12-2008

# Emotional, Cognitive, and Family Systems Mediators of Children's Adjustment to Interparental Conflict

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**Abstract:** Emotional, cognitive, and family systems processes each have been identified as mediators of the association between interparental conflict and children's adjustment. However, little is known about how they function in relation to one another because they have not all been assessed in the same study. This investigation examined the relations among children's exposure to parental conflict, their appraisals of threat and blame, their emotional reaction, and triangulation into parental disagreements. One hundred fifty ethnically diverse 8-12 year-old children and both of their parents participated in the study. Comparisons of three models proposing different relations among these processes indicated that they function as parallel and independent mediators of children's adjustment. Specifically, children's self-blaming attributions and emotional distress were uniquely associated with both internalizing and externalizing problems, whereas perceived threat uniquely predicted internalizing problems and triangulation uniquely predicted externalizing problems.

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**Keywords:** Interparental Conflict, Triangulation, Appraisals, Distress Reactions, Internalizing Problems, Externalizing Problems, Psychological Adjustment, Cognitive Contextual Framework, Family Systems Theory

Efforts to understand the impact of interparental conflict on children have identified several factors that may explain how exposure to chronic, hostile, and poorly resolved conflict can lead to adjustment problems. Specifically, children's appraisals of threat and blame, their emotional reactivity and distress, and triangulation into parental disagreements each has been shown to mediate the relationship between parental discord and child maladjustment (e.g., E. M. Cummings, Schermerhorn, Davies, Goeke-Morey, & J. S. Cummings 2006; Davies, Harold, Goeke-Morey, & Cummings, 2002; Grych, Harold, & Miles, 2003; Grych, Raynor & Fosco, 2004). This research provides insight into different aspects of children's responses to interparental conflict, but is limited in that most studies have examined only one of these factors. Consequently, it is not clear how they are interrelated and which may have unique relations with child adjustment problems. To develop a more thorough understanding of the effects of parental conflict on children, it is important to build conceptual models that better reflect the interconnected nature of emotion, cognition, and the family dynamics that may be involved in the course of parental conflicts.

The goal of this study was to examine how constructs identified as mediators in prior research are related to each other and to child adjustment problems. We compared the fit of three theoretically-derived configurations of these mediators to determine which model best captured the nature of the relationships between interparental conflict, the hypothesized mediators, and children's internalizing and externalizing problems (Kline, 2002). Next, we review the constructs investigated in the study and then describe the theoretical rationale behind the models tested.

## Appraisals of Parental Conflict

Appraisals are children's subjective perceptions of parental disagreements and reflect their effort to understand the causes and consequences of the conflict. Threat appraisals reflect children's perception that parental conflict is detrimental to their well-being or

the functioning of the family; for example, children may worry that parental anger may lead to parent-child conflicts, marital dissolution, or even violence (Grych, 1998; Grych & Cardoza-Fernandez, 2001). Self-blame may occur when children believe that the disagreement was caused by their behavior or if they feel responsible for ending or resolving the conflict (Grych & Fincham, 1993). Appraisals have often been cast as purely cognitive constructs, but the process of evaluating the meaning of an interaction that may be hostile and aggressive involves affect as well as cognition. For example, the perception of threat is accompanied by the feeling of fear, and self-blame may elicit shame. Cross-sectional and longitudinal research supports the role of children's appraisals of threat and self-blame as mechanisms through which conflict is linked with adjustment problems (Buehler, Lange, & Franck, 2007; Dadds, Atkinson, Turner, Blums, & Lendich, 1999; Grych et al., 2000; 2003). More specifically, threat appraisals consistently have been associated with internalizing problems, whereas self-blame predicts both internalizing and externalizing problems (for a review, see Grych & Cardoza-Fernandez, 2001).

## Emotional Responses to Parental Conflict

Repeated exposure to parental conflict may affect children's experience, expression, and control of emotion. Davies and Cummings (1994) proposed that observing hostility between their caregivers is a dysregulating experience that could lead to heightened emotional reactivity in children (also see Crockenberg & Langrock, 2001). Similarly, trauma theories hold that repeated exposure to affectively arousing events undermines children's ability to regulate their emotions (e.g., De Bellis, 2001), and problems modulating affect in turn increase children's risk for adjustment problems (e.g., Eisenberg et al., 2001). Consistent with these ideas, children from highly conflictual families exhibit greater sensitivity to later parental arguments, as evidenced by increased negative affect (e.g., El-Sheikh, 1994) and physiological reactivity (e.g., El-Sheikh, Ballard, & Cummings, 1994). Much of the research on children's emotional reactivity to conflict has been guided by the emotional security model, which views reactivity as one component of emotional security, along with children's perceptions of family relationships and their behavioral response to the conflict (Davies & Cummings, 1994). Most studies

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have combined these three indicators into a single construct, but two studies that assessed them separately showed that emotional reactivity uniquely mediated associations between interparental conflict and both internalizing and externalizing problems (Buehler, et al., 2007; Davies & Cummings, 1998). The goal of the present study was to assess children's emotional reactions to parental conflict as a distinct process, rather than the broader construct of emotional security, in order to examine a specific aspect of children's response to stress that also has been highlighted in other theoretical models (e.g., DeBellis, 2001).

## Triangulation into Parental Conflict

Family systems theorists describe triangulation as the involvement of a third person in a dyadic conflict (e.g., Bowen, 1978; Minuchin, 1974) and can take a variety of forms. Children may be drawn into (or freely enter) a parental disagreement to help resolve it, form an alliance with one parent against the other parent, or to re-route parental anger toward them and away from marital problems (Buchanan & Waizenhofer, 2001). Children also may feel caught in the middle or pressured to take sides even if they do not become involved in the interaction. Although their involvement in a parental disagreement may be effective in deflecting attention from problems in the marriage, it may intensify the impact of parental conflict on children's functioning by making them the target of parental anger or disrupting their relationship with one or both parents (Buchanan & Waizenhofer, 2001). In addition, children who routinely become involved in parental disputes may develop maladaptive behavioral patterns that serve to dissipate interparental conflict. For example, Davis, Hops, Alpert, and Sheeber (1998) found that children's involvement in parental conflicts was associated with patterns of hostile and oppositional behavior, which predicted later externalizing problems. Empirical research indicates that triangulation into parental conflict mediates children's internalizing and externalizing problems concurrently and over time (e.g., Buchanan & Waizenhofer, 2001; Franck & Buehler, 2007; Gerard, Buehler, Franck, & Anderson, 2005; Grych et al., 2004). Triangulation was defined broadly in the present study in order to capture the range of ways that it may be manifest,

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including children's direct participation in parental disagreements and their subjective sense of feeling caught in the middle.

