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Parents' Aggressive Influences and Children's Aggressive Problem Solutions with Peers

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Abstract

This study examined children's aggressive and assertive solutions to hypothetical peer scenarios in relation to parents' responses to similar hypothetical social scenarios and parents' actual marital aggression. The study included 118 9–10 year old children, and their mothers and fathers. Children's aggressive solutions correlated with same-sex parents' actual marital aggression. For children with mothers who exhibit low actual marital aggression, mothers' aggressive solutions to hypothetical situations corresponded with children's tendencies to propose aggressive but not assertive solutions. In a 3-way interaction, fathers' aggressive solutions to peer scenarios and marital aggression, combined, exacerbated girls' aggressive problem solving, but had the opposite effect for boys. Discussion addresses the complexity, particularly with respect to parent and child gender combinations, in understanding parents' aggressive influences on children's peer relationships.

Cross-contextual influences between family and peers have long been recognized (Hartup, 1980; Parke & O'Neill, 1999), but clarification still is needed on ways that family relationships affect children's competency with peers. Children's observations of their parents in interpersonal contexts, particularly their parents' aggression, can influence the children's own social problem solving skills (Dodge, Bates, & Pettit, 1990; Goodman, Barfoot, Frye, & Belli, 1999; MacBrayer, Milich, & Hundley, 2003). Social problem solving skills, in turn, can affect the children's peer relations (Dodge & Pettit, 2003). Thus, children's solutions in socially challenging situations can be an important link between parent-child relations and peer relations. The present study investigates three ways that parents' aggression can influence children's social problem-solving. First, this study is designed to replicate and extend findings that link children's exposure to marital conflict and aggression to their social problem solving abilities (Goodman et al.; Rosenberg, 1987). Second, this study assesses connections between parents' aggressive responses to hypothetical social scenarios and children's problem solving responses. We examine separate and combined effects of marital aggression and parents' aggressive problem solving on children's aggressive and assertive problem-solving when they respond to hypothetical scenarios involving peer relations. Third, this study examines whether children who are exposed to marital aggression are more likely to encounter provocative and challenging peer situations.

Social learning theory offers a framework for understanding why parents' aggression is relevant to children's aggressive problem solving strategies. Social learning perspectives posit a complex array of variables, including consequences of the aggression and degree of identification with the aggressor, that coalesce to determine how parents' modeled aggressive behavior influences children's schema about the acceptability and effectiveness of aggressive

strategies (Bandura, 1977). The observation of one parent's aggression to the other is a highly unique situation for learning about aggressive problem solving. From a modeling perspective, observing parents' aggression with one another conveys a message about the appropriateness of aggression. Observing parents may encourage children to use aggression in wide ranging social situations (Margolin, 1998). Investigators with samples of young children (Graham-Bermann & Levendosky, 1998) as well as adolescents and young adults (Cantrell, MacIntyre, Sharkey, & Thompson, 1995; Levendosky, Huth-Bocks, & Semel, 2002; McCloskey & Lichter, 2003) report that youths' exposure to marital aggression relates to their own aggressive behavior with peers.

With a growing number of studies indicating an association between marital aggression and children's problematic behaviors with peers, researchers suggest that it is necessary to examine specific processes that link parents' direct displays of aggression to children's aggression with peers (Grych & Fincham, 1990; Parke et al 2001). For example, in the larger field of marital conflict and children's peer relations, parents' expressions of negative emotions and regulation of negative affect emerge as important mediators of the link between parents' marital conflict and children's peer relations (Lindsey, MacKinnon-Lewis, Campbell, Frabutt, & Lamb, 2002; Stocker & Youngblade, 1999). Thus, available evidence suggests that interparental conflict relates to children's peer behavior, but that association occurs in a context of more general displays of parents' displays of negative emotions. In addition, Eisenberg et al (2001) report parents' displays of negative emotions affect children's emotion regulation, which also affects children's social competencies. When parents display negative emotions toward other family members, children may come to believe that such emotions are socially acceptable, and even desirable.

Another way to explicate the association between interparental aggression and children's aggression with peers is to investigate the strategies youth and their parents generate when faced with challenging social situations. Only two studies have examined the question of whether children's exposure to interparental aggression influences children's problem solving strategies, not just their aggressive behaviors, with peers. Using a paper-and-pencil measure of problem-resolution strategies and social-cognitive skills, Rosenberg (1987) found that children who had witnessed battering tended to choose either passive or aggressive strategies to resolve interpersonal conflict. These children also were less likely to choose assertive strategies than were comparison children. More recently, Goodman et al. (1999) examined the relation between parents' marital aggression and the effectiveness of children's social problem-solving skills as assessed through children's interview responses to common social problems. These investigators reported that mothers' aggressive marital conflict tactics and conflict escalation related to children's use of less effective social coping strategies, primarily aggression with peers. Fathers' marital aggression, in contrast, did not account for significant variance in children's social coping effectiveness. This study assesses solutions to social problems as an index of social problem solving abilities, with ineffective solutions largely being aggressive solutions.

Studies of social problem solving skills frequently explore children's responses to hypothetical provocative social scenarios (Dodge et al, 1990; Goodman et al., 1999; Quiggle, Garber, Panak, & Dodge, 1992). Responses to these scenarios can generalize to children's behavioral responses in naturalistic social situations. At the least they reveal how children interpret social problems and generate options in such situations. The rationale for studying children's aggressive and assertive problem solving comes from evidence that these responses generalize to children's behavioral responses in naturalistic social situations and play a role in children's overall adjustment (Dodge, Petit, McClaskey, & Brown, 1986). Dodge and colleagues (Dodge et al., 1990) show that children who generate aggressive responses to hypothetical situations tend to behave more aggressively in real life situations. Sandstrom (2004) found that aggressive

strategies in response to peer provocation and rejection vignettes were associated with children's internalizing problems. On the other hand, assertive problem solving, which involves active attempts to manage or change stressful social situations is inversely related to emotional and behavioral problems (Compas, Malcaren, & Fondacaro, 1988; Glyshaw, Cohen, & Towbes, 1989). Thus, the ability to generate and enact assertive, rather than aggressive, problem solutions appears to signify better developmental outcomes.

