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Racial and ethnic variation in the predictors of maternal parenting stress

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Abstract

Little is known about the causes of maternal parenting stress in the Mexican American population. We examine determinants of parenting stress among Mexican American mothers in comparison to non-Hispanic white and non-Hispanic black mothers. We base our analysis on Belsky's conceptual model (1984), which specifies predictors of parenting stress in three domains: maternal characteristics, child characteristics, and social context. Using data from the Fragile Families and Child Wellbeing Study, a national survey of new mothers conducted in large cities beginning in 1998, we draw a sample of 2,898 mothers from diverse racial and ethnic backgrounds. Our findings suggest differences in the determinants of parenting stress by racial or ethnic group. Overall, the patterns of parenting stress for non-Hispanic white and non-Hispanic black mothers are fairly consistent with Belsky's parenting model. However, for Mexican American mothers social support, but not partner support, ameliorate parenting stress and depression is not associated with parenting stress. Importantly as well, despite significant social disadvantage, the levels of parenting stress in Mexican American mothers does not significantly differ from those of non-Hispanic whites. Specific recommendations are made to practitioners for culturally competent responses to parenting stress in the provision of social services to Mexican American families. Implications for future research are twofold: our study calls for the incorporation of diverse samples when examining the determinants of parenting stress and for the development of theoretical frameworks that reflect the unique aspects of psychosocial well-being among Mexican Americans.

Keywords

parenting stress; mental health; maternal health; child health; family; Mexican American

INTRODUCTION

Increased demands and adjustments associated with parenting can put mothers at risk of persistent stress. Maternal parenting stress, which involves the level of stress and aggravation a mother feels in her parenting role, extends to her self-perception of competence as a parent (Abidin, 1992; Muslow, Caldera, Pursley, Reifman, & Huston, 2002). High parenting stress is typically associated with poor psychosocial outcomes for both mothers and children (Willford, Calkins, & Keane, 2007). These outcomes include

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decreased mother-child attachment (Jarvis & Creasey, 1991), poor parent-child communication and interactions (Crnic & Low, 2002), behavioral problems in children (Barry, Dunlap, Cotten, Lochman, & Wells, 2005), and lower levels of life and marital satisfaction in mothers (Crnic & Greenberg, 1990).

The determinants of parenting stress in mothers can vary significantly (Goldstein, Diener, & Mangelsdorf, 1996; Keeton, Perry-Jenkins, & Sayer, 2008). According to the literature, because stress is considered a transaction between the individual and the environment, stress is profoundly affected by one's cultural context (Aldwin, 2004; Chun, Moos, & Cronkite, 2005; Lazarus & Folkman, 1984). Diverse racial and ethnic backgrounds may shape what events are perceived as stressful, what coping strategies are acceptable, and what support systems mothers may turn to for assistance. Thus, practitioners should be cognizant that patterns of parenting stress may play out differently according to the unique cultural backgrounds of different groups within the general population. Since aspects of psychosocial well-being such as parenting and stress are so culturally-bound, increased knowledge about the unique mechanisms associated with stress can help inform practice with diverse populations.

Belsky's (1984) model of parenting stress provides researchers with a theoretical framework to study different aspects of the mother's internal and external life that affect the stress she feels about parenting. Although family systems and child development researchers have relied heavily on this model to predict parenting stress, there is limited research on how the model applies to diverse groups of mothers. Previous research on the determinants of parenting stress have generally been limited to homogenous samples of married, non-Hispanic white mothers (Muslow, et al., 2002; Sepa, Frodi, & Ludvigsson, 2004) or African American mothers living in poverty (Chang, et al., 2004). To the extent that life circumstances play a role in a mother's capacity to cope with stress, it is important to understand how determinants of parenting stress vary among mothers from diverse racial and ethnic backgrounds. This article addresses a gap in the literature by examining the variation of stress levels and predictors of stress across three racial and ethnic groups: Non-Hispanic whites, non-Hispanic blacks and Mexican Americans. We focus on Mexican Americans (both immigrant and U.S.-born) because it is the largest Hispanic subgroup in the United States, making up two-thirds of the Hispanic population (United States Census Bureau, 2007). Mexican American mothers have largely remained unstudied in the context of parenting stress and, as we detail below, often face markedly different family and contextual circumstances.

Using data from the Fragile Families and Child Well-Being Study, a national survey of new mothers living in 20 large U.S. cities, we conducted secondary data analysis to investigate a wide range of predictors consistent with Belsky's parenting stress model. The Fragile Families survey, which was collected by the Center for Research on Child Wellbeing at Princeton University, provides a unique opportunity to study parenting stress in mothers from diverse racial, ethnic, and socio-demographic backgrounds. The purpose of the current study was two-fold, to apply a well known model of parenting stress to an ethnically and racially diverse sample of mothers and to focus on a relatively unexamined ethnic group, Mexican American mothers. Our study focuses on mothers one year after the birth of their child and seeks to answer the following research questions:

1. Do levels of parenting stress vary for mothers from three racial and ethnic groups: Mexican Americans, non-Hispanic whites, and non-Hispanic blacks?
2. How do maternal, child, and contextual factors vary across racial and ethnic groups?

3. Do the determinants of parenting stress vary for Mexican American mothers in comparison to non-Hispanic black and non-Hispanic white mothers?