## Integrating Cognitive, Emotional, and Family Systems Processes

Although most studies have assessed only one of the mediators described above, three investigations have included two of these factors in the same model. First, Davies, Harold, and colleagues (2002) examined a community sample of 11- to 13-year-old Welsh children's appraisals and emotional security, a construct that included measures of emotional distress and reactivity, negative cognitions about marital and parent-child relationships, and behavioral attempts to intervene in or avoid parental conflict. They found that threat and blame appraisals were associated with emotional security, which in turn directly predicted children's internalizing problems. Externalizing problems were examined in a separate model, and were uniquely predicted both by emotional security and children's self-blame appraisals. These findings may suggest that perceived threat is only indirectly linked with children's maladjustment, but this interpretation is complicated by the researchers' attempt to more clearly distinguish the cognitive component of appraisals from children's emotional reactions by removing items from the threat and self-blame scales that had a strong affective component (e.g., "I get scared when my parents argue"). Because the cognitive and emotional aspects of appraisals are tightly interwoven, attempting to isolate the cognitive element does not accurately reflect the nature of appraisal processes and therefore likely underestimates the relation between appraisals and adjustment. In addition, because the cognitive, affective, and behavioral components of emotional security were combined into a single latent variable, it is not clear which may have had unique associations with child adjustment.

More recently, Buehler and her colleagues (2007) tested a model integrating children's appraisals and the components of emotional security using a sample of 11- to 14-year-old youths recruited from Tennessee middle schools. To address the overlap between measures of appraisal and emotional reactivity, they conducted a factor analysis of the threat, coping efficacy, and self-

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blame subscales from the Children's Perception of Interparental Conflict Scale (CPIC; Grych, Seid, & Fincham, 1992) and the emotional reactivity, internal representation, and behavioral regulation subscales from the Security in the Interparental Subsystem questionnaire (SIS; Davies, Forman, Rasi, & Stevens, 2002). After eliminating any items that loaded significantly on more than one factor, the best-fitting solution included 9 subscales. Most pertinent for the present study, the factor analyses showed that the items measuring children's appraisals held together and could be distinguished from the items focused exclusively on their emotional reactions. The 9 empirically-derived scales were then tested as mediators of the relation between interparental conflict and child adjustment. Internalizing problems were mediated by self-blame appraisals, emotional dysregulation, negative family representations, avoidance, and internalization of feelings, whereas externalizing problems were mediated by self-blame and threat appraisals. This study thus indicates that both appraisal and affective processes play unique mediating roles in the relation between interparental conflict and child adjustment.

A third study examined appraisals and children's triangulation into conflict (Gerard et al., 2005), using the same sample as Buehler and colleagues (2007). Gerard and colleagues (2005) did not test triangulation and appraisals as independent mediators; instead, triangulation and children's exposure to interparental conflict were combined into a single latent variable. In this model, self-blame and threat appraisals independently mediated the relation between the triangulation/conflict construct and both internalizing and externalizing problems, though triangulation/conflict retained a significant direct relation with the adjustment indices as well.

These studies provide initial evidence that appraisals, emotional processes, and triangulation each play unique roles in mediating the impact of parental conflict on children. However, the conclusions that can be drawn about these processes are not clear because the three studies reveal somewhat different patterns of relationships among conflict, the mediators, and adjustment, and none included all three domains in a single analysis. In addition, the models tested in each investigation were not compared to alternative models representing different relations among the constructs. Because an indefinite number of models can fit a given data set, stronger support for a particular

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conceptualization is gained if it is shown to fit the data better than a model representing a conceptually meaningful alternative. The present investigation was designed to address these gaps in the existing literature by integrating triangulation, appraisals, and emotional reactivity in a single model and testing three alternative models that postulate different patterns of relationships among them. We describe each model below.

## Parallel Mediators

The first model proposes that triangulation, threat, self-blame, and distress reactions serve as unique and independent pathways linking interparental conflict and adjustment (see Fig. 1). This model hypothesizes that appraisals, emotional reactions, and children's involvement in parental disagreements operate in parallel; although these processes likely are correlated, each functions to increase children's risk of developing adjustment problems. This model is consistent with Buehler and colleagues' (2007) finding that appraisals of threat, blame, and emotional dysregulation independently mediated associations between interparental conflict and child adjustment, and with Gerard and her colleagues' (2005) data showing that children's reports of triangulation and appraisals were each uniquely associated with internalizing and externalizing problems. This is the most conceptually simple model in that it does not propose any causal relations among the hypothesized mediators. The alternative models, in contrast, propose formulations in which one or more of these processes influences the others.

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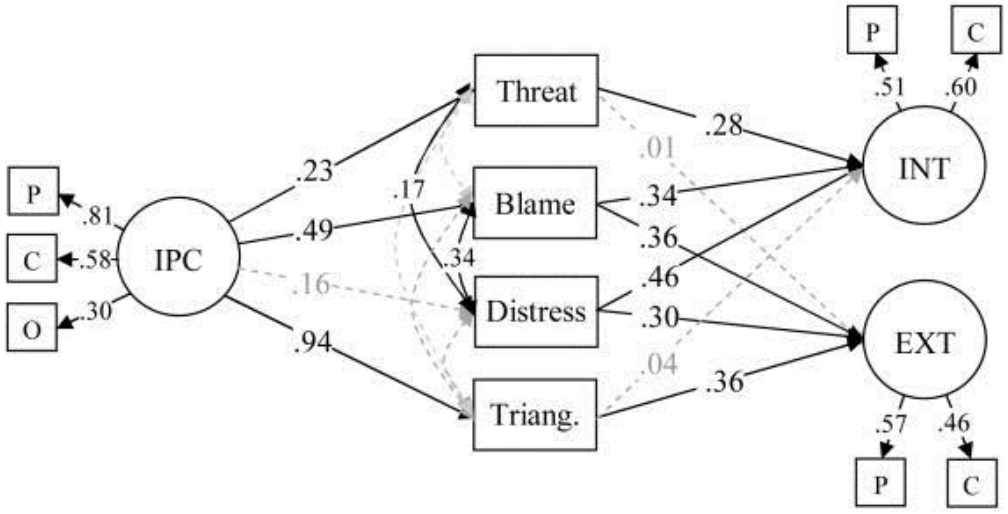
**Figure 1**. Structural Model Testing the Parallel Mediators Model




Structural Model Testing the Parallel Mediators Model
*Note*. $\chi^2(26) = 49.538$, $p < .01$; $\chi^2/df = 1.91$; AGFI = .86; CFI = .96; RMSEA = .078
Paths represented in dark lines are significant at $p < .05$

## Emotional distress as a final common pathway

The first alternative model posits that triangulation and child appraisals lead to maladjustment because they make the conflict more emotionally distressing to children (see Fig. 2). Perceptions of threat, self-blaming attributions, and involvement in parental discord all have the potential to make conflict more distressing to children, and with repeated exposure, these processes may heighten children's propensity to become distressed, placing them at greater risk for adjustment problems. This conceptualization is consistent with Davies, Harold, and colleagues' (2002) data showing that emotional security (comprised in part by emotional reactivity) mediated the link between appraisals and children's adjustment problems.

