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Childhood Exposure to Interparental Conflict: Memory Biases and Intergenerational Patterns of Conflict in Romantic Relationships

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A dissertation submitted in the partial fulfillment of the
requirements for the degree of Doctor of Philosophy
at Virginia Commonwealth University

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Abstract

CHILDHOOD EXPOSURE TO INTERPARENTAL CONFLICT:
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OF CONFLICT IN ROMANTIC RELATIONSHIPS

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Testing a model that explains the ways in which interparental conflict shapes later intimate relationships was the goal of the present study. Participants were 94 college students at Virginia Commonwealth University, a large state university with a diverse student body. The study found that violence occurs with alarming frequency in the dating relationships of university students. Analyses also revealed an intergenerational pattern of violence in which individuals from high conflict homes were more likely to use violent conflict resolution strategies in their own adult romantic relationships. Specifically, young adults from homes characterized by high levels of verbal conflict and minor physical aggression were more likely to be both the perpetrator and the victim of physical

violence than young adults from adaptive/low conflict homes. These young adults were also more likely to instigate verbal conflict within their own romantic relationships than individuals from adaptive/low conflict homes. Contrary to study hypotheses, young adults who witnessed severe physical violence between their parents were not more likely to be in a relationship characterized by physical or psychological aggression than other participants. Finally, the analyses support the hypothesis that dysfunctional relationship beliefs is a partial mediator through which childhood exposure to interparental conflict influences psychological aggression toward a romantic partner. No evidence of other cognitive and memory biases was found. These findings have important implications for research and intervention efforts.

Literature Review

Introduction

The impact of marital discord on child development and the degree to which conflict persists across generations has long been of interest to clinicians and researchers. It is well documented that high levels of conflict and hostility between parents places children at risk for behavioral and adjustment problems (Ellwood & Stolberg, 1993; Emery, 1989; Grych & Fincham, 1990). Moreover, the effects of observing interparental conflict in childhood persist into adulthood (Amato & Booth, 2001; Carlson, 1990). Children from homes characterized by high levels of conflict and hostility have difficulty sustaining adaptive intimate relationships, a fundamental task of young adulthood (Amato & Booth, 2001; Caspi & Elder, 1988; Conger, Cui, Bryant, & Elder, 2000). Little is known, however, about the processes through which witnessing conflict leads to later relationship difficulties.

Testing a model that explains the ways in which interparental conflict shapes later intimate relationships was the goal of the present study. Exposure to high levels of interparental conflict during childhood was hypothesized to contribute to the development of maladaptive conflict schemas. These schemas were measured by identifying cognitive and memory biases in a sample of young adults. It was also hypothesized that these schemas guide the processing of and reactions to novel conflict situations and, as a result, influence perceptions and behavior in interpersonal

relationships. Thus, it was expected that young adults exposed to destructive forms of childhood interparental conflict would report higher levels of physical and verbal aggression in their own relationships.

In this section, an overview of the effects of marital conflict on child development is presented. Next, the relationship between childhood exposure to high levels of marital discord and conflict within later romantic relationships is considered. Then, the short- and long-term implications of interparental conflict are viewed through the lens of different theoretical perspectives. Finally, a social cognitive perspective is considered in detail and study hypotheses are presented.

Interparental Conflict and Child Development

Given that marital discord is a common occurrence in the happiest of families, it is important to differentiate between constructive and destructive forms of conflict (Grych & Fincham, 1990). Successful resolution and parental explanation of conflict buffer the negative impact of marital discord (Cummings & Wilson, 1999). In addition, exposure to constructive forms of interparental conflict may benefit children by preparing them to deal constructively with conflict encountered in their own lives (Cummings & Davies, 1994; Cummings & Wilson, 1999; Grych & Fincham, 1990). Furthermore, conflict resolution is critical to the long-term stability of a marriage in that it helps prevent the buildup of resentment, anger, or withdrawal (Cummings & Davies, 1994; Cummings & Wilson, 1999).

In contrast, conflict that is frequent, intense, and unresolved is associated with heightened child distress and later adjustment problems (Cummings & Davies, 1994).

Witnessing physical violence is especially disturbing to children and contributes to children's risk for the development of psychopathology (Cummings, 1998; Cummings, Zahn-Waxler, & Radke-Yarrow , 1981; Cummings, Vogel, Cummings, & El-Sheikh, 1989). Children's cognitive appraisals of interparental conflict (e.g. significance, implications for family well-being) also affect the magnitude of child distress (Grych & Fincham, 1990). Conflict about child-related issues, conflict that is perceived as threatening, and conflict for which children blame themselves is most upsetting (Grych & Fincham, 1993; Grych, Seid, & Fincham, 1992; Grych, Fincham, Jouriles, & McDonald, 2000).

Children may be aware of and may experience more conflict than parents realize, despite parent attempts to discuss differences in private (Cummings, Davies, & Simpson, 1994; Grych & Fincham, 1990; Papp, Cummings, & Goeke-Morey, 2002). Furthermore, disagreements that take place in front of children tend to be the most destructive (Papp, et al., 2002). Specifically, parents are more likely to argue about child-related issues and to employ hostile (e.g. personal insult, verbal hostility) and aggressive (e.g. aggression against objects) conflict tactics in front of their children (Papp, et al., 2002). It is not surprising, then, that child reports of interparental conflict more accurately predict adjustment than parent reports (Fincham, Grych, & Osborne, 1994; Grych, et al., 1992).

Children's Responses to Conflict

Exposure to real or simulated anger and conflict between adults produces behavioral, cognitive, affective, and psychophysiological responses in children (Emery, Fincham, & Cummings, 1992). Children often report feeling sadness and anger in

response to interadult anger or arguments (Cummings, 1987; El-Sheikh, Cummings, & Goetsch, 1989). In addition, children display behavioral signs of distress when exposed to interadult anger. Typical responses include crying, freezing, and facial distress (El-Sheikh, et al., 1989; Klaczynski & Cummings, 1989). Children also exhibit higher systolic and diastolic blood pressure, heart rate, and electrodermal responding during conflict scenarios (e.g. El-Sheikh & Cummings, 1992; El-Sheikh, et al., 1989).

Children who are exposed to chronic, destructive interparental conflict are more vulnerable to its effects. These children show increased levels of negativity, distress, anger, aggressiveness, and physiological arousal in response to angry interactions (Ballard, Cummings, & Larkin, 1993; Cummings et al., 1981; Cummings, Zahn-Waxler, Radke-Yarrow, 1984; Cummings et al., 1989; El-Sheikh, 1994; O'Brien, Margolin, John, & Krueger, 1991). Greater levels of distress and vigilance may serve the adaptive, short-term function of alerting the child to situations which may threaten safety or family well-being (Davies, Harold, Goeke-Morey, & Cummings, 2002). However, over the long-term, this heightened alertness is thought to increase the child's risk for adjustment problems (Davies, et al., 2002).

Interparental Conflict and Child Adjustment

Interparental conflict predicts child adjustment even after controlling for general marital distress, divorce, and economic disadvantage (Amato, 1993; Amato & Keith, 1991; Cummings & Davies, 1994). Children exposed to high levels of interparental conflict exhibit a variety of outcomes. Some children exhibit no adjustment problems at all, whereas others exhibit a variety of internalizing or externalizing problems (e.g.

Grych, Jouriles, et al. 2000; Mahoney, Jouriles, & Scavone, 1997). Specifically, interparental conflict has been associated with conduct problems, peer difficulties, depression, withdrawal, and general health problems (Cummings, 1994; Davies & Windle, 2001; Fantuzzo, et al., 1991; Gottman & Katz, 1989).

Overall, the relationship between interparental conflict and child adjustment is modest. A review of 26 studies of interparental conflict revealed that 77% of the correlations were less than .30 and 97% of the correlations were below .50 (Jouriles, Farris, & McDonald, 1991). A recent meta-analysis showed that the average effect size for the association between interparental conflict and adjustment was .32 (Buehler et al., 1997). This is generally interpreted as a medium effect size (Cohen & Cohen, 1983). Effect sizes differed depending on type of marital conflict: overt conflict (e.g. hostile behavior) produced an effect size of .35, whereas covert and withdrawal from conflict produced effect sizes of .28 and .27 respectively. Simple measures of conflict frequency produced a smaller effect size of .19.

The relationship between interparental conflict and child adjustment must be interpreted with caution. The majority of existing research is cross-sectional which suggests that marital conflict and child maladjustment co-occur but provides little evidence for a causal relationship. In addition, interparental conflict has been defined in a variety of ways. Behaviors encompassed by this construct range from calm discussion of a disagreement to physical aggression between partners (Fincham, et al., 1994). Furthermore, there is no consensus as to whether the construct is best defined as a continuous variable or as distinct groups (e.g. high versus low conflict, physical versus

verbal conflict). Thus, variation in the construct being measured likely obscures the strength of the true association between marital conflict and child outcomes (Fincham, et al., 1994).

Interparental Conflict and Young Adult's Romantic Relationships

The ability to initiate and maintain romantic relationships is a fundamental developmental task of young adulthood (Conger, et al., 2000). There is some evidence to suggest that childhood exposure to high levels of interparental conflict affects later intimate relationships (Amato & Booth, 2001; Caspi & Elder, 1998; Conger et al., 2000). For example, longitudinal research suggests that children exposed to high levels of interparental conflict exhibit maladaptive interpersonal styles that negatively affect marital quality (Caspi & Elder, 1988). Other research has found that involved, supportive parental interactions in childhood foster adaptive behavior (e.g. low hostility, warmth) in adult romantic relationships (Conger, et al., 2000). A recent longitudinal study found that parents' reports of marital discord predicted children's reports of marital discord seventeen years later (Amato & Booth, 2001). The association remained strong even after controlling for a variety of variables, such as education, income, religiosity, negative affect, age of marriage, and prior divorce.

It is encouraging that children exposed to amicable interparental conflict are more likely to use nonviolent, constructive conflict-resolution strategies than children exposed to high levels of unresolved, chronic, and intense conflict (Weber & O'Brien, 1999). In contrast, adults who report a history of childhood exposure to violence between parents are at increased risk for being either the victim or the perpetrator of physical and verbal

aggression in their own relationships (Duggan, O'Brien, & Kennedy, 2001; Smith & Williams, 1992). This is of particular concern given the surprising number of children exposed to physical aggression between their parents.

