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Marital hostility is a salient risk factor for adolescents' well-being, academic performance, and social functioning. In contrast to the substantial body of research focusing on the effects of marital hostility on adolescents' development, few studies have examined a positive conflict process (i.e., cooperative marital conflict) and how it operates in conjunction with marital hostility to shape youth adjustment during early adolescence. Furthermore, the generative mechanisms through which cooperative marital conflict and marital hostility are associated with youth adjustment are not well understood. To fill this gap, the present study examined the longitudinal associations between marital hostility, cooperative marital conflict, and increases in early adolescents' adjustment problems based on three annual waves of data from a community-based sample of 366 two-parent families residing in a Southeastern state within the US. In particular, cognitive-contextual theory, emotion security theory, and a risk and resilience perspective were used to deduce the potential mechanisms through which marital hostility interacted with cooperative marital conflict in the prediction of youth responses to marital conflict over time and increases in youth adjustment problems. Gender differences also were examined.

Several important findings emerged. Cooperative marital conflict and the sub-dimensions of cooperative marital conflict (i.e., constructive problem solving, marital warmth, and effective conflict resolution) did not moderate the association between marital hostility and increases in youth internalizing and externalizing problems over

time. Cooperative marital conflict, in general, and marital warmth and effective conflict resolution, in particular, buffered the negative impact of marital hostility on adolescent girls' lower cognitive representations of the family. Unexpectedly, marital hostility was associated with boys' self-blame only when their parents demonstrated higher levels of cooperative marital conflict and constructive problem solving. These findings highlight the importance of examining adolescents' responses to marital conflict in the context of cooperative marital conflict processes. Results also emphasize the importance of examining proximal cognitive, emotional, and behavioral reactions to marital conflict in relation to marital hostility and cooperative marital conflict than is more distal problem behavior.

Results suggest that the positive emotional atmosphere and the resolution state cues might imply to youth positive, sympathetic, and harmonious representations of the marital and family relationships, which ultimately could help reduce the weakening, disrupted representations constructed from hostile marital interactions. That significant buffering effects of marital warmth and effective conflict resolution are relevant for girls supported the communal hypothesis. Girls are more likely to emphasize communal goals or interpersonal connectedness and therefore girls might be more likely to detect the positive cues during the conflict processes and are able to reduce negative representations as a result.

Results also contribute to theory development by providing evidence for the distinctness of cooperative marital conflict and marital hostility and their interactive effects on youth responses to marital conflict. Given the prominent pathological effects of

marital hostility on a wide range of youth adjustment outcomes, future studies should continue to examine the buffering effects of cooperative marital conflict in the presence of marital hostility for other aspects of youth development and across different groups of families and youth.

MARITAL HOSTILITY, ADOLESCENTS' RESPONSES TO MARITAL CONFLICT,
AND ADOLESCENTS' ADJUSTMENT: THE MODERATING ROLE OF
COOPERATIVE MARITAL CONFLICT

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TABLE OF CONTENTS

	Page
LIST OF TABLES	v
LIST OF FIGURES	vi
CHAPTER	
I. INTRODUCTION	1
II. THEORETICAL FOUNDATIONS	15
III. LITERATURE REVIEW	33
IV. METHODS	58
V. RESULTS	76
VI. DISCUSSION	94
REFERENCES	112
APPENDIX A. TABLES AND FIGURES	140

LIST OF TABLES

	Page
Table 1. Factor Loading Matrix of the Exploratory Factor Analysis (EFA).....	141
Table 2. Descriptive Statistics and Intercorrelations between Variables	143
Table 3. Summary of Results for Hypotheses 1 through 4	144

LIST OF FIGURES

	Page
Figure 1. Hypothesized Model that Examines Combined and Unique Moderating Effects of Cooperative Marital Conflict and Three Dimensions of Cooperative Marital Conflict in Associations among Marital Hostility, Adolescents' Responses to Marital Conflict, and Adolescents' Increases in Problem Behavior during Early Adolescence.....	14
Figure 2. Associations among Marital Hostility and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control.....	145
Figure 3. Associations among Marital Hostility, Cooperative Marital Conflict, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control.....	146
Figure 4. Associations among Marital Hostility, Constructive Problem Solving, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control.....	147
Figure 5. Associations among Marital Hostility, Marital Warmth, and Youth's Internalizing and Externalizing Problems Over Time with Baseline Control.	148
Figure 6. Associations among Marital Hostility, Effective Conflict Resolution, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control.....	149
Figure 7. Associations among Marital Hostility, Youth Responses to Marital Conflict, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control.....	150

CHAPTER I

INTRODUCTION

Multiple aspects of family functioning have been associated with youth development and adjustment, including marital conflict, marital distress, verbal and physical aggression, triangulation, and coparental functioning (e.g., Cui & Conger, 2008; Cui, Conger, & Lorenz, 2005). Among these factors, marital hostility has been identified as a salient characteristic of family functioning that is associated closely to youth development and adjustment (Davies, Martin, & Cicchetti, 2012), even after controlling for other confounding family risk factors (Cummings & Davies, 2010; Shelton & Harold, 2008).