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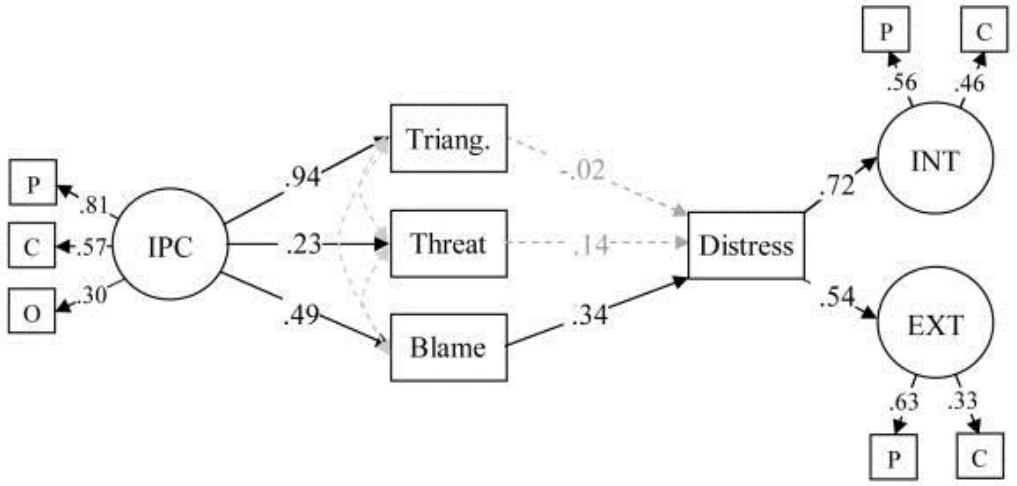
**Figure 2.** Structural Model Testing the Emotional Distress as the Final Common Pathway Model




Structural Model Testing the Emotional Distress as the Final Common Pathway Model
*Note*. $\chi^2(33) = 90.140$, $p < .01$; $\chi^2/df = 2.732$; AGFI = .81; CFI = .90; RMSEA = .109
Paths represented in dark lines are significant at $p < .05$

## Triangulation-Driven Model

The second alternative model proposes that triangulation in parental conflict affects how children perceive and respond emotionally to the conflict, which in turn predict adjustment problems (see Fig. 3). Because triangulation draws them into an angry parental interaction, children may experience the conflict as more upsetting and more threatening to them and perhaps to the harmony of the family as a whole (Gerard et al., 2005). Children who are involved in parental disputes also may be more likely to believe that they have a role in causing those disputes, or that they are responsible for helping to resolve them (Kerig, 1995). Finally, child involvement in parental conflicts may lead children to feel more distress, although to date, there are no published studies that have tested this relationship. This model suggests a process by which triangulation may lead to adjustment problems (e.g., Franck & Buehler, 2007; Grych et al., 2004) and is consistent with Gerard and her colleagues' (2005) data showing that triangulation predicted children's appraisals, which in turn were associated with adjustment.

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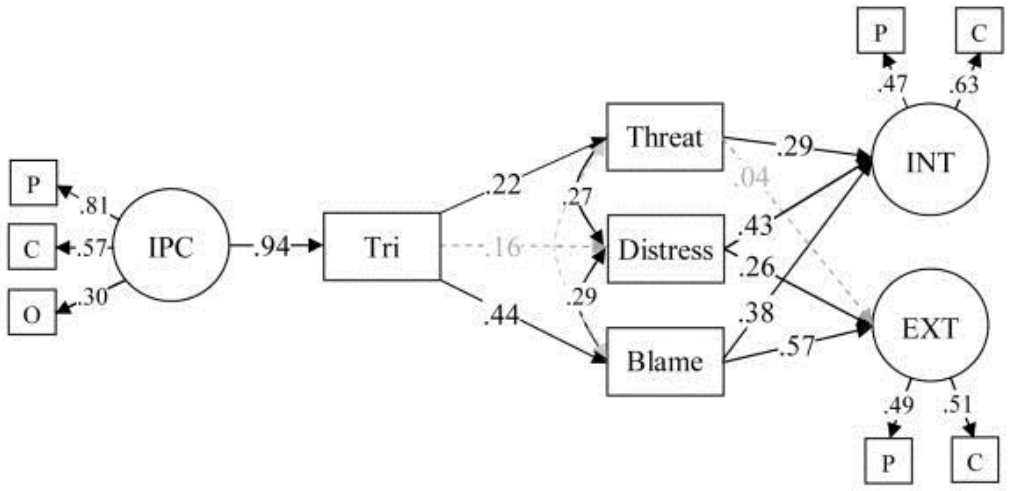
**Figure 3**. Structural Model Testing the Triangulation Driven Model




Structural Model Testing the Triangulation Driven Model
*Note*. $\chi^2(31) = 62.060$, $p < .01$; $\chi^2/df = 2.00$; AGFI = .86; CFI = .95; RMSEA = .083
Paths represented in dark lines are significant at $p < .05$

The fit of each of these models was assessed using structural equation modeling, and then the models were directly compared to determine which provided the *best* fit with the data. Interparental conflict, the proposed mediators, and child adjustment were assessed with multiple measures and multiple sources of data, including observation of family interaction and self-report measures from the children and both of their parents.

# Method

## *Participants*

Data were collected from 150 two-parent families and their 4th and 5th grade children as part of a larger study. Participants were recruited from several ethnically diverse elementary schools in a mid-sized, Midwestern city. Of the 266 families contacted to participate in the larger study, 56% agreed to participate. Families that participated were required to have been living together for at least two years. Eighty-six percent of the parents were married, and couples had been living together for an average of 12.8 years (*SD* = 5.3). Family

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socioeconomic status was reported on a 10-point scale, ranging from under $10,000 to over $90,000 per year (mean = $50,000-$60,000). Children in this study ranged in age from 8-12 years old, with a median age of 10. This sample had a relatively even gender split (48.7% were girls). Children's descriptions of their ethnicity were diverse: 55.0% were Caucasian, 28.2% were African-American, 6.0% were Latino/a, 1.3% were Asian/Pacific Islander, 0.7% were Native American, 6.7% were Biracial, and 2.0% were "other."

