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Family Emotional Climate and Sibling Relationship Quality: Influences on Behavioral Problems and Adaptation in Preschool-Aged Children

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Abstract We examined the impact of family emotional climate and sibling relationship quality on behavioral problems and adaptation in preschool-aged children. Participants were 63 mothers with a preschool-aged child enrolled in a Southern Arizona Head Start Program. Siblings were identified as children closest in age to target child. Mothers of predominantly Mexican descent (95%) participated in home interviews during the Fall and Spring of the year children entered center-based programs. Sibling relationship quality (warmth, agonism/competition) was proposed to predict children's adjustment (behavioral problems and adaptation) longitudinally. Results indicate that after controlling for child characteristics (temperament, child gender, birth order) and after accounting for family characteristics (family emotional expressiveness, child exposure to interparental conflict, and parental agreement on childrearing), sibling warmth made a significant and unique contribution to child adjustment as reported by mothers and teachers six months later. Findings are consistent with existing research indicating that sibling relationships impact children's adjustment and shape young children's lives in meaningful and marked ways. Moreover, these associations were found with an understudied sample of young children of predominantly Mexican descent in low-income families, and thus make an important contribution to knowledge in the field.

Keywords Sibling relationship quality · Family emotional expressiveness · Child exposure to interparental conflict · Parental agreement on childrearing · Child adjustment

Sibling relationships are critical for understanding children's social and emotional development. Because siblings spend a considerable portion of their time together and the intensity and variety of emotions experienced in those interactions are profound, it is likely that the quality of those interactions plays a central role in shaping the course of each of their lives. (Brody, Stoneman, & McCoy, 1992; Dunn, Slomkowski, & Beardsall, 1994). Sibling relationships have been shown to be significant for understanding sociocognitive development

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(Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Howe, 1991), social development (Kramer & Kowal, 2005; McElwain & Volling, 2005), and emotional development (Brown & Dunn, 1996). There is evidence that sibling relationship quality and interactions are associated with externalizing and internalizing behaviors, links found contemporaneously and over time (Brody, Stoneman, McCoy, & Forehand, 1992). Specifically, longitudinal research following children from the preschool period to early adolescence has demonstrated that both externalizing and internalizing problems in middle childhood and adolescence were more common in children whose siblings had behaved in negative and hostile ways towards them in preschool (Dunn, Slomkowski, & Beardsall, 1994).

Sibling relationship quality is also influenced by the nature of other relationships in the family and the general emotional milieu (Volling & Belsky, 1992). Evidence corroborates a systems perspective (Minuchin, 1985), emphasizing interdependent influences among dyads within families. With regard to a spousal and sibling link, Furman and Giberson (1995), based on a review of the literature, reported that conflict within a marriage tends to be positively associated with sibling conflict, whereas endorsements of warm and caring dimensions in describing marriages tend to be negatively associated with sibling conflict. In a similar vein, Brody et al. (1992) observed that less cohesive family emotional environments, marital unhappiness, and conflict were associated with less prosocial behavior and greater agonistic behavior in sibling relationships.

Associations among positive features of spousal or parent-child relations and positive features of sibling relationships have also been observed. For example, Bryant and Crockenberg (1980) demonstrated that maternal responsiveness to a daughter's expressed needs was associated with higher levels of prosocial behavior and lower levels of antisocial behavior among school-aged female siblings. Stocker, Dunn, and Plomin (1989) have found higher levels of positivity in the parent-child relationship to be linked with higher levels of positive affectivity toward a sibling. Sibling relationships develop most optimally when there is a warm, positive mother-child relationship with each child (Kramer & Gottman, 1992).