LITERATURE REVIEW

Contributing factors to maternal parenting stress

Belsky's (1984) process model of parenting, which has been widely used to identify determinants of parenting stress (Abidin, 1992; Muslow, et al., 2002), provides the conceptual framework for our study. According to Belsky's model, parenting stress is influenced by factors in three domains: maternal factors, child factors, and contextual factors.

Maternal factors

Maternal health and well-being are major predictors of parenting stress. Psychological and emotional well-being influence how a mother perceives all aspects of her life, including her relationship with her child, her marital relationship, her social support networks, and her work (Belsky, 1984). The same is true for how a mother experiences her parenting role. Indeed, recent studies reveal that mothers who experience depression often report higher levels of parenting stress than do mothers who do not experience mental illness (Gelfand, Teti, & Radin Fox, 1992; Muslow, et al., 2002). Similarly, poor physical health may compromise maternal mental health and her access to social support. A recent study of Swedish mothers found that experiences of social isolation, caused by physical illness, increased parenting stress (Sepa et al., 2004). Although previous research has demonstrated an association between stress and health among Mexican American mothers (Guinn, Vincent, & Dugas, 2009), the influence of maternal health specifically on parenting stress has not been examined.

Child factors

Child characteristics influence parenting stress in often complex, and interactive, ways (Willford, et al., 2007). Specifically, characteristics such as temperament and health status influence maternal parenting stress. The association between difficult child temperament and parenting stress is well established in the literature (Abidin, 1992; Belsky, 1984; Crnic, Greenberg, Ragozin, Robinson, & Bashman, 1983; Mash & Johnston, 1990). Parents who perceive their child's temperament as difficult report higher levels of parenting stress compared to parents who do not perceive their child's temperament as difficult (Costa, et al., 2006; Muslow, et al., 2002). Similarly, child health problems are related to increased stress among mothers. Sepa and colleagues (2004) found that minor health problems, such as ear infections, allergies and child sleep patterns contributed to parenting stress among new mothers.

Contextual factors

Factors within the mother's environment such as partner support, social support and work force involvement affect maternal perceptions of stress related to parenting (Belsky, 1984). According to the literature, social support is an important protective factor against increased levels of parenting stress (Belsky, 1984; Crnic & Greenberg, 1990). Maternal perceptions of parenthood are greatly influenced by the supports that help balance the stressors in her environment (Muslow, et al., 2002). These supports may include coping skills, tangible/economic resources, parenting skills, and social and relationship supports (Abidin, 1992). Similarly, intimate partner relationship has been shown to moderate the effect of stress. Mothers with partners were less likely to report stress compared to single, unmarried mothers (Osborne, 2004). Muslow and colleagues (2002) found that partner support lowered stress for mothers with young children. Similarly, the effects of employment on parenting

stress are moderated by individual and contextual factors, such as depression and financial strain (Forgays & Forgays, 1993; Gyamfi, Brooks-Gunn, & Jackson, 2001).

Culture and psychosocial well-being in the Mexican American population

There is significant evidence of culturally diverse patterns in psychosocial well-being in the Mexican American population. Based on various measures, Mexican American women seem to have lower rates of mental and physical health problems than other groups. Epidemiological research on the prevalence of psychiatric disorders reveals that Mexican American women, regardless of nativity, have lower rates of depressive and anxiety disorders than do their non-Hispanic white counterparts (Alegria, et al., 2008; Grant, et al., 2004). On the other hand, although research consistently shows lower rates of depressive disorders among Hispanic women, some studies suggest that Hispanic mothers may experience higher rates of antenatal and postpartum depressive symptoms than do non-Hispanic white mothers (Rich-Edwards, et al., 2006).

Similarly, in terms of maternal health, Mexican American women have low rates of infant mortality and low birth weight (Hummer, Powers, Pullum, Gossman, & Frisbie, 2007); Reichman et al., 2008), despite pervasive socioeconomic disadvantage and limited access to health care. The anomaly of healthy outcomes in this population, which also extends to life expectancy and mortality from certain cancers, pulmonary diseases, and suicide, is often referred to as the *epidemiological paradox* (Morales, Lara, Kington, Valdez, & Escarce, 2002). In part, these outcomes are explained by positive health behaviors, such as very low alcohol, tobacco, and drug use, and social and familial supports (Hummer, et al., 2007; Reichman, Hamilton, Hummer, & Padilla, 2008), factors which are largely influenced by culture. Furthermore, health outcomes for Mexican Americans are generally better for recent immigrants. Yet, these advantages often deteriorate in subsequent generations, also suggesting that culture may play a role.

Research with Mexican Americans suggests that cultural characteristics serve a protective function against psychological stress (Rivera, et al., 2008) as well as against negative parenting behaviors (Behnke, et al., 2008). As a result of cultural differences, it is possible that the mechanisms related to parenting stress among Mexican American mothers may differ from those of non-Hispanic white and non-Hispanic black mothers. Furthermore, it is likely that having access to social support may play an even greater protective role in parenting stress than would partner support, because Mexican American women and men have gender-based divisions of labor that place the primary responsibility of child rearing in the mother (Dumka, Gonzales, Bonds, & Millsap, 2009). Given prior research on the importance of maternal, child and contextual factors for stress and on the underlying influence of culture on stress and psychosocial well-being, it is important to explore variations in levels and predictors of stress among racially and ethnically diverse mothers. Results from this study can inform both research and practice on parenting stress among Mexican American mothers.