## *Procedure*

Children and their parents came to a university research laboratory to participate in this study. Informed consent and assent for participation was obtained from parents and children. Afterwards, each participant completed questionnaire packets independently and participated in video recorded family interaction tasks as part of a larger study. Two researchers were present to provide instructions and answer questions during the family visits.

The present study utilizes observational data from an interaction in which parents were given 10 minutes to discuss and work toward resolving topics of continuing disagreement regarding their child-raising practices while their child was present in the room. This task was designed to capture parents' styles of resolving disagreements in situations when their child is exposed to the disagreement. These video recorded interactions were later coded by a team of graduate students. Coder training consisted of approximately 30 hours of training on the SCIFF (Lindahl & Malik, 2000) with a set of tapes provided by Kristin Lindahl, who also provided consultation to the authors during the course of the study. Then, a team of two graduate students, supervised by the first author, independently coded a random selection of 25% of the sample to establish interobserver agreement. Coders then independently coded the rest of the sample with biweekly "drift-check" sessions to ensure consistency in coding over time. Any disagreements that arose during drift-check meetings were resolved under the supervision of the first author.

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## *Measures*

### *Demographic Information*

Families completed a demographics form indicating their annual family income, marital status, child age, and child ethnicity. Family income was rated on a scale from 1-10, in $10,000 increments (1 = under $10,000, 10 = $100,000 or more). Parents also reported on whether they were married. Children's age was computed by subtracting their date of birth from the date of the family visit to our lab. Finally, children reported on their ethnicity as one of 7 options (see above).

### *Interparental Conflict*

Interparental conflict was assessed via self-reports by children and both of their parents and observation of the parental problem-solving interaction. Children completed the Conflict Properties scale from the Children's Perceptions of Interparental Conflict scale (CPIC; Grych et al., 1992), which assesses the frequency, intensity, and resolution of parental disagreements. Children rated the 19 items as either "true", "sort of true" or "false." Sample items include, "I often see my parents arguing" (frequency), "My parents get really mad when they argue" (intensity), and "Even after my parents stop arguing, they stay mad at each other" (resolution). This scale has demonstrated good reliability and validity in past research (Grych et al., 1992) and yielded adequate reliability in the current sample ($\alpha$ = .87).

Parents also completed the Couple Problem Solving Scale (CPS; Kerig, 1996) to gain their perspective on patterns of interparental conflict. The CPS was designed to provide a comparable index of conflict to the CPIC, and allows for greater consistency between parent and child reports. Parents rated the frequency they and their partners engaged in 15 conflict behaviors including verbal conflict behaviors such as "Raise voice, yell, shout," "Name-calling, cursing, insulting," and physical conflict behaviors "Throw objects, slam doors, break things, and "Push, pull, shove, grab partner". These items were rated from 0 ("Never") to 3 ("Often") and mothers and fathers reports were

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reliable (α = .90 and .91, respectively). Mothers and fathers reports were converted into z-scores and then summed together to create a single parent composite.

Finally, observed conflict behaviors were assessed using two codes from the System for Coding Interactions and Family Functioning (SCIFF; Lindahl & Malik, 2000): conflict negativity and marital communication. Negativity was coded on a scale from 1 (very low) to 5 (high) to capture the level of negative affect or tension present during the interaction. This code was derived of negativity reflected in the body language and tone of voice of the participants. Marital communication also was coded from 1 (very low) to 5 (high) and reflects the degree to which parents were able to speak respectfully and constructively to one another and listen to each others' point of view while resolving their disagreement. Intraclass correlations were computed to establish adequate reliability for negativity ($r$ = .91) and marital communication ($r$ = .90). Codes for negativity and communication were highly correlated ($r$ = -.63, $p$ < .01). To provide a single observed indicator of conflict, marital communication was reverse coded and then summed with negativity so that higher levels reflect more hostile interparental conflict.

### *Triangulation*

As noted above, triangulation has been defined and measured in a variety of ways, and we incorporated multiple measures of triangulation in order to assess the heterogeneous nature of this construct. Children completed the triangulation subscale of the CPIC (Grych et al., 1992). This 7-item subscale assesses the extent to which children feel caught in the middle of their parent's conflict and includes items assessing child involvement in conflicts, child initiated involvement, and being forced to take sides during a conflict. Sample items include, "When my parents argue I end up getting involved somehow" and "I feel like I have to take sides when my parents have a disagreement." Reliability of the triangulation subscale in this sample was .58. Although this scale does not measure the frequency of which children are involved in parental conflicts, 74.5% of children reported at least occasional involvement in parental conflicts. More specifically, 53.4% of children reported some degree of self-initiated involvement

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in parental conflicts, and 36.6% reported feeling that they have taken sides at least some of the time.

Parents completed triangulation subscales from the Coparenting Questionnaire (CQ; Margolin, Gordis, & John, 2001) and the Couples Problem-Solving Scale (CPS; Kerig, 1996). The 4 items on the CQ triangulation subscale were rated from 0 (never) to 4 (always) to capture the degree to which parents involve children in their disagreements. A sample item includes "My spouse uses our child to get back at me". Reliability was computed for mothers (α = .74) and fathers (α = .67). Parents also completed four items on the CPS child involvement scale, rating the degree to which they and their partners direct conflicts at their children. Items were endorsed from 0 (never) to 3 (often) to reflect the frequency they use particular strategies during conflicts. Sample items include "Involve the child(ren) in our argument" and "Become angry with child when really angry with partner." This scale yielded adequate reliability for mothers (α = .85) and fathers (α = .81). Parents' scores on the CPS and CQ scales were significantly correlated (mothers' $r$ = .42, $p$ < .01; fathers' $r$ = .49, $p$ < .01). To produce a single indicator of each parent's reports of triangulation, scales were transformed into z-scores and then summed together. A composite variable for triangulation was formed by transforming mother, father, and child indexes of triangulation into z-scores and summing them together.

### *Children's Appraisals of Conflict*

Children reported on their threat and self-blame appraisals by completing the CPIC (Grych et al., 1992). The threat scale captures the degree to which children perceive the conflict as alarming (e.g., "When my parents argue I'm afraid that they will yell at me too") and children's beliefs about their ability to cope with the distress (e.g., "I don't know what to do when my parents have arguments"). Because this measure of children's threat appraisals has several items with emotional content, some past researchers have removed these items to reduce overlap with measures of emotional security (i.e., Davies, Forman et al., 2002). However, this method is inconsistent with conceptual formulations of threat appraisals (Grych & Fincham, 1990) and with empirical findings from factor analysis of appraisal and emotional security items (Buehler, Lange, & Franck, 2007). The Blame

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scale includes children's beliefs that they are responsible for causing or resolving parental disputes (e.g., "It's usually my fault when my parents argue") and their perception the parental conflicts are about them (e.g., "My parents' arguments are usually about me"). These scales were internally consistent (Threat α = .77; Blame α = .78).

