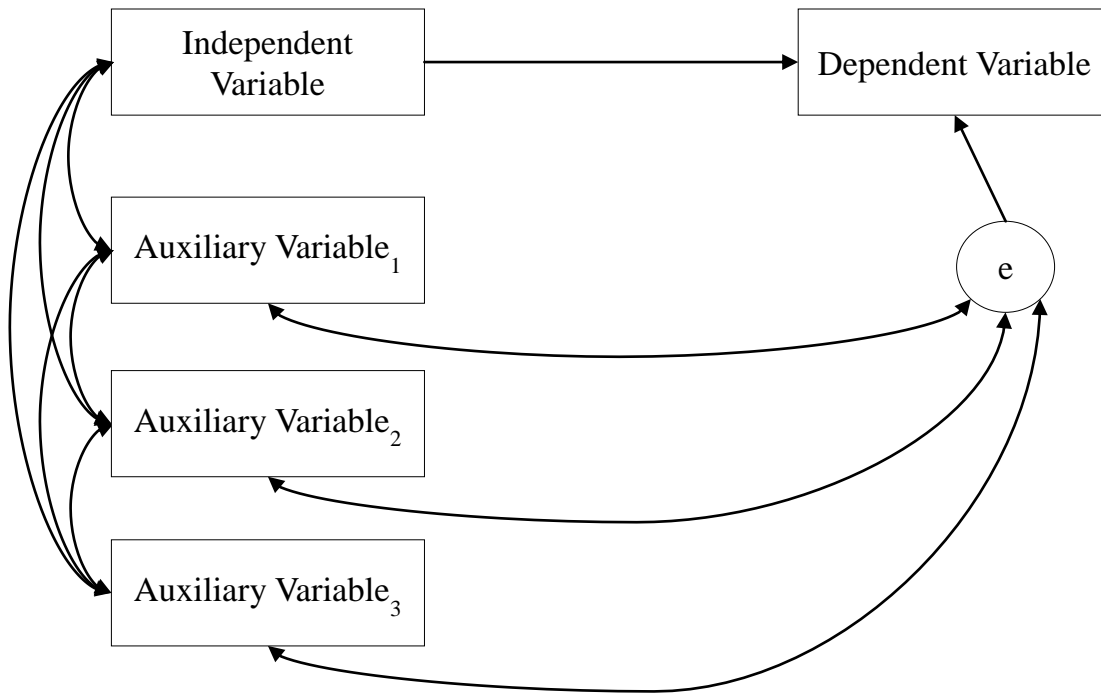
Table 6

*Maternal Postpartum Depression, Paternal Gender Role Attitudes, and Father Involvement Model Results*