METHODS

Sample

Data for this study were drawn from the Fragile Families and Child Wellbeing (FFCWB) Study, initiated in the spring of 1998 through the fall of 2000 by the Center for Research on Child Wellbeing at Princeton University (Fragile Families and Child Well-Being Study, 2010; Reichman, Teitler, Garfinkel, & McLanahan, 2001). The FFCWB survey is an ongoing longitudinal study that is based on a cohort of 4,898 children and their parents (see Reichman et al., 2001 and www.fragilefamilies.princeton.edu/). Baseline interviews were

conducted in person with mothers within 24 hours after the birth of their child. Using a stratified random sample, interviews were completed at 75 hospitals in 20 U.S. cities with populations of 200,000 or more. Within each hospital, participants were randomly selected from hospital birth logs and screened by a professional survey interviewer. A Mother was eligible to participate in the FFCWB study if she and the child's father were at least 18 years of age and spoke English or Spanish. Mothers were excluded in cases in which the father was deceased or if the mother or the parents were planning to give the child up for adoption. It was explained to both parents that the purpose of the FFCWB study was to increase understanding about child well-being as well as the conditions and relationships of new parents. If participants agreed to participate in the study, informed consent was obtained (Reichman, et al., 2001). Following the initial baseline survey, telephone follow-up interviews were conducted when the child was one year old. The response rate for the first year follow-up was 89% (Reichman, et al., 2001). Data were de-identified by the Center for Research on Child Wellbeing and can be downloaded for public use, and thus approval from the Institutional Review Board was not required for the current study.

The FFCWB data are well suited to the current study for several reasons. First, because the project oversampled unmarried parents, the FFCWB data include a relatively large sample of Mexican American and non-Hispanic black mothers. The Mexican-American sample includes both U.S.-born and foreign-born mothers. In addition, the study was conducted in large urban cities, which is relevant to Mexican Americans, because research indicates that Mexican Americans are highly concentrated in metropolitan areas rather than in rural settings (Wilkes & Iceland, 2004). Finally, the data include a wealth of social and psychological variables, including maternal depression and child temperament, which allow for the examination of maternal parenting stress.

The sample in the current study included mothers who participated in the baseline and first year follow-up study ($n = 4,364$). Parenting stress questions were not administered in two of the 20 cities, resulting in the loss of 570 participants in the first year follow-up. An additional 59 participants had missing data related to one or more of the stress questions and were eliminated from the study. The study was limited to participants who identified as Mexican American (U.S. born or Mexican born), non-Hispanic white, or non-Hispanic black. Our final sample included 2,998 mothers: 437 (14.6%) Mexican American mothers, 811 (27.1%) non-Hispanic white mothers, and 1750 (58.4%) non-Hispanic black mothers. Among Mexican American mothers, 60.4% were born in the United States and 40.5% were born in Mexico.

After constructing the sample, we evaluated the missing data for each independent variable. The variables with the highest rates of missing data were partner support (17%) and social support (2.8%). Using the PROC MI procedure in SAS, we performed a multiple imputation process using the Markov Chain Monte Carlo (MCMC) method, a method widely used in the social sciences to address missing data (Horton & Kleinman, 2007). This statistical method is used with continuous variables and is based on the assumption that data are missing at random rather than missing not at random (SAS Statistical Institute, 2007; Schafer & Graham, 2002). When data are missing at random, this implies that the "missingness" is not systematically related to any specific characteristics of the respondents. While this assumption is necessary in order to impute missing data, the only way to test this assumption is to obtain follow-up information from nonrespondents (Schafer & Graham, 2002). Despite difficulty in testing this assumption, studies have found that there is only a minor affect on the estimates and standard errors when erroneous assumptions about the randomness of the missing data are made (Collins, Schafer, & Kam, 2001; Schafer & Graham, 2002).

In the current study, imputed values for the missing data were conducted using proxy variables for social support and partner support. Measures of household income, mother's relationship with fathers, and the amount those fathers help out around the house and spend time with the identified child were used to estimate missing values for the measures of social support and partner support. Given that these were relatively good proxies for measures of social support and partner support, these imputations should not dramatically affect the reliability of the results. We compared the imputed and non-imputed mean values for the two variables and found little difference in the mean between imputed and non-imputed scores. For example, the mean for partner support before the imputation was 2.51 compared with the imputed value of 2.56. The ability to impute these values enabled the inclusion of participants that would have otherwise been excluded had we used casewise deletion.

Methods and Measures

Our analytical model estimates the effect of maternal, child, and contextual factors, while controlling for demographic characteristics, on parenting stress outcomes. Ordinary least squares (OLS) regression models were estimated for four separate groups: all mothers, non-Hispanic white mothers, non-Hispanic black mothers, and Mexican American mothers. The measures used in the study are described below.

Parenting Stress

The dependent variable in this study is parenting stress in mothers measured one year following the birth of her child. Parenting stress is operationalized using the Aggravation in Parenting Scale developed by Child Trends Inc. (Fragile Families, 2008). Parenting stress is assessed using four parent-focused questions: being a parent is harder than I thought it would be; I feel trapped by my responsibilities as a parent; I find that taking care of my child(ren) is much more work than pleasure; and, I often feel tired or exhausted from raising a family. Each statement was scaled from strongly agree (4) to strongly disagree (1). A continuous variable was created using mean stress scores. The overall Cronbach's alpha coefficient of reliability for the sample was 0.61 (0.66 for Mexican American mothers, 0.62 for non-Hispanic black mothers and 0.59 for non-Hispanic white mothers). We compared the reliability coefficients for Mexican American mothers separately according Spanish language use and immigrant status. We found the reliability coefficients to be within acceptable range for all subgroups of Mexican American mothers based on the parent-focused questions we used in the study. For Spanish-speaking mothers the coefficient of reliability was 0.74 and for non Spanish-speaking mothers it was 0.61. Using immigrant status as the basis for comparison, for foreign born mothers it was 0.71 and for U.S. born mothers it was 0.63.