A survey of college students revealed that 37% of the 550 participants had been exposed to some form of interparent aggression or violence such as pushing, throwing an object, or slapping. (Spaccarelli, Sandler, & Roosa, 1994). Furthermore, rates of dating aggression in high school populations are quite high; published studies report rates ranging from 13% to 25% (Bergman, 1992; Henton, Cate, Koval, Lloyd, & Christopher, 1983; O'Keefe, Brockopp, & Chew, 1986; Roscoe & Callahan, 1983; Smith & Williams, 1992). College students also report high rates of aggression in intimate relationships. Approximately 20% to 35% of college students report incidents of physical aggression within their intimate relationships (Cate, et al., 1982; Riggs, O'Leary, & Breslin, 1990; Stets & Straus, 1990; Straus, Hamby, & Warren, 2003; Sugarman & Hotaling, 1989).

Theories of Interparental Conflict

A number of frameworks can be used to explain the short- and long-term implications of interparental conflict on child adjustment. Family systems theory views interparental conflict and resulting child difficulties as a reflection of family processes (Fincham, 1998; Margolin, Oliver, & Medina, 2001). For example, interparental conflict may result in triangulation, which refers to a coalition of a parent and child against the other parent (Cox, Paley, & Harter, 2001). Parents may go so far as to use their child as a pawn in their arguments or to force them to choose sides. This cross-generational coalition may result in weakened boundaries between the parent-child subsystem and

may ultimately jeopardize the parent-child relationship (Cox, et al., 2001). Another example of a family systems perspective is when a child attempts to stop marital discord by purposely misbehaving and thereby redirecting parental anger to themselves (Cox, et al., 2001).

A social learning theory perspective attributes the child's problematic behavior to observational learning or modeling (Margolin et al., 2001). For example, conflict that results in resolution or with the consensus to "agree to disagree" provides children with a model of adaptive communication skills such as calm discussion and compromise (Goodman, Barfoot, Frye, & Belli, 1999). In contrast, intense and poorly resolved arguments model and reinforce ineffective skills for conflict resolution (Goodman, et al., 1999).

A genetic transmission hypothesis suggests that genetic similarities account for both parent and child adjustment difficulties (Margolin, et al., 2001). Adoption and twin studies have consistently shown a genetic link for extreme forms of aggression, such as adult antisocial behavior (Mason & Frick, 1994). Furthermore, a diathesis stress model would suggest that a genetic predisposition to psychopathology may be triggered by extreme family conflict.

Evidence of heightened reactivity and alertness during conflict scenarios amongst children exposed to severe interparental discord lends support to a trauma theory of interparental conflict (Ballard, et al., 1993; Cummings et al., 1981; Cummings et al., 1984; Cummings et al., 1989; El-Sheikh, 1994; Margolin et al., 2001; O'Brien, et al., 1991). Conditions that threaten physical or psychological well-being are considered

traumatic (Rossman, 1998). When the trauma is sustained over a long period of time there is a prolonged stress response that has been linked to negative physiological consequences (Rossman, 1998). Severe interparental conflict and violence has been likened to repetitive trauma (Graham-Bermann, 1998; Margolin et al., 2001; Rossman, 1998).

Interparental conflict has also been hypothesized to have an indirect effect on child functioning through its impact on parenting. This indirect effect model contends that high levels of interparental conflict are associated with poor monitoring, inconsistent or harsh discipline, lack of warmth and emotional availability, and efforts to control the child through manipulation (e.g. guilt, withdrawal of affection; Davies et al., 2002). Indeed, research suggests that interparental conflict is negatively correlated with paternal involvement and parenting skills variables including warmth, monitoring, discipline, and communication from both parents (Macie, 2002). It is hypothesized that these disruptions in parenting account for the child's risk for adjustment problems (Davies, et al., 2002; Fauber & Long, 1991).

A social cognitive perspective suggests that exposure to marital discord influences the development of mental representations or beliefs about marital relationships and conflict resolution. These mental representations, or schemas, guide perceptions of and behavior in novel interparental conflict scenarios (Grych & Cardoza-Fernandes, 2001). For example, children may develop a maladaptive model of conflict in which they expect all discord to escalate to verbal and/or physical aggression (Rossman, 1998).

In sum, the short- and long-term effects of interparental conflict can be viewed through the lens of many different theoretical perspectives. It is unlikely that only one of these perspectives fully accounts for the association between interparental conflict and child development. The emotional security hypothesis (Davies & Cummings, 1994) and the cognitive-contextual framework (Grych & Fincham, 1990) attempt to integrate these individual perspectives into comprehensive frameworks. These conceptualizations are at the center of the present study.

Social Cognitive Conceptualizations

The emotional security hypothesis posits that interparental conflict threatens a child's sense of security, thereby increasing vulnerability for a host of adjustment problems (Davies & Cummings, 1994). It is hypothesized that this insecurity is reflected in increased emotional reactivity to conflict (e.g. vigilance), regulation of exposure to stressful parental emotion (e.g. avoidance of conflict, attempts to intervene), and negative internal representations of relationships (Davies, et al., 2002). The cognitive-contextual framework places emphasis on how children's cognitive appraisals of conflict affect the impact of the discord on adjustment (Grych & Fincham, 1990; Grych & Fincham, 1993; Grych, et al., 1992). Children's responses to conflict are influenced by appraisals of the significance of the conflict and implications for self and family well-being (Grych & Fincham, 1990). Conflict about child-related issues, conflict that is perceived as threatening, and conflict for which children blame themselves result in higher levels of child distress and are linked to later adjustment problems. (Grych & Fincham, 1993; Grych, et al., 1992; Grych, Fincham, et al., 2000).

The cognitive-contextual framework and the emotional security hypothesis both emphasize the role of children's mental representations of conflict between parents. This is consistent with a social cognitive perspective, which suggests that exposure to marital discord influences the development of mental representations or beliefs about marital relationships and conflict resolution. In the present study, a social cognitive model is used to explain the relationship between interparental conflict and functioning in later romantic relationships. Although this research must ultimately be integrated with other theoretical perspectives, it is important to first establish the existence of conflict schema and its long-term effects on functioning.

As discussed, a social cognitive perspective posits that exposure to high levels of interparental conflict during childhood results in maladaptive or problematic conflict schema. Schemas are generally defined as frameworks created from past experiences that guide a person in organizing and interpreting new information. These cognitive maps, or working models, help individuals navigate their world (Baldwin, 1992). Interparental conflict is likely to result in a schema because conflict is emotionally arousing and personally relevant for children (Grych & Cardoza-Gernandes, 2001).

Perception of marital discord activates the conflict schema and shapes children's appraisals, affect, and behavior in the situation (Grych & Cardoza-Fernandes, 2001). Activation of a schema occurs without conscious awareness but can influence conscious decision making and appraisals (Zack, Toneatto, & MacLeod, 1999). Indeed, research suggests that maladaptive conflict schema affects reaction to and information processing of novel conflict (O'Brien, et al., 1991; O'Brien, Balto, Erber, & Gee, 1995). For

example, children from high conflict homes are more reactive to subsequent discord and are less reliant on situational cues to determine the appropriate response to conflict (Grych & Cardoza-Fernandes, 2001).

Over time, interparental conflict schema may come to function as a more general relational schema that guides information processing in relationships. A relational schema is broadly defined as a cognitive framework that helps an individual navigate novel social situations by guiding expectations about likely behaviors, responses, and outcomes (Baldwin, 1992; Duggan, et al., 2001). Relational schema theory would suggest that past experiences with conflict will affect current intimate relationships through its lasting influences on the individual's beliefs and expectations about relationships (Grych & Cardoza-Fernandes, 2001).

Maladaptive relational schemas that result from exposure to high levels of conflict are thought to affect behavior in a number of ways. First, individuals exposed to high levels of conflict may disproportionately attend to negative, aggressive parts of discussions and arguments. They may come to expect hostility and escalation of conflict during arguments with their own romantic partners. In addition, they may promote conflict by making negative attributions for their partner's behavior (Fincham, 1998). For example, if a dating partner arrives late for a date, the partner who is left waiting may think the other is "selfish" rather than considering alternative possibilities such as a late bus, an unexpected meeting, or difficulty hailing a taxi.

Unrealistic or inappropriate beliefs about relationships may also fuel relationship difficulties (Bradbury & Fincham, 1993). Research has demonstrated that distorted

relationship beliefs predict relationship dissatisfaction in married couples (Fincham, 1998). Cognitive distortions refer to dysfunctional thinking processes (Kendall & Dobson, 1998). For men, unrealistic relationship beliefs are associated with a tendency to reciprocate negative behavior (Bradbury & Fincham, 1993). Changes in unrealistic relationship beliefs have been linked with changes in satisfaction with the relationship (Fincham, 1998).

Individuals exposed to high levels of interparent aggression during childhood may develop cognitive biases that justify subsequent aggressive behavior. For example, boys with histories of harsh parental discipline tend to misinterpret ambiguous social situations as threatening (Crick & Dodge, 1994). This hostile attribution bias justifies maladaptive behavior such as the use of aggressive coping strategies. As this example demonstrates, maladaptive schemas based on past experiences can result in inappropriate interpretation of a new stimulus. Past experiences with conflict affect current behavior through their lasting influence on the individual's beliefs and expectations about the world.

In summary, it is hypothesized that interparental conflict shapes behavior in later intimate relationships through the development of mental representations, or schemas, for conflict. Exposure to high levels of interparental conflict is an emotionally salient experience for young children. As a result of repeated experiences with destructive forms of conflict, these children develop maladaptive conflict schemas. These cognitive biases influence subsequent interpretation of interpersonal conflict and may "justify" an aggressive response (Baldwin, 1992; James, et al., in press). Although little is known

about the existence or operation of conflict schema, the research to date is reviewed below.

Conflict Schema: The State of the Literature

The social cognitive perspective suggests that interparental conflict schemas guide perception and interpretation of novel conflict (Grych, Wachsmuth-Schlaefer, & Klockow, 2002). Thus, individuals exposed to high levels of interparental conflict during childhood would be expected to view conflict as threatening and destructive. Consistent with this hypothesis, young adults who witnessed physical interparent aggression were more likely to make negative outcome predictions about novel conflict scenarios than those from low conflict, nonviolent households (Duggan, et al., 2001). This suggests that exposure to interparental conflict results in the development of expectations for the course of conflict and supports the contention that relational schema guide information processing of conflict scenarios into adulthood.