Parents' own social problem solving skills may contribute to children's aggressive versus assertive problem solutions. Investigations of other types of stressful situations, such as painful medical procedures (Kliewer & Lewis, 1995), or post-divorce coping (Miller, Kliewer, Hepworth, & Sandler, 1994) reveal that parents own problem solving can relate to children's reported strategies of how they make a problem better, or make themselves feel better (Kliewer, Fearnow, & Miller, 1996). MacBrayer et al. (2003) directly investigated whether a mother's responses to hypothetical socially challenging scenarios relates to her child's social problem solving. To study the way that mothers might transmit hostile biases to their children, MacBrayer et al had mothers and children interpret and provide responses to provocative, ambiguous social problem scenarios. Their findings show significant correlations between mothers' and daughters' responses to the hypothetical problem scenarios. There were no significant correlations between mothers' and sons' responses. This study indicates that parental influences on children's aggression apply not only to overt aggression, but also to more subtle forms of relational aggression, such as rejecting, retaliating, and manipulative behaviors. Although this study included only mothers, the sex-specific findings highlight the need to include both fathers and mothers when examining parental influences in transmitting social problem solving strategies, particularly aggression. These results, however, underscore the relevance of directly assessing parents' own aggressive problem solving responses to hypothetical scenarios.

The present study is designed to examine the separate and interactive effects of marital aggression and parents' aggressive problem solving on children's aggressive and assertive social problem solving in response to peer scenarios. Based on the previous literature, we first hypothesize that marital aggression is positively related to children's aggressive social problem solving and negatively related to assertive problem solving. Second, we hypothesize that parents' own aggressive problem solving will be positively related to children's aggressive problem solving and negatively related to assertive problem solving. We included both mothers and fathers and tested these hypotheses separately for boys and girls to reveal potential sex-specific effects. Our research design also addresses the question of potential interactive effects between marital aggression and parents' own aggressive problem solving. This question is explored without specific hypotheses because previous literature does not inform us how the combination of exposure to marital aggression and parents' aggressive problem solving might affect children's problem solving.

The present study also examines the likelihood that children actually encounter the provocative social situations presented in this study. On the one hand, this question is a validity check on our procedures—are the hypothetical social scenarios representative of what children actually encounter in their lives? On the other hand, these data may reflect an important difference in the social experiences of children who are exposed versus not exposed to marital aggression. Several studies suggest that by adolescence, youth who have been exposed to marital aggression may be prone to peer rejection and may be selecting aggressive peers (Ehrensaft, et al., 2003; Wolfe, Wekerle, Reitzel-Jaffe, & Lefebvre, 1998). The present study offers some preliminary data on whether pre-adolescent children from homes with versus without marital aggression report a higher likelihood of encountering provocative and rejecting social situations.

Method

Participants

The participants were 118 two-parent families, recruited through newspaper advertisements and/or fliers at local schools and community organizations. The criteria for participation were: a) the two parents and one target child were willing to participate; b) the child was aged 9 or 10; c) the two parents were residing in the same home with the child; d) the child was either these parents' biological child or had lived with them for three or more years; and e) all members of the family were able to complete the data collection in English.

Of the participating children, 51 (43%) were female and 67 (57%) were male. The average age was 10.0 years ($SD = .61$). Their ethnicity was 21% African American, 25% Caucasian, 23% Hispanic/Latino, 8% Asian/Pacific Islander, and 26% mixed. Mothers' mean age was 38.5 years ($SD = 5.9$; range = 25.6 to 53.5) and fathers' was 40.9 ($SD = 6.8$; range = 24.3 to 55.5). Parents' education ranged from 7 to 20 years. For mothers (fathers), 8% (10%) had less than a high school education, 24% (29%) completed high school, 30% (22%) had some college, and 36% (40%) had a college degree or beyond. Mothers' (fathers') ethnicity was 31% (32%) Caucasian, 30% (27%) Hispanic/Latino, 24% (24%) African American, 10% (9%) Asian/Pacific Islander and 5% (8%) mixed. Twenty-three percent of mothers, 30% of fathers, and 2.5% of the children were born outside the U.S. Combined family income averaged \$67,810, (range = \$8,700 to \$165,000); 12% reported total family income < \$25,000, 24% reported \$25,000 – \$50,000, 43% reported \$50,000 – \$100,000, and 21% reported \geq \$100,000.

Procedures

We collected these data during the first assessment of a larger study of children's violence exposure, family processes and children's adjustment. Both parents and the child participated in a 3–4 hour laboratory session administered by two graduate student experimenters. Families were compensated \$100. In line with consent procedures that Margolin et al. (2005) recommend, the three family members jointly were involved in the consent procedures and in the decision to participate. Each family member was in a separate room to complete an individual battery of computerized and paper and pencil assessment measures. An experimenter read aloud all questions and answer choices to the child. An experimenter separately administered the problem solving interviews to each family member. These interviews were audio-taped for later coding. Due to experimenter error, one father was not interviewed.

Measures

Recent History of Interparental Aggression—The present study assesses both spouses' reports of husband-to-wife and wife-to-husband marital aggression during the previous year. The Domestic Conflict Inventory (DCI; Margolin, Burman, John, & O'Brien, 1990), revised in 2000, is a 61-item questionnaire that assesses partners' conflict tactics. This study uses the 14 physical abuse items, 11 of which are items from the Revised Conflict Tactics Scales (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Each spouse completes the DCI twice—once for his or her own behavior and once for the partner's behavior. For each item, the respondent reports whether the spouse or self has ever engaged in the behavior. For the endorsed items, he or she reports how many times the behavior occurred during the past year by checking one of six frequency ranges: *none* (0), *1 per year* (1), *2 to 5 per year* (2), *6 to 12 per year* (3), *2 to 4 per month* (4), *more than once per week* (5). We handled disagreements between self-reports and spouse reports on specific behaviors by using the maximum of the two reporters. This solution is based on data that marital aggression tends to be under-reported (Langhinrichen-Rohling & Vivian, 1994). Sums of maximum scores for husbands and wives yielded separate measures of husbands' aggression and wives' aggression for the past year.

Margolin, John and Foo (1998) reported on the internal consistency and test-retest reliability. For DCI physical abuse items in the present study, internal consistency measured by Cronbach's alphas is .81 for husbands' physical aggression and .84 for wives' physical aggression. In this study, 26% of husbands and 35% of wives have at least one reported instance of physical aggression in the past year. Of those participants, the mean score for husbands is 2.94 ($SD = 2.6$; range = 1–10) and for wives is 3.91 ($SD = 3.1$; range = 1–13). The correlation between husbands' and wives' physical aggression in the past year is .53 ($p < .01$).