Maternal Factors

Mother's characteristics were operationalized using measures of maternal self-rated health and major depression scores one year after the child's birth. Maternal health was constructed as a dichotomous variable: 1 for "fair or poor health" and 0 for "good, very good or excellent health." Risk of a major depressive episode (MDD) was measured using the Composite International Diagnostic Interview-Short Form (CIDI-SF). The CIDI-SF is a 15-item scale that is consistent with the criteria from the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV), which is used for the assessment of mental disorders (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Participants were asked about the presence and frequency in the past two weeks of depressive symptoms related to feelings of worthlessness, trouble with concentration and sleep, loss of interest, changes in weight, and thoughts of death. A major depressive score was calculated with a range of 0 to 8. If the respondent scored three or greater, she was considered to be a probable case for major depression. It is important to note that the CIDI-SF is an assessment tool. Although

women who scored higher on the assessment tool were considered probable cases for a major depressive episode, it cannot be assumed that they were clinically depressed. The Cronbach's alpha coefficient for the depression measure was 0.85, which was consistent across all racial and ethnic groups.

Child Factors

Child characteristics included low birth weight as well as health and temperament at age 1. Low birth weight was included using a dichotomous variable (1 = less than 2500 grams and 0 = otherwise). We expected low birth weight to predict greater stress because of the increased risk of health and developmental problems. Child health was also measured dichotomously (1 = "fair or poor health" and 0 = "good, very good to excellent health") based on the mother's rating. Child temperament was a continuous variable based on a subscale of the Emotionality, Activity, and Sociability Temperament Survey for Children (Fragile Families, 2008). The questions asked mothers to identify whether their child cries often, gets easily upset, and reacts intensely when upset. Responses ranged from 1, "not at all like my child" to 5, "very much like my child." A higher score indicates that the child tends to have a difficult temperament. The Cronbach's alpha for the emotionality subscale was 0.61.

Contextual Factors

Mother's contextual factors, including partner support, social support and work status, were assessed when her child was approximately one year old. Relationship support was measured using five ordinal questions. The questions probed the partner's willingness to compromise during an argument, express love and affection, encourage or help with things that are important, listen when she needed someone to talk to, and understand her hurts and joys. A mean score for the items was constructed. The Cronbach's alpha coefficient for partner support was 0.83. Social support was measured using three dichotomous variables. The mother was asked if she could identify someone who would provide her with a place to stay in the case of an emergency, help her with childcare, and loan her \$200.00. A Cronbach's alpha coefficient of 0.75 was consistent across groups. The final variable included in the contextual factors was work status. Work status was included as a dichotomous variable and indicated whether the mother did any regular work for pay in the last two weeks.

Demographic variables

We controlled for mother's age and educational level. In addition, for Mexican American mothers, we controlled for nativity. The education variable was coded as no formal education/less than high school, high school education/G.E.D., post high school training/two year college, and college degree. Mother's current age was coded as a continuous variable. Finally, nativity was a dichotomous variable indicating whether Mexican American mothers were immigrant or U.S.-born.

RESULTS

Differences in Maternal Parenting Stress Levels

To address the first research question concerning how parenting stress levels of Mexican American mothers compare to those of non-Hispanic white and non-Hispanic black mothers, we conducted descriptive statistics for the sample by race and ethnicity. As shown in Table 1, the mean parenting stress score (with a range of 1-4) among all mothers was 2.18. A one-way analysis of variance (ANOVA) test showed that the mean differences in stress by race and ethnicity were statistically significant, $F(2, 2995) = 10.62$, $p = <0.001$. Bonferroni post-

hoc tests revealed no statistically significant difference in the parenting stress scores of Mexican American mothers and non-Hispanic white mothers. However, there were statistically significant differences in parenting stress scores between non-Hispanic black and white mothers, as well as between Mexican American mothers and non-Hispanic black mothers. In addition, younger mothers experienced greater levels of parenting stress than did older mothers, $r = -0.42$, $p = 0.01$.

Patterns in Maternal, Child, and Contextual Factors

Descriptive analyses revealed important differences in maternal, child, and contextual factors associated with parenting stress by race and ethnicity (research question 2). Mexican American mothers were less likely to be considered depressed (12.1%) compared to non-Hispanic white mothers (15.7%) and non-Hispanic black mothers (16.9%), consistent with previous research on the prevalence of depressive disorders across racial and ethnic groups (Alegria, et al., 2008; Grant, et al., 2004). However, bivariate results suggest that differences in depression scores by race and ethnicity were only marginally significant, $\chi^2(2, 2997) = 5.92$, $p = 0.052$. Moreover, there were group differences in maternal self-reported health, $\chi^2(2, 2998) = 7.98$, $p = 0.02$. Similar to previous research (Kandula, Lauderdale, & Baker, 2007), Mexican American mothers and non-Hispanic black mothers were less likely to report good/excellent health compared to non-Hispanic white mothers (86.7%, 86.5%, and 90.4%, respectively).