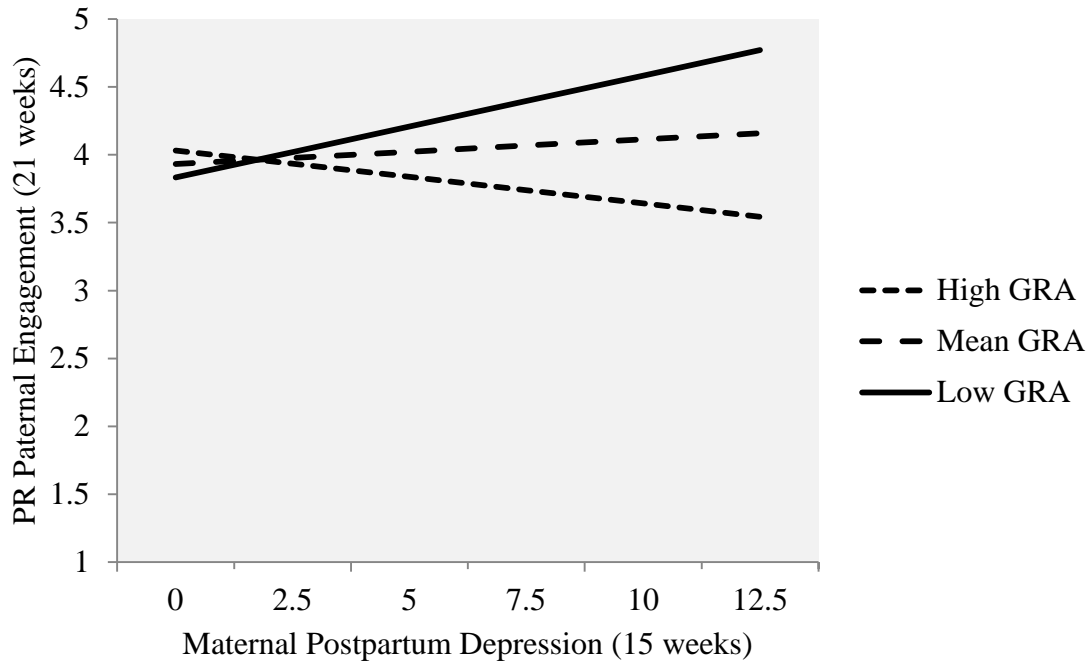
Model	Paternal Report of Father Involvement							Maternal Report of Father Involvement						
	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> <i>change</i>	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> <i>change</i>
Model 1: Engagement						.097	.066						.293	.284
Maternal PPD	.292	.136	1.10	2.15	.03			.609	.152	1.92	4.00	< .01		
Paternal GRA	.012	.021	.100	.572	.57			.053	.032	.364	1.68	.09		
Maternal PPD X Paternal GRA	-.007	.003	-1.02	-2.06	.04			-.018	.005	-2.15	-3.82	< .01		
Model 2: Behavioral responsibility						.132	.127						.098	.030
Maternal PPD	.167	.084	1.39	1.20	.05			-.247	.194	-.868	-1.28	.20		
Paternal GRA	.024	.011	.445	2.17	.03			-.042	.035	-.327	-1.22	.22		
Maternal PPD X Paternal GRA	-.005	.003	-1.47	-1.82	.07			.005	.005	.711	.981	.33		
Model 3: Positive <i>machismo</i>						.062	.004						.057	.016
Maternal PPD	.004	.048	.069	.087	.93			-.201	.242	-.721	-.831	.41		
Paternal GRA	-.002	.006	-.067	-.295	.77			-.015	.045	-.116	-.334	.74		
Maternal PPD X Paternal GRA	-.001	.001	-.286	-.320	.75			.004	.006	.550	.630	.53		
Model 4: Financial support						.269	.055						.056	.005
Paternal Education	.168	.066	.302	2.54	.01			-.161	.171	-.167	-.943	.35		
Maternal PPD	.071	.028	1.00	2.57	.01			.015	.052	.122	.285	.78		
Paternal GRA	.019	.006	.570	3.27	< .01			.002	.012	.038	.180	.86		
Maternal PPD X Paternal GRA	-.002	.001	-.924	-2.37	.02			-.001	.001	-.313	-.751	.45		

*Note.* GRA = Gender role attitudes; PPD = Postpartum depression.