Given the well-supported association between marital hostility and youth adjustment problems and the need to provide insights for prevention and intervention programs, the second generation of research on marital conflict has long moved to advance an understanding of the underlying pathways through which marital hostility is associated with children's adjustment difficulties (Grych & Fincham, 2001). Consistent with a process-oriented perspective, several theoretical perspectives have been proposed to explain the interpersonal and intrapersonal processes underlying the association between marital hostility and adolescents' adjustment difficulties (Cummings & Davies, 2002). These theoretical models seek to explicate how and why marital conflict is

associated with adolescents' developmental outcomes (Cummings & Davies, 2010; Grych & Cardoza-Fernandes, 2001). A critical question informed by this body of work is why not all youth in the context of marital hostility develop maladaptive problems over time (El-Sheikh & Harger, 2001). Associations between marital hostility and youth adjustment problems have been shown to be small-to-moderate in magnitude (Buehler, Anthony, Krishnakumar, & Stone, 1997). Identifying potential protective factors against the negative effects of marital hostility on adolescent functioning is essential to prevention and intervention efforts in promoting youth resilience despite negative circumstances (Fosco, Deboard, & Grych, 2007). Few studies, however, have focused on the potentially protective role of the positive side of marital conflict on adolescents' development and adjustment in the context of marital hostility (Cummings & Davies, 2002). Cooperative marital conflict, including constructive problem solving, marital warmth, and effective conflict resolution, has been considered to be a conflict process distinct from marital hostility (Grych & Fincham, 1990) and these two co-occurring conflict processes may have synergetic effects on youth adjustment difficulties. Cooperative marital conflict may buffer the negative effects of marital hostility on adolescent behavioral and emotional adjustment. Furthermore, the three dimensions of cooperative marital conflict may exert unique ameliorating effects against the negative impact of marital hostility on youth development. Limited studies have explicitly examined the moderating effects of cooperative marital conflict and three dimensions of cooperative marital conflict in the context of marital hostility. As such, the primary goal of this study is to examine whether and how cooperative marital conflict in general, and

these three dimensions of cooperative marital conflict in particular, ameliorate the effects of marital hostility on adolescents' changes in internalizing and externalizing problems during early adolescence.

Several process-oriented perspectives explicating the association between marital hostility and youth development, including the cognitive-contextual theory and the emotion security theory, have emphasized the importance of adolescents' responses to marital conflict in understanding the impact of marital hostility on youth development (Cummings & Davies, 2010; Grych & Cardoza-Fernandes, 2001). Children's intrapersonal responses in the context of marital conflict operate across several domains, including cognitive, emotional, and behavioral responses. Thus, it is important to incorporate children' multiple responses to marital conflict to further elucidate the potentially buffering effects of cooperative marital conflict against the negative impact of marital hostility on youth development. The second goal of this study, therefore, is to examine whether cooperative marital conflict and three dimensions of cooperative marital conflict condition the association between marital hostility and adolescents' responses to marital conflict.

Differential Marital Conflict Styles and Youth Adjustment during Early Adolescence

Differences of opinion between caregivers are inevitable in family lives (Canary, Cupach, & Serpe, 2001) and could result in either positive development or increased risk for youth adjustment problems, depending on the way that parents manage the discord (Grych, Oxtoby, & Lynn, 2013). Marital hostility is one of the critical, hostile ways of

managing conflict (Buehler et al., 1997). Marital hostility refers to overt, negative behaviors and expressions between caregivers (Grych et al., 2013). Indicators include arguing, angry comments, derision, insults, threats, contempt, yelling, swearing, name-calling, and/or physical aggression. Marital hostility has been associated with a wide range of adolescent maladjustment dimensions, including increased levels of internalizing and externalizing problems, and compromised academic achievement and self-esteem (Benson, Buehler, & Gerard, 2008; Bradford et al., 2003; Buehler, Benson, & Gerard, 2006; Buehler & Gerard, 2002; Crawford, Cohen, Midlarsky, & Brook, 2001; Ghazarian & Buehler, 2010; Schoppe-Sullivan, Schermerhorn, & Cummings, 2007). Buehler and colleagues (1997) found that the average effect size for the association between marital hostility and youth problem behavior was .35.

However, the positive way of managing conflict, cooperative marital conflict, has received comparatively little attention although it has long been noted as a potentially important way of managing conflict (Easterbrooks, Cummings, & Emde, 1994). Cooperative marital conflict is defined as “behavior and affect that allow for continued interaction and mutual effort in spite of differences and even fundamental disagreements and includes negotiation, reasoning, active listening, affirming the other's parenting abilities and endeavors, and a willingness to place children's needs above individual interests and emotions” (Buehler et al., 1997, p. 236). Dimensions include constructive problem solving, marital warmth, and effective conflict resolution.

According to a developmental psychopathology perspective (Cummings, Davies, & Campbell, 2000) and the mid-ranged Emotion Security Theory (EST; Cummings &

Davies, 2010), positive and negative family processes, namely, cooperative and hostile marital conflict can co-occur and need to be operationalized as distinct constructs.

Limited empirical studies, however, have incorporated both hostile and cooperative marital conflict and examined their unique associations with youth adjustment (Davies et al., 2012). In addition to the additive effects, different marital conflict styles may interact with each other to shape adolescent adjustment. In fact, positive family processes could be conceptualized as important contexts in which hostile family interactions exercise impacts on individuals' well-being (Cummings et al., 2000). As such, the present study seeks to examine whether and how cooperative marital conflict may buffer the negative effects of marital hostility on youth development.