In terms of child characteristics, there were significant differences between groups for child low birth weight, child health, and child temperament. In the current sample, only a small proportion (10.5%) of babies was considered low birth weight. Chi-square tests indicated significant differences by race and ethnicity, $\chi^2(2, 2916) = 35.1$, $p < 0.001$. Mexican American mothers had a lower likelihood of low weight births (5.1%) compared to non-Hispanic white (7.4%) and non-Hispanic black (13.3%) mothers. In contrast, however, Mexican American mothers were less likely to report their child's health as good/excellent (95.0%) than were non-Hispanic white (98.9%) and non-Hispanic black (97.1%) children. Although the majority of mothers reported their child in excellent to good health, bivariate differences across groups were identified, $\chi^2(2, 2995) = 17.0$, $p < 0.001$. Finally, the overall mean score for child temperament was 2.80. Mexican American mothers reported higher mean temperament scores (2.78) than did non-Hispanic white mothers (2.58), but lower than non-Hispanic black mothers (2.91). Bonferroni post-hoc tests revealed significant differences in child temperament across all three groups, $F(2, 2995) = 28.18$, $p < 0.001$.

Significant differences in contextual factors were also found across racial and ethnic groups. On average, Mexican American mothers reported higher partner support (mean=2.57) than did non-Hispanic black mothers (mean=2.52) but less than did non-Hispanic white mothers (mean=2.61). Bivariate tests indicated significant differences in partner support across racial and ethnic groups, $F(2, 2995) = 9.10$, $p < 0.001$. Bonferroni post-hoc tests suggest that there were differences in partner support between non-Hispanic white and non-Hispanic black mothers, but not for non-Hispanic white and Mexican American mothers. Patterns of social support were somewhat different. Mexican American and non-Hispanic black mothers had similar social support scores (mean=2.55, 2.56 respectively), which were lower than the mean scores for non-Hispanic white mothers (mean=2.82). The differences were statistically significant across all groups, $F(2, 2995) = 34.12$, $p < 0.001$, indicating that social support levels for non-Hispanic white mothers were higher than support levels for non-Hispanic black and Mexican American mothers. Furthermore, differences in work status by race and ethnicity were identified, $\chi^2(2, 2994) = 17.62$, $p < 0.001$. Mexican American mothers were less likely to report working in the last two weeks than were non-Hispanic white and non-Hispanic black mothers (45.8%, 57.0%, and 56.4%, respectively).

In terms of demographic characteristics, Mexican American mothers in the sample were about 1.5 years younger than were non-Hispanic white mothers. However, they did not differ in age from non-Hispanic black mothers. Mexican American mothers were less likely to be college educated than were non-Hispanic white and non-Hispanic black mothers (2.1% compared to 26.6% and 4.8%, respectively).

Variations in the Predictors of Parenting Stress

In the third research question, we examined whether determinants of parenting stress varied for Mexican American mothers in comparison to non-Hispanic white and non-Hispanic black mothers. To answer this question, we conducted a series of ordinary least squares regression (OLS) analyses to estimate the affects of maternal, child, and contextual factors on parenting stress. First, we ran the full model with all mothers in the sample. This step was included to verify that predictors of stress postulated by Belsky's model would determine stress among mothers in the Fragile Families sample. Second, to test if predictors of stress varied by race and ethnicity, we ran a series of separate OLS regression analyses with non-Hispanic white, non-Hispanic black and Mexican American mothers. The results from these analyses are presented in Table 2.

Column one in Table 2 presents the results for all mothers in the sample. Consistent with Belsky's model, factors in all three domains (maternal, child, and contextual factors) were significant predictors of parenting stress for the full sample of mothers, $F(12, 2896) = 26.95, p < 0.001$. Overall, predictors included in the model accounted for 9.7% of the variance explained in maternal parenting stress. Among maternal characteristics, only depression was a significant predictor of parenting stress. Mothers who scored higher on the depression assessment had higher levels of parenting stress than did mothers who scored lower on the depression assessment. Child temperament and contextual variables (social support, partner support, and working status) yielded results similar to previous research on parenting stress. Mothers who perceived their child's temperament as difficult scored significantly higher on the stress index. Similarly, low social support, low partner support, and non-working status were related to higher stress levels. Contrary to our expectations, having a low birth weight baby or a child in poor health did not increase parenting stress in the full model. Finally, among the demographic variables, lower levels of education predicted higher stress scores. In particular, mothers with less education scored higher on the parenting stress index. While age was significantly associated with higher parenting stress in the bivariate analysis, it was not a significant predictor of stress in the multivariate model.

Next, we ran separate regression models by race and ethnicity. The findings for non-Hispanic white mothers, shown in column two of Table 2, reflected the patterns found in previous research on parenting stress with non-Hispanic white mothers. The model was significant at $F(12, 780) = 10.11, p < 0.001$. Predictors in the model accounted for 12% of the total variance explained in parenting stress. The adjusted R^2 value was highest among non-Hispanic white mothers, indicating that Belsky's model was most successful in predicting stress for this sub-population of mothers.