Methodological limitations (e.g. reading levels, word knowledge) limit the extent to which researchers can assess young children's working models of beliefs, expectations, and emotions about family relationships. Another line of research has attempted to tap interparental conflict schema by asking young children to narrate stories about their family (Grych & Cardoza-Fernandes, 2001). Children exposed to interparent physical aggression are more likely to portray family conflict as escalating (Grych, Wachsmuth-Schlaefer, & Klockow, 2002). Exposure to destructive forms of interparental conflict has also been correlated with more negative portrayals of parent interactions in the narrative stories (Grych & Cardoza-Fernandes, 2001).

Direct tests of schematic memory effects have also been used to study the phenomenon of interparental conflict schemas. Research in cognitive psychology has consistently demonstrated that people attend to and have better recall for new information that is consistent with their existing schemas (Baldwin, 1992). Cognitive processing is also facilitated when information is emotionally salient (Segal & Cloitre, 1998). For example, mothers awaiting feedback from their children's surgeon showed greater perceptual sensitivity to words related to medicine, surgery, and hospital (Parkinson & Rachman, 1981). Thus, it would be expected that individuals with maladaptive conflict schema selectively attend to the hostile and negative aspects of conflict. Direct tests of memory would then demonstrate that these individuals have a memory bias for the hostile and negative aspects of conflict and may even mistakenly "remember" schema-consistent items that have not actually been presented.

A recent study explored the notion that children exposed to higher levels of interparental conflict would demonstrate memory biases consistent with problematic conflict schema (O'Brien & Chin, 1998). Participants completed questionnaires and listened to audiotaped conflict scenarios designed to activate their interparental conflict schema. They then completed a recognition memory task with a list of new and previously presented words. Results were consistent with schematic processing; children who reported witnessing more frequent, aggressive and poorly resolved conflict showed preferential recognition memory for aggressive words. There were no differences in recall for constructive words.

The study of social cognitive processes may enhance our understanding of how exposure to destructive forms of conflict affects later development. However, as demonstrated by the paucity of research, this area of study is in its infancy. The cognitive psychology literature provides methodological guidance for testing schematic processing.

Direct Tests of Schematic Processing

Research in cognitive psychology has received increased attention in recent years. This is due, in part, to the efficacy and popularity of cognitive treatments for psychological disorders and the advent of computer technology (Segal & Cloitre, 1993). Advances in computer science have informed psychology's knowledge of human information processing and propelled research in cognitive psychology (Segal & Cloitre, 1993).

Explicit Memory

Tests of explicit memory involve the deliberate or conscious recollection of something specific, such as recall or recognition tasks (Kirsner, 1998). The O'Brien and Chin (1998) study is an example of an explicit memory test. Subjects were presented with a mixture of *old* words (presented during the experiment) and *new* words (not presented during the experiment). They were asked to classify each word as *old* or *new*. The task taps explicit memory because subjects were asked to consciously recall whether the words were previously presented. A similar word recognition task of explicit memory will be used in the present study.

Implicit Memory

In contrast, implicit memory involves retrieval that occurs without deliberate, conscious effort (Kirsner, 1998). For example, the participant is presented with the word stem *g-r-i* and is asked to write the first word that comes to mind. The participant might respond with a variety of answers such as grid, grief, grimace, grin, grind, grip, and so on. However, if the word grief had been presented previously in the study, participants will be more likely to complete the word stem to spell the word g-r-i-e-f. In addition, participants will be more likely to recall words consistent with their schema or that are emotionally salient to them. For these reasons, a participant who had recently lost a loved one would be more likely to respond to the word stem task with the word *grief*, than other possibilities. The present study uses a similar word completion task modeled after a study by Mathews, Mogg, May, and Eysenck (1989).

Method

Overview

The present study hypothesized that young adults exposed to high levels of destructive interparental conflict would report higher levels of physical and verbal aggression in their own romantic relationships. Further, it was hypothesized that childhood exposure to destructive interparental conflict results in the development of maladaptive conflict schemas, as evidenced by 1) cognitive/memory biases and 2) cognitive distortions about romantic relationships. Finally, conflict schema was considered as a mediator of the relationship between childhood exposure to interparental conflict and levels of conflict in young adult's current romantic relationships.

Specific Study Hypotheses

Aggression in Romantic Relationships

Participants exposed to high levels of interparental conflict during childhood were expected to report higher levels of physical and verbal aggression in their own romantic relationships. Levels of conflict in current romantic relationships were assessed with the Revised Conflict Tactics Scale (Straus, Hamby, Boney-McCoy, & Sugerman, 1996), a self-report measure.

Maladaptive Conflict Schemas

It was hypothesized that high levels of destructive interparental conflict during childhood result in the development of maladaptive conflict schemas:

1. Participants from high conflict homes were expected to have implicit biases or "justification mechanisms" for aggression that operate without conscious awareness (James, 1998). This inclination toward aggression was assessed with the Conditional Reasoning Test for Aggression (CRT-A; James 1998), a self-report measure designed to tap the unconscious cognitive biases that drive aggression.
2. In an imagery task, participants were asked to imagine scenes involving neutral words, constructive conflict words, and destructive conflict words. It was expected that, when presented with destructive conflict words, participants from high conflict homes would be more likely to imagine distressing scenarios of emotional salience. Thus, it was hypothesized that these participants would be faster to imagine the scenes involving a destructive conflict word and would rate the imagined scenes as less pleasant than participants from low conflict homes.
3. In a words completion task of implicit memory, participants were asked to respond to a three letter word stem with the first word that comes to mind. It was hypothesized that participants from high conflict homes would be more likely than other participants to respond with destructive conflict words.
4. In a word recognition task of explicit memory, participants were asked to label words as *old* (presented during the imagery task) or *new* (not presented during the imagery task). It was hypothesized that participants from high conflict homes would have more false positive and fewer false negative memory errors for destructive conflict words than other participants.

5. Participants from high conflict homes were expected to have higher levels of dysfunctional and irrational relationship beliefs than other participants. Cognitive distortions about romantic relationships were assessed by the Relationship Belief Inventory (Eidelson & Epstein, 1981), a self-report measure designed to tap dysfunctional and irrational relationship beliefs.

Conflict Schema as a Mediator

Finally, a post hoc analysis was conducted to consider conflict schema as a mediator of the relationship between childhood exposure to interparental conflict and levels of conflict in young adult's current romantic relationships.

Participants

Ninety-four college students at Virginia Commonwealth University volunteered to participate in the study. Virginia Commonwealth University is a large state university with a diverse student body representing a wide range of socio-economic levels. Participants were recruited through an Introduction to Psychology course. In order to fulfill course requirements, students were required to participate in research projects or to complete alternative, equivalent assignments. Students were told that participation was voluntary and were made aware of other ways to obtain the same class credit that study participants receive. An IRB approved study description was posted on the website for experimental research in psychology (see Appendix A). Interested students signed up for available study participation times on the website.

Data for 6 of the 94 participants was lost due to a computer malfunction during the first few days of data collection. In addition, 5 participants were excluded from the

analyses because they reported never having been in a romantic relationship. The final sample included 83 participants (17 males and 66 females) who ranged in age from 18 to 23. Fifty-three percent were Caucasian, 31% were African American, 10% were Asian/Pacific Islander, 4% were Hispanic, and 2% were other ethnic minorities.

As noted, all 83 participants reported that they had been in a romantic relationship. Twenty participants (24.1%) reported that their longest relationship lasted for less than a year, 39 (46.9%) reported that their longest relationship lasted between 1 and 2 years, and the remaining 24 (28.9%) reported that their longest relationship lasted more than two years.

Forty-seven participants (56.6%) reported that their parents were still married, 20 (24.1%) reported that their parents were divorced, 13 (15.7%) reported that their biological parents never married, and 3 (3.6%) reported that their parents were separated.

The 20 participants whose parents were divorced reported a range of time since the divorce from 3 to 20 years. They were also asked which parent they lived with while growing up. Fifteen reported living with their mother, 3 reported living with their father, and 2 reported that they lived with both parents (e.g. joint physical custody). Fourteen reported having a stepparent. The remaining 6 participants reported that, although they did not have a stepparent, their mother or father had at least 1 romantic relationship that lasted a year or longer.

The 13 participants who reported that their biological parents never married were also asked who they lived with growing up. Eleven reported living with their mother, 1 reported living with their father, and 1 reported living with both parents. Nine

participants whose biological parents were never married reported that they had a stepparent. All 4 remaining participants reported that their parent had at least one romantic relationship lasting a year or longer.

Participants were divided into 3 groups based on their childhood exposure to interparental conflict: Severe Physical Conflict (SPC); High Verbal/Minor Physical Conflict (HC); Adaptive/Low Conflict (AC). The SPC group consisted of 20 participants who were exposed to one or more incidents of severe physical aggression between their parents, including use of a knife or gun, punching or hitting, kicking, choking, slamming the other parent against a wall, beating the other parent up, or burning/scalding the other parent on purpose. This group was also exposed to high levels of verbal conflict. The HC group included 20 participants who were exposed to high levels of verbal conflict and one or more incidents of minor physical aggression between their parents, including pushing, shoving, grabbing, slapping, throwing something at the other parent, or twisting the other parent's arm or hair. The AC group consisted of 43 participants; the group is characterized by an absence of any minor or severe physical aggression, lower levels of verbal conflict, and higher levels of adaptive conflict/negotiation. See Table 1 for a summary of subject characteristics by group.