Regular exposure to negative emotions and conflict and the accompanying distress may also undermine individual well-being. The link between marital conflict and child maladjustment, including internalizing and externalizing disorders, has long been of interest to researchers (Grych & Fincham, 1990). Anger and conflict between parents is a salient feature of the emotional climate of the home from the perspective of the children, even children as young as 12 months (Cummings & Smith, 1993). Children exposed to interparental conflict were shown to exhibit greater levels of distress and behavioral problems, and were more sensitive to subsequent angry expressions by their parents than non-exposed children (Cummings, 1987). In a similar vein, children whose relationships with their parents involve harsh parenting and unresolved anger are likely to develop behavioral styles, emotion regulation strategies, and cognitions that will encourage sibling conflict and result in poor adjustment outcomes (Brody, 1998). These children are likely to approach sibling disputes with anger-focused coping strategies and aggressive, coercive behaviors. Together these findings suggest that parental disagreements may influence child development by causing conflict in sibling interactions, which, in turn, may exacerbate problems in child adjustment.

A central purpose of our study was to replicate and extend previous research by exploring, in an understudied population, the nature of: (a) links between sibling relationship quality (as defined by varying degrees of warmth and agonism/competition in sibling relationships) and child adjustment (as defined by mother report of behavioral problems and teacher report of adaptation); (b) links between family emotional climate (as defined by levels of family emotional expressiveness, parental agreement on childrearing, and children's exposure

to interparental conflict) and sibling relationship quality; and (c) links between family emotional climate and child adjustment. We expected to replicate the findings described with a sample of low-income families of predominantly Mexican-American descent, or families who are otherwise under-represented in the sibling literature. Decades of sibling research have revealed some consistent and interesting findings, although most of this work is based on European American, middle-class samples. An implicit assumption seems to be that the emergent findings would generalize to other samples. Although our goal was to explore within group processes, the findings from the present study represent a further step toward determining if expectations in regard to the nature of sibling interactions and their developmental consequences do indeed fit other groups (see Brody, Kim, & Murry, 2003; McHale, Updegraff, Shanahan, Crouter, & Killoren, 2005).

This study was also designed to examine the relative contributions of sibling relationship quality and aspects of the family emotional climate in shaping children's behavioral adjustment and adaptation. Specifically, it was hypothesized that family emotional climate and sibling relationship quality would directly impact child adjustment, predictions in line with the existing literature. We also hypothesized that sibling relationship quality would account for unique portions of variance in the assessments of child outcome even after accounting for child characteristics and the family emotional climate. This prediction is based on the fact that sibling interactions are frequent, salient, emotionally varied and, for preschool-aged children, the experience of emotions in the sibling dyad may readily influence emotional expression and regulatory abilities (e.g., Dunn, Slomkowski, Donelan, & Herrera, 1995). That is, sibling relations are the most proximal family emotional subsystem and qualities of those relations would account for more variance in behavior problems than that accounted for by the "spill over" effects from other family subsystems (i.e., the spousal system). Furthermore, it has become widely accepted that the sources of dissimilarity between siblings is a variance component referred to as nonshared environment (Plomin & Daniels, 1987; Rende & Plomin, 1995). While a majority of investigators have explored differential parental treatment as the primary source of differences among siblings, another critical but often overlooked difference in the environments are qualities of the sibling interactions themselves. Our study is not equipped to specifically examine how these sibling qualities may differentially impact each sibling; however, it does test the premise behind this argument that sibling relations comprise a feature of the rearing environment capable of independently impacting children's adjustment and adaptation.

Method

Subjects

The participants were 63 mothers with preschool-aged children who were enrolled in Southern Arizona Head Start programs. The sample size dropped to 55 families when measured prospectively with child behavioral problems, and 47 families when measured prospectively with child adaptation. The majority of preschoolers (97%) were identified by their mothers as Hispanic and of Mexican descent, and 52% were reported as male. The children's mean age was approximately 4.79 years or 57.49 months ($SD = 4.90$ months). Sibling participants were identified as children closest in age to the target child (54% male). Younger siblings' ($n = 19$) mean age was approximately 2 years ($SD = .06$) and older siblings' ($n = 44$) age was approximately 8 years ($SD = 2.05$). Mothers' mean age was approximately 30.84 years ($SD = 5.57$) and fathers' mean age was approximately 33.29 years ($SD = 6.04$).