### *Children's distress reactions to interparental conflict*

Children and parents independently rated the degree to which children experienced sadness, anger, fear and confusion immediately after observing the parental conflict solving task. Participants placed a mark on a line ranging from "not at all" to "very" to indicate how much they were feeling each emotion during the observed conflict episode, which were scored by measuring the distance from "not at all" in millimeters. Internal consistency for these four items was adequate for children's (α = .75), mothers' (α = .76), and fathers' reports (α = .74). Mother, father, and child reports were all significantly correlated (*r*'s = .19 to .49, *p*'s < .05), and so they were converted to z-scores and summed to create a composite distress reactions score. To test whether children's distress reactions were simply an indicator of the level of hostility expressed during the conflict episode, we correlated children's distress reactions with observed levels of negativity during the discussion task. The correlation between these variables was .12, indicating the children's emotional reactions largely were not a function of conflict intensity but were influenced by other factors (e.g., emotional reactivity, ability to regulate arousal). In addition, children's distress reactions and threat appraisals were only moderately correlated (.22), evidencing only 5% shared variance, suggesting that these measurements captured distinct processes.

### *Psychological Adjustment*

Parents and children reported on children's internalizing and externalizing problems. Parents completed the Child Behavior Checklist (CBCL; Achenbach, 1991) and children completed the depressed/anxious and aggression subscales of the CBCL - Youth Self Report Form (YSR; Achenbach, 1991). These versions of these measures were used because the study began before the 2001 editions were available. Parents and children rated items as 0 (not true), 1 (somewhat or sometimes true), or 2 (very true or often true).

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The internalizing scales reflect a pattern of maladjustment characterized by social withdrawal or shyness (e.g., "Complains of loneliness") and symptoms of depression or anxiety (e.g., "Cries all the time" or "I feel worthless or inferior"). The externalizing scales capture children's maladjustment characterized by aggression ("Gets in many fights") and defiance ("Disobedient at school"). Adequate reliability was found for internalizing (mothers α = .85; fathers α = .85; children α = .85) and externalizing problems (mothers $\alpha$ = .92; fathers $\alpha$ = .90; children $\alpha$ = .79). Mothers' and fathers' reports of these scales were z-scored and summed to provide a single parent index of internalizing and externalizing problems. This allowed for a balance between parent and child perspectives for the latent variables of internalizing and externalizing problems.

This study included children who were younger than the age range (11-18 years) with which the YSR (Achenbach, 1991) was normed. Therefore, raw scores were used for both child and parent reports of adjustment rather than the t-scores that are based on normative data. In addition, correlations between parent and child reports were computed for children under age 11 to ensure validity of younger children's responses on these scales (internalizing $r$ = .48, $p$ < .01; externalizing $r$ =.25, $p$ < .01).

# Results

## *Descriptive data*

Variables analyzed in this study were composite variables created by summing z-scores from multiple reporters. Thus, means and standard deviations are provided for each measure prior to z-score transformations (see Table 1). As befits a community sample, scores on the interparental conflict and child maladjustment scales were low to moderate on average but varied considerably, and the means and standard deviations were comparable to those in the other studies assessing multiple mediators (Buehler, et al., 2007; Davies, Harold et al., 2002; Gerard, et al., 2005).

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**Table 1.** Descriptive Statistics for Indicators Prior to Z-Score Conversions

| Construct | Measure | Reporter | Mean | SD |
|---|---|---|---|---|
| Interparental Conflict | CPS | Mother | 23.87 | 10.75 |
| | | Father | 21.52 | 10.55 |
| | CPIC | Child | 12.64 | 6.63 |
| | SCIFF | Observation | 5.35 | 1.79 |
| Triangulation | CPS | Mother | 10.25 | 4.42 |
| | | Father | 8.57 | 4.41 |
| | CQ | Mother | 1.47 | 2.03 |
| | | Father | 1.68 | 1.87 |
| | CPIC | Child | 3.16 | 2.51 |
| Threat | CPIC | Child | 10.33 | 4.64 |
| Self-Blame | CPIC | Child | 3.25 | 3.18 |
| Emotional Distress | --- | Mother | 43.45 | 40.99 |
| | | Father | 41.03 | 36.19 |
| | | Child | 48.27 | 51.85 |
| Internalizing Problems | CBCL | Mother | 6.76 | 5.56 |
| | | Father | 6.08 | 5.00 |
| | YSR | Child | 5.67 | 4.34 |
| Externalizing Problems | CBCL | Mother | 8.59 | 8.20 |
| | | Father | 8.68 | 7.34 |
| | YSR | Child | 7.48 | 4.49 |

Intercorrelations among indicator variables are presented in Table 2. Variables measuring each construct were significantly correlated: children's, parents' and observed indices of interparental conflict demonstrated small to moderate correlations (range *r*'s .26-.46, *p*'s < .01), as did parents' and children's reports of internalizing problems ($r = .34$, $p < .01$) and externalizing problems ($r = .31$, $p < .01$). In addition, the mediating processes generally were interrelated. Triangulation was correlated with children's threat ($r = .22$, $p < .05$) and blame ($r = .36$, $p < .01$) appraisals, but not with their distress responses to conflict ($r = .16$, *ns*). Children's appraisals of threat and blame were correlated ($r = .25$, $p < .01$) and each correlated with children's distress responses (threat: $r = .22$, $p < .01$; blame: $r = .38$, $p < .01$). Finally, each of the proposed mediators was correlated with indices of adjustment. Triangulation was correlated with parent reports of internalizing ($r = .29$, $p < .01$) and externalizing problems ($r = .45$, $p < .01$), but not with children's reports of adjustment. Threat was correlated with child reports of internalizing

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problems ($r$ = .34, $p$ < .01); but not with parent reports of internalizing problems; whereas blame and emotional distress were correlated with parent and child reports of internalizing and externalizing problems ($r$'s ranged .29-.41, $p$'s < .01).