The examination of the buffering role of cooperative marital conflict in the context of marital hostility during early adolescence may have at least two substantive contributions to the literature. First, examining the interactive effects of cooperative and hostile marital conflict on youth adjustment recognizes the co-occurrence of both positive and negative family processes in families. Also, examining their interactive effects explicates how positive and negative marital conflict styles work in conjunction to influence adolescent adjustment over time. Explication of the interplay between hostile and cooperative marital conflict may provide insights for prevention/intervention programs to incorporate, cultivate, and promote positive marital interactions instead of focusing on "fixing the hostile transactions."

A second substantive contribution to the literature is that, three aspects of cooperative marital conflict may operate differently in the contexts of hostile marital

communications. Parents' constructive problem solving may serve as complementary and opposing actions against hostile interactions and potentially mitigate adolescents' internalization, modeling, and expressions of unamiable and even aggressive interactions in the social contexts (Davies & Cummings, 1994; Emery, 1992; Grych & Fincham, 1993). Parents' warm emotion expressions during conflict accompanying hostility may decrease the frightening nature of the negative event and thus could lower the incidents of youth distress, anxiety, and emotional insecurity (Montemayor, 1983; Niemi, 1988). Parents' successful conflict resolution may render parental anger as a less negative event for adolescents (Lindahl & Malik, 2011) and thus youth may be less likely to engage in risk behavior or to get distressed. As such, differentiating among constructive problem solving, marital warmth, and effective conflict resolution may advance the understanding of their specific buffering roles in the association between marital hostility and youth behavioral and emotional adjustment. Moreover, this detailed examination of sub-dimensions of cooperative marital conflict as protective factors may inform intervention and prevention programs to incorporate marital conflict management strategies, affection building, and/or resolution skill training as critical components to dilute the negative impact of hostile marital conflict (Canary & Canary, 2013).

Marital Hostility, Adolescents' Intrapersonal Responses to Marital Conflict, and Youth Adjustment

A process-oriented perspective emphasizes the importance of identifying generative linking processes that explain how and why marital conflict is associated with youth adjustment difficulties (Cummings & Davies, 2010). Children's intrapersonal

responses have been theorized and examined as proximal processes that may account for associations between marital hostility and adolescents' emotional and behavioral difficulties (Cummings & Davies, 2010; Grych & Cardoza-Fernandes, 2001). These intrapersonal responses represent how children process and make sense of marital conflict in relation to their own needs, desires, and goals (Rhoades, 2008). In addition to the significant associations between marital hostility and these responses, a large body of literature has examined the mediating roles of multiple responses to marital conflict in the association between marital hostility and youth adjustment. Incorporating children's multiple intrapersonal responses to marital conflict provides an important opportunity to understand how cooperative marital conflict may exercise the buffering effects in the context of marital hostility. Specifically, a gap to be addressed in this study is to examine whether cooperative marital conflict may ameliorate the impact of marital hostility and adolescents' adjustment difficulties through adolescents' cognitive, emotional, and behavioral responses to marital conflict during early adolescence.

The examination of the buffering effects of cooperative marital conflict may contribute to the literature in at least three ways. First, different from the putative latent construct of emotion security that encompasses cognitive, emotional, and behavioral responses to marital conflict (Cummings & Davies, 2010) or the major focus on cognitive appraisals (Grych & Fincham, 1990), adolescents' reactions across cognitive, emotional, and behavioral domains constitute related but distinct processes that may explain the association between marital hostility and youth adjustment over time (Buehler, Lange, & Franck, 2007). Adolescents' responses to marital conflict were moderately correlated

with one another across several studies (Davies & Cummings, 1998; Harold, Shelton, Goeke-Morey, & Cummings, 2004). Furthermore, most studies that examined the mediating effects of youth responses to marital conflict in the association between marital hostility and youth adjustment found that the mediating effects were partial (e.g., Benson et al., 2008), suggesting the need to integrate different complementary processes. Various hypothesized mechanisms theorized by different perspectives raise questions about which processes might be most salient, as well as how they are interrelated (Grych et al., 2013). As such, examining multiple mediators can provide a direct test of the salience of youth responses in explaining the development of problem behavior in the context of marital hostility.

Instead of including all the indicators of youth cognitive, emotional, and behavioral responses to marital conflict, the present study conceptualizes these three aspects of responses as cogent, complete, and informative latent constructs. This constitutes a critical step towards improving upon previous research by identifying the overall contributions of responses within each domain in mediating the association between marital conflict styles and youth adjustment. Examining various indicators of responses within cognitive, emotional, and behavioral domains may fragment the role of responses within each domain and thus could lead to underestimation of the mediating effects. At the statistical level, there may not be enough power to include too many mediators in the mediating model, potentially resulting in biased conclusions. In addition to strengthening refinement and integration of cognitive-contextual theory and EST, examinations of three domains in the association between marital hostility and

adolescents' adjustment would provide insights for prevention/intervention programs to help identify etiology of early adolescents' adjustment difficulties and thus to develop cost-effective prevention and intervention programs (Dodge, Dishion & Lansford, 2006). For example, if marital hostility links with externalizing problems mainly through cognitive appraisals, cognitive-based therapies (CBT) could be effective tools instead of expensive comprehensive intervention to reduce future acting-out behavior after exposure to marital hostility.