The majority of mothers (95%) had self-identified as Hispanic and of Mexican descent, 3% were Caucasian, and 2% of the participating mothers had self-identified as African American. Additionally, 91% of fathers had self-identified as Hispanic and of Mexican descent, 5% were Caucasian, 3% were African American, and remaining fathers did not report their ethnicity. Spanish was the predominant language spoken by mothers (78%), as well as fathers. Additionally, the majority of mothers and fathers reported Spanish as the preferred language spoken in the home. In terms of generational status, approximately 79% of mothers and 54% of fathers were first generation in the U.S. The average number of years mothers and fathers lived in the United States was 9.37 years ($SD = 6.18$) and 13.14 years ($SD = 9.80$), respectively.

In the final sample, 78% of couples were married, 18% reported a cohabiting relationship. The remaining couples did not report their relationship status. However, having two parent figures in the home was a criterion for participation in this study. In terms of educational status, the majority of mothers (52%) did not have a high school degree or GED equivalent. Among the fathers, 48% did not have a high school degree or GED equivalent, 25% completed high school or a GED.

Procedure

The data were derived from a larger longitudinal study of the socialization of emotion regulation in which mothers, fathers, and children were interviewed separately during in-home, face-to-face interviews during which questionnaires were administered by trained research assistants. Children assented to their participation after parental consent was obtained. The interviews were conducted in either English or Spanish; whichever was the preferred language of the family members. In the present study, 83% of mother interviews were conducted in Spanish. All survey measures had been translated and back-translated to insure equivalence between the English and Spanish versions of the survey. Additionally, several questionnaires were pilot-tested or reviewed by focus groups comprised of young Mexican-American parents to ensure meaningfulness to the sample. The family emotional climate and sibling relationship information were provided in the Fall of the year children entered center-based Head Start Programs. Data on child behavior and adaptation were collected again six months later from the children's mothers and their center-based Head Start teachers, respectively.

Measures

Family emotional expressiveness

Family emotional climate was assessed using a 12-item family emotional expressiveness scale modified and derived from the Family Expressiveness Questionnaire (FEQ), developed by Halberstadt (1986), which measures the extent to which the family displays a range of positive and negative emotions and the frequency that they are expressed. The family emotional expressiveness scale is on a Likert scale ranging from 0 ("Never") to 4 ("Always"). Mothers were asked to complete the questionnaire based on how often the events described by the items happen in their family. A sample item for this measure included: "Being angry when someone is careless." The items reflecting expressions of negative emotions are reversed scored and combine with the positive items to produce a total mean scale score. Internal reliability, as estimated by Cronbach alpha, was acceptable ($\alpha = .77$).

Child exposure to conflict

Family emotional climate was also assessed using a 12-item scale developed by Jouriles, Murphy, Farris, Smith, Richters, and Waters, (1991). This scale is rated on a Likert scale ranging from 0 ("Never") to 4 ("Always"). Mothers were asked to complete the questionnaire based on how often the child has been aware of parental conflict as described in the items during the last six months. A sample item for this measure included: "Been present when my partner and I had a child-rearing disagreement." Cronbach's alpha for mothers ($\alpha = .91$) was satisfactory.

Parental agreement on child rearing

To further assess family emotional climate, a modified version of the Conflict over Child Rearing (CCR) subscale from Snyder's (1997) Marital Satisfaction Inventory, Revised (MSI-R) was employed to determine the extent of conflict between partners regarding child rearing practices. This 10-item measure includes a five-point Likert scale response format anchored by frequency of disagreements ranging from 0 ("Not at all true for us") to 4 ("Very true for us"). A sample item for this measure included the following: "My partner and I agree on how to split our responsibility for rearing our child." The Cronbach alpha for this scale was .75.