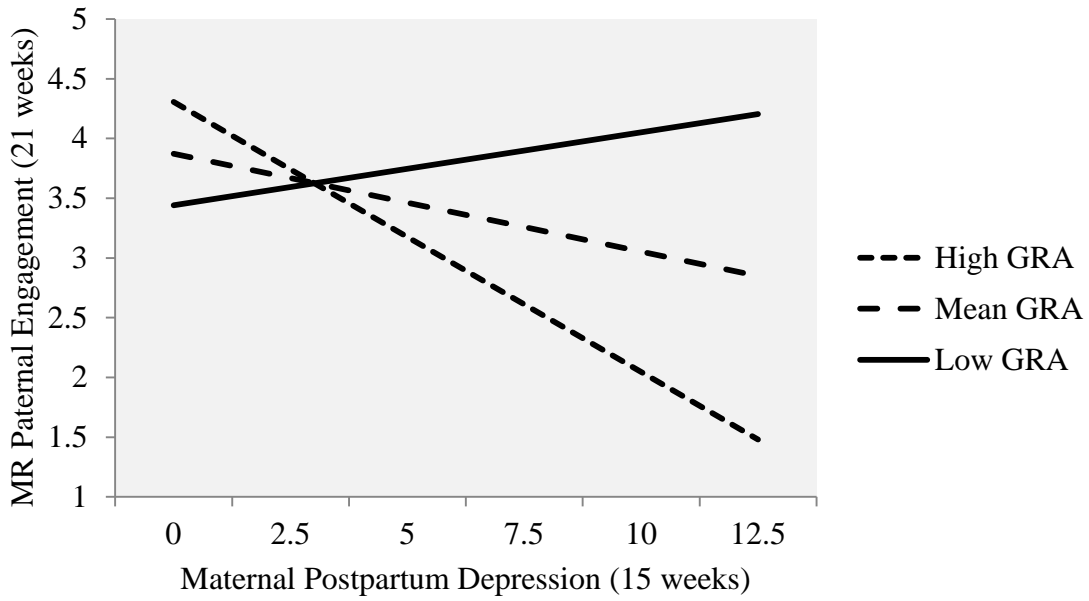




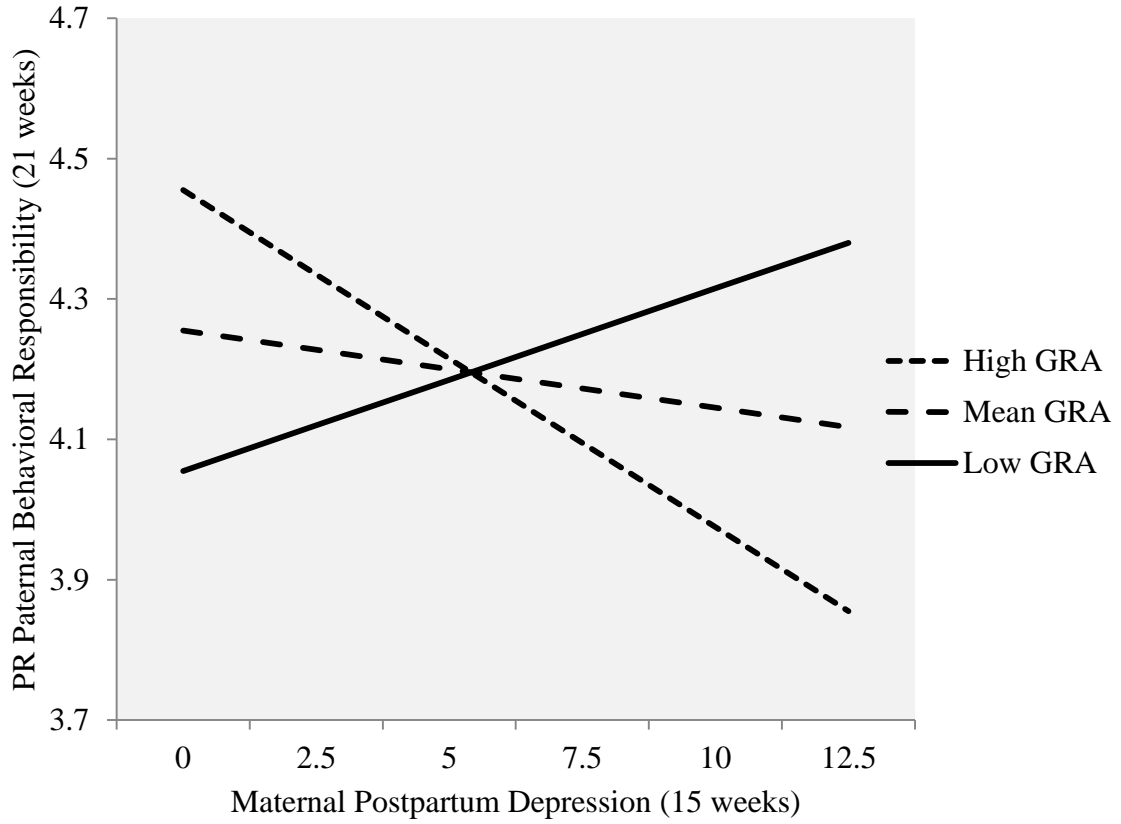
*Figure 1.* Conceptual representation of relations among independent, dependent, and auxiliary variables in regression analyses. All auxiliary variables are correlated with each other, the independent variable, and the residual term.