Second, in addition to potentially serving a moderating role in the association between marital hostility and youth adjustment, cooperative marital conflict also is expected to moderate associations between marital hostility and adolescents' responses to marital conflict. In the context of higher cooperative marital conflict, adolescents' perception of threat and self-blame and other negative cognitive appraisals in response to marital hostility may be undermined because youth's schematic representations of their parent's conflicts may be less stable over time (Grych & Fincham, 2001). According to the emotional security theory, cooperative marital conflict may promote adolescents' sense of safety and security in the parent-child relationships (i.e., attachment), which could buffer the deleterious effects of marital hostility on emotion security in the interparental system (Cummings & Davies, 2010). Overall, the examination of cooperative marital conflict in the association between marital hostility and youth responses to marital conflict can greatly advance the understanding of how cooperative marital conflict buffers the negative impact of marital hostility on adolescent adjustment difficulties.

Third, early adolescence is an important developmental period for examining the potential buffering effects of positive marital conflict interactions against the negative influence of marital hostility on youth adjustment because youths are negotiating, transforming, and realigning their relationships with parents as they are beginning to explore their identities as young adults (Collins & Repinski, 1994; Steinberg, 2001). Additional challenges during this transitional period include adapting to physical and behavioral changes, school transitions, and shifts in relationships with age-mates (Steinberg et al., 2006). As such, early adolescents are vulnerable to environmental adversity, especially familial risk (Buehler & Gerard, 2013) and thus are inclined to develop a series of problem behaviors (Veronneau & Dishion, 2011). Experiencing marital hostility during this transitional period may occupy adolescents' excessive attention and energy and thus render youth susceptible to the development of problem behavior over time (Franck & Buehler, 2007). Examining the buffering effects of cooperative marital conflict represents critical efforts in identifying positive conflict processes that may promote adolescents' resilience despite adverse family environment (Ungar, Ghazinour, & Richter, 2013). This may be particularly useful for family counselors and practitioners to intervene in marital relationships in order to help youth transition smoothly to middle school and facilitate their healthy socio-emotional development.

In addition to these substantive contributions, the present study also has several methodological strengths. First, three waves of data were employed that ranged from youth 7th grade to 9th grade to examine the interactive effects of positive and negative

marital interactions during the transition to early adolescence on the development of responses to marital conflict and problem behavior over time. This is consistent with the conceptual justification that stabilized negative responses to marital conflict in the context of marital hostility lead to youth adjustment difficulties whereas initial, immediate responses may be adaptive (Davies & Cummings, 1998; Grych & Cardoza-Fernandes, 2001). The lagged design also allows for a more rigorous examination than a cross-sectional design in prior research (Cole & Maxwell, 2003; Grych, Fincham, Jouriles, & McDonald, 2000). Although causal conclusions cannot be achieved using correlational data, it indicates the developmental processes that operate over time with regards to how initial marital relationships are associated with adolescent adjustment through adolescents' reactions to the environmental stimuli.

Second, problems with shared method variance are not uncommon in longitudinal research and these problems may result in overestimation of the cross-wave path coefficients of interest (Bank, Dishion, Skinner, & Patterson, 1990; Cole & Maxwell, 2003). Using multiple reporters and methods to assess major constructs could be useful in reducing shared method variance. Moreover, multiple reporters and multiple methods are useful in strengthening the content validity of constructs. Different constructs may be perceived differently across contexts and obtaining reports from multiple informants may help achieve a more accurate representation of the theoretical construct (Noller & Callan, 1988). As such, this study employed multiple informants and multiple methods to assess major constructs. Mothers', fathers', and adolescents' reports of constructs and observations were used when possible. The utilization of multiple informants and

multiple methods helps reduce inference threats associated with internal and construct validity.

Third, it is increasingly recognized and understood that marital conflict is not a unitary construct and that different aspects of conflict may be associated differently with child outcomes (Buehler et al., 1998; Cummings, Vogel, Cummings, & El-Sheikh, 1989; Grych & Fincham, 1990). Although different aspects of negative marital conflict have been studied, few attempts were made in examining the positive side of marital conflict in relation to youth adjustment. The limited studies that have examined cooperative marital conflict, however, typically have focused on only one aspect of the positive conflict process (e.g., Goeke-Morey, Cummings, & Papp, 2007). As such, the present study contributes to the construct validity of both marital conflict and cooperative marital conflict by explicating these two constructs and examining associations of different aspects of cooperative marital conflict in relation to youth adjustment in the context of hostile marital conflict.