Sibling relationship quality

Sibling relationship quality was assessed using a sixteen-item modified version of Kramer and Baron's (1995) Parental Expectations and Perceptions of Children's Sibling Relationships Questionnaire (PEPC—SRQ), which measures the frequency of a range of emotions and behaviors expressed in the sibling relationship. Modifications included reducing the number of items and rewording so that the items would reflect interactions among younger sibling pairs. In our study, only mothers reported on the quality of the sibling relationship. Specifically, mothers were asked to rate the quality of the sibling relationship using a Likert scale ranging from 1 ("Never") to 5 ("Almost always"). Sibling relationship quality was assessed with three subscales: warmth (i.e., "Kindness"), agonism (i.e., "Fights over objects/possessions"), and competition (i.e., "Feeling Rivalry or Envy"), respectively. Cronbach's alphas generated for warmth ($\alpha = .70$), agonism ($\alpha = .84$), and competition ($\alpha = .67$), were acceptable. Because the agonism and competition subscales were highly correlated ($r = .58$, $p < .01$), these subscales were aggregated. Additionally, given the small sample size in the present study we decided to aggregate agonism and competition to reduce the number of predictors in our analyses.

Child behavioral problems

Child behavioral problems were assessed six months later using a thirty-five item scale modified from the Child Behavior Checklist for ages 1.5–5 (CBCL), developed by Achenbach and Rescorla (2000). The CBCL for ages 1.5–5 is rated on a Likert scale ranging from 0 ("Not true") to 2 ("Very true or often true"). Internal reliabilities for the prospective internalizing and externalizing subscales as rated by the participating mothers were $\alpha = .74$ and $\alpha = .92$, respectively. The internalizing and externalizing subscales were highly correlated ($r = .56$, $p < .01$) and were aggregated to reduce number of indices in the analyses.

Child adaptation

The Social Competence and Behavior Evaluation: Preschool Edition (SCBE; LaFreniere & Dumas, 1995) was employed to assess child adaptation six months later. Center-based Head Start teachers, with a preschool-aged target child in their classrooms, completed this 80-item instrument. The total scale assesses a child's general adaptation, or typical behavior or emotional state, along three broad dimensions: (1) emotional adjustment, (2) interactions with peers, and (3) social interactions with adults. The SCBE is designed to assess patterns of social competence, affective expression, and adjustment difficulties and is utilized to describe behavioral tendencies in children for the purposes of socialization and education (LaFreniere & Dumas, 1995). Teachers rated the target child using a Likert scale ranging from 1 ("Almost NEVER occurs") to 6 ("Almost ALWAYS occurs"). The internal reliability for the total subscale of this instrument, as reported by teachers, was good ($\alpha = .96$).

Child temperament

The negative emotionality subscale from Presley and Martin's (1994) Temperament Assessment Battery for Children (TABC) was employed to assess temperament as a control variable. The TABC consists of 60 items rated on a 7 point Likert scale identified by five factors: negative emotionality, activity, adaptability, task orientation, and social inhibition. A sample item from the negative emotionality subscale included: "If my child is upset, it is hard to comfort him/her." The internal reliability alpha was .77 for mothers.

Results

Descriptive statistics including means and standard deviations for all study variables are presented in Table 1.

Our study was designed to replicate hypothesized associations between family, sibling, and individual child adjustment variables for a sample of families with preschool-aged children. These associations are examined via correlation and regression analyses. Given that the sample was of predominantly Mexican-descent one specific hypothesis was generated based on reviews of literature involving these families. It was expected that sibling warmth would be a far more prominent feature of those relationships, than conflict. This hypothesis was confirmed. According to paired sample *t*-test results, sibling warmth was significantly higher than sibling agonism/competition in the study sample, $t(62) = 7.91, p < .0001$. A correlation matrix of all study variables is shown in Table 2.