**Table 2**. Intercorrelations among Indicators of IPC and Adjustment and Mediator Composite Variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. IPC (P) | ---- | | | | | | | | | | | | |
| 2. IPC (C) | .46** | ---- | | | | | | | | | | | |
| 3. IPC (O) | .26** | .29** | ---- | | | | | | | | | | |
| 4. Triangulation | .80** | .53** | .29** | ---- | | | | | | | | | |
| 5. Threat | .19* | .55** | .05 | .22* | ---- | | | | | | | | |
| 6. Blame | .37** | .35** | .22* | .45** | .25** | ---- | | | | | | | |
| 7. Distress | .11 | .13 | .08 | .16 | .22** | .38** | ---- | | | | | | |
| 8. Internalizing (P) | .22* | .22* | .14 | .29** | .16 | .29** | .40** | ---- | | | | | |
| 9. Internalizing (C) | .03 | .32** | -.03 | .11 | .34** | .41** | .33** | .34** | ---- | | | | |
| 10. Externalizing (P) | .32** | .25** | .25** | .45** | .11 | .32** | .36** | .69** | .17 | ---- | | | |
| 11. Externalizing (C) | .14 | .31** | .17 | .17 | .09 | .38** | .16 | .25** | .62** | .31** | ---- | | |
| 12. Family Income | -.31** | -.37** | -.24** | -.33** | -.19* | -.27** | -.08 | -.21* | -.16 | -.29** | -.16 | ---- | |
| 13. Child Age | .00 | -.04 | -.07 | .09 | -.13 | .02 | .05 | -.01 | .05 | .04 | .03 | .00 | ---- |

Note. (P) denotes measures completed by parents (mother and father combined) and (C) denotes measures completed by children. IPC refers to measures of interparental conflict.
**$p$ < .01
*$p$ < .05

To determine if there were gender differences in the nature of the relationships among the variables, we conducted Box's test on the covariance matrices for the set of variables for boys and girls. No gender differences were found in the relations between the variables included in the models (Box's M = 94.423, $F$ = 1.244, $p$ > .05). In addition, MANOVA comparisons between boys and girls also produced no differences ($F$(11) = 1.399, $p$ > .05). A Box's test also was computed for ethnic groups that had adequate representation in this sample. No differences were found in the relations among variables for African American and Caucasian children (Box's M = 95.913, $F$ = 1.100, $p$ > .05). MANOVA comparisons of children who identified themselves as Caucasian and African-American did not differ on the

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variables tested in the models ($F(11) = 0.817$, $p > .05$). Therefore, models were computed using the entire sample.

The role of child age and socioeconomic status also were considered. Child age was not correlated with any of the constructs or indicators in the model and it was not included in the models. However, family income was correlated with several constructs. Therefore, models were computed twice: once accounting for family income as a covariate and again without. Chi Square comparisons of models with and without family income found no significant differences for any of the three models, indicating that family income did not improve the overall model fit, and the pattern of associations between variables did not differ when family income was included. Thus, the models presented below do not include family income in the interests of parsimony and clarity of presentation.

### *Testing the fit of each model*

Structural equation models were computed using Amos 5.0 (Arbuckle, 2003). An advantage to using structural equation modeling techniques is the ability to compare the goodness of fit indices of alternative models to determine which model provides the best fit with the data. Models were evaluated in two ways: by examining fit statistics for each model and by comparing across models to determine which had the best fit with the data. The first step evaluated whether each model provided adequate fit with the data. Chi Square ($\chi^2$) statistics were evaluated for each model and values that were nonsignificant, or models with a $\chi^2$ to degrees of freedom ratio ($\chi^2$/df) of less than 3 were considered to have an adequate fit with the data (Arbuckle, 2003). Also, the Adjusted Goodness of Fit Index (AGFI), as estimate of the degree to which the model accounts for the explained variance among the variables, and the Comparative Fit Index (CFI), a comparison of the estimated model with a null model of unrelated variables, each were used to evaluate model fit, such that values of .90 or greater were considered adequate (Kline, 2002). The Root Mean Square Error of Approximation (RMSEA) was computed, and models with a value of less than .08 were considered acceptable (Kline, 2002). In addition, Akaikane information criterion (AIC) values also were computed to aid in model comparison because they provide an index of model parsimony (Kline, 2002).

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For all models, manifest variables from the same reporter (child or parent reports) were allowed to correlate to reduce the impact of method variance on the model and were the same for each model tested. To reduce method variance with the mediators, latent variables were created for the independent and outcome variables using multiple informants. Each model included correlations between concurrent mediators to account for the covariance between them.

### *Parallel mediators model*

First, the model proposing appraisals, distress reactions, and triangulation as independent mediators was tested (Figure 1). It provided a good fit with the data ($\chi^2(26) = 49.538$, $p < .01$; $\chi^2/df = 1.91$; AGFI = .86; CFI = .96; RMSEA = .078; AIC = 129.538). This model showed that children who were exposed to more chronic, hostile, and poorly resolved conflict also were more likely to be triangulated into parental disputes ($\beta = .94$), to feel threatened by conflict ($\beta = .23$), and to make self-blaming attributions ($\beta = .49$). However, parental conflict was not directly associated with children's distress responses ($\beta = .16$). Each of these factors in turn uniquely predicted one or both of the indices of adjustment. Self-blaming attributions were associated with higher levels of internalizing ($\beta = .34$) and externalizing ($\beta = .36$) symptoms. Similarly, children who experience greater distress in response to conflict had higher levels of internalizing ($\beta = .46$) and externalizing ($\beta = .30$) problems. Consistent with past research, threat was associated with internalizing ($\beta = .28$) but not externalizing ($\beta = .01$) problems, whereas children's triangulation was associated with externalizing ($\beta = .36$) but not internalizing ($\beta = .04$) symptoms.

### *Emotional distress as a final common pathway*

The model positing that exposure to conflict leads to triangulation and more negative appraisals, which in turn lead to greater distress responses to conflict had a marginal fit with the data ($\chi^2(33) = 90.140$, $p < .01$; $\chi^2/df = 2.732$; AGFI = .81; CFI = .90; RMSEA = .109; AIC = 156.140). As shown in Figure 2, parental conflict had a unique association with triangulation ($\beta = .94$), threat ($\beta = .23$) and blame ($\beta = .49$), however, only blame was associated with children's distress responses ($\beta = .34$). Emotional distress was then

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significantly associated with both internalizing ($\beta$ = .72) and externalizing ($\beta$ = .54) problems.

### *Triangulation-driven model*

The model proposing that triangulation into parental conflict leads to greater perceived threat, self-blame, and emotional distress, which in turn leads to greater maladjustment yielded adequate fit with the data ($\chi^2(31) = 62.060$, $p < .01$; $\chi^2/df = 2.002$; AGFI = .86; CFI = .95; RMSEA = .083; AIC = 132.060). As shown in Figure 1, conflict predicted triangulation ($\beta$ = .94), which was then associated with children's threat ($\beta$ = .22) and blame ($\beta$ = .44) appraisals. However, triangulation was not significantly associated with children's distress responses to conflict ($\beta$ = .16). Children's emotional distress and self-blame were each associated with internalizing (dist: $\beta$ = .43, S-B: $\beta$ = .38) and externalizing (dist: $\beta$ = .26, S-B: $\beta$ = .57) problems. Threat was associated with internalizing problems ($\beta$ = .29) and was not significantly associated with externalizing problems ($\beta$ = .04).