Social Problem Solving Interviews and Coded Responses

The social problem solving interviews assessed children's and parents' open-ended responses to ambiguous and provocative hypothetical social situations. These procedures are similar to those in other studies on children's problem solving skills (Dodge et al., 1986; Goodman, et al., 1999), but have not yet been used with adults. For children, this study used four scenarios involving potential social conflict with peers. Two additional scenarios involving interparental aggression were not used here due to low levels of children's aggressive solutions to these scenarios (1% of total solutions for girls; 2% for boys). For parents, this study used seven scenarios, four with peers and three with the spouse. After presenting each scenario, the experimenter asked the child or parent to describe up to three things that she or he would "do, say, or think in this situation". The experimenter prompted for at least three solutions, and wrote down the responses. Next, for the child only, the experimenter repeated the solutions, and asked the child to rate each response for: (a) effectiveness on a 5-point scale, where 0 represents *not at all* and 4 represents *very effective*; and (b) likelihood of performing each response on a 4-point scale where 0 represents *extremely unlikely* and 3 represents *extremely likely*.¹ Children and adults alike gave ratings of the likelihood of having been in that specific scenario or a similar situation on a 5-point scale where 0 represents *never* and 4 represents *all the time*.

Two of the scenarios for children (*Someone takes your magazine*; *You are being teased*) are patterned after the Alternative Solutions Test (Caplan, Weissberg, Bersoff, Ezekowitz, & Wells, 1986). One is similar to the Quiggle, et al. (1992) protocol (A student bumps into you while you are standing in line). We wrote a fourth peer scenario involving social rejection for this study (*Your friend doesn't invite you to a party*). Likelihood ratings indicate that most children had encountered each of the hypothetical situations at least once. Children's median ratings of likelihood of having experienced the situations were 1 (*almost never*) on the 0–4 scale for two of the scenarios (*friend doesn't invite you to a party* and *a student bumps into you*) and 2 (*sometimes*) for the other scenarios (*someone takes your magazine* and *someone teases you*).

Toward the goal of having similar procedures for assessing parents' and children's social problem solving, we used parallel ambiguous and potentially provocative scenarios for the parents. We modified some scenarios to be applicable to adults. For parents, the four peer scenarios are: *Someone takes your newspaper*; *Someone yells at you for taking a parking space that person wants*; *Your friend doesn't invite you to a party*; *You hear other parents gossiping about you at a school function*. In addition, we used three scenarios that involve conflict between spouses: *Spouse comes home and starts criticizing you*; *Spouse ignores previous plans to watch television with you and is annoyed at being reminded of the plans*; *Spouse yells and insults you while in the car with your children*. Parents' median ratings on the 0–4 scale of likelihood of encountering the situation were 2 (*sometimes*) for the three scenarios involving spousal conflict, 0 for *overhear gossip*, and 1 for the three other scenarios involving peer conflict. Spousal conflicts depicted in the scenarios were a somewhat common occurrence,

¹Due to a change in interview procedures, we did not collect ratings on aggressive responses from the first 13 children.

whereas peer conflicts were less common. Still, 93.5% of mothers (94.3% of fathers) had experienced at least one of the peer conflict scenarios, and 74.0% of mothers (85.4% of fathers) reported two or more experiences similar to the peer scenarios.

Based on audiotapes of the interviews and the experimenters' verbatim written notes of the problem solutions, we then divided each response into thought units to represent separate, discrete reactions (e.g., "I would yell at them and push them" was divided into two thought units, the first coded as verbal aggression and the second as physical aggression). Out of a multi-code system, we examined the aggressive and assertive codes, which are described in Appendix A. We collapsed four codes into an aggressive summary category to capture a range of behaviors spanning relational (Crick & Grotpeter, 1995), verbal, and physical aggression. We collapsed three codes into an assertive category. Because participants provided different total numbers of solutions, the frequency for each category was represented by a percentage of the total number of responses given by each individual. Nine undergraduate research assistants learned the coding system by studying a codebook and meeting weekly for training. Coders demonstrated reliability by achieving Cohen's Kappas of .6 on practice data. The coding process involved listening to the tapes of the interviews while reading the experimenters' written notes. The coders continued to meet for practice and feedback on weekly reliabilities throughout the coding process. Two research assistants coded each participant's data.

Table 1 summarizes mean percentages and reliabilities, calculated through intraclass correlation coefficients (ICC) for each summary category. ICC reliabilities ranges were .68 – .90 for parents and .90 – .97 for children. Based on the high ICCs, we used the mean percentage between the two coders for the analyses. Children's responses to the peer scenarios showed that assertive solutions were quite common, representing slightly over half of solutions. Aggressive strategies represented a smaller percentage of total strategies. However, 70% of children gave at least one aggressive solution, revealing a substantial amount of aggression. Parents' mean percentages of aggression reveal 2–3 times as many aggressive solutions in response to the spousal scenarios than peer scenarios. Mean percentages of parents' aggression are low, but the majority of parents report at least some aggression in response to the spousal scenarios. Approximately half of the fathers and one-third of the mothers report some aggression with peers.

Results

Descriptive Information on Scenarios and Codes

We ran 2 (sex) \times 2 (families with vs. without physical marital aggression) ANOVAs for children's and parents' data from the social problem solving interviews. We examined whether there are differences in the extent to which boys and girls from families with or without interparental physical aggression within the past year report having encountered the hypothetical peer scenarios. Table 2 shows interaction effects between exposure to interparental aggression and children's sex for two scenarios. Post-hoc t-tests reveal that girls from maritally aggressive homes are more likely than girls from non-aggressive homes, $t(1, 34) = -2.89, p < .01$, or boys from either aggressive, $t(1, 42) = 2.46, p < .05$, or non-aggressive homes, $t(1, 35) = 2.55, p < .05$, to encounter the ambiguous situation of being bumped. Girls from maritally aggressive homes compared to those without aggression also are more likely to encounter the situation of not being invited to a party, $t(1, 34) = -2.50, p < .05$.

We also ran 2 (child sex) by 2 (presence vs. absence of marital aggression) ANOVAs on children's ratings of the likelihood of using aggressive or assertive solutions, as well as on the children's effectiveness ratings of those solutions. To run these analyses, we collapsed ratings across scenarios. We calculated mean ratings for effectiveness of solutions coded as aggressive or assertive, and mean ratings for likelihood of actually enacting these solutions. We did not

find main effects or interactions for child sex or parents' marital aggression on any of the 'likelihood of enacting' or 'effectiveness' ratings. The mean ratings for the whole sample for likelihood of using aggression and assertiveness, respectively, are 2.49 and 2.46 (between *somewhat* and *extremely* likely). The respective mean effectiveness ratings are 2.34 for aggression and 2.35 for assertion, also between *somewhat* and *more than somewhat* effective.