Sibling relationship quality variables proved to be correlated with child adjustment indices as rated by mothers and teachers. Specifically, there was a significant inverse association between sibling warmth and the child behavioral problems assessed six months later. That is, higher levels of warmth expressed in the sibling relationship are related to lower levels of child behavioral problems, as rated by mothers. Conversely, there was a positive association between sibling warmth and teacher ratings of child adaptation six months later. That is, higher levels of sibling warmth were related to higher levels of child adaptation. In addition, there was a positive association between sibling agonism/competition and the combined internalizing/externalizing behaviors aggregate assessed six months later. That is, higher levels of sibling agonism and competition were related to higher levels of child behavioral problems, as rated by mothers.

Table 1 Descriptive statistics of study variables

Variables	Range	*M*	*SD*	*n*
Negative emotionality	1–7[a]	3.63	1.46	63
Family emotional expressiveness	0–4[b]	3.22	.44	63
Child exposure to interparental conflict	0–4[c]	.90	.82	63
Parental agreement on childrearing	0–4[d]	3.04	.80	63
Sibling relationship quality (warmth)	1–5[e]	4.06	.58	63
Sibling relationship quality (Agonism and competition aggregate)	1–5[e]	3.05	.81	63
Internalizing and externalizing aggregate Behavioral problems (six months later)	0–2[f]	.50	.28	55
Social competence and behavior (SCBE) Child adaptation (six months later)	1–6[g]	4.78	.57	47

[a] Higher values represent more negative emotionality.

[b] Higher values represent higher levels of family emotional expressiveness.

[c] Higher values represent higher levels of child exposure to interparental conflict.

[d] Higher values represent more parental agreement to childrearing.

[e] Higher values represent more warmth, agonism, or competition.

[f] Higher values represent more internalizing or externalizing problem behaviors prospectively.

[g] Higher values represent greater adaptation prospectively.

Family emotional climate variables were associated with sibling relationship quality indices. Specifically, family emotional expressiveness was positively related to sibling warmth and negatively associated with sibling agonism/competition. Although child exposure to interparental conflict was associated with sibling warmth and sibling agonism/competition in the hypothesized directions, neither correlation reached significance. Similarly, parental agreement on childrearing was associated with sibling warmth in the hypothesized direction, but also did not reach significance. However, parental agreement on childrearing was significantly and negatively correlated with sibling agonism/competition.

Family emotional climate variables similarly proved to be associated with child adjustment indices as rated by mothers and teachers. Specifically, there was a significant negative correlation between mothers' reports of family emotional expressiveness and child behavioral problems assessed six months later. That is, the higher the level of positive family emotional expressiveness, the lower the level of child behavioral problems. There was also a significant negative correlation between mothers' reports of parental agreement on childrearing issues and child behavioral problems assessed six months later. That is, the more parental agreement on childrearing issues, the lower the level of child behavioral problems.

Regression analyses

A series of regressions were conducted to examine the joint and unique contributions of the family emotional climate and sibling relationship quality variables in predicting to child outcome. Child temperament (as defined by negative emotionality), child gender, and birth order were controlled for in the first step, followed by variables representing family emotional climate which were entered in the second step. To determine whether sibling relationship quality would uniquely predict to the indices of child adjustment, these variables were entered in the third step of the equations. Two models were tested: one predicting to the child

Table 2 Intercorrelations among study variables

	1	2	3	4	5	6	7	8
Temperament								
1. Negative emotionality		− .00	.01	−.23	− .04	.25*	.53**	−.09
Family emotional climate								
2. Family emotional expressiveness			−.29*	.45**	.44**	−.30*	−.39**	−.09
3. Child exposure to interparental conflict				−.43**	−.08	.18	.19	−.27
4. Parental agreement on childrearing					.09	−.27*	−.46**	.08
Sibling relationship quality								
5. Warmth						−.04	−.38**	.33*
6. Agonism and competition aggregate							.42**	−.04
Child adjustment								
7. Behavioral problems (internalizing/externalizing aggregate)—mother report six months later								−.13
8. Adaptation (social competence and behavior total score)—teacher report six months later								

*$p < .05$.

**$p < .01$.

behavioral problems as rated by mothers six months later, and the other predicting to child adaptation as rated by teachers six months later. Based on these analyses, the final models are presented in Table 3.