## Comparing the models

In the second set of analyses, we compared the models to determine which configuration of mediators best explained the association between interparental conflict and children's adjustment. Two criteria were used to choose the best fitting model (Kline, 2002). First, the nested models were compared by examining the difference in the $\chi^2$ statistics of the models. If a model had a significantly lower $\chi^2$ value, it was judged to be a better fitting model. Second, AIC values were used. Lower AIC indicate a more parsimonious model that accounts for substantial variance with relatively fewer parameters.

Table 3 presents the statistics used to compare the models. It shows the overall $\chi^2$ for each model, the difference in $\chi^2$ between the parallel mediators model and each of the others, and the AIC values. As the table indicates, $\chi^2$ tests showed that the parallel mediators model provided a significantly *better* fit with the data than the triangulation-driven model ($\chi^2$ (5) = 12.52, $p < .05$) and the distress responses as a final common pathway model ($\chi^2$ (7) = 40.602, $p < .001$). The triangulation-driven model, in turn, fit better than the emotional distress model ($\chi^2$ (2) = 28.080, $p < .001$). AIC values also

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supported the parallel mediators model (129.54) as a better fit than the triangulation (132.06) or emotional distress models (156.14).

**Table 3**. Fit Statistics and Comparisons for Structural Models

| | df | $\chi^2$ | $\chi^2$/df | AGFI | CFI | RMSEA | AIC |
|---|---|---|---|---|---|---|---|
| 1. Parallel Mediators | 26 | 49.538 | 1.91 | .86 | .96 | .078 | 129.54 |
| 2. Triangulation Driven | 31 | 62.060 | 2.00 | .86 | .95 | .083 | 132.06 |
| 3. Distress Final Common Path | 33 | 90.140 | 2.73 | .81 | .90 | .109 | 156.14 |
| 4. Reverse Flow Parallel Mediators | 26 | 61.934 | 2.38 | .83 | .94 | .097 | 141.93 |

**Comparisons of Fit Between Models**

| | df | $\chi^2$ | p | Preferred Model |
|---|---|---|---|---|
| Parallel vs. Triangulation | 5 | 12.522 | < .05 | Parallel Mediators |
| Parallel vs. Distress | 7 | 40.602 | < .001 | Parallel Mediators |
| Distress vs. Triangulation | 2 | 28.080 | < .001 | Triangulation Driven |

A limitation of cross-sectional designs for examining mediational hypotheses is that they are ambiguous in regard to the temporal and causal relations among the constructs. Although the direction of effects cannot be evaluated using cross-sectional data, it is possible to test whether the proposed ordering of the variables fits the data better than a model representing the reverse ordering (Kline, 2002). Thus, a "reverse flow" model was computed in which internalizing and externalizing problems predicted each of the four mediators, which in turn, predicted interparental conflict. The fit statistics for this model are presented in Table 2. The reverse-flow model provided a poorer fit than the original parallel mediators model on all of the criteria ($\chi^2(26) = 61.934$, $p < .01$; $\chi^2/df = 2.382$; AGFI = .83; CFI = .94; RMSEA = .097; AIC = 141.93). Consequently, the parallel mediators model was retained as the best representation of the relations among the constructs.

## Discussion

The goal of this investigation was to examine the specific roles that intervening processes emphasized by different theoretical models (appraisals from the cognitive-contextual framework, emotional distress from emotional security and trauma theory, triangulation from family systems theory) may play in understanding the links between interparental conflict and child adjustment. This study is the first to

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simultaneously test family systems, cognitive, and emotional processes in a single model, and it suggests that each of these factors offers a unique contribution to understanding the association between conflict and children's adjustment. We compared three models proposing different associations among these factors: a model in which each mediator independently predicts adjustment problems, a model in which the effects of triangulation and appraisals are mediated through children's emotional response to the conflict, and a model in which triangulation into parental conflict shapes children's subsequent appraisals and distress reactions. Although each of these models provided a reasonably adequate fit with the data, the first model provided a significantly better fit than the latter two, indicating that each process is a unique mediator of the association between interparental conflict and child adjustment, rather than some being antecedents or products of others. These findings have a number of implications for the continued development of theory on the impact of conflict on children.

First, this study provides further evidence that children's appraisals and emotional reactions are related yet distinct. Appraisals have an affective component — for example, threat involves both the perception of danger and the feeling of fear — but they also reflect children's evaluation of the causes and consequences of a particular disagreement. The associations between children's distress in response to the parental disagreement and their perceptions of threat and self-blame were small to moderate, but only the appraisals were related to children's exposure to interparental conflict (the path coefficient with emotional distress was in the expected direction, but fell short of statistical significance). This pattern is consistent with the idea that emotional responses to stressful events are shaped by individuals' appraisals of the events (Lazarus & Folkman, 1984): conflict is more upsetting to children when they perceive it as threatening and view themselves as responsible for causing or alleviating the discord. However, it also is possible that the association between conflict and children's distress reaction was attenuated by the nature of the lab-based interaction. Even though there was variability in the degree of negative affect expressed by parents and reported by children, most of the problem-solving discussions were fairly civil and did not cause high levels of distress in their children; consequently, the limited range on

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these variables may have underestimated the association between them.

The fact that children's distress reactions and appraisals had unique associations with internalizing and externalizing problems further demonstrates the value of examining them separately. Whereas heightened emotional distress predicted both internalizing and externalizing symptoms, perceiving conflict as a danger to themselves, their parents, or the family more broadly was related specifically to children's symptoms of anxiety and depression. In contrast, the tendency to view themselves as responsible for causing or perhaps helping to end parental discord predicted both internalizing and externalizing problems. These findings exhibit considerable convergence with prior studies examining mediating processes.

First, the results pertaining to children's emotional distress are consistent with research by Davies and Cummings (1998), who reported that children' emotional reactions to a (staged) argument between their mothers and an experimenter uniquely predicted internalizing and externalizing problems after accounting for the other components of emotional security. In contrast, Buehler and colleagues (2007) found that children reporting higher levels of distress and difficulty soothing themselves following parental conflict had greater internalizing, but not externalizing, problems two years later. The degree of consistency across studies in documenting a link with internalizing problems is notable given that these three investigations assessed emotional reactions through very different means (questionnaire, response to an analogue conflict, response to their own parents' disagreement). Together, they support the hypothesis that repeatedly experiencing heightened emotional arousal may undermine children's ability to regulate their emotions (Davies & Cummings, 1994; De Bellis, 2001). Davies and Cummings (1994) have proposed that emotional distress may serve short-term goals such as disrupting parental conflicts or organizing avoidance or withdrawal responses to parental conflict (Davies & Cummings, 1998), but distress that cannot be effectively managed is proposed to play a role in the development of internalizing and externalizing problems (e.g., Eisenberg et al., 2001, 2005).