Non-Hispanic white mothers who experienced depressive symptoms reported greater levels of stress than did mothers who did not have symptoms of depression. This finding is consistent with previous research with non-Hispanic white mothers, which shows a significant association between maternal psychopathology and higher levels of parenting stress across early childhood (Gelfand, et al., 1992; Willford, et al., 2007). Child characteristics among non-Hispanic white mothers were also important indicators of parenting stress. Indeed, for non-Hispanic white mothers, all three variables (child temperament, child health, and low weight births) in the child domain were significant predictors of parenting stress. Similar to previous research (Muslow, et al., 2002; Sepa, et

al., 2004; Willford, et al., 2007), child temperament was the strongest child predictor of maternal parenting stress. Mothers who reported their child's temperament as difficult scored higher on the stress index. However, contrary to what we expected, having a low birth weight baby was associated with lower parenting stress scores. Of the contextual factors, lower partner support was the strongest predictor of parenting stress scores. This finding is consistent with previous research by Belsky (1981), which found partner support to be the most immediate source of support for parents. This is, in part, because partner support reflects the quality of the marital relationship, as well as satisfaction in parenting (Belsky, 1981; Crnic, et al., 1983). While low social support was also associated with higher levels of parenting stress, working status was not a significant predictor of stress for non-Hispanic white mothers. Finally, mothers with a high school education, as well as mothers with some college experienced lower levels of parenting stress relative to mothers with less than a high school education

In column three, the regression results for non-Hispanic black mothers indicated similar outcomes as those for non-Hispanic white mothers. All three domains – maternal, child and contextual factors – contributed to parenting stress, $F(12, 1675) = 14.72, p < 0.001$. Overall, predictors in the model accounted for 8.8% of the variance explained in maternal parenting stress. A lower adjusted R^2 was observed for non-Hispanic black mothers than for non-Hispanic white mothers.

Specifically, among maternal characteristics, only depression scores significantly predicted parenting stress in non-Hispanic black mothers. Indeed, parenting stress scores were highest among non-Hispanic black mothers with a high likelihood of a major depressive episode. In terms of child characteristics, temperament and child health were important predictors of maternal parenting stress. Previous research conducted with low-income, non-Hispanic black mothers (Chang, et al., 2004) also found a negative association between child temperament and parenting stress. Although non-Hispanic black mother had the highest percentage of low weight births in the sample, the relationship between low birth weight and parenting stress was not significant. Finally, contextual factors contributed to parenting stress. Lower levels of both social support and partner support were associated with greater parenting stress. Similar to the pattern observed with non-Hispanic white mothers, there were no differences in parenting stress between working and non-working mothers. However, lower levels of education predicted higher levels of stress for non-Hispanic black mothers.

The fourth column in Table 2 shows the predictors of parenting stress for Mexican American mothers. The model was significant at $F(13, 414) = 3.92, p < 0.001$. Predictors in the model accounted for only 8.2% of the variance in maternal parenting stress. In comparison to non-Hispanic white and non-Hispanic black mothers, factors in Belsky's model were least effective in predicting parenting stress among Mexican American mothers.

Contrary to the results found in non-Hispanic white and non-Hispanic black mothers, maternal characteristics, including poor physical health and depression, were not associated with parenting stress for Mexican American mothers. Among child characteristics, only temperament significantly predicted maternal parenting stress. Mexican American mothers who reported their child's temperament as difficult reported higher levels of parenting stress. However, child health and low weight births were not associated with greater stress among this sub-population of mothers. Perhaps most interesting, is the influence of contextual factors on maternal parenting stress. For both non-Hispanic white and non-Hispanic black mothers, low levels of social support and partner support were predictive of greater parenting stress. However, for Mexican American mothers, only low levels of social support predicted higher parenting stress while low partner support was not associated with a

significant increase in parenting stress. Additional analyses examined potential differences in predictors of stress among U.S. born Mexican American mothers and Mexico born Mexican Americans. There were no differences in predictors of stress between Mexican American mothers born in the United States compared with those born in Mexico.

In sum, there were distinct differences in predictors of maternal parenting stress between non-Hispanic white, non-Hispanic black, and Mexican American mothers. The determinants of maternal stress for non-Hispanic white and non-Hispanic black mothers were consistent with prior research that used Belsky's theoretical model to identify predictors of stress. However, marked differences were observed among Mexican American mothers in that only child temperament and social support seemed to influence stress scores.

DISCUSSION

Results from this study suggest that there are important racial and ethnic differences in the determinants of parenting stress. Overall, the patterns of parenting stress for non-Hispanic white and non-Hispanic black mothers were fairly consistent with Belsky's parenting model, but the model did not adequately reflect the Mexican American experience. We found evidence that the mechanisms related to parenting stress in the Mexican American population differ from those of other racial and ethnic groups in the United States. Several results stand out in light of what we know about cultural influences in this population.

For Mexican American mothers, only two variables, child temperament and social support, were significantly associated with parenting stress. Depressive symptoms were not related to parenting stress for Mexican American mothers. This may be explained by the markedly lower levels of depressive symptoms among Mexican American mothers than others in the sample. Although previous research has found low rates of depression among Mexican American women (Alegria, et al., 2008), this is one of the first studies to document the relationship between depression and parenting stress. Perhaps, the weak relationship between depression and parenting stress suggests the presence of protective factors in the lives of these mothers. In terms of child characteristics, temperament was related to parenting stress for all groups. For Mexican American mothers, neither low birth weight nor poor child health was significantly associated with parenting stress, but there were variations between non-Hispanic whites and non-Hispanic blacks. Relatively low rates of low birth weight among Mexican American mothers have been attributed to the presence of cultural protections that buffer against adverse birth outcomes despite significant socioeconomic disadvantage (Hummer, Biegler, De turk, Forbes, & Frisbie, 1999). It is possible that cultural factors may continue to play an important protective role for Mexican American mothers beyond the prenatal period.