Another set of ANOVAs examined whether the percentage of proposed aggressive or assertive solutions differed by sex and presence versus absence of marital aggression. Analyses of children's aggressive solutions and assertive solutions showed no significant main effects or interactions for either of these coded responses. Analysis of mothers' and fathers' aggressive solutions in spousal scenarios showed main effects for sex, $F(1,115) = 6.65, p < .01$, and for marital aggression $F(1,115) = 7.57, p < .01$. Mothers ($M = .17; SD = .18$) gave more aggressive solutions than fathers ($M = .11; SD = .14$). Parents who actually were physically aggressive in their marriage gave more aggressive solutions ($M = .34; SD = .25$) than parents who were not actually aggressive ($M = .23; SD = .20$). There was not a sex by marital aggression interaction for the spousal scenarios. Additionally, there were no main effects or interactions for parents' aggressive solutions to the peer scenarios.

Correlations between Parental Aggressive Problem Solving, Physical Marital Aggression, and Children's Aggressive and Assertive Solutions

Table 3 presents Pearson's correlations between each of the parental influences on children's problem solutions and boys' and girls' aggressive and assertive solutions. Mothers' physical marital aggression within the past year is significantly correlated with girls' aggressive solutions to peer scenarios. Fathers' marital aggression in the past year is correlated with boys' aggressive solutions. We tested for differences in the correlations between boys and girls through r-to-z transformations, but found no significant differences.

Mothers' aggressive solutions in spousal scenarios are negatively correlated with boys' assertive solutions and positively correlated with their aggressive solutions. Neither mothers' aggressive solutions with peers, nor fathers' aggressive solutions with spouse or peers, are significantly correlated with either boys' or girls' aggressive or assertive solutions. Using sums to examine additive effects, we found no correlations for the mothers' or fathers' total aggressive problem-solving.

We also examined within-person associations. For children, there are significant negative correlations between aggressive solutions and assertive solutions for boys, $r = -.58, p < .01$, and for girls, $r = -.51, p < .01$. There are no significant correlations between parents' marital aggression in the past year and their aggressive solutions in spousal scenarios ($r = .15$ for mothers; $r = .15$ for fathers), or in peer scenarios ($r = .04$ for mothers; $.07$ for fathers).

Regression Analyses Examining Interactions Between Parental Aggressive Problem Solving, Physical Marital Aggression, and Child Sex

We used hierarchical regression analyses to examine whether the 2-way and 3-way interactions between parents' marital aggression, parents' aggressive problem solving, and children's sex accounted for variance in children's problem solving. We ran four analyses to separately examine mothers' and fathers' aggressive solutions in the spousal and peer scenarios. We ran these four analyses for children's aggressive problem solving, and again for assertive problem solving. We entered main effects in the first step, 2-way interactions in the second step, and the 3-way interaction in the third step. We centered all predictor variables and used the product of centered variables to test interactions (Aiken & West, 1991).

Table 4 presents a summary of the 2-way and 3-way interaction effects in these regressions. For mothers, the 2-way interaction between marital aggression and aggressive solutions in spousal scenarios accounted for significant variance in children's aggressive and assertive problem solutions. For fathers, the 3-way interaction between marital aggression, aggressive solutions toward peers, and child sex accounted for significant variance in children's aggressive solutions.

We plotted the significant interactions according to procedures described in Aiken and West (1991), in which regression lines are estimated at one SD above and below the mean for each independent variable. Figure 1 presents the slopes of the relations between mothers' aggressive problem solutions and children's problem solutions at values representing high or low levels of mothers' marital aggression within the past year. An analysis of the simple slopes predicting children's aggression indicates that the slope of the line representing children whose mothers use low actual marital aggression is significantly different from zero, $B = -38.51$, $t(3,117) = -3.31$, $p < .01$ and significantly different from the slope of the line of children of mothers with high actual marital aggression. Similarly, for children's assertion, the slope of the line of children exposed to low actual marital aggression is significantly different from zero, $B = 23.95$, $t(3,117) = 2.63$, $p < .01$, and different from the slope of the line of exposed children. When mothers exhibit low actual marital aggression, mothers' high levels of aggressive solutions in hypothetical spousal scenarios relate to children's high use of reported aggressive solutions and their low use of assertive solutions. In contrast, when mothers exhibit high actual marital aggression, children's aggressive problem solving is high and their assertive problem solving is low, regardless of the mothers' hypothetical solutions.

Figure 2 presents the relation between father's aggressive problem solutions and children's aggressive solutions. The figure presents separate slopes for girls and boys with fathers who exhibit high vs. low marital aggression. An analysis of simple slopes predicting children's aggression reveals that none of the slopes is significantly different from zero. *T*-tests comparing the slopes to one another reveal significant differences between boys with fathers who exhibit high marital aggression, $B = -40.27$, versus: (a) boys with fathers who exhibit low marital aggression, $B = 9.38$, $t(1,25) = -6.13$, $p < .01$; (b) girls with fathers who exhibit high marital aggression, $B = -7.34$, $t(1,23) = -2.47$, $p < .05$; and (c) girls with fathers who exhibit low marital aggression $B = 33.61$, $t(1,38) = -7.90$, $p < .01$. In addition, girls with fathers who exhibit high marital aggression also differ from (a) girls with fathers who exhibit low marital aggression, $t(1,20) = -3.26$, $p < .01$. Finally, boys and girls whose fathers exhibit low marital aggression differ from each other $t(1,60) = -3.57$, $p < .01$.

In general, boys gave fewer aggressive responses when faced with a father who exhibits high levels of actual marital aggression and who responds to hypothetical peer situations with levels of aggressive responses. Boys with fathers who exhibit low actual marital aggression, in contrast, reported a higher percentage of aggressive solutions in concert with the fathers' higher percentage of aggressive solutions. Girls respond with high percentages of aggressive solutions when their fathers exhibit high actual marital aggression and high percentages of aggressive problem solutions. Girls respond with few aggressive solutions if their fathers exhibit low actual marital aggression.

Finally, we checked for two types of additive effects. First we summed across responses to spousal and peer situations within each parent. There were no significant results on those analyses of each parent's total aggressive problem solving. Second, we also summed across mothers' and fathers' aggressive responses, and again found no significant results.