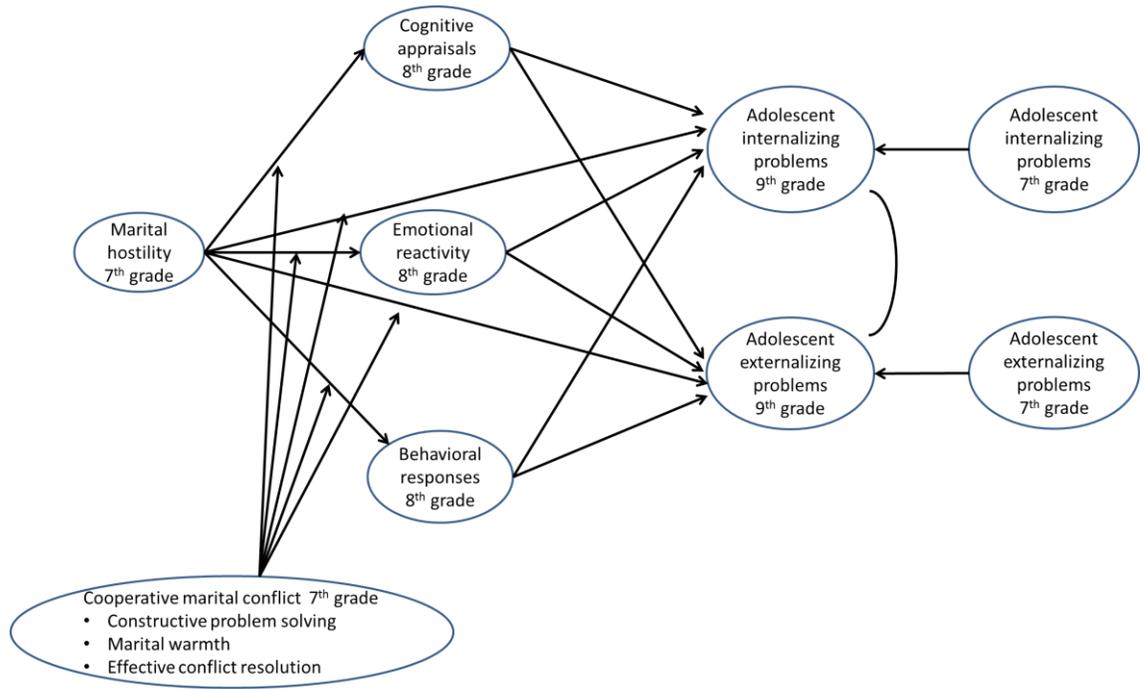
The Conceptual Model

The hypothesized conceptual model is presented in Figure 1. The model examines how cooperative marital conflict moderates associations among marital hostility, adolescents' cognitive, emotional, and behavioral responses to marital conflict, and changes in adolescent internalizing and externalizing problem over time. Adolescent gender differences of the pathways also will be examined.

In summary, the present study substantively contributes to the literature in at least five ways: (a) by examining the buffering effects of cooperative marital conflict against

the negative effects of marital hostility on changes in adolescent adjustment problems over time; (b) by specifying the buffering roles of three dimensions of cooperative marital conflict – constructive problem solving, marital warmth, and effective conflict resolution ; (c) by examining the unique mediating effects of multiple aspects of adolescents’ responses to marital conflict in the association between marital hostility and youth adjustment; (d) by examining how cooperative marital conflict ameliorates the negative impact of marital hostility on youth behavioral and emotional adjustment through adolescents’ responses to marital conflict; and (e) providing support for the role of positive marital interactions in promoting early adolescents’ resilience. The present study employs a three-wave longitudinal design, multiple informants, and multiple methods to examine associations among positive and negative marital interactions, youth reactions to marital conflict, and youth adjustment over time. This study seeks to contribute to the understanding of why and how some adolescents exposed to marital hostility fare better than others.

Figure 1. Hypothesized Model that Examines Combined and Unique Moderating Effects of Cooperative Marital Conflict and Three Dimensions of Cooperative Marital Conflict in Associations among Marital Hostility, Adolescents' Responses to Marital Conflict, and Adolescents' Increases in Problem Behavior during Early Adolescence.



CHAPTER II

THEORETICAL FOUNDATIONS

Theoretically, marital hostility is associated directly with youth adjustment over time, including both externalizing and internalizing problems (Grych et al., 2013). Parents' hostile marital interactions may act as modeling behaviors that adolescents observe, learn, and apply in their social interactions over time (Maccoby & Martin, 1983); parents' hostile marital transactions also may act as piled-up stressful events that elicit adolescents' distress, anxiety, and physical problems (McCubbin & Patterson, 1983). As such, marital hostility may lead to a greater possibility of adolescents' development of externalizing and internalizing problems over time, respectively, through differential processes. In the present study, concepts and propositions from social learning theories are used to justify the hypothesized direct associations between marital hostility and adolescents' externalizing problems; concepts and propositions from stress process theories are used to justify the hypothesized direct associations between marital hostility and adolescents' internalizing problems.

From a process-oriented perspective (Cummings & Davies, 2010), marital hostility also is associated indirectly with youth adjustment over time (Grych et al., 2013). Adolescents' responses to marital conflict across multiple domains are considered as proximal processes in the context of marital hostility that are associated closely with

youth adjustment over time (Rhoades, 2008). These responses represent adolescents' efforts in making sense of hostile marital interactions and the implications of these interactions for the well-being of parents, themselves, and families (Grych et al., 2013). When exposed to marital hostility, adolescents may display fear, anger, and/or sadness; adolescents also may perceive the hostility as threatening, blame themselves for the occurrence of the hostile discord, feel incapable to cope with the hostility, and/or develop negative representations of parents' relationship; finally, adolescents may avoid the hostility, withdraw from the hostility, and/or act out to draw parents' attention (Davies & Cummings, 1994; Grych & Fincham, 1990). Adolescents' responses to marital conflict have been consistently demonstrated to be important linking mechanisms between marital hostility and youth adjustment. In the present study, concepts and propositions from the cognitive-contextual theory and the emotion security theory are used to explicate the mediating roles of adolescents' emotional, cognitive, and behavioral responses to marital conflict in explaining the association between marital hostility and youth adjustment.