As expected, one-way analysis of variance (ANOVA) tests showed that the three groups of subjects did not differ significantly in mean age, $F(2, 80) = 2.579$, $p > .05$, or mean score on the WAIS-III vocabulary test, $F(2, 80) = .950$, $p > .05$. In addition, a chi square test revealed that the three groups of subjects did not differ significantly in gender,

$\chi^2(2, N = 83) = 4.402, p > .05$, ethnicity, $\chi^2(8, N = 83) = 10.963, p > .05$, or parent's marital status, $\chi^2(2, N = 83) = 4.657, p > .05$.*

Table 1

Subject Characteristics by Interparental Conflict Group

Measure	AC *M (SD)*	HC *M (SD)*	SPC *M (SD)*
Interparental Conflict			
Negotiation/Adaptive Conflict	69.5 (24.0)	65.7 (35.4)	39.2 (22.0)
Psychological Aggression	15.3 (15.7)	37.5 (23.9)	70.9 (38.5)
Minor Physical Aggression	0.0 (0.0)	4.3 (4.8)	41.5 (67.1)
Severe Physical Assault	0.0 (0.0)	0.0 (0.0)	16.4 (31.5)
Age	19.5 (1.4)	18.7 (1.4)	19.0 (1.1)
Gender (Male/Female)	12/31	4/16	1/19
Biological Parents Marital Status (Married/Not Married)	29/14	10/10	8/14
Length of Longest Relationship (months)	19.8 (13.8)	25.8 (18.3)	19.3 (10.1)

Note. AC = Adaptive/Low Conflict Group; HC = High Conflict Group; SPC = Severe Physical Conflict Group. Interparental Conflict was measured with a modified version of the Revised Conflict Tactics Scale. Means represent the number of incidents witnessed within a typical year.

Materials

Demographic Questionnaire

Participants provided the demographic information described above via a computer questionnaire (see Appendix B).

Vocabulary Subtest, Wechsler Adult Intelligence Scale, 3rd Edition

The Wechsler Adult Intelligence Scale (WAIS-III; Wechsler, 1997) is an individually administered test designed to assess the cognitive functioning of adults, ages

* Parent's marital status was grouped into two levels (married, not married) for this analysis because the assumptions underlying the chi-square test are questionable in small samples (Kirkpatrick & Feeney, 2001).

16 to 89 years old. The WAIS-III was standardized on 2,450 individuals during the early to mid 1990s (Wechsler, 1997). The vocabulary subtest has high test-retest reliability (.91) and internal consistency reliability (.93). In addition, the vocabulary subtest is highly correlated with overall performance on the WAIS-III (full scale intelligence; .80). This subtest was administered individually to each participant by the investigator.

Modified Version of the Revised Conflict Tactics Scale (CTS2)

A modified version of the CTS2 (Straus, Hamby, Boney-McCoy, & Sugerman, 1996) was used to assess participant's perceptions of childhood exposure to interparental conflict. The CTS2 is a 78-item self-report inventory that assesses the frequency of various relationship conflict tactics. The inventory consists of three main scales: Physical Assault (e.g. slapped my partner), Psychological Aggression (e.g. insulted or swore at my partner), and Negotiation (e.g. suggested a compromise to a disagreement). The additional subscales, Injury and Sexual Coercion, were not used. For the purpose of this study, the questions were modified to reflect levels of conflict expressed between the participant's parents in a typical year. For example, the question "I insulted or swore at my partner," was reworded to "My parents insulted or swore at each other." Each item is followed with a question as to how often the participant's parent engaged in the activity in a typical year. Response categories range from 0 *(never)* to 6 *(more than 20 times)* and include a response item for "not in a typical year, but it has happened before".

Preliminary findings suggest that the measure has good reliability; internal consistency reliability ranges from .77 to .95 (Newton, Connelly, & Landsverk, 2001; Straus, et al., 1996). The authors also suggest that the literature supporting the validity of

the CTS1 (see Straus, 1990) may apply to the CTS2 (Straus, et al., 1996). The CTS1 is the most widely used measure of marital aggression (Straus, et al., 1996). Factor analyses of the CTS1 (e.g., Barling, O'Leary, Jouriles, Vivian, & MacEwen, 1987) have identified physical and psychological aggression factors. Research with the CTS1 has indicated moderate agreement between parent and child report of interparental conflict (e.g. O'Brien, John, Margolin, & Erel, 1994).

It has been suggested that the CTS be used as a categorical measure because of the extremely skewed distributions (Straus & Gelles, 1990). Therefore, participants were divided into 3 groups based on their childhood exposure to interparental conflict: Adaptive/Low Conflict (AC); High Conflict (HC); Severe Physical Conflict (SPC)[1].

Revised Conflict Tactics Scale (CTS2): Original Format

The original form of the CTS2 was used to assess levels of conflict in the participant's most recent romantic relationship in a typical year. The CTS2 manual suggests using the midpoint for each response category endorsed by the participant to arrive at a frequency count. Given the extremely skewed distributions of the frequency data, the measure was scored as a likert scale (e.g. *once in the past year* = 1; *twice in the past year* = 2; *3-5 times in the past year* = 3). The response "not in a typical year, but it has happened before," was given a score of 1. As recommended in the manual, "Self" and "Partner" scores were tallied separately.

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[1] It was expected that participants who were exposed to severe physical conflict would also report high levels of verbal conflict.

Conditional Reasoning Test for Aggression

The Conditional Reasoning Test for Aggression (CRT-A; James, 1998) is a 22-item test designed to be an indirect measure of the implicit biases that drive aggressive behavior. The CRT-A is based on the premise that aggressive people rationalize their behavior based on set of implicit biases, or "justification mechanisms" that operate without conscious awareness (James, 1998). For example, one justification mechanism is the hostile attribution bias, or the assumption that other people's actions have hostile intent (James, 1998).

To the respondent, the CRT-A appears similar to other standardized reasoning tests. However, the purpose of the scale is to determine the extent to which the respondent selects aggressive responses over logical responses. The CRT-A has acceptable psychometric properties; internal consistency reliability ranged from .74 to .87 and mean validity from 10 empirical validation studies was .44 (James, et al., in press). Factor analysis results were consistent with the psychological theory underlying the measure (James, et al., in press).

Each of the 22 conditional reasoning problems contains a response that was designed to assess a justification mechanism for aggressive behavior. Respondents are given one point for every "aggressive" alternative they select.

Relationship Belief Inventory (RBI)

The RBI (Eidelson & Epstein, 1981) is a 40-item self-report scale developed to assess irrational beliefs about relationships. Although the RBI is widely used in marital research, individual items apply to romantic relationships between non-married couples. Based on psychometric considerations, only the 8-item *Disagreement is Destructive* scale and the 8-item *Mindreading is Expected* scale was administered. An example item from

the *Disagreement is Destructive* scale is, "I take it as a personal insult when my partner disagrees with an important idea of mine." An example item from the *Mindreading is Expected* scale is, "a partner should know what you are thinking or feeling without you having to tell them." Response categories range from 0, *I strongly believe that the statement is false,* to 5, *I strongly believe that the statement is true.*

Preliminary research on the RBI reported Cronbach alphas ranging from .72 to .81 for the five RBI scales (Eidelson & Epstein, 1981). However, subsequent research with the RBI suggests that only two subscales yield reliable indexes of irrational beliefs about relationships (Bradbury & Fincham, 1994). Acceptable alpha values have been consistently attained for the *Disagreement is Destructive* subscale (from .78 to .81) and the *Mindreading is Expected* subscale (from .72 to .75; Bradbury & Fincham, 1994). In addition, research suggests that the psychometric properties of the RBI are comparable for men and women and scores appear to covary reliably with expected behavior (Bradbury & Fincham, 1994). For example, partners with high levels of dysfunctional relationship beliefs were more likely to exhibit negative behavior in the relationship (Bradbury & Fincham, 1994).

Stimulus Word Pool

A pool of 96 stimulus words was developed for use in the imagery, word completion, and the word recognition tasks (see Table 2). The words were divided into 4 parallel sets of 24 words which were matched for word frequency (using Francis & Kucera, 1982). Each set contains 3 categories of words (8 neutral, 8 constructive conflict, and 8 destructive conflict). Stimulus words were also matched for word frequency across

Table 2

Stimulus Word Pool

Neutral	Constructive Conflict	Destructive Conflict
	Set A	
Migrate	Converse	Intimidate
Scarf	Admiration	Insult
Fountain	Compromise	Punish
Photograph	Cooperate	Hostile
Remark	Trust	Hurt
Credit	Solve	Grab
Heat	Share	Hate
Theater	Respect	Attack
	Set B	
Absent	Nurture	Humiliate
Lengthen	Soothe	Ridicule
Carpet	Hug	Glare
Stall	Clarify	Smash
Ideal	Assist	Wound
Sweep	Suggestion	Swear
Official	Settle	Cry
Mountain	Aid	Argue
	Set C	
Refuel	Courteous	Scowl
Marina	Reconcile	Harass
Borrow	Calm	Slap
Drift	Embrace	Frown
Exercise	Explanation	Blame
Liberal	Protect	Victim
Camp	Discuss	Threaten
Film	Listen	Destroy
	Set D	
Math	Mend	Nag
Wardrobe	Comfort	Smack
Grasp	Kiss	Yell
Dissolve	Rub	Spit
Elect	Laugh	Shove
Approach	Encourage	Scream
Symbol	Agree	Shout
Operate	Love	Push

the 3 categories. Destructive conflict words reflect negative conflict tactics (e.g. shout, scream, glare, push). Constructive conflict words reflect positive conflict tactics (e.g. discuss, cooperate, listen, respect). Words were drawn from a list used by O'Brien and Chin (1998) in a recognition memory task and additional words were generated from a thesaurus.

Imagery Task. For this task, 48 words were presented in a fixed order, one at a time on a computer screen (see Appendix C). For each word, participants were asked to imagine a scene involving themselves and the word. The 48 words used in this task were selected from the word stimulus pool (sets A & B from Table 2). These words are referred to throughout this study as *primed* or *old* words.

Word Completion Task. This task consisted of the three-letter stems of 48 *old* and *new* words (Appendix D). For example, participants were presented with the letters *c-o-m* on a computer screen. The target word was an *old* word, compromise, which was presented during the encoding task. They were asked to type the first word that comes into their mind beginning with the three letters presented. The 48 word stems were presented one at a time in a fixed order. The original order was determined randomly and was then modified to ensure that no more than two stems from any word-content condition (e.g. neutral word, destructive conflict word) occurred in succession.

The 48 words used in the word completion task were selected from the word stimulus pool (see Table 2). Twenty-four words came from Set A and 24 from Set C. Thus, the 24 words from Set A are *old* or *primed* words because they were presented to

participants during the encoding task. The 24 words from Set C are *new* or *unprimed* words that participants had not yet seen in the context of the study.