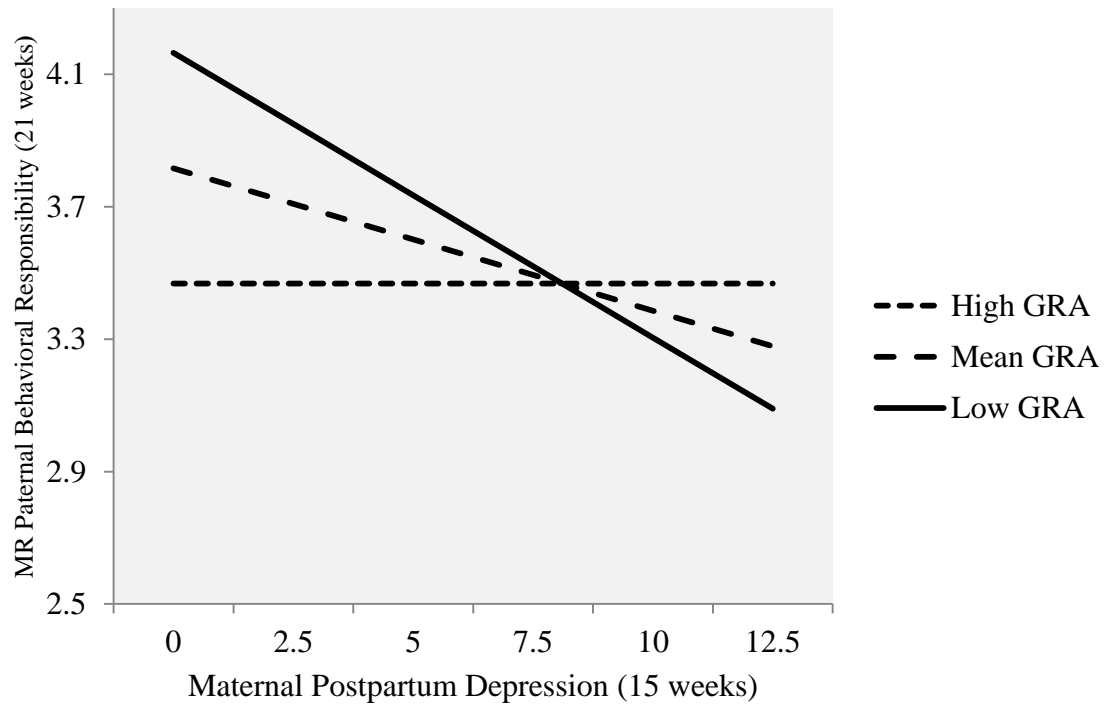
*Figure 2.* Influence of maternal postpartum depression at 15 weeks on paternal-reported paternal engagement at 21 weeks as moderated by father segregated gender role attitudes. GRA = Gender role attitudes; PR = Paternal report.



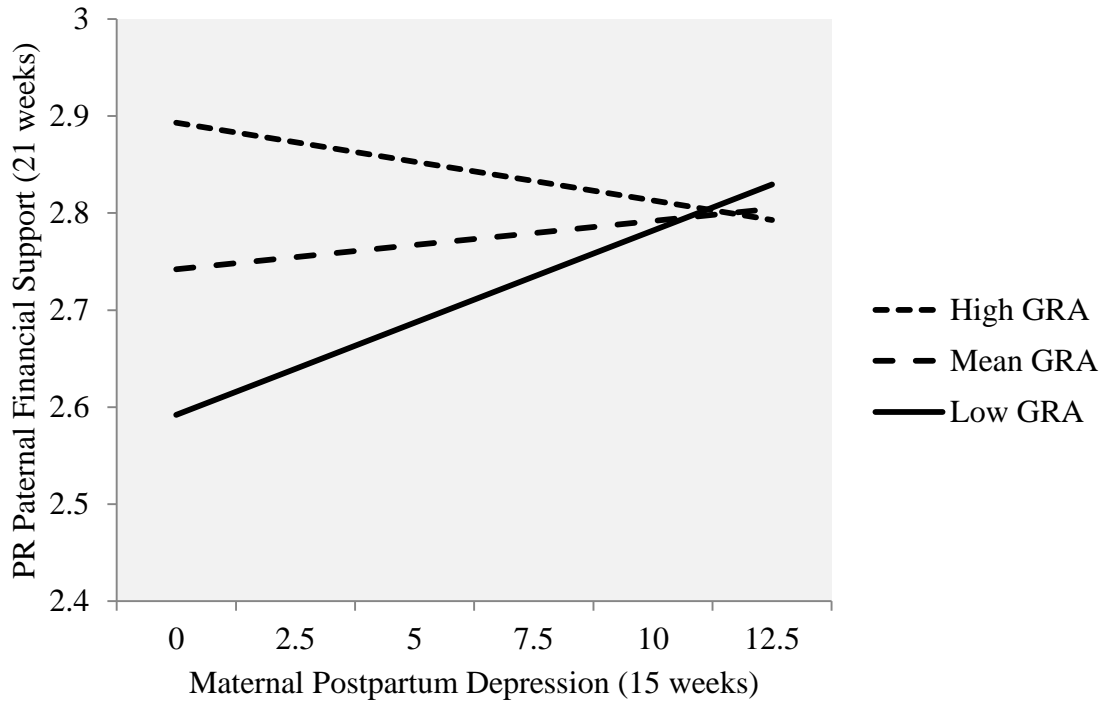
*Figure 3.* Influence of maternal postpartum depression at 15 weeks on maternal-reported paternal engagement at 21 weeks as moderated by father segregated gender role attitudes. GRA = Gender role attitudes; MR = Maternal report.