We found a weak affect of socioeconomic status (measured by education) vis-à-vis other factors, such as social support, on parenting stress among Mexican American mothers. For example, low educational attainment was not associated with higher stress for Mexican American mothers. This finding was unexpected since educational status was inversely associated with maternal stress among the full sample of mothers and among the sub-populations of non-Hispanic Whites and Blacks. Regarding the effect of perceived support from partner or friends and kin, marked differences were observed between Mexican American mothers and other mothers. Partner support did not ameliorate parenting stress for Mexican American mothers, but it did for non-Hispanic Whites and non-Hispanic Blacks. . Social support—feeling that you can receive money, childcare or have a place to live, served as a protective factor for all mothers. This is consistent with previous studies that have illustrated the critical role that cultural factors play in social and kin support and their

positive impact on mental health and well-being in Mexican American mothers (Guinn, et al., 2009; Mulvaney-Day, Alegría, & Sribney, 2007).

The minimal influence of low educational status and partner support may be unexpected according to prior research that utilized the Belsky (1984) conceptual framework. However, similar patterns between educational status and health have also been observed in birth weight and mortality among Hispanic (Goldman, Kimbro, Turra, & Pebley, 2006; Kimbro, Bzostek, Goldman, & Rodriguez, 2008). According to Villarruel and collaborators (2009), the lower risk of mental health problems consistently found in Hispanic populations points to socio-cultural characteristics which appear to serve as protective factors against external stressors.

Our findings support the significance of culture in understanding maternal stress. There is a growing body of literature on how culture is manifested in Mexican American health behaviors and health outcomes. What the research suggests is that the level of parenting stress that a mother experiences may be affected by the extent to which her cultural values are congruent or clash with her environment. For example, based on an analysis of existing empirical studies, Padilla and Villalobos (2007) find that three patterns emerge: (a) cultural expectations and beliefs may be shared and work complementarily within the family and between the family and the larger social context; (b) pressures in the environment may conflict with cultural beliefs, making those cultural beliefs a source of tension and stress with significant consequences for health outcomes, and (c) cultural values can become overshadowed by other concerns, such that apparent cultural preferences more accurately reflect problems related to lack of access to, or availability of, resources (Padilla & Villalobos, 2007). Thus, Mexican American mothers may interpret the challenges related to parenting depending on their social conditions as well as their cultural expectations.

The study has some important limitations, and as such, results should be interpreted within the context of these limitations. The use of cross-sectional data does not allow for an analysis of casual order of relationships. Future studies using longitudinal data can help us sort out the directionality of factors associated with parenting stress. In addition, the variables in the analysis only explained a moderate percentage of the variance in parenting stress levels, indicating that there is still much to be learned about unobserved characteristics associated with parenting stress. The findings in our study are consistent with other research showing a lower risk for psychiatric disorders in Hispanic populations (Breslau, et al., 2006; Villarruel, et al., 2009). Nevertheless, researchers are concerned about the cultural validity of various psychometric instruments (Oster, et al., 2002). In our study we find significantly lower depressive symptoms among Mexican American mothers compared to the other groups and no effect of depression on parenting stress. Although the CIDI-SF has been validated with Hispanics, previous research has suggested that this and other scales for depression may lack conceptual equivalency for monolingual Spanish speakers, particularly immigrants (Perreira, Deeb-Sossa, Harris, & Bollen, 2005). That is, concepts may not be interpreted in the same way across cultures. Because mental health constructs are largely influenced by culture and are vulnerable to exogenous factors like stigma (de Leon Siantz, 1993), there may be a lower likelihood of self-reports of depression by Mexican American mothers.

CONCLUSION

This is one of the first studies to document racial and ethnic differences in the mechanisms affecting parenting stress and to examine patterns among Mexican American mothers. Given the distinct patterns of parenting stress among Mexican American mothers, the study highlights the need for cultural competence when working with this population. We can

draw several considerations for practice. First, we found that despite significant social disadvantage, compared to non-Hispanic whites Mexican American mothers were not more likely to perceive parenting as a burden. This is indicative of the value of *familism*, which emphasizes the relevance of family, and of children in particular, in Mexican American families (Rivera, et al., 2008). One implication for practitioners working with Mexican American mothers is that interventions be structured so as to incorporate the family unit as a whole, including children. Second, the lower levels of depression and the weak relationship between depression and parenting stress suggest the presence of *protective factors* in the lives of these mothers. Practitioners can draw on a strengths perspective to help mothers recognize and build on those qualities that have been shown to improve their health and well-being, including healthy behaviors and lifestyle (e.g., Mexican American mothers have low rates of alcohol use). Third, source of support seems to matter for Mexican American mothers. Results show that partner support seems to matter less than other sources of social support. Previous studies show that although source of support matters for psychosocial well-being, in general those with higher levels of support from multiple sources do better (DuPurtuis, Aldwin, & Bosse, 2001). Indeed, research shows the pervasiveness of *natural support systems*, which include extended family, neighbors, churches, and community leaders, in Mexican American families (Delgado, 1998). Thus, practitioners need to assess the natural support systems of mothers, but also help facilitate a wide net of support for them and help improve the collaboration between natural support systems and formal, caregiving systems (Delgado, 1998).