In addition, the list of words was reviewed to ensure that each word in the list had a unique three-letter stem and that each three-letter stem was common enough that it can be used to construct at least one other English word that is of higher frequency than the target word.

Word Recognition Task. For this task, participants were presented with 24 *old* and 24 *new* words (Appendix E). The words were presented one by one, in fixed order on the computer screen. Participants were asked to label each word as *old* if it was a word they had seen in the "imagination task" or *new* if it was not a word they had heard during the study. Two example words were given to make sure that participants understood the task.

Old, or familiar, words consisted of one set of 24-words presented within the encoding task (Set B; Table 2). Again, these 24 words are *old* because they were presented to participants during the imagery task. *New* words were the remaining set of 24 words that participants have not yet seen in the context of the study (Set D; Table 2). These words are *new* in that they were not presented to the participants within the encoding task.

Six scales were created from the word recognition task. False negative scales were calculated by summing the number of old words incorrectly labeled as new words. The scales reflect the number of old words the participants did not remember as being previously presented. A false negative scale was created for neutral words, constructive conflict words, and negative words. False positive scales were calculated by summing the

number of new words incorrectly labeled as old, or previously presented, words. As before, a false positive scale was created for neutral words, constructive conflict words, and negative words.

Procedure

Students interested in participating in the study signed up for individual appointment times on Virginia Commonwealth University's website for research in psychology. The experimental procedures were administered with two participants at a time in adjacent rooms on the academic campus. See Figure 1 for a visual depiction of study procedures.

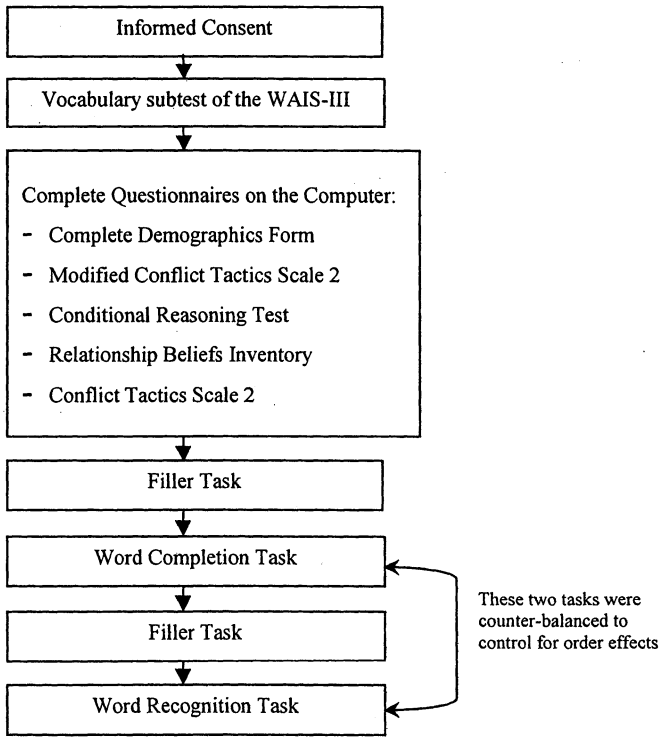

Figure 1. Study Procedures.

Demographics & Questionnaire Completion

Upon arrival, information about the study was reviewed with each participant and IRB approved informed consent documentation was completed. The investigator then administered the Vocabulary subtest of the WAIS-III to ensure differences in general word knowledge did not account for study results. Participants were then asked to complete the computerized demographic form and questionnaires regarding interparental conflict (modified CTS2), conditional reasoning (CRT-A), relationship beliefs (RBI), and current relationship conflict (CTS2). These questionnaires were administered prior to completing the experimental procedures in order to activate participants' conflict schemas.

Imagery Task

Participants were then told that they would be participating in a task that involves imagination. They were presented with 48 stimulus words (Appendix C) presented one at a time on a computer screen. For each word they were asked to imagine a scene involving themselves and the word. The words *journey* and *laughter* were used as examples and participants were told that they could think of a past scene, a possible future scene, or a completely imaginary scene as long as it involved themselves and the word.

Participants were then presented with the 48 stimulus words. Each word was presented for 10 seconds and the participant was asked to press a response button when they thought of a scene. After the participant responded or the 10 seconds elapsed, he/she was asked to think of the scene for an additional 10 seconds. Following the presentation of each word, subjects were asked to rate how pleasant the imagined scene was on a scale

of 1 to 10. The scale was anchored by two end points (1 = *extremely unpleasant* and 10 = *extremely pleasant*).

Memory Tasks

Prior to completing the memory tasks of interest, participants completed an unrelated 2-minute filler task. For the filler task, they were asked to identify a number that appeared twice in a string of random numbers presented on the computer screen. They were then asked to complete either the word completion task or the word recognition task. The order of administration of the two tasks was counterbalanced. After completing the first memory task, participants completed another filler task for 2 minutes. This filler task required the participants to identify the letter in a string of numbers presented on the computer screen. Participants were then asked to complete the remaining memory task (either word completion or word recognition).

Results

Data were analyzed in 3 steps. First, one-way ANOVA tests were run for each of the four CTS2 Physical and Verbal Aggression subscales to explore differences in romantic relationship aggression between the interparental conflict groups. Second, one-way ANOVA tests were run for each of the measures of conflict schema to explore differences in cognitive and memory biases between the interparental conflict groups. Finally, conflict schema was considered as a mediator of the relationship between childhood exposure to interparental conflict and levels of conflict in young adult's current romantic relationships.

Physical and Verbal Aggression in Romantic Relationships

It was expected that participants exposed to high levels of interparental conflict during childhood would report more verbal and physical aggression in their own relationships than participants exposed to adaptive/low interparental conflict. One-way ANOVA tests were run for each of the four CTS2 Physical and Verbal Aggression subscales to explore differences in romantic relationship aggression between the groups. Interparental conflict group was entered as the independent variable and the subscale score on the CTS2 was entered as the dependent variable. See Table 3 for means, standard deviations, and a summary of the analysis results.

Table 3.

Means, Standard Deviations, and ANOVA results for CTS2 subscales by group

Scale	AC *M (SD)*	HC *M (SD)*	SPC *M (SD)*	*F*
Physical Aggression				
Self	.7 (1.4)	6.5 (10.1)	2.4 (3.9)	7.96**
Partner	.8 (1.6)	5.2 (9.4)	1.8 (2.4)	5.60*
Psychological Aggression				
Self	6.3 (4.9)	11.0 (10.3)	8.6 (6.8)	3.17*
Partner	6.6 (5.8)	7.3 (8.0)	6.3 (6.4)	.13

Note. AC = Adaptive/Low Conflict Group; HC = High Conflict Group; SPC = Severe Physical Conflict Group. Likert scale means were created using the following frequency points (for the past year): 1 = once; 2 = twice; 3 = 3-5 incidents; 4 = 6-10 incidents; 5 = 11-20 incidents; 6 or greater = more than 20 incidents. ** $p < .01$; * $p < .05$.

The first analysis revealed significant differences in the Physical Aggression – Self subscale between the conflict groups, F (2, 80) = 7.960, p = .001. A Tukey post hoc analysis revealed that participants exposed to high levels of interparental conflict (HC group; M = 6.5, SD = 10.1) reported higher levels of physical aggression *toward* their partners than participants exposed to adaptive/low interparental conflict (AC group; M = .7, SD = 1.4), p =.001. No other differences between groups were observed. See Figure 2 for a visual depiction of these results.

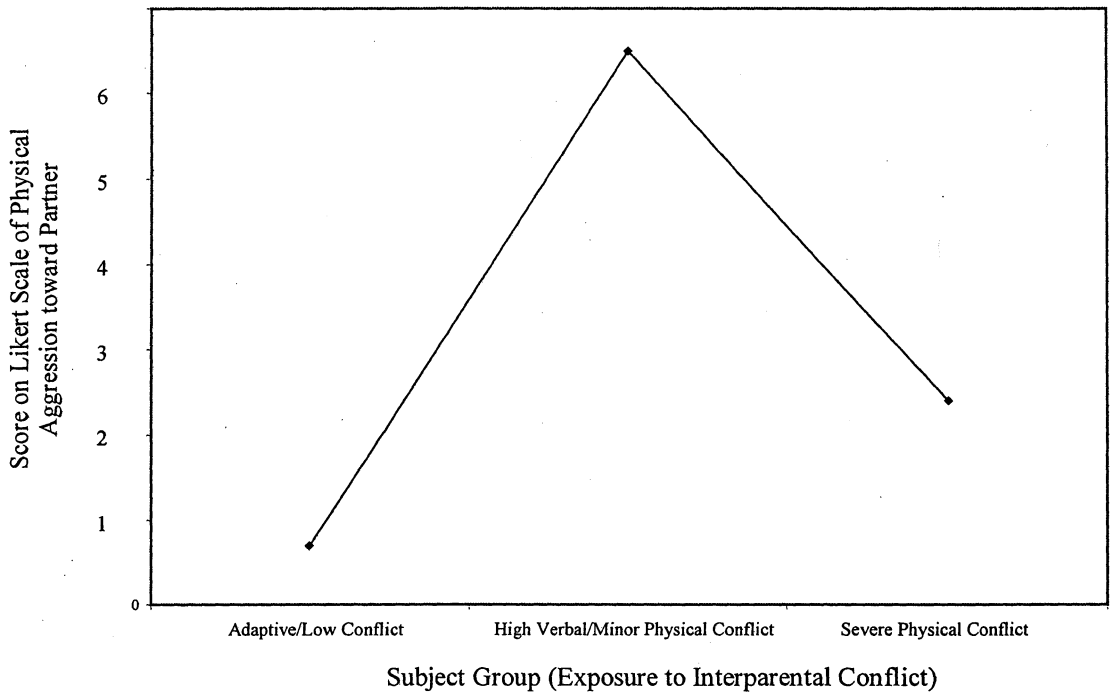

Figure 2. Mean Likert Scale Score on CTS2 Physical Aggression - Self Subscale by Subject Group

The analysis also revealed significant differences in the Physical Aggression – Partner subscale between the conflict groups, $F(2, 80) = 5.60$, $p = .005$. A Tukey post hoc analysis revealed that participants exposed to high levels of interparental conflict (HC group; $M = 5.2$, $SD = 9.4$) reported higher levels of physical aggression *by* their partners than participants exposed to adaptive/low interparental conflict ($M = .8$, $SD = 1.6$), $p = .004$. No other differences between groups were observed. See Figure 3 for a visual depiction of these results.