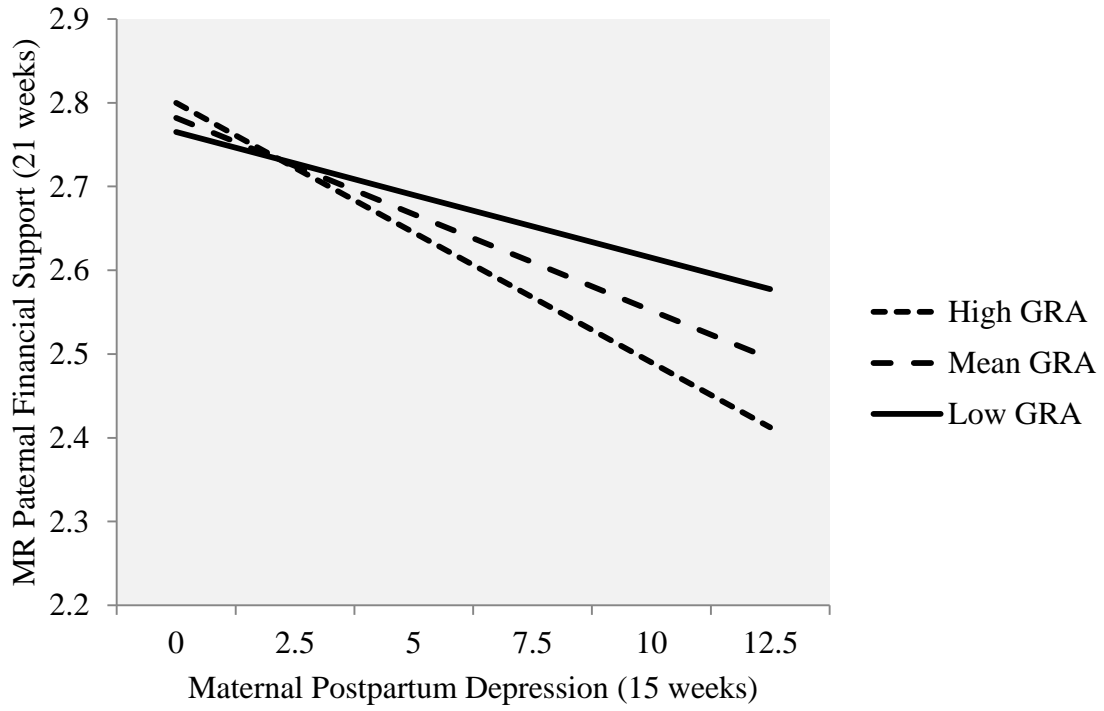
*Figure 4.* Influence of maternal postpartum depression at 15 weeks on paternal-reported paternal behavioral responsibility at 21 weeks as moderated by father segregated gender role attitudes. GRA = Gender role attitudes; PR = Paternal report.



*Figure 5.* Influence of maternal postpartum depression at 15 weeks on maternal-reported paternal behavioral responsibility at 21 weeks as moderated by father segregated gender role attitudes. GRA = Gender role attitudes; MR = Maternal report.



*Figure 6.* Influence of maternal postpartum depression at 15 weeks on paternal-reported paternal financial support at 21 weeks as moderated by father segregated gender role attitudes. GRA = Gender role attitudes; PR = Paternal report.



*Figure 7.* Influence of maternal postpartum depression at 15 weeks on maternal-reported paternal financial support at 21 weeks as moderated by father segregated gender role attitudes. GRA = Gender role attitudes; MR = Maternal report.

APPENDIX A

EDINBURGH POSTNATAL DEPRESSION SCALE



Edinburgh Postnatal Depression Scale

1. You have been able to laugh and see the funny side of things.

- As much as you always do
- Not so much now
- Definitely not so much now
- Not at all

2. You have looked forward with enjoyment to things.

- As much as you ever did
- Less than you used to
- Definitely less than you used to
- Hardly at all

3. You have blamed yourself unnecessarily when things went wrong.

- No, never
- Not very often
- Yes, some of the time
- Yes, most of the time

4. You have been anxious or worried for no good reason.

- No, not at all
- Hardly ever
- Yes, sometimes
- Yes, very often

5. You have felt scared or panicky for no good reason.

- No, not at all
- No, not much
- Yes, sometimes
- Yes, quite a lot

6. Things have been piling up on you.

- No, you have been coping as well as ever
- No, most of the time you have coped well
- Yes, sometimes you haven't been coping as well as usual
- Yes, most of the time you haven't been able to cope at all