Further research is necessary to fully understand the dynamics of psychosocial well-being in Mexican American families. Although this is a preliminary study, the complex role of race and ethnicity in parenting stress suggests future directions. We need to investigate why certain factors might play out differently for different groups. Are particular pressures likely to produce unique stress responses in different racial and ethnic groups, or are these pressures simply perceived differently by each group? We need to study how culture influences health and well-being. Recent critiques of the analysis of racial and ethnic differences in health outcomes emphasize the need to understand the mechanisms through which culture has an impact on health and well being, rather than simply attribute differences in risk or outcomes to an undefined element of culture (Kao, Hsu, & L., 2004). For example, our findings that partner support does not serve as a protective factor for Mexican American mothers calls for a deeper analysis of cultural aspects associated with more traditional gender roles in this population. We also need to examine the relationship between culture and other hidden or underlying causes that may moderate or mediate the impact of culture, in particular those related to social and economic context (Hunt, Schneider, & Comer, 2004). Although a wealth of empirical work on various aspects of Mexican American mental health exists, scholars agree that the development of integrative theoretical frameworks is critical to identify mechanisms specific to Hispanic populations (Villarruel et al., 2009).

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Table 1

Sample means (standard deviations) and percentages by race and ethnicity

Variables	All mothers	Non-Hispanic white mothers	Non-Hispanic black mothers	Mexican American mothers	Chi-square/F-Statistic
Parenting stress score ^a	2.18 (0.68)	2.10 (0.56)	2.22 (0.70)	2.13 (0.70)	10.62 ***
Maternal factors					
Health (%)					7.98 *
Fair-poor	13.0	9.6	13.5	13.3	
Good-excellent	87.0	90.4	86.5	86.7	
Depression symptoms ^b	15.8	15.7	16.9	12.1	5.91
Child Factors					
Health (%)					17.01 ***
Fair-poor	2.7	1.1	2.9	5.0	
Good-excellent	97.3	98.9	97.1	95.0	
Temperament ^c	2.80 (1.05)	2.58 (0.91)	2.91 (1.10)	2.78 (1.06)	28.18 ***
Low birth weight (%)	10.5	7.4	13.3	5.1	35.05 ***
Contextual factors					
Partner support ^d	2.56 (0.47)	2.61 (0.46)	2.52 (0.47)	2.57 (0.47)	9.10 ***
Social support ^e	2.61 (0.82)	2.82 (0.57)	2.55 (0.87)	2.55 (0.89)	31.54 ***
Employed (%)	55.0	57.0	56.4	45.8	17.62 ***
Maternal demographic factors					
Education (%)					426.21 ***
Less than high school	31.8	18.7	32.9	51.7	
High school/G.E.D.	32.6	25.8	37.2	26.8	
Some college	25.3	28.9	25.1	19.5	
College	10.3	26.6	4.8	2.1	
Age	26.3 (5.97)	28.1 (6.47)	25.6 (5.70)	25.6 (5.36)	54.56 ***
Immigrant (%)	-	-	-	40.5	

^aMaternal stress: 1-4, 4=higher score.

- b* Depression: 1=yes.
- c* Child temperament: 1-5, 5= higher score.
- d* Partner support: 1-3, 3=higher score.
- e* Social support: 0-3, 3=higher score.
- * p<.05
- ** p<.01
- *** p<.001

Table 2

OLS regression models estimating parenting stress as a function of maternal, child, and contextual factors

Variables	All mothers			Non-Hispanic white mothers			Non-Hispanic black mothers			Mexican American mothers		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Maternal factors												
Depression symptoms	0.18***	0.03	0.10	0.19***	0.05	0.12	0.18***	0.05	0.10	0.07	0.10	0.03
Poor/fair health	0.06	0.04	0.03	0.08	0.04	0.07	0.05	0.05	0.02	0.09	0.10	0.05
Child factors												
Temperament	0.11***	0.01	0.17	0.12***	0.02	0.20	0.10***	0.02	0.16	0.11**	0.03	0.16
Low birth weight ^a	-0.00	0.04	-0.00	-0.17*	0.07	-0.08	0.04	0.05	0.02	-0.04	0.15	-0.01
Poor/fair health	0.14	0.07	0.04	0.37*	0.18	0.07	0.22*	0.10	0.05	-0.10	0.15	-0.03
Contextual factors												
Partner support	-0.12***	0.02	-0.10	-0.13**	0.04	-0.11	-0.12***	0.03	-0.09	-0.12	0.07	-0.10
Social support	-0.06***	0.02	-0.08	-0.07*	0.03	-0.07	-0.06*	0.02	-0.07	-0.09*	0.04	-0.12
Employed	-0.07**	0.02	-0.05	-0.07	0.04	-0.07	-0.04	0.04	-0.03	-0.12	0.07	-0.08
Mother's demographic factors												
High school/G.E.D. ^b	-0.10**	0.03	-0.07	-0.12*	0.06	-0.09	-0.13**	0.04	-0.09	-0.03	0.08	-0.02
Some college	-0.08	0.05	-0.06	-0.11*	0.05	-0.10	0.07	0.08	0.04	-0.42	0.24	-0.23
College degree	-0.02	0.05	-0.00	0.03	0.07	0.06	-0.19*	0.09	-0.12	0.21	0.23	0.12
Age	-0.00	0.00	-0.04	-0.00	0.00	-0.02	-0.00	0.00	-0.05	-0.00	0.00	-0.02
Immigrant status										-0.07	0.08	0.05
Adjusted R ² /R ² (%)		9.7/10.0			12.0/13.0			8.8/9.5			8.2/11.0	

* p<0.05

** p<0.01

*** p<0.001