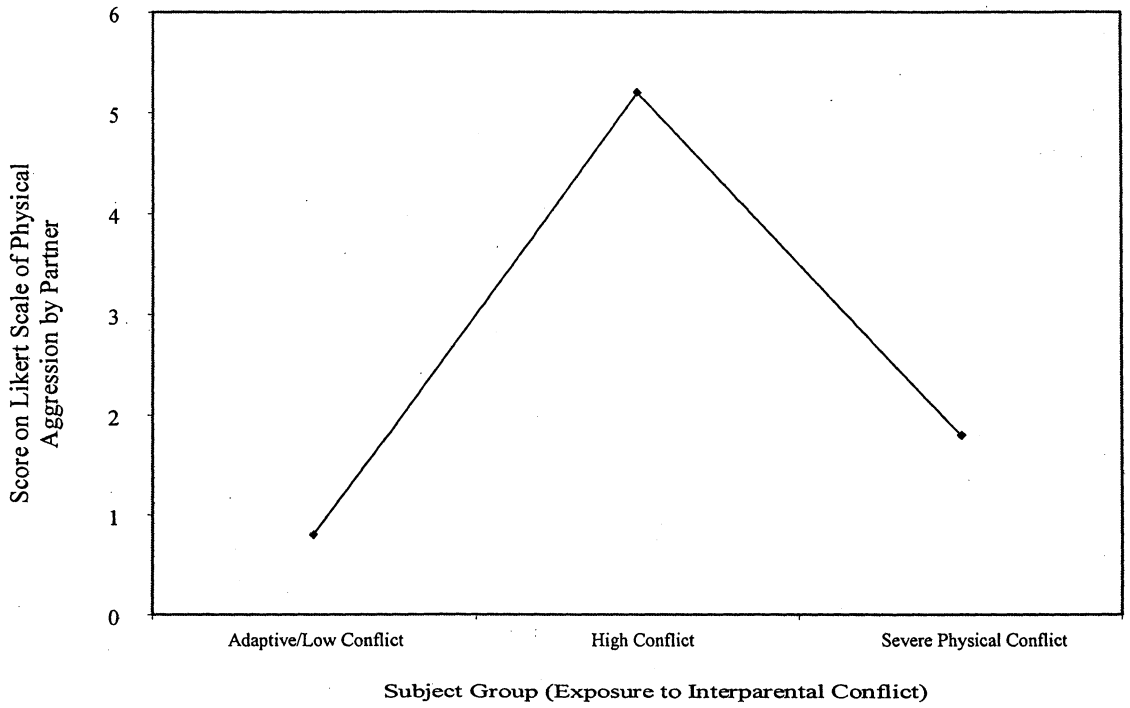

Figure 3. Mean Likert Scale Score on CTS2 Subscale Physical Aggression - Partner by Subject Group

The analysis revealed significant differences in the Psychological Aggression – Self subscale between the conflict groups, F (2, 80) = 3.17, p = .047. A Tukey post hoc analysis revealed that participants exposed to high levels of interparental conflict (HC group; M = 11.0, SD = 10.3) reported higher levels of psychological aggression *toward* their partners than participants exposed to adaptive/low interparental conflict (M = 6.3, SD = 4.9), p =.040. No other differences between groups were observed. See Figure 4 for a visual depiction of these results. The analysis yielded no significant differences between the conflict groups for the Psychological Aggression – Partner subscale, F (2, 80) = .133, p > .05.

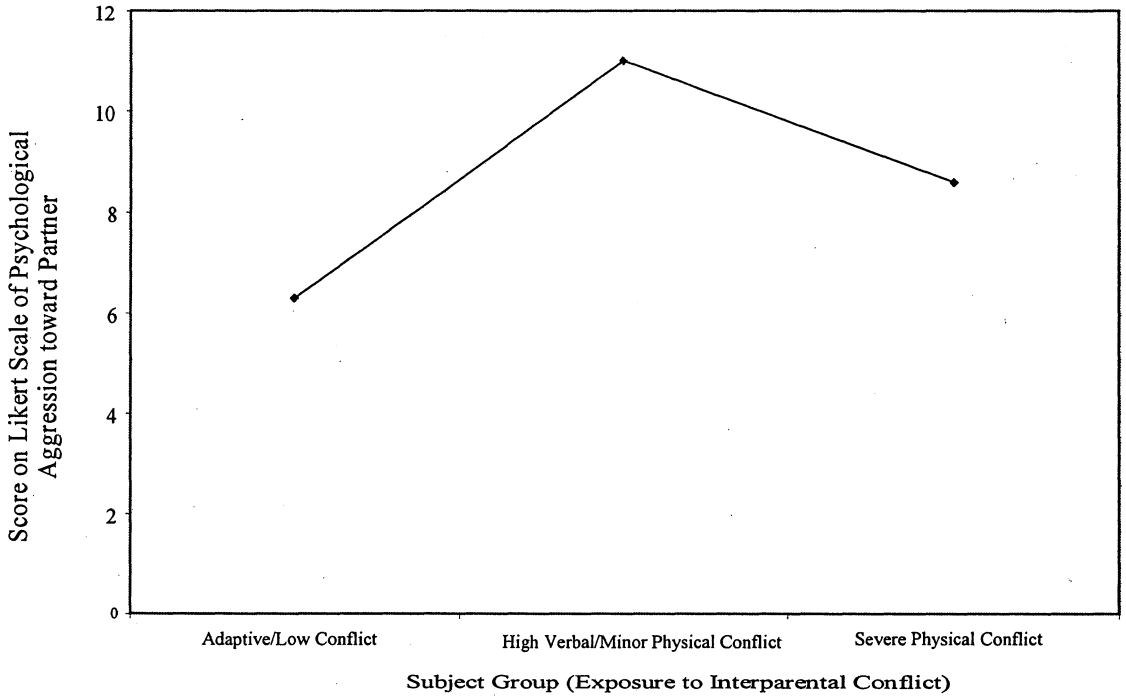

Figure 4. Mean Likert Scale Score on CTS2 Subscale Psychological Aggression - Self by Subject Group

Maladaptive Conflict Schema

It was expected that participants exposed to high levels of interparental conflict during childhood would evidence more cognitive/memory biases than participants exposed to adaptive/low interparental conflict. One-way ANOVA tests were run for each measure of cognitive/memory bias to explore differences in maladaptive conflict schema between the groups. For each ANOVA, interparental conflict group was entered as the independent variable and the measure of cognitive/memory bias was entered as the dependent variable. See Table 4 for means, standard deviations, and a summary of the analysis results described in detail below.

Table 4

Measures of Conflict Schema by Group: Means, Standard Deviations, and ANOVA results

Scale	AC *M (SD)*	HC *M (SD)*	SPC *M (SD)*	*F*
Relationship Beliefs Inventory				
Disagreement is Destructive	12.3 (4.9)	16.1 (5.1)	11.8 (5.2)	4.63*
Mindreading is Expected	15.4 (5.4)	17.1 (5.9)	16.9 (5.8)	.82
Latency to Imagine Destructive Conflict Scenes	3.3 (2.0)	3.6 (2.6)	3.1 (1.7)	.35
Rating of Pleasantness Destructive Conflict Scenes	3.4 (0.9)	3.3 (1.8)	2.8 (0.8)	1.96
Word Stem Task: Recall of Primed Destructive Conflict Words	2.5 (1.3)	2.9 (1.7)	2.5 (1.5)	.46
Word Recognition Task Destructive Conflict Words				
False Negative Memory Errors	.93 (.99)	.70 (1.3)	.70 (.92)	.50
False Positive Memory Errors	.79 (1.39)	1.10 (1.55)	.95 (.94)	.38
Conditional Reasoning Test – A	4.2 (2.0)	3.5 (4.0)	4.1 (1.6)	.58

Note. AC = Adaptive/Low Conflict Group; HC = High Conflict Group; SPC = Severe Physical Conflict Group. * $p < .05$.

Relationship Beliefs Inventory (RBI)

A one-way ANOVA was run for each subscale of the RBI to explore the difference in dysfunctional relationship beliefs between groups (AC, HC, SPC). The analysis revealed significant differences in the Disagreement is Destructive subscale between the conflict groups, F (2, 80) = 4.633, p = .012. A Tukey post hoc analysis revealed that participants exposed to high levels of interparental conflict (HC group; M = 16.1, SD = 5.1) endorsed significantly higher levels of the dysfunctional belief that disagreement is destructive to relationships than participants exposed to adaptive/low interparental conflict (AC group; M = 12.4, SD = 4.9), p = .021. No other differences

between groups were observed. See Figure 5 for a visual depiction of the results. The analysis for the Mindreading is Expected subscale yielded no significant differences between the conflict groups, $F(2, 80) = .824, p > .05$.