7. You have been so unhappy that you have difficulty sleeping.

- No, not at all
- Not very often
- Yes, quite often
- Yes, most of the time

8. You have felt sad or miserable.

- No, not at all
- Not very often
- Yes, sometimes
- Yes, most of the time

9. You have been so unhappy that you have been crying.

- No, not at all
- Only occasionally
- Yes, quite often
- Yes, most of the time

10. The thought of harming yourself has occurred to you.

- Never
- Hardly ever
- Sometimes
- Yes, quite often

APPENDIX B

FATHER INVOLVEMENT SCALE (PATERNAL REPORT)

## Father Involvement Scale (Father-Report)

### **Engagement**

*Items are rates on a scale of 1 (She does it all) to 9 (I do it all):*

1. Feeding the baby
2. Bathing the baby
3. Changing the baby's diapers; dressing the baby
4. Responding to the baby's crying in the middle of the night
5. Taking the baby out (walking, driving, visiting, etc.)
6. Playing with the baby
7. Reading to the baby
8. Singing songs to the baby
9. Telling the baby stories

### **Accessibility**

1. Think about the last typical weekday (Monday through Friday) for you and your baby. Begin with the time your baby woke up in the morning and think about the next 24 hours, until that same time the following morning. How many hours during the 24-hour period were you available to your baby, but not interacting with him/her (e.g., you were in the same room or a nearby room when your baby was sleeping or playing by himself/herself)?

2. Think about the last typical weekend day (Saturday or Sunday) for you and your baby. Begin with the time your baby woke up in the morning and think about the next 24 hours, until that same time the following morning. How many hours during the 24-hour period were you available to your baby, but not interacting with him/her (e.g., you were in the same room or a nearby room when your baby was sleeping or playing by himself/herself)?

3. How many hours per day do you typically spend in employed work?

4. How many days per week do you typically spend in employed work?

### **Responsibility**

*Items are rated on the following scale: 1 (Not at all), 2 (A little), 3 (Somewhat), 4 (Very often), 5 (All the time):*

1. You provide a sense of security to your family because you are always there for them.
2. You keep your family united
3. You schedule childcare or a babysitter for your baby when needed
4. You put your family's needs above your own
5. You encourage aunts, uncles, grandparents, or cousins to have close relationships with your baby.
6. You choose toys for your baby
7. You think about your baby when you make important decisions
8. You do household chores for the baby (e.g., doing the baby's laundry)
9. You work hard to provide for your family
10. You deal with the doctor regarding your baby's health
11. You are strong and brave for your family
12. You encourage your family to be loving and affectionate
13. You do what is needed to keep your family safe
14. You make important decisions for your baby
15. You sacrifice things to make sure your baby has a better life
16. You decide how to respond to your baby's cries
17. You encourage older children in your family to take care of your baby
18. You make plans for your baby's future
19. You always put family first
20. You bring the whole family together for important holidays and celebrations
21. You would risk your own safety to protect your family

22. You work hard to support your partner so she can be a good mother
23. You take your responsibility as a father very seriously
24. You try to be a good example for other fathers in your community

**Financial Support**

*Items are rated on the following scale: 1 (Never purchased), 2 (Occasionally purchased), 3 (Regularly purchased):*

1. Clothing
2. Toys
3. Medicine/healthcare
4. Household items
5. Childcare items (diapers, wipes, etc.)
6. Food
7. Babysitting
8. Money
9. Other

APPENDIX C

FATHER INVOLVEMENT SCALE (MATERNAL REPORT)

## Father Involvement Scale (Mother-Report)

### **Engagement**

*Items are rated on a scale of 1 (I do it all) to 9 (He does it all):*

1. Feeding the baby
2. Bathing the baby
3. Changing the baby's diapers; dressing the baby
4. Responding to the baby's crying in the middle of the night
5. Taking the baby out (walking, driving, visiting, etc.)
6. Playing with the baby
7. Reading to the baby
8. Singing songs to the baby
9. Telling the baby stories

### **Accessibility**

1. Think about the last typical weekday (Monday through Friday) for your partner and your baby. Begin with the time your baby woke up in the morning and think about the next 24 hours, until that same time the following morning. How many hours during the 24-hour period was your partner available to your baby, but not interacting with him/her (e.g., your partner was in the same room or a nearby room when your baby was sleeping or playing by himself/herself)?

2. Think about the last typical weekend day (Saturday or Sunday) for your partner and your baby. Begin with the time your baby woke up in the morning and think about the next 24 hours, until that same time the following morning. How many hours during the 24-hour period was your partner available to your baby, but not interacting with him/her (e.g., your partner was in the same room or a nearby room when your baby was sleeping or playing by himself/herself)?