Marital hostility, however, may not have uniform influences on youth responses to marital conflict and on youth adjustment with some adolescents demonstrating resilience despite hostile marital transactions (El-Sheikh & Harger, 2001; McCoy, Cummings, & Davies, 2009). In addition, marital conflict is not a unitary construct (Buehler et al., 1998; Cummings et al., 1989; Grych & Fincham, 1990). As such, the positive side of marital conflict, cooperative marital conflict, may be a critical protective factor that buffers the negative effects of marital hostility on youth adjustment and negative responses to marital conflict (Cummings & Davies, 2002). Concepts and

propositions from a risk and resilience framework (Fergus & Zimmerman, 2005; Luthar, Cicchetti, & Becker, 2000; Masten, 2004; Rutter, 2006a) are used to delineate the potential ameliorating effects of cooperative marital conflict in associations among marital hostility, adolescents' responses to marital conflict, and youth adjustment.

In sum, social learning theories, stress process theories, the cognitive-contextual theory, the EST, and a risk and resilience theory are utilized to frame this study. These theories are used to deduce major variables of interest and generate hypotheses.

Direct Associations between Marital Hostility and Adolescents' Adjustment Problems

The direct effects of marital hostility on youth adjustment indicate the straightforward influences of marital hostility on adolescents' development of problem behaviors (Baron & Kenny, 1986). The underlying mechanisms for the direct effects (e.g., the development of social cognitions as the mechanism for modeling effects) are not the foci in this section. Two aspects of adolescent adjustment are examined in relation to marital hostility in the present study, externalizing and internalizing problems.

Externalizing problems are defined as broad-band problematic behaviors that are directed outwards. Indicators include aggression, delinquency, impulsivity, hyperactivity, substance abuse, and conduct problems (Achenbach & Edelbrock, 1978; Buehler et al., 1997). Internalizing problems are defined as broad-band problematic behaviors that involve issues with self (rather than others). Indicators include depressive symptoms, anxiety, low self-esteem, social withdrawal, and general psychological distress (Achenbach & Edelbrock, 1978; Buehler et al., 1997). Adolescents exposed to marital

hostility may develop externalizing and/or internalizing problems over time through different processes. Social learning theories are used to explain the association between marital hostility and externalizing problems; stress process theories are used to explain the association between marital hostility and internalizing problems.

Marital Hostility and Adolescents' Externalizing Problems: Social Learning Theories

Social learning theories propose that marital interactions provide modeling behaviors for adolescents (Bandura, 1986). Specifically, adolescents observe, retain, and reproduce behavior observed in marital interactions through observational learning processes. Four detailed processes, including attentional, retention, motor production, and motivational processes, are involved in the observational learning process (Bandura, 1986). Adolescents pay attention to the interactions between parental figures because of the saliency of parents in their lives; after observing the frequent hostile behaviors between parents, adolescents retain the information in an abstract form in their mind to guide future interactions (Snyder & Stoolmiller, 2002); adolescents then practice this pattern of behavior in the social settings (Maccoby & Martin, 1983). Finally, adolescents are more likely to approach their own social and relational interactions in a hostile way when hostility is rewarded in the marital interactions (e.g., one parent giving in to the parent who display hostility).

The learning processes of acting out behaviors in the context of marital hostility do not simply involve acquiring and reproducing behaviors that adolescents observe. Social learning theory does offer a plausible explanation for the modeling processes.

Specifically, aggressogenic cognitions, or beliefs that aggression is normative and justifiable, are informed by social learning theory to address associations between exposure to marital hostility and externalizing problems (Marcus, Lindahl, & Malik, 2001; Grych et al., 2013). In other words, viewing interparental discord as acceptable helps explicate why marital hostility is associated with adolescents' development of aggression (Marcus et al., 2001).

Over time, adolescents' aggression may stabilize and develop into a repertoire of heightened externalizing problems. Therefore, the current study suggests that a positive, direct association between marital hostility and adolescents' increased externalizing problems over time provides support for learning theories' explanations of direct effects of hostile marital interactions on adolescents' behavioral adjustment. Learning theories, however, are less useful in providing a plausible explanation for why children exposed to higher levels of marital hostility develop elevated levels of anxiety and depressive symptoms.