Discussion

The current study provides information on how different forms of parents' aggression relate to children's aggressive and assertive problem solving. Parents' reports of actual physical marital aggression during the past year were associated with children's aggressive problem solutions to provocative hypothetical peer scenarios. Parents' reports of aggression also relate to girls' likelihood of actually experiencing the peer situations. Mother-to-father physical aggression was significantly correlated with girls' aggressive problem solving, whereas father-to-mother physical aggression was correlated with boys' aggressive problem solving. Mother aggressive solutions were positively correlated with boys' aggressive solutions, and negatively correlated with boys' assertive solutions. The influence of parents' aggressive problem solving in hypothetical situations on children's aggressive problem solving was moderated, in certain analyses, by the presence of actual physical marital aggression. For families with high wife-to-husband actual aggression, aggressive problem solving in the hypothetical marital situations corresponded to high levels of children's aggressive problem solutions and to low levels of assertive solutions. For fathers, the primary finding was the 3-way interaction between child sex, husband-to-wife physical aggression, and fathers' aggressive solutions to hypothetical peer situations. In families with high husband-to-wife physical aggression, more aggressive problem solving by fathers corresponded with more aggressive solutions by girls but fewer aggressive solutions by boys. Because of the different patterns of effects for mothers and fathers, examining both parents together weakened rather than strengthened the findings.

Children's responses to the hypothetical peer situations show that, overall, children were highly likely to respond with assertive problem solutions. Assertive solutions, as defined here, reflect constructive, conflict mitigating strategies. In light of other research showing that stated strategies are related to actual behaviors and desired goals (Chung & Asher, 1996; Dodge, et al. 1990), these data suggest that children typically are more likely to try to contain or resolve than to escalate conflict. Nonetheless, aggressive strategies with peers also comprised a notable proportion of children's responses with 70% of children responding with at least one strategy representing relational or physical aggression. Moreover, children rated the aggressive responses as moderately effective, and indicated that they were likely to actually exhibit the aggressive responses. This study only assessed aggression in reaction to the specified actions of others, which, according to Crick and Dodge (1996), may reflect deficits and distortions in taking in and interpreting information in social situations. Occasional aggressive responses to hypothetical situations and even low levels of actual aggressive behavior are anticipated at this stage of early adolescence. However, in light of the increase in deviant peer involvement and antisocial behavior in mid to late adolescence (Broidy et al., 2003; Patterson & Yoerger, 2002), high levels of such responses or the continuation of responses into later adolescence may be problematic.

Marital Aggression and Children's Problem Solutions to Hypothetical Peer Situations

The results of the present study add further support to the possibility of aggressive reactions and potentially compromised peer relations for children exposed to marital aggression (Kitzmann, Gaylord, Holt, & Kenny, 2003). The present study extends findings on the specific connection between exposure to interparental aggression and children's social problem solving skills. In comparison with results from Rosenberg (1987), the present study similarly finds links between interparental aggression and children's higher use of aggressive strategies, but finds less consistent results for reduced assertive strategies. In the present study, exposure to marital aggression does not necessarily impair children's assertive problem solving skills. This finding suggests that being exposed to aggressive models and using aggressive responses does not necessarily correspond to less facility with assertive responses, although perhaps the quality of the assertive responses should be further examined. The present study and the Goodman et

al. (1999) study are similar in that both used community samples, and both examined husbands' and wives' marital conflict tactics in connection with young adolescents' social problem solving. Goodman et al. reported that mothers', but not fathers', self-reported marital aggression was associated with children's lower problem solving skills. Our findings support same-sex parent-child associations between parents' physical marital aggression and children's aggression.

Children have opportunities to observe both male and female models in the context of 2-parent families. It can be argued, on the one hand, that aggression exhibited by either parent against the other is salient in light of the child's close relationship to the perpetrator and recipient of the aggression. On the other hand, to understand gender-linked modeling of aggression, we also need to consider the societal sanctions for male and female aggression as well as the observed outcomes resulting from aggression (Bussey & Bandura, 1999). More information still is needed to understand whether sex of child in combination with sex of parent play a role in how a child interprets and evaluates a parent's behavior. This combination may also play a role in the child's emotional reactions to the aggression.

Beyond modeling, an alternative explanation for the association between parents' marital aggression and children aggressive problem solving is that exposure to marital aggression might sensitize children to interpersonal conflict overall. Children may respond by feeling threatened, emotionally upset, or fearful of being drawn into a conflict (Davies & Cummings, 1994; Grych & Fincham, 1993). The data provided here are consistent with the idea that exposure to aggression in the family context can generalize to aggressive responses in peer situations, but do not specify the mechanisms behind this link. The significant correlations between exposure to marital aggression and children's aggressive responses to the peer scenarios could reflect a) beliefs about the efficacy of aggressive reactions, b) an inability to generate benign explanations for the peer's behavior, c) a sense of threat due to ambiguous peer behavior, or d) urgency to end an uncomfortable situation. Further exploration of these types of cognitive and affective variables is needed to identify mediators of the connection between exposure to marital aggression and children's aggressive reactions.

In a related vein, several explanations could account for the finding that girls from maritally aggressive homes report a greater likelihood of having encountered peer rejection (not being invited to a party), and provocative peer behaviors (student bumps you). It is possible that the violence-exposed girls actually encounter the situations more frequently, and also possible that they are more sensitive to ambiguous situations and interpersonal slights. Either way, the potential for compounding effects cannot be ignored. The girls' experiences with peer rejection and provocation, and their tendencies to generate aggressive solutions to such situations, can lead to perpetuating cycles of problematic peer relations.

Parents' and Children's Problem Solutions to Hypothetical Situations

The reason we had parents respond to hypothetical provocative scenarios was to have a similar method for assessing parents' and children's problem solutions. As anticipated, the data revealed some similarities between parent and child responses to the scenarios. One mother, for example, said that she would "yell back" in response to spousal criticism. In response to teasing, her child said "tease him right back, get some of my friends to back me up, peg him with a ball". One notable difference, however, was that parents' aggression was almost exclusively verbal (2% physical for mothers; 4% for fathers), whereas 19% of children's aggressive responses involved physical aggression. Bivariate correlations reveal significant correlations in only one type of relationship. Mothers' aggressive problem solutions with the father are positively related to boys' aggressive problem solutions and negatively related to boys' assertive solutions.

The interaction effects in the regression analyses indicate that parents' aggressive problem solutions are best understood in the context of actual marital aggression. When mothers exhibit low actual marital aggression during the previous year, the mothers' high levels of hostile problem solving in response to hypothetical marital scenarios related to children's high levels of aggressive problem solving and low levels of assertive problem solving in peer scenarios. Yet, when mothers exhibit high marital aggression in the past year, mothers' own problem solving in the marital scenarios had no influence beyond that of the marital aggression. Goodman et al. (1999) similarly reported that, for families with the highest frequency of actual marital conflicts, children's problem solving effectiveness did not vary as a function of mothers' aggressive tactics. However, mothers' aggressive tactics were negatively associated with problem solving effectiveness in families with less actual marital conflict. In explaining why this finding held for mothers but not fathers, Goodman et al. suggested that mothers' aggressive tactics may be less arousing and threatening. Because the mothers' behaviors run counter to traditional gender expectations, they may be more salient and more likely to be imitated.