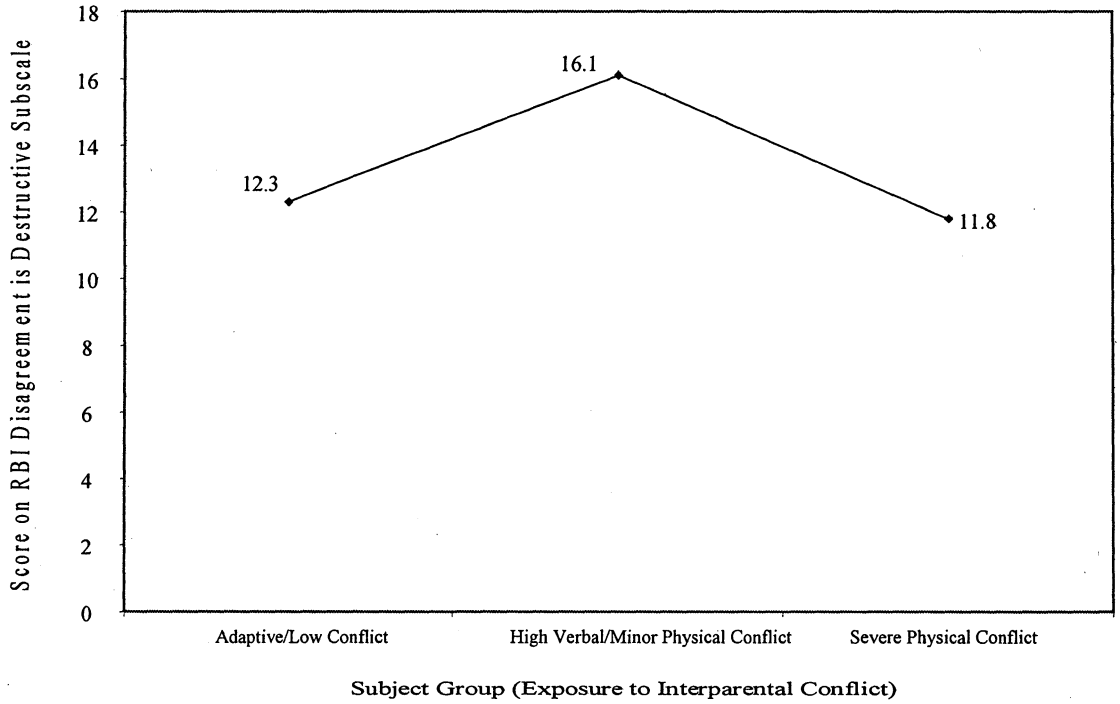

Figure 5. Mean Score on RBI Disagreement is Destructive Subscale by Subject Group

Latency to Imagine Destructive Conflict Scenes & Mean Pleasantness Ratings

It was expected that HC and SPC participants would be faster to imagine scenes involving destructive conflict words and would rate the imagined scenes as less pleasant than AC participants. A one-way ANOVA was used to explore the difference in mean latency to imagine destructive conflict words between groups (AC, HC, SPC). The analysis yielded no significant differences between the conflict groups, $F(2, 80) = .35$, $p > .05$. In addition, a one-way ANOVA of mean pleasantness ratings of destructive

conflict words yielded no significant differences between groups F (2, 80) = 1.96, $p > .05$.

Word Stem Completion Task

It was expected that HC and SPC participants would be more likely than AC participants to respond to the word completion test with primed destructive conflict words. A one-way ANOVA was used to explore the difference in recall for primed destructive conflict words between groups (AC, HC, SPC). The ANOVA yielded no significant differences between the conflict groups, F (2, 80) = .457, $p > .05$.

Word Recognition Task

HC and SPC participants were expected to have more false positive and fewer false negative memory errors for destructive conflict words than AC participants. One-way ANOVA tests were used to explore the difference in false positive and false negative memory errors for destructive conflict words between groups (AC, HC, SPC). The analysis for false positive memory errors yielded no significant differences between the conflict groups, F (2, 80) = .379, $p > .05$. In addition, the analysis for false negative memory errors yielded no significant differences between the conflict groups, F (2, 80) = .504, $p > .05$.

Conditional Reasoning Test of Aggression

HC and SPC participants were also expected to have more of the implicit cognitive biases that underlie aggression than AC participants. To test this hypothesis, a one-way ANOVA was run for total score on the CRT-A to explore differences in implicit

cognitive biases between groups (AC, HC, SPC). The ANOVA yielded no significant differences between the conflict groups, F (2, 80) = .582, $p > .05$.

Conflict Schema as a Mediator

A post hoc analysis was conducted to consider dysfunctional relationship beliefs as a mediator of the relationship between childhood exposure to interparental conflict and levels of conflict in young adult's current romantic relationships. The nature of the data set may limit the ability to test a mediation model, given that the independent variable is categorical and the cognitive variables are not constructed from traditional rating scales. Further, reports of interparental conflict are retrospective. This makes it difficult to demonstrate temporal precedence, which some argue is necessary to test a mediational model (Kraemer, et al., 2002). Thus, the analysis of mediation can be considered exploratory. The model was tested based on the following recommendations put forth by Baron and Kenny (1986) and Holmbeck (1997).

Four conditions must be met for conflict schema to be considered a mediator (Holmbeck, 1997). First, the independent variable must be significantly associated with the mediator. In order to run a regression analysis to test this hypothesis, dummy variables were created for the categorical independent variable (interparental conflict: adaptive/low conflict, high conflict, severe physical conflict). The results of this analysis indicated that exposure to interparental conflict accounted for a significant amount of the variability in dysfunctional relationship beliefs, $R^2 = .104$, F (2, 80) = 4.633, $p = .012$. Exposure to interparental conflict accounted for 10.4 percent of the variance in the dysfunctional relationship belief that disagreement is destructive.

Second, the independent variable must be significantly associated with the dependent variable. Three regression analysis tests were run to predict level of relationship conflict (Psychological- Self , Physical-Self, Physical-Partner) from exposure to interparental conflict. The results of the first analysis (Psychological-Self) indicated that exposure to interparental conflict accounted for a significant proportion of variance in psychological aggression *toward* a romantic partner, $R^2 = .081$, $F\ (2, 80) = 3.529$, $p = .034$. Exposure to interparental conflict accounted for 8.1 percent of the variance in the psychological aggression *toward* a romantic partner. The results of the next analysis (Physical-Self) indicated that exposure to interparental conflict accounted for a significant proportion of variance in physical aggression *toward* a romantic partner, $R^2 = .103$, $F\ (2, 80) = 4.568$, $p = .013$. Exposure to interparental conflict accounted for 9.7 percent of the variance in the physical aggression *toward* a romantic partner. The results of the final analysis (Physical-Partner) indicated that exposure to interparental conflict accounted for a significant proportion of variance in physical aggression *by* a romantic partner, $R^2 = .097$, $F\ (2, 80) = 4.286$, $p = .017$. Exposure to interparental conflict accounted for 9.7 percent of the variance in the physical aggression *by* a romantic partner.

Third, the mediator must be significantly associated with the dependent variable. Three regression analyses were run to predict relationship conflict (Psychological- Self, Physical-Self, Physical-Partner) from dysfunctional relationship beliefs. The results of the first analysis (Psychological-Self) indicated that exposure to interparental conflict accounted a significant proportion of variance in psychological aggression *toward* a romantic partner, $R^2 = .061$, $F\ (1, 81) = 5.273$, $p = .024$. Exposure to interparental conflict

accounted for 6.1 percent of the variance in the psychological aggression *toward* a romantic partner. The results of the final two analyses (Physical-Self; Physical-Partner) indicated that dysfunctional relationship beliefs do not account for a significant proportion of variance in physical aggression in relationships by the individual, $R^2 = .010$, $F(1, 81) = .793, p > .05$, or their romantic partner, $R^2 = .004$, $F(1, 81) = .363, p > .05$. These dependent variables (Physical-Self; Physical-Partner) will be excluded from the final analysis because of these non-significant findings.

The final step is to determine whether the impact of the independent variable is less after controlling for the mediator. A hierarchical regression analysis was conducted to evaluate whether exposure to interparental conflict predicted psychological aggression toward romantic partners over and beyond the dysfunctional relationship belief that disagreement is destructive. The results of this analysis indicated that exposure to interparental conflict does account for a significant proportion of the variance in psychological aggression toward a romantic partner after controlling for the effects of dysfunctional relationship beliefs, $R^2 = .049$, $F(2, 79) = 2.178, p = .026$. The results are suggestive of a partially mediated model because the direct effect remained significant with the mediator in the model (Baron & Kenny, 1986). Childhood exposure to interparental conflict accounted for 8.1% of the variance in psychological aggression toward a romantic partner. However, it only accounted for 4.9% of the variance after controlling for the dysfunctional relationship belief that disagreement is destructive.

In sum, the analyses revealed that participants exposed to high levels of interparental conflict (HC) reported significantly higher levels of physical aggression in

their romantic relationships than participants exposed to adaptive/low interparental conflict (AC). Surprisingly, SPC participants were not more likely than AC participants to be involved in relationships characterized by physical violence. In addition, the HC group reported higher levels of psychological aggression toward their partners than AC participants. Again, SPC participants were not more likely than AC participants to engage in psychological aggression. In addition, HC participants endorsed significantly higher levels of the dysfunctional belief that disagreement is destructive to relationships than AC participants. Finally, the analyses support the hypothesis that dysfunctional relationship beliefs is a partial mediator through which childhood exposure to interparental conflict influences psychological aggression toward a romantic partner.

Discussion

Violence occurs with alarming frequency in the dating relationships of university students. Minor physical aggression, such as grabbing or pushing, was reported by 42.2% of participants. Severe physical aggression, such as hitting or kicking, was reported by 16.9% of participants. Further, an intergenerational pattern of violence was found. Individuals from high conflict homes are more likely to use violent conflict resolution strategies in their own adult romantic relationships. Specifically, young adults from homes characterized by high levels of verbal conflict and minor physical aggression were more likely to be both the perpetrator and the victim of physical violence than young adults from adaptive/low conflict homes.

Hostile verbal conflict also characterizes the romantic relationships of these young adults. They are more likely to initiate verbal aggression toward romantic partners than individuals from adaptive/low conflict homes. More importantly, the nature of the verbal conflict differed between groups. During arguments with a romantic partner, young adults from adaptive/low conflict homes employ minor verbal conflict strategies, such as shouting, yelling, or swearing. They were unlikely to engage in severe psychological aggression, such as calling their partner fat or ugly, accusing their partner of being a bad lover, or destroying something belonging to their partner. In contrast, participants from homes characterized by high verbal conflict and minor physical

aggression were more likely to "hit below the belt" by engaging in severe psychological aggression.

Exposure to interparental conflict appears to result in the development of expectations for the course of conflict both in this sample and in related research (e.g. Duggan, et al., 2001; Grych, et al., 2002). Participants exposed to high verbal/minor physical aggression between parents endorsed significantly higher levels of the dysfunctional belief that disagreement is destructive to relationships than participants from adaptive/low conflict homes. These individuals view conflict as a destructive force in relationships, rather than as a critical component of a long-term, stable relationship (Cummings & Davies, 1994; Cummings & Wilson, 1999). This supports the notion that past experiences with conflict contribute to the development of expectations about what constitutes a healthy relationship (Baldwin, 1992; Duggan, et al., 2001).