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Second, appraisals of threat and blame had different patterns of associations with indices of child adjustment that correspond to findings from prior studies. Threat appraisals have reliably predicted internalizing but not externalizing problems, and this pathway remained significant in the present study even when appraisals were examined simultaneously with children's emotional reactions and the occurrence of triangulation. Perceiving conflict as a threat to themselves or to their family more broadly may lead children to worry about the stability of family relationships and undermine their overall sense of efficacy and agency (Davies & Cummings, 1994; Grych & Fincham, 1990). In contrast, self-blame appears to be a robust mediator of both externalizing and internalizing problems, uniquely predicting externalizing symptoms in all four studies assessing multiple mediators (Buehler, et al., 2007; Davies, Harold et al., 2002; Gerard et al., 2005) and internalizing problems in 3 of the 4 (Buehler et al., 2007; Davies, Harold et al., 2002; Gerard et al., 2005). If children believe that they have caused, or cannot rectify, conflict between their parents, they are more likely to feel sadness, helplessness, and shame (Grych & Fincham, 1993), whereas children may develop externalizing behavior problems if the belief that they are responsible for helping to end parental disputes leads them to engage in disruptive or aggressive behaviors (Davis et al., 1998).

Finally, these data indicate that family systems processes — specifically, triangulation — also may shape the impact of parental discord on children. Children were more likely to become involved in or feel caught in the middle of parental disagreements when they were more frequent, hostile, and poorly resolved, and triangulation in turn predicted externalizing problems. From a family systems perspective, triangulation may serve to diffuse parental conflicts (Buchanan & Waizenhofer, 2001), which may be adaptive in the short-term but harmful for both children and their parents in the long-term. For example, if disruptive behavior is effective at detracting attention from marital problems, children may develop more stable patterns of acting out in stressful circumstances. In addition, parents who frequently resort to triangulation as a means of managing their disputes may be less prone to teaching or modeling adaptive conflict resolution to their children. Prior studies have demonstrated links between triangulation and both externalizing (e.g., Gerard et al., 2005; Grych et al., 2004; Kerig, 1995) and internalizing problems (e.g., Buchanan &

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Waizenhofer, 2001; Franck & Buehler, 2007; Grych et al., 2004; Kerig, 1995), and it is possible that different forms of triangulation have unique implications for children's outcomes. For example, Franck and Buehler (2007) found that cross-generational coalitions mediated the association between parental conflict and children's internalizing, but not externalizing problems. The current study used a broad definition of triangulation, and it will be important to further investigate whether there are differences in the precursors and consequences of different forms of triangulation (e.g., parent- vs. child-initiated, mediation vs cross-sectional coalitions).

## *Limitations and future directions*

It is important to recognize some limitations of this study when interpreting the results. First, because the data are cross-sectional, they can provide support for a mediational model but cannot examine the temporal relationships among the variables. Finding that a model reversing the direction of effect between the constructs fit the data more poorly than the original model increases confidence in the results, but it does not directly test the causal assumptions of the model. Longitudinal tests of these associations are necessary to confirm the temporal ordering of effects between these variables and to explore potential bidirectional influences. Second, like most prior research investigating mediators of the association between conflict and adjustment, the study utilized a community sample with low to moderate levels of conflict. Although there is evidence that some of the processes function similarly in samples experiencing high levels of conflict or family violence (e.g., Grych et al, 2000), it is possible that the nature of the relations among the mediators may differ as discord becomes increasingly severe. For example, whereas there is considerable variability in how much threat children report in response to parental disagreements, the level of danger is much higher in violent families and consequently most children are likely to report high levels of threat. Finally, although this study extended downward (to age 8) the age range of children studied in prior research examining multiple mediators (ages 11-14), it may not generalize to younger or older children. This may be particularly pertinent for the role of appraisals, which are likely to change as children become more cognitively sophisticated.

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The present study also had several methodological strengths. With one exception, all constructs were measured with three sources of information, including observation and child, mother, and father self-report. Appraisals were assessed with a single rater because only children have access to their thoughts about parental conflict. A second advantage is that it tested the relationship of each of the mediators with internalizing and externalizing problems simultaneously, offering a more precise assessment of their association with each type of problem. Finally, comparing the fit of three conceptually-meaningful models, rather than simply testing the fit of a single model, also lends more confidence to the results. Testing models in isolation can be misleading because there is an indefinite number of models that may fit a given data set reasonably well; examining which model fit better, rather than whether a particular model fit, led to a different conclusion than would have been drawn if one of the other models were the only one assessed.

### *Conclusion*

Conceptual models designed to understand the impact of interparental conflict on children initially focused on intrapersonal processes (e.g., emotions, cognitions) as mediators. More recently, there have been efforts to incorporate a broader family focus into these models (e.g., Davies, Sturge-Apple, Winter, Cummings, & Farrell, 2006; Fosco & Grych, 2007), but to date no studies have examined whether cognitive, emotional, and family systems processes offer unique information about the link between conflict and child adjustment. Although the emotional security model hypothesizes that children's emotions, cognitions, and behavior mediate the impact of conflict, these processes are all viewed as indicators of children's emotional security, and most research on this model combines the indicators into a single construct. The findings of this study highlight the value of examining the specific roles of different putative mediators, and provide empirical support for including the systemic process of triangulation in the development of increasingly comprehensive theoretical frameworks. The continued evolution of theoretical understanding in this domain will be further promoted by considering other levels of analysis that may offer unique insights. Investigation of biological processes represents a particularly promising direction. Research demonstrating links between parental

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conflict and regulation of the LHPA axis, parasympathetic nervous system activity, and sleep disruption provide a promising lens for examining how and why conflict gives rise to adjustment problems (Davies, Sturge-Apple, Cicchetti, & Cummings, 2007; El-Sheikh, Ballard, & Cummings, 1994; El-Sheikh, Buckhalt, Mize, & Acebo, 2006; Pendry & Adam, 2007). The challenge will be to integrate these levels of analysis in a conceptually meaningful way that fosters understanding of how children's thoughts, feelings, and behavior are related to their physiological responses, and how these processes both affect and are affected by the nature of the relationships within the family.

## Acknowledgments

We would like to thank the graduate and undergraduate students who played an integral role in conducting this study and the children and families who participated in this study.

This study was supported by National Institute of Mental Health Grant #MH60294-01 to John Grych.



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