Fathers' aggressive problem solving is best understood through the 3-way interaction involving fathers' problem solving with peers, husband-to-wife marital aggression, and child sex. The combination of father's aggression toward the mother and his aggressive problem solving in hypothetical peer situations exacerbates girls' aggressive problem solving but has the opposite effect for boys. No hypotheses were proposed about different effects for girls and boys, as the previous literature on family violence exposure and youth aggression shows mixed effects or no differences for child sex (Martin, 1990; McClosky & Lichter, 2003; Pagani et al 2004).

The current findings, with an interaction for child sex, introduce the possible explanation of differential socialization of boys and girls surrounding aggression. Young boys often receive conflicting messages about the appropriateness of aggression. Standing up for themselves in a physically aggressive manner with same-sex peers may be condoned whereas physical aggression with females is not. Thus, it is possible that a father's aggression across multiple contexts and particularly toward the mother communicates a message about undesirability of aggression to some pre-adolescent sons. However, these data also suggest that some girls may be motivated by an aggressive paternal model to react aggressively. Although we do not know what the girls hope to accomplish with their aggressive solutions, perhaps these are strategies to protect themselves. Girls who grow up with a father who is aggressive in multiple situations may identify with the mother. They may become sensitized to any form of being victimized, and thus generate aggressive responses to provocative situations. Attempts to explain these findings point out that there are multiple directions and pathways through which parents' aggression affects children's aggression. We need to understand more about the variability across children. We also need to look more systematically at these questions across developmental stages, as there is some evidence that sex differences related to interparental conflict aggression become more pronounced as youths progress through adolescence (McCloskey & Lichter, 2003).

It is generally assumed that we can understand more about children's socialization by examining both maternal and paternal influences, and including both parents is a strength in any study. However, as Hinde (1999) notes, parental influences typically vary across different parent-child combinations. In the present study, we followed the tradition of separately examining mother-child and father-child influences, but also re-ran all the correlational analyses and regression analyses summing mothers' and fathers' scores to examine the combined impact of mothers' and fathers' aggression. Overall, there is no evidence from this study or other studies (e.g. Goodman et al., 1999) that additive effects reflecting more aggressive models relate to higher levels of children's aggressive problem solving. In light of the different patterns for mothers and fathers, we also ran the regression analyses including each parent as a separate predictor, looking for interactive effects. We did not find interactive

effects between mothers' and fathers' aggressive solutions. Due to limited power for the 4-way interactions, this question should be examined further with a larger sample.

Limitations and Conclusions

An important consideration in this study is the complexity in understanding aggression, and the distinctions between thoughts and statements about aggression versus the actual performance of aggression. For example, we do not know whether children's problem solutions reported here are associated with their actual aggressive behaviors, although other studies (Dodge, et al., 1990) do report such associations. There also are questions about coherence across measures of parents' aggression, and the extent to which the assessments of parents' aggression in the study relate to what the child actually observes. Although other studies indicate associations between parents' problem solutions in hypothetical situations and advice and coaching that parents actually communicate to children (Kliewer, et al., 1996), we did not directly examine that question. Future studies could directly examine whether parents' articulated problem solutions to hypothetical situations relate to parents' intentional messages, e.g., their advice on how to handle aggressive peers. Future studies could also examine unintentional messages, e.g., children's observations of their parents' aggressive behavior when vying for a parking space. Another question of coherence in parents' aggression concerns the relationship between their actual marital aggression and their reported aggressive solutions. Between-group analyses show that parents with actual marital aggression, compared with those without marital aggression, are more likely to report aggressive problem solutions in the marital scenarios. However, correlation analyses find non-significant results between parents' aggressive solutions to the hypothetical marital conflicts and reports of actual physical marital aggression for wives and for husbands. These data point to the possibility that parents may articulate one message about aggression but demonstrate another message through their actual behavior.

Another consideration in interpreting the results of this study concerns the extent of physical aggression in the sample, which was a community sample of 2-parent families. In 26.7% of participating couples, at least one spouse exhibited physical marital aggression within the past year, and in 19.2% both spouses were physically aggressive. Still, because of our criterion that the parents were living together, our study did not include those children who had been exposed to high intensity physical aggression between parents who had subsequently separated. The criterion for participation thus may have attenuated the effects of violence exposure.

Another limitation of this study concerns the likelihood of additional sources of influence in children's aggression. Parents' harsh behavior to the child has been related to children's generation of aggressive problem solutions (Dodge et al., 1990; Weiss, Dodge, Bates, & Pettit, 1992). Children's prior negative experiences with peers affect their expectancies of future interaction and likely influence their social problem solving with peers (MacKinnon-Lewis, Rabiner, & Starnes, 1999). Children bring other characteristics that can moderate the relationship between parental models and peer interactions, such as emotion regulation skills and physiological reactivities (Eisenberg, et al., 2001; Leary & Fainsilber Katz, 2004). These variables and genetic variables, such as the heritability of aggression and antisocial traits, potentially influence connections between parents' and children's generation of aggressive solutions. Questions about parental influence on children's aggressive problem solving also should be addressed with attention to developmental stage, as children's reactions to marital aggression and their identification with each parent vary across development.

Despite limitations, the results of this study provide a piece in the complicated puzzle of how parents influence children's aggressive and assertive problem solving with peers. Maccoby (1996) highlights the need for a "conceptual bridge" between intrafamily conflict and peer conflict. Parke and colleagues (Parke, Burks, Carson, Neville, & Boyum, 1994) raise specific

questions about how children transfer the strategies they acquire in the family context to peer relationships. The findings presented here call attention to mothers', as well as fathers' marital aggression as important influences in children's aggressive problem solving. The findings add to the small but growing literature suggesting that parents' own aggressive problem solving strategies have implications for the children's aggressive and assertive problem solutions with peers. Further research is needed to examine how parental influences might prime children to respond cognitively and emotionally in a conflict-escalating or de-escalating fashion. In light of the salience of peer relations for children's overall adjustment (Bukowski & Adams, 2005), identifying ways that parents can bring about children's constructive responses to challenging peer situations warrants further attention.