3. How many hours per day does your partner typically spend in employed work?

4. How many days per week does your partner typically spend in employed work?

### **Responsibility**

*Items are rated on the following scale: 1 (Not at all), 2 (A little), 3 (Somewhat), 4 (Very often), 5 (All the time):*

1. Your partner provides a sense of security to your family because he is always there for you.
2. Your partner keeps your family united
3. Your partner schedule childcare or a babysitter for your baby when needed
4. Your partner put your family's needs above his own
5. Your partner encourages aunts, uncles, grandparents, or cousins to have close relationships with your baby.
6. Your partner chooses toys for your baby
7. Your partner thinks about your baby when he makes important decisions
8. Your partner does household chores for the baby (e.g., doing the baby's laundry)
9. Your partner works hard to provide for your family
10. Your partner deals with the doctor regarding your baby's health
11. Your partner is strong and brave for your family
12. Your partner encourages your family to be loving and affectionate
13. Your partner does what is needed to keep your family safe
14. Your partner makes important decisions for your baby
15. Your partner sacrifices things to make sure your baby has a better life
16. Your partner decides how to respond to your baby's cries
17. Your partner encourages older children in your family to take care of your baby
18. Your partner makes plans for your baby's future
19. Your partner always puts family first
20. Your partner brings the whole family together for important holidays and celebrations

21. Your partner would risk his own safety to protect your family
22. Your partner work hard to support you so you can be a good mother
23. Your partner takes his responsibility as a father very seriously
24. Your partner tries to be a good example for other fathers in your community

**Financial Support**

*Items are rated on the following scale: 1 (Never purchased), 2 (Occasionally purchased), 3 (Regularly purchased):*

1. Clothing
2. Toys
3. Medicine/healthcare
4. Household items
5. Childcare items (diapers, wipes, etc.)
6. Food
7. Babysitting
8. Money
9. Other

APPENDIX D

ACCULTURATION RATING SCALE FOR MEXICAN AMERICANS



### Acculturation Rating Scale-II (ARSMA-II)

*Items are rated on the following scale:*

*1 (Not at all), 2 (Very little or not very often), 3 (Moderately), 4 (Much or very often), 4 (Extremely often or almost always):*

1. I speak Spanish
2. I speak English
3. I enjoy speaking Spanish
4. I associate with Anglos
5. I associate with Mexicans and/or Mexican Americans
6. I enjoy listening to Spanish language music
7. I enjoy listening to English language music
8. I enjoy Spanish language TV
9. I enjoy English language TV
10. I enjoy English language movies
11. I enjoy Spanish language movies
12. I enjoy reading in Spanish (e.g., books in Spanish)
13. I enjoy reading in English (e.g., books in English)
14. I write in Spanish (e.g., letters in Spanish)
15. I write in English (e.g., letters in English)
16. My thinking is done in the English language
17. My thinking is done in the Spanish language
18. My contact with Mexico has been...
19. My contact with the USA has been...
20. My father identifies or identified himself as 'Mexicano'
21. My mother identifies or identified herself as 'Mexicana'
22. My friends, while I was growing up, were of Mexican origin
23. My friends, while I was growing up, were of Anglo origin
24. My family cooks Mexican foods
25. My friends now are of Anglo origin
26. My friends now are of Mexican origin
27. I like to identify myself as an Anglo American
28. I like to identify myself as a Mexican American
29. I like to identify myself as a Mexican
30. I like to identify myself as an American

APPENDIX E

GENDER ROLE ATTITUDES SCALE

## Gender Role Attitudes Scale

*Items are rated on a scale of 1 (Strongly disagree) to 5 (Strongly agree):*

1. Men should earn most of the money for family so women can stay home and take care of the children and home
2. It is important for the man to have more power in the family than the woman
3. Mothers are the main person responsible for raising children
4. A wife should always support her husband's decisions, even if she doesn't agree with him
5. A man should help in the house, but housework and child care should mainly be a woman's job

*Items are rated on a scale of 1 (Strongly agree) to 4 (Strongly disagree):*

6. It is essential for a man to get respect from others
7. It bothers me when a guy acts like a girl
8. I admire a man who is totally sure of himself
9. A man will lose respect if he talks about his problems
10. A young man should be physically tough
11. A man always deserves the respect of his wife and children
12. I don't think a husband should have to do housework

*Items are rated on a scale of 1 (Strongly disagree) to 4 (Strongly agree):*

13. Supporting your family financially is the most important thing you do as a father
14. Working extra hours shows that you are a good father