The hierarchical regression equation for variables predicting child behavioral problems as reported by mothers six months later was significant, $F(8,46) = 7.70$, $p < .001$. After controlling for child characteristics including temperament (negative emotionality), child gender, and birth order, none of the family characteristics variables predicted child behavioral problems. However, after controlling for child characteristics and after accounting for family characteristics, sibling relationship quality continued to make significant and unique contributions to the prediction of child behavioral problems. Specifically, sibling warmth negatively predicted child behavioral problems, $\beta = -.30$, $p < .01$.

The hierarchical regression equation for variables predicting child adaptation as reported by teachers six months later was also significant, $F(8,38) = 2.35$, $p < .05$. After controlling for child characteristics including temperament (negative emotionality), child gender, and birth order, family emotional expressivity negatively predicted child adaptation, $\beta = -.43$, $p < .05$. Additionally, child exposure to interparental conflict negatively predicted child adaptation at the trend level, $\beta = -.33$, $p < .10$. However, after controlling for child characteristics and after accounting for family characteristics, sibling relationship quality continued to make significant and unique contributions to the prediction of child adaptation. Specifically, sibling warmth positively predicted child adaptation, $\beta = .50$, $p < .01$.

Discussion

Our study was designed to investigate associations among family emotional climate, sibling relationship quality, and children's behavioral problems and adaptation. Notably, this work was conducted with a low-income, predominantly Mexican-descent sample and provides important data on an underrepresented population in the field. Given the overall significance of our models, as evidenced by the considerable R^2 values, family emotional climate and sibling relationships emerged as critical elements in understanding the adjustment and adaptation of the young children sampled for this study. Sibling warmth, in particular, impacted children's overall behavioral adjustment. Specifically, this prospective study demonstrated that sibling warmth negatively predicted children's problem behaviors and positively predicted children's adaptation above and beyond the influence of family emotional expressiveness, parental agreement on childrearing, and child exposure to interparental conflict variables, even after controlling for the effects of child negative emotionality, child gender, and birth order. That is, child-child relationships characterized by warmth, as compared to spouse-spouse or family level characteristics, play an important and independent role in helping to shape children's behavioral adjustment and adaptation (Dunn et al., 1991; Lockwood, Kitzmann, & Cohen, 2001).

Our results did not demonstrate significance for sibling agonism/competition in predicting child adjustment indices. These results are not consistent with prior research showing that sibling conflict is a more salient dimension than warmth (Dunn, Slomkowski, Beardsall, & Rende, 1994; Stocker, Burwell, & Briggs, 2002). However, most of the existing literature has investigated primarily European American families instead of other ethnic groups such as Latino families. It is possible that sibling warmth is a more prominent dimension, and thus more predictive to children's outcomes, among these populations. The quality of warmth is characteristic of the Mexican cultural values of familism and simpatía and may help to play a critical role in understanding children's developmental outcomes. For example, past

Table 3 Summary of hierarchical regression analyses for variables predicting child behavior problems and adaptation prospectively

Variable	Child behavioral problems (mother report) Model 1			Child adaptation (teacher report) Model 2		
	B	*SE B*	β	*B*	*SE B*	β
Step one (Child characteristics)						
Negative emotionality	.08	.02	.43***	−.01	.06	−.02
Child gender	−.06	.06	−.11	.19	.16	.17
Birth order	−.07	.06	−.11	.09	.18	.07
Step two (family emotional climate)						
Family emotional expressiveness	−.05	.08	−.08	−.54	.25	−.43*
Child exposure to interparental conflict	.01	.04	.04	−.23	.11	−.33†
Parental agreement on childrearing	−.08	.04	−.23	.05	.14	.06
Step three (sibling characteristics)						
Sibling warmth	−.15	.06	−.30**	.47	.15	.50**
Sibling agonism and competition	.06	.04	.17	−.12	.12	−.16
R^2		.57			.33	
F		7.70***			2.35*	

Note. All coefficients were taken from the last model of testing this equation. Gender of child was coded 0: male, 1: female. Birth order was coded 0: older, 1: younger.