Appendix

Appendix A Aggressive and Assertive Codes

Code	Definition	Example
Aggression		
Demanding Behavior	Making demands or asking strongly for something.	"Tell her to back off" "Give me back my newspaper!" (P)
Spiteful Behavior	Acting out of spite, passive aggression, making passive-aggressive or sarcastic comments.	"Get him expelled" "Say 'Gee, I'm glad you had a nice day'" (P)
Verbal Aggression	Yelling, name calling, verbal threats, revenge or retaliation.	"I'd get a baseball bat and warn them that I'll hit them" "I'd match his criticism" (P)
Physical Aggression	Physically hostile infringements on the person or possessions; hitting, grabbing.	"Bump him" (C)
Assertion		
Assertive Cooperative	Higher order solutions, which meet the subject's needs, but also consider the other's feelings and needs ^a . Compromising – taking the other person into account when solving the problem.	"Ask if we can take turns reading the magazine." (C)
Assertive Prosocial	Addressing problem in a good-natured, kind or nice manner or making a polite request with prosocial words such as "please" or "thank-you" or providing an explanation or rationale for behavior.	"I would explain that the magazine was mine and I did not mean to leave it...could I please have it back?" (C)
Assertive Direct	Confronting person or issue, information seeking. Being direct, getting to the point through the use of statements or questions.	"I would ask for my magazine back." (C)

Note. C indicates example from the child's data; P example from the parents' data

^aDefinition from the AST.

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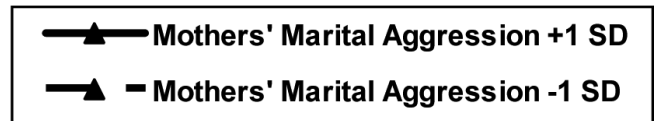
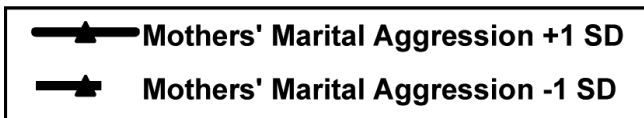
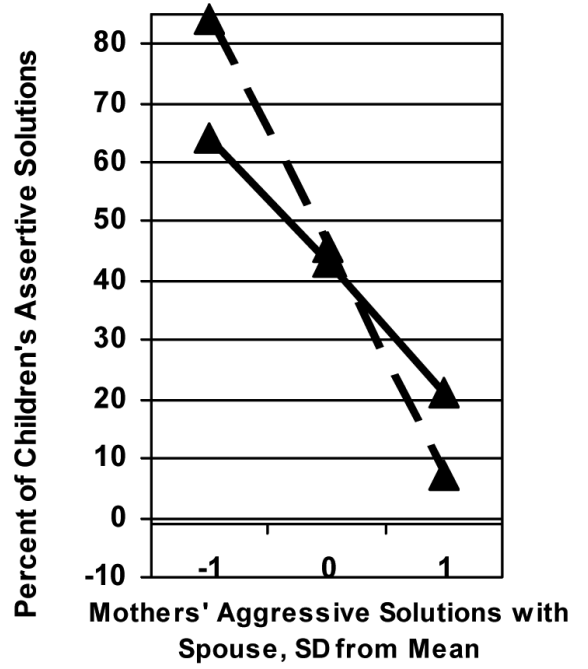
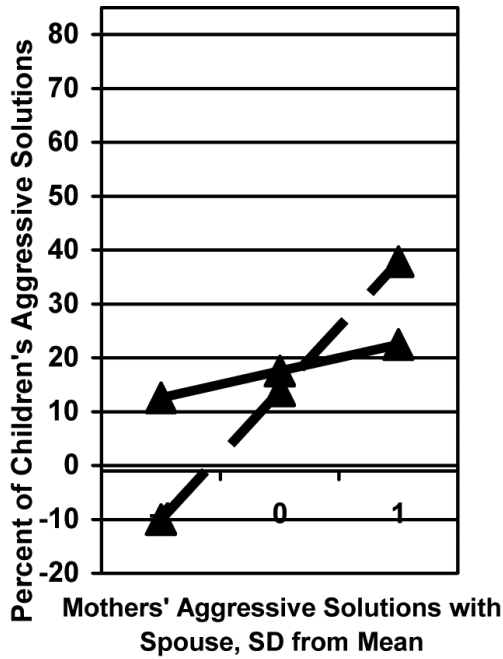


Figure 1.
The relation between children's solutions and mothers' aggressive solutions with spouse as a function of the level of mothers' marital aggression.