Marital Hostility and Adolescents' Internalizing Problems: Stress Process Theories

Stress process theories speak to the potential impact of marital hostility on adolescents' internalizing problems. A central proposition from stress process perspectives is that chronic strains in critical social environments can cause stress, which typically manifests in the form of psychological or physical distress (Cassel, 1976; Pearlin & Turner, 1995). Marital hostility constitutes a significant strain for adolescents (Cummings, Zahn-Waxler, & Radke-Yarrow, 1981). In fact, parental fighting was rated by preadolescents as the third most distressing event among a list of common

stressors (Lewis, Sigel, & Lewis, 1984). Marital hostility may take a toll on adolescent mental health by incurring autonomic, endocrine, and immunological changes (Robles & Kiecolt-Glaser, 2003). These physiological changes might accumulate over time, leading to myriad of somatic problems (McEwen, 2004). These physical health problems may develop into mental health issues over time (e.g., depressive symptoms; Bruce, 2000). Living in hostile families also might deplete adolescents' sense of meaning and purpose in life, which may be associated with greater stains and failures in other domains of adolescents' lives such as school work (Ghazarian & Buehler, 2010). Overall, marital hostility may be associated with adolescents' development of various indicators of internalizing problems over time through physiological and psychological stress-mediated processes. Therefore, the current study suggests that a direct, positive association between higher marital hostility and increased adolescents' internalizing problems over time provides support for stress process theories' explanations of direct effects of hostile marital interactions on adolescents' internalizing problems.

In sum, learning theories and stress process theories are used to explicate associations of marital hostility to externalizing and internalizing problems, respectively. The use of these two theories in examinations of externalizing and internalizing problems in the context of marital hostility can contribute to the specificity of theories in future studies.

Indirect Associations between Marital Hostility and Adolescents' Adjustment

Problems

The indirect effects of marital hostility on youth adjustment detail the underlying processes that link marital conflict and youth adjustment over time (Baron & Kenny, 1986). According to a stress and coping perspective (Lazarus & Folkman, 1984; Lazarus, 1991), the impact of marital hostility on youth adjustment depends on adolescents' appraisals of marital hostility, and emotional and behavioral reactions in this context. Consistent with this proposition, the mediating roles of adolescents' multiple responses to marital hostility have been highlighted in the Grych and Fincham's cognitive-contextual theory (1990) and Cummings' and Davies' EST (2010).

Cognitive Contextual Theory

Grych and Fincham's (1990) cognitive-contextual framework draws on social information processing models and speaks to the importance of considering conflict appraisals to understand the impact of marital conflict on children's well-being. This theory proposes that children's appraisals of marital conflict may mediate the impact of marital hostility on children's well-being. Adolescents' appraisals of marital hostility are critical attempts to understand the nature and causes of stressors (i.e., marital hostility), its implications for them and their family, and what they can do about it. Both cognitive and affective responses constitute their appraisals of conflict and they are proposed to have a dynamic, reciprocal relationship in this response process (Grych & Cardoza-Fernandes, 2001). Children may initially determine the self-relevance of the conflict and whether the conflictual situation potentially influences their values, beliefs, goals, and

commitments, which constitute the primary appraisals. At the same time, adolescents also evaluate the conflict properties, such as intensity and content (i.e., child-related or not). Perceived threat and self-blame are considered secondary appraisals of marital hostility (Grych et al., 2000). Children may feel threatened by marital hostility because they think that this continued hostility may lead to relationship disruption or dissolution or that this hostility may escalate and be directed toward themselves (Davies, Forman, Rasi, & Stevens, 2002). Although not emphasized in this theory's original form, threat appraisals may be strongly emotion-laden because the perception of danger and emotional feelings of fear may be inextricably linked (Grych et al., 2013). Children also might believe they are to blame for unresolved marital hostility when their efforts to interrupt the conflict are not effective or when they do not display consistently appropriate behavior (Ghazarian & Buehler, 2010). Feelings of shame and sadness may accompany the self-blame appraisals (Grych et al., 2013). Coping efficacy, including efficacy expectations and outcome expectations, is recognized as another important type of appraisal (Grych & Cardoza-Fernandes, 2001).

Immediate cognitive appraisals of conflict are theorized to serve as an important adaptive function because they may motivate and guide subsequent coping behaviors. Over time, in homes characterized by frequent, intense, and unresolved marital hostility, youth may develop stable, elevated threat and self-blame appraisals, which are viewed as key risk factors for maladjustment (Fosco et al., 2007). As such, given that the present study seeks to understand how and why marital hostility may compromise adolescents' development over time, cognitive appraisals one year later are examined instead of youth

immediate reactions to document the effects of cognitive appraisals that might have stabilized.

Specifically, children who view conflict as threatening or feel incapable to cope effectively may suffer from more anxiety and helplessness and children who blame themselves for marital hostility may experience guilt, shame, and sadness (Grych & Fincham, 1990). Meta-analysis, however, showed that perceived threat and self-blame consistently were associated positively with both internalizing and externalizing problems ($r_s = .21$ to $.40$; Rhoades, 2008).

Moreover, cognitive-contextual theory holds that children's appraisals are shaped by the properties of the conflict (Grych & Fincham, 1990; Grych et al., 2013).

Adolescents' cognitive responses are more intense when the severity of the hostility increases and the topic concerns the child or child-rearing issues (Grych, 1998; Grych & Fincham, 1993). Grych and Cardoza-Fernandes (2001) also introduced conflict schemas as important underlying processes in development of conflict appraisals. Conflict schema includes knowledge, beliefs, and expectations of how conflict will be resolved. Marital conflict is associated with children's conflict schema, which in turn impacts their appraisals of later conflicts. Specifically, over time, children develop schematic representations of their parent's conflicts that guide their interpretation of subsequent marital hostility episodes and may explain additional variance in their appraisals of marital hostility, beyond the events themselves (Grych & Fincham, 2001). The conflict schema also may guide children's processing and behavior when conflict arises in other close relationships, such as parent-child conflict and peer conflict.