†$p < .10$.

*$p < .05$.

**$p < .01$.

***$p < .001$

studies have demonstrated that familism is an important aspect of Mexican family life that fosters closeness, emotional support, and family-based care and play, which is common in sibling interactions (Farver & Howes, 1993; Mirande, 1977). This value also promotes a strong commitment to family members' connectedness and well-being (Cervantes, 2002; Zayas & Solari, 1994), as well as emphasizes the importance of being respectful and placing the welfare of the family above one's own welfare (Marin & Marin, 1991; Ruiz, Roosa, & Gonzales, 2002). Similarly, simpatía is characterized by maintaining harmony in relationships (Triandis, Marin, Lisansky, & Betancourt, 1984). Thus, it is reasonable to consider that these cultural values would promote warmth within the sibling relationship and overall well-being.

Given this background, we expected that the sibling relationships in the present sample would be described as close and cohesive as evidenced in relatively higher levels of warmth than levels of agonism/competition. Furthermore, the centrality of relationships as a cultural value bolstered our prediction that the sibling subsystem would contribute uniquely to understanding child behavioral problems and adaptation. The significantly higher levels of warmth reported in the sibling relationships, coupled with the significance of warmth as a predictor of behavioral problems and adaptation, add credence to the potential role of ethnic values in shaping family interactions and developmental outcomes.

Our findings support work demonstrating direct associations between sibling conflict and child maladjustment outcomes in preschool and elementary-age children (Garcia, Shaw, Winslow, & Yaggi, 2000; Stocker, 1994; Stocker et al., 2002). We found significant associations among sibling conflict and children's poor adjustment outcomes in the correlational analyses, however, these associations did not emerge as significant in the regression analyses. Instead, it was demonstrated that sibling relationships characterized by warmth have significantly better behavioral adjustment outcomes prospectively. Buhrmester and Furman (1990) reported that levels of warmth/closeness decreased as children grew older, particularly after third grade and through twelfth grade. Given the young age of our study sample, it is plausible that sibling warmth, as compared to sibling agonism/competition, remains the more critical quality in the sibling relationship for impacting individual child behavioral outcomes in early childhood. However, as children age, it may be that sibling agonism, or conflict, becomes more salient. This line of work may help to explain why sibling agonism and competition did not significantly impact child adjustment indices in our sample with preschool-aged children.

Our longitudinal design demonstrates the strong impact that sibling warmth had on individual children's development. Given the impact that family emotional climate variables had on child outcomes, it is particularly notable that sibling warmth appeared as a uniquely significant predictor. However, some limitations of our study also must be noted. First, longitudinal research is needed to examine the temporal and causal relations between these constructs. For example, it would be beneficial to follow the target children as they enter school to examine and to test the stability of sibling relationship quality. Second, these findings reflect the nature of the relations between mothers' reports of family emotional expressiveness, child exposure to interparental conflict, sibling relationship quality, and child adjustment indices. Because mothers' reports were used to assess family emotional climate, sibling relationship quality, and children's behavioral problems, the potential for shared method variance to influence the results is also a significant concern. However, the children's adaptation outcome was assessed by center-based Head Start teachers. Notably, fathers did participate in the proposed study; however, their reports were infrequently associated with other variables of interest. It will therefore be important to examine whether the pattern of results is similar when other reporters are employed.

Finally, the generalizability of these results to children of different ages, ethnic backgrounds, and family situations is not known, and as such, it is important to replicate study findings. Notwithstanding limitations, a key strength of the present study includes the assessment of child outcome variables by multiple reporters. Additionally, these associations were found with an understudied sample of young children of predominantly Mexican descent in low-income families, and thus make an important contribution to knowledge in the field. Future work should continue to include data from a variety of ethnic groups to both provide information on understudied populations and to determine the generalizability of our understanding of these associations.

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