APPENDIX F  
DEMOGRAPHICS

## Demographics

1. In what country were you born?

- United States
- Mexico
- Other

2. At what age did you first come to the United States to live?

\_\_\_\_\_ years old

3. Altogether, including any time you lived here before this age, how many years have you lived in the United States?

\_\_\_\_\_ years

4. What group best describes your mother's background?

- Mexican or Mexican American
- Cuban or Cuban American
- Puerto Rican
- Central or South American
- Other Hispanic or Latino
- American Indian or Alaskan native
- Black or African American
- Hawaiian or Pacific Islander
- White or Caucasian
- Asian or Asian American

5. In what country was your mother born?

- United States
- Mexico
- Other

6. In what country was your mother's mother born?

- United States
- Mexico
- Other

7. In what country was your mother's father born?

- United States
- Mexico
- Other:

8. What group best describes your father's background?

- Mexican or Mexican American
- Cuban or Cuban American
- Puerto Rican
- Central or South American
- Other Hispanic or Latino
- American Indian or Alaskan native
- Black or African American
- Hawaiian or Pacific Islander
- White or Caucasian
- Asian or Asian American

9. In what country was your father born?

- United States

- Mexico
- Other

10. In what country was your fathers' mother born?

- United States
- Mexico
- Other

11. In what country was your father's father born?

- United States
- Mexico
- Other

12. What is your current marital status?

- Married and living with spouse (How long?)
- Married but not living together (How long?)
- Living with a partner but not legally married (How long?)
- Separated (How long?)
- Divorced (How long?)
- Never married and not living with a partner

13. Thinking back to when your partner got pregnant with your baby, how did you feel about becoming a father?

- You wanted to become a father sooner
- You wanted to become a father later
- You wanted to become a father then
- You did not want to become a father then or at any time in the future

14. Do you have any other children with your wife/current partner?

- Yes (How many?)
- No

15. Do you have any other children from previous marriages/relationships?

- Yes (How many?)
- No

16. Have you lived in the same household as your child since he/she was born?

- Yes
- No

17. Since your child came home after birth, have there been periods of 1 week or more where you and your baby did not live together, either because you were away from home or your child was away from home?

- Yes (How many times?)
- No

18. What is the highest level of education you have completed?

- Did not attend school
- 1 to 10 years of education (elementary)
- 11 years, completed part of high school but did not finish
- High school graduate/GED
- Some college, vocational or technical school
- Vocational or technical school graduate
- Associate degree
- College degree (BS/BA)
- Some advanced work but no graduate degree

- MS/MA (Master's degree)
- Some work toward doctorate or advanced degree
- Doctorate (MD, JD, DO, DDS, PhD, etc.)

19. In what country did you complete your highest level of education?

- United States
- Mexico
- Other

20. What is the highest level of education either of your parents completed?

- Did not attend school
- 1 to 10 years of education (elementary)
- 11 years, completed part of high school but did not finish
- High school graduate/GED
- Some college, vocational or technical school
- Vocational or technical school graduate
- Associate degree
- College degree( BS/BA)
- Some advanced work but no graduate degree
- MS/MA (Master's degree)
- Some work toward doctorate or advanced degree (MD, JD, DO, PhD, etc.)

21. What is your current employment status?

- Employed full-time
- Employed part-time
- Employed occasionally/day labor
- Unemployed and looking for work
- Unemployed and not looking for work
- Disabled
- Full-time student and not employed
- Full-time student and employed
- Homemaker and not employed
- Retired and not employed at least part-time

22. What do you do for a living? If you have more than one job, please choose your primary job.

23. In the past year, how many months did your household receive public assistance? This includes things like AHCCCS, WIC, and food stamps.

23. Please estimate your total family income for the past year. Think about your combined family income from all sources, including jobs and self-employment for you and other adults who contribute to household expenses, and money from other sources like welfare, disability benefits, and child support. What is your best guess of this amount for the past 12 months?

- Less or equal to \$5,000
- \$5,000-10,000
- \$10,001-15,000
- \$15,001-20,000
- \$20,001-25,000
- \$25,001-30,000
- \$30,001-35,000
- \$35,001-40,000
- \$40,000-45,000
- \$45,001-50,000
- \$50,001-55,000

- \_\_\_\_\_ \$55,001-60,000
- \_\_\_\_\_ \$60,001-65,000
- \_\_\_\_\_ \$65,001-70,000
- \_\_\_\_\_ \$70,001-\$75,000
- \_\_\_\_\_ \$75,001-\$80,000
- \_\_\_\_\_ \$80,001-85,000
- \_\_\_\_\_ \$85,001-90,000
- \_\_\_\_\_ \$90,001-95,000
- \_\_\_\_\_ \$95,001-100,000
- \_\_\_\_\_ Over \$100,000

24. How many people are supported by this income?