Furthermore, the pattern of results support the hypothesis that the dysfunctional belief that "disagreement is destructive" is a partial mediator through which childhood exposure to interparental conflict influences psychological aggression toward a romantic partner. Support for dysfunctional relationship beliefs as a mediator through which childhood exposure to interparental conflict influences physical aggression was not found.

Young adults from homes characterized by high verbal/minor physical aggression reported a mean of approximately 24 incidents of self or partner violence per year. The majority of the incidents involved minor physical confrontation, such as pushing or grabbing a partner's arm. However, approximately 30 percent of the violent incidents

involved severe physical aggression, such as hitting, punching, and kicking. The aggressive nature of these relationships stands in sharp contrast to the nonviolent relationships of participants from adaptive/low conflict homes, which were characterized by little or no physical violence (a mean of less than 1 incident of physical aggression per year).

This intergenerational pattern of violence is consistent with previous research (e.g. Duggan et al., 2001). The data suggest that violence during the "courtship" period is not a rare occurrence. As noted, minor physical aggression was reported by 42.2% of participants and severe physical aggression was reported by 16.9%. This is consistent with other surveys of dating violence among college students. Although individual estimates vary, one study estimated the overall prevalence of dating violence to be 35% among college students (Sugarman & Hotaling, 1989). In the college-aged development sample for the CTS2 ($n = 317$), 35% of woman and 47% of men reported at least one incident of physical aggression within their romantic relationships (Straus, et al., 2003). These data highlight the need for appropriate resources and interventions for teenagers and young adults involved in destructive relationships.

Contrary to study hypotheses, young adults who witnessed severe physical violence between their parents were not more likely to be in a relationship characterized by physical or psychological aggression than other participants. However, the frequency of physical aggression within these young adults' romantic relationships can not be dismissed as inconsequential. They reported perpetrating a mean of 3.7 physically aggressive acts and were the victim in a mean of 2.3 incidents of partner violence per

year. Approximately one of these incidents involved severe physical aggression, such as punching, hitting, or kicking. As children, these individuals were firsthand witnesses to severe physical violence between parents. However, the majority (57%) of their parents are no longer married. It is likely that the non-abusive parent left their violent spouse, which communicated to their child that physical violence is not acceptable. Alternatively, it is possible that these individuals make a conscious effort to control aggressive impulses because they have seen the terror and aftermath of physical violence.

Participants exposed to high levels of interparental conflict during childhood did not evidence the other cognitive and memory biases thought to reflect maladaptive conflict schema. The failure to find evidence of other cognitive and memory biases may be due, in part, to methodological limitations. The extent to which researchers can assess these cognitive processes is limited by the unconscious nature of the process of perception, recall, and interpretation.

It is important to note that the adaptive/low conflict group included 9 individuals (21% of the group) whose parents are best classified as conflict avoidant (Gottman, 1993). Avoidance of conflict is not necessarily dysfunctional, provided it is balanced with positive behaviors and is not characterized by hostility (Gottman, 1993). Although the small sample size prohibits analysis, the pattern for these individuals was consistent with their parents' conflict avoidance strategy.

The present study provides a snapshot of the life of young adults during a relatively demand-free time. It is likely that the nature of the romantic relationships will change as the demands of adult life increase. Over the course of time these young adults

will face new challenges in their relationships, such as marriage, economic hardship, and the demands of parenthood. Future research should include a longitudinal design to fully account for these variables.

A related concern is that retrospective measurement of interparental conflict may have limited the validity and reliability of the data. However, research has demonstrated that children witness more conflict than parents realize (Cummings, Davies, & Simpson, 1994; Grych & Fincham, 1990; Papp et al., 2002). As a result, they may provide more accurate reporting of exposure to conflict than their parents. A related limitation is that the interparental conflict data was collected at the same time as the measure of romantic relationship conflict. This may have resulted in an inflated association between the two measures. To limit this effect, the measures were given approximately 15-25 minutes apart. In addition, participants entered their answers on computer and were unable to refer back to past responses. Again, a longitudinal design that includes both parent and child report of exposure to conflict would strengthen future studies.

Moreover, the results of the study could be strengthened by sampling a subject pool more representative of the general population. The young adults sampled for the present study all attended a 4-year state university. Given that only 62 percent of students graduating from high school enroll directly in college, this is a relatively high-functioning group of young adults (National Center for Education Statistics, 2001). A related limitation is that intelligence serves as a buffer from negative outcomes characteristically exhibited by children in high conflict homes (Katz & Gottman, 1997).

The present study supports the argument that the prevalence of minor violence (e.g. pushing, grabbing) is quite high and that it has a different impact than violence that is best characterized as severe abuse. An avenue for future research is to explore this distinction and the differential impact of exposure to minor and severe physical aggression. Another unanswered question is whether aggression should be measured on a continuum, or if there is a qualitative difference between physical and psychological violence. Further, many community intervention efforts focus on violence within the marital relationship. The alarming frequency of dating violence among teenagers and young adults highlights the need for appropriate resources and interventions for this population. Finally, there is a clear need to continue building and testing multifactor models to determine whether interparental conflict has a direct effect on later adjustment, or whether it is mediated indirectly through other factors.

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Appendix A

Participant Study Description

Participants must be between the ages of 18 and 23. You will be asked to complete brief questionnaires regarding relationships and then participate in several computerized tasks of cognitive ability such as identifying parts of a pattern, completing word stems, and tests of memory.

Appendix B

Demographic Questionnaire

Please answer the following questions so that we may better interpret the study results.

1) How old are you?

18 *19* *20* *21* *22* *23*

2) What is your ethnicity?

Asian/Pacific Islander *African American* *Caucasian* *Hispanic*

Native American *Alaskan Native* *Other*

3) What is your biological parent's marital status?

Never Married *Married* *Separated* *Divorced*

If your circled *never married*, please answer the following questions:

Who did you live with growing up? *Mother* *Father* *Both/Joint Custody*

Do you have a stepfather? *Yes* *No*

If yes: how long has your stepfather been in your life? _____

If no: has your mother had any long-term relationships (at least 1 year)?

Yes *No* *I Don't Know*

Do you have a stepmother? *Yes* *No*

If yes: how long has your stepmother been in your life? _____

If no: has your father had any long-term relationships (at least 1 year)?

Yes *No* *I Don't Know*

If you circled *separated,* please answer the following questions:

How long have your parents been separated? _____

Who did you live with growing up? *Mother* *Father* *Both/Joint Custody*

If you circled *divorced,* please answer the following questions:

How long have your parents been divorced? _____

Who did you live with growing up? *Mother* *Father* *Both/Joint Custody*

Do you have a stepfather? *Yes* *No*

If yes: how long has your stepfather been in your life? _____

If no: has your mother had any long-term relationships (at least 1 year)?

Yes *No* *I Don't Know*

Do you have a stepmother? *Yes* *No*

If yes: how long has your stepmother been in your life? _____

If no: has your father had any long-term relationships (at least 1 year)?

Yes *No* *I Don't Know*

4) Have you ever been in a romantic or dating relationship? *Yes* *No*

If yes: For how many months have you been in your **current** relationship (If you are not in a relationship: how long did your most recent relationship last)? _____

How many months did your **longest** relationship last? _____

Was that relationship with someone of the opposite sex? *Yes* *No*

If no: Why haven't you been in a relationship?

Appendix C

Words Presented During Imagery Task

Neutral	Constructive Conflict	Destructive Conflict
	Set A	
Migrate	Converse	Intimidate
Scarf	Admiration	Insult
Fountain	Compromise	Punish
Photograph	Cooperate	Hostile
Remark	Trust	Hurt
Credit	Solve	Grab
Heat	Share	Hate
Theater	Respect	Attack
	Set B	
Absent	Nurture	Humiliate
Lengthen	Soothe	Ridicule
Carpet	Hug	Glare
Stall	Clarify	Smash
Ideal	Assist	Wound
Sweep	Suggestion	Swear
Official	Settle	Cry
Mountain	Aid	Argue

Appendix D

Word Stem Completion Task

Neutral		Constructive Conflict		Destructive Conflict	
		Primed Words (Set A)			
Stem	Target Word	Stem	Target Word	Stem	Target Word
Mig	Migrate	Con	Converse	Int	Intimidate
Sca	Scarf	Adm	Admiration	Ins	Insult
Fou	Fountain	Com	Compromise	Pun	Punish
Pho	Photograph	Coo	Cooperate	Hos	Hostile
Rem	Remark	Tru	Trust	Hur	Hurt
Cre	Credit	Sol	Solve	Gra	Grab
Hea	Heat	Sha	Share	Hat	Hate
The	Theater	Res	Respect	Att	Attack
		Unprimed Words (Set C)			
Stem	Target Word	Stem	Target Word	Stem	Target Word
Ref	Refuel	Cou	Courteous	Sco	Scowl
Mar	Marina	Rec	Reconcile	Har	Harass
Bor	Borrow	Cal	Calm	Sla	Slap
Dri	Drift	Emb	Embrace	Fro	Frown
Exe	Exercise	Exp	Explanation	Bla	Blame
Lib	Liberal	Pro	Protect	Vic	Victim
Cam	Camp	Dis	Discuss	Thr	Threaten
Fil	Film	Lis	Listen	Des	Destroy

Appendix E

Word Recognition Task

Neutral	Constructive Conflict	Destructive Conflict
	Old Words Set B	
Absent	Nurture	Humiliate
Lengthen	Soothe	Ridicule
Carpet	Hug	Glare
Stall	Clarify	Smash
Ideal	Assist	Wound
Sweep	Suggestion	Swear
Official	Settle	Cry
Mountain	Aid	Argue
	New Words Set D	
Math	Mend	Nag
Wardrobe	Comfort	Smack
Grasp	Kiss	Yell
Dissolve	Rub	Spit
Elect	Laugh	Shove
Approach	Encourage	Scream
Symbol	Agree	Shout
Operate	Love	Push

Vita

Christine A. Nelson was born of August 20, 1975 in Wyckoff, New Jersey. She received a Bachelor of Arts degree from the University of Richmond in 1997. Ms. Nelson received a Master of Science degree in Psychology from Virginia Commonwealth University in 2003.