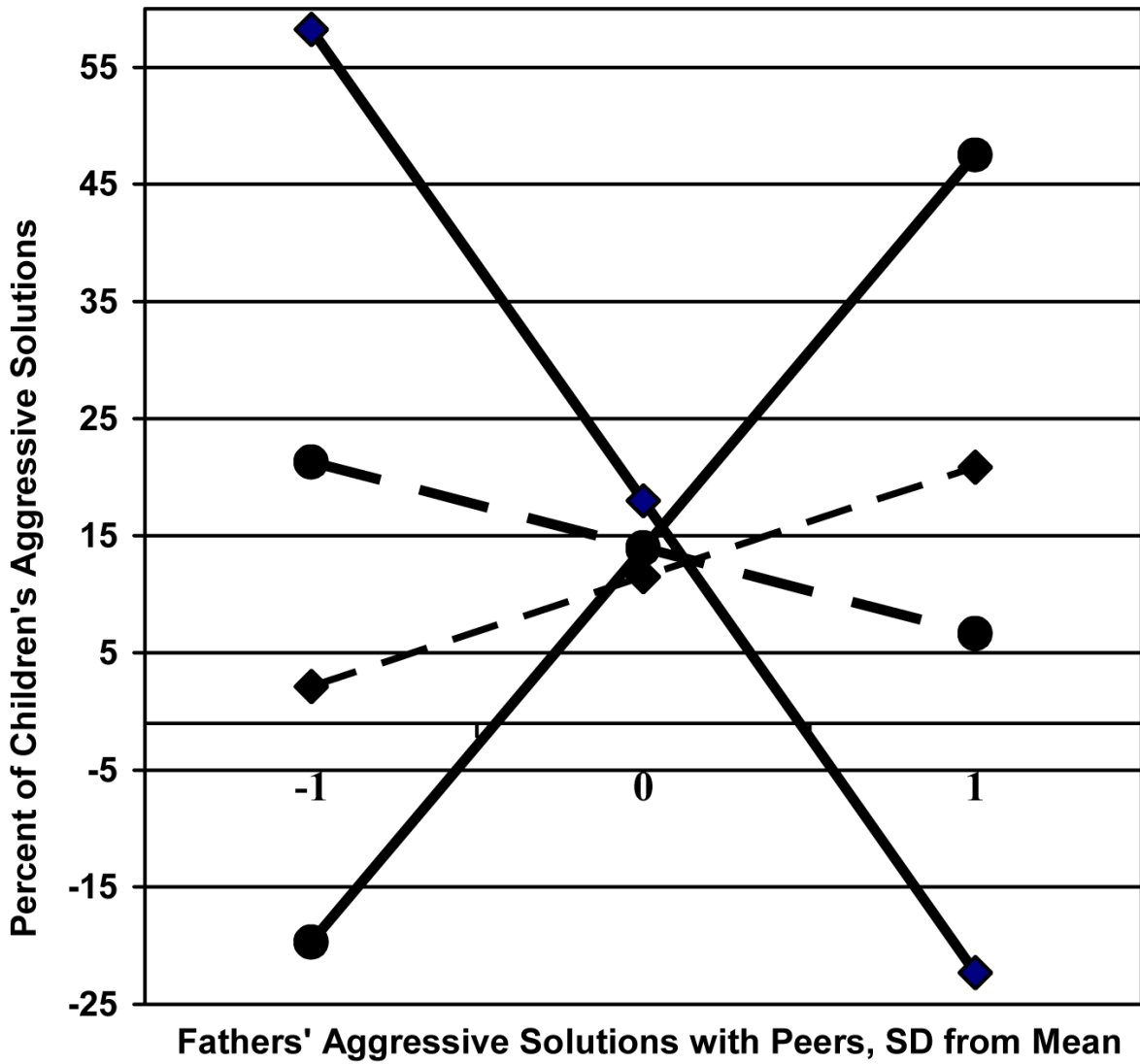


Figure 2. The relation between children's solutions and fathers' aggressive solutions with peers as a function of the level of fathers' marital aggression and child sex.

Table 1
Coded Aggression and Assertion: Means, Standard Deviations and Reliabilities

Code	Mean Percent	SD	Percent of Persons Reporting code	ICC reliability
Children's Coded Responses				
Boys' Aggression	15.6	19	70	.96
Girls' Aggression	14.2	14	71	.92
Boys' Assertion	43.7	23	97	.94
Girls' Assertion	46.9	19	100	.98
Parents' Coded Responses				
Mothers' Aggression with Spouse	16.8	18	71	.90
Fathers' Aggression with Spouse	10.7	14	60	.87
Mothers' Aggression with Peers	4.9	08	36	.90
Fathers' Aggression with Peers	6.2	08	51	.68

Note. *ICC* indicates Intraclass Correlation Coefficient.

Table 2
 Mean Ratings of Having Encountered the Situations for Boys and Girls in Families with and without Interparental Physical Aggression

Situation	Families with interparental aggression		Families without interparental aggression		F^a for Interparental Aggression	F^a for Child's Sex	F^a for Aggression X Sex
	Boys ($n = 30$)	Girls ($n = 22$)	Boys ($n = 37$)	Girls ($n = 29$)			
Someone takes your magazine	1.33 (1.06)	1.36 (1.05)	1.44 (1.08)	1.62 (1.05)	.85	.27	.13
You are being teased	1.53 (1.14)	2.05 (1.36)	1.59 (1.12)	1.45 (1.06)	1.53	.71	2.13
Your friend doesn't invite you to a party	.72 (1.07)	1.27 ^a (1.12)	.78 (.89)	.59 ^b (.73)	3.09	.97	4.38*
A student bumps into you	.71 ^b (1.08)	1.55 ^a (1.26)	.76 ^b (.93)	.66 ^b (.81)	4.93*	3.65	5.96*

Note. Standard deviations are in parentheses.

^a $df = 1, 113$. Means within a row having different subscripts are significantly different at $p < .05$ in post-hoc t -tests.

* $p < .05$

Table 3
Correlations Between Parents' Aggressive Solutions, Parents' Physical Marital Aggression, and Children's Aggressive and Assertive Solutions

	Children's Problem Solutions			
	Boys (<i>n</i> = 67)		Girls (<i>n</i> = 51)	
	Aggression	Assertion	Aggression	Assertion
Mothers				
Marital Aggression	.23	-.12	.32*	-.19
Aggressive Solutions-Family	.25	-.28*	.06	-.24
Aggressive Solutions-Peer	-.04	-.05	-.15	.02
Total Aggressive Solutions	.03	-.23	.06	-.22
Fathers				
Marital Aggression	.28*	-.13	.14	-.22
Aggressive Solutions-Family	-.03	.15	.07	.03
Aggressive Solutions-Peer	-.04	.01	.15	.04
Total Aggressive Solutions	-.05	.13	.12	.04

* $p < .05$.

Table 4
Two-way and 3-way Interactions in the Hierarchical Regressions on Children's Solutions Related to Parents' Aggressive Solutions (AS), Parents' Marital Aggression (MA), and Children's Sex (CS).

Measure	AS × MA		MA × CS		AS × CS		Step 2		AS × MA × CS		Step 3	
	β	T	β	T	β	T	ΔR ²	ΔF	β	T	ΔR ²	ΔF
Mothers' Aggressive Solutions with Spouse												
Children's Aggressive Solutions	-9.96	-2.80**	-.47	-.78	12.23	1.48	.08	3.67*	-1.31	-.37	.00	.14
Children's Assertive Solutions	11.01	2.42**	-.82	1.06	-7.09	-.67	.05	1.91	-3.90	-.86	.01	.74
Mothers' Aggressive Solutions with Peers												
Children's Aggressive Solutions	-10.56	-.77	.32	.40	11.60	.47	.01	.20	5.30	.39	.00	.15
Children's Assertive Solutions	21.67	1.24	-.56	-.56	-19.31	-.61	.00	.13	-20.43	-1.17	.01	1.37
Fathers' Aggressive Solutions with Spouse												
Children's Aggressive Solutions	-4.34	-.68	1.21	1.40	-7.43	-.73	.03	1.02	.07	.01	.00	.00
Children's Assertive Solutions	2.88	.31	.41	.33	9.24	.64	.00	.14	-5.95	-.65	.00	.42
Fathers' Aggressive Solutions with Peers												
Children's Aggressive Solutions	-2.18	-.20	1.64	2.11*	-14.29	-.68	.03	1.02	-22.65	-2.06*	.04	4.26*
Children's Assertive Solutions	-7.75	-.49	-.24	-.21	-19.16	-.63	.01	.32	15.34	.97	.01	.94

* $p < .05$.

** $p < .01$