Cognitive-contextual theory also specifies that the appraisal processes are sensitive to children's age (Grych & Cardoza-Fernandes, 2001). Because children's capacity for causal reasoning may be critical in the meaning-making processes of marital hostility, adolescents may be more sensitive to the contents of the conflicts than young children (Grych, 1998). Adolescents also are more enthusiastic about the relative effectiveness of their engagement in resolving the conflict (i.e., positive outcome expectations). Early adolescents begin to enter the formal operational period and thus are able to generate the abstract, cognitive reactions to marital hostility (Goldhaber, 2000). As such, it is important to better understand early adolescents' cognitive responses to marital conflict to provide insights for researchers and practitioners to identify etiology of problem behaviors.

In sum, cognitive-contextual theory mainly demonstrates how adolescents' cognitive appraisals, including perceived threat, self-blame, and coping efficacy, may mediate the association between marital hostility and youth adjustment over time. Although emotion is implicated in this theory, little attention has been paid to its role in the context of marital hostility and potential associations with adolescents' adjustment over time.

Emotion Security Theory

Cummings and Davies' EST draws on attachment theory and postulates that preserving a sense of protection, safety, and security is among the most salient and important goals in the hierarchy of human goals (Crockenberg & Langrock, 2001; Waters & Cummings, 2000). Different from attachment theory, EST posits that the goal of

preserving sense of security in the context of marital hostility is embedded in various family relationships, including security in the interparental, parenting, and parent-adolescent systems (Cummings & Davies, 2010, pp. 23-51; Davies & Cummings, 1994). EST posits the maintenance of a broader security in family settings than that suggested by traditional attachment security theories. Emotion security about the interparental and parent-adolescent relationships are mutually related but distinct from each other, particularly in their developmental implications for adolescent functioning (Davies, Harold, Goeke-Morey, & Cummings, 2002). Marital hostility as a salient family stressor can undermine adolescents' sense of security across multiple family subsystems, which collectively may account for their maladjustment (Harold et al., 2004).

The goal of preserving emotional security in face of marital hostility is hypothesized to mediate the association between marital hostility and adolescent development (Waters & Cummings, 2000). The unobservable, critical goal is serviced and operationalized by three regulatory response systems, including emotional reactivity (e.g., fear, anger, vigilance, and distress), regulation of exposure to conflict (e.g., mediation, avoidance, and behavioral dysregulation), and internal representations (e.g., cognitive appraisals). These specific regulatory response systems are initially adaptive strategies in the context of marital hostility in that they are activated to sensitize children to threat accompanying marital hostility by detecting early signs of conflict and the need to achieve physical and psychological safety (Davies & Cummings, 1998).

However, repeated activation of emotional security systems can be maladaptive for child's psychological adjustment over time. First, repeated exposure to destructive

marital hostility magnifies the demand of preserving emotion security in the family settings, resulting in successively elevated regulatory responses (Davies, Sturge-Apple, Winter, Cummings, & Farrell, 2006). Adolescents also are primed to detect early signs of conflict in the family or other contexts (e.g., peer relations) and to respond with negative emotional, cognitive, and behavioral reactions. Second, frequent and prolonged activation of these systems may exhaust the psychological and physical energy and resources that are required to complete stage-salient, developmental tasks. Third, children from high conflict families are more likely to develop rigid, maladaptive responding ways to stress or conflict, which might not be adaptive in other contexts. Overall, children's attempts to preserve or regain security in the interparental system are proposed to account for the increased risk for child maladjustment over time. As such, given that the present study seeks to understand how and why marital hostility may compromise adolescents' development over time, adolescents' emotional and behavioral reactions to marital conflict one year later are examined instead of youth immediate reactions to address the effects of stabilized reactions.

The response systems point to multiple levels of responses to marital hostility, including emotions, cognitions, and behaviors, which are proposed as essential to capture children's reactions to marital hostility (Rhoades, 2008). EST further posits that because these different response systems have complementary as well as unique functions in order to maintain or regain emotional security, assessment of emotion security as a higher-order construct can be more cogent, complete, and informative (Davies et al., 2002; Davies & Sturge-Apple, 2007). Given that the present study seeks to understand which

particular responses to marital conflict may be uniquely affected by marital hostility and linked with changes of youth externalizing and internalizing as well as how these specialized associations may be ameliorated by cooperative marital conflict, different responses to marital conflict are examined separately as related but distinct constructs.

Early adolescence is a period when “changes in arousal and motivation brought on by pubertal maturation precede the development of regulatory competence in a manner that creates a disjunction between the adolescent’s affective experience and his or her ability to regulate arousal and motivation,” which may lead to greater probability of internalizing and externalizing problems (Steinberg, 2005, pp. 69-70). As such, emotional and behavioral responses to marital conflict may be critical factors that may pose great risk for early adolescents’ development of problem behaviors.

In sum, cognitive-contextual theory and EST constitute complementary conceptual models that highlight the importance of adolescents’ multiple responses to marital conflict in understanding how marital hostility may lead to adolescents’ adverse developmental outcomes. These two theories, however, cannot provide sound explanations for why some adolescents do not develop stabilized negative responses to marital conflict over time despite marital hostility (Cummings & Davies, 2002; El-Sheikh & Harger, 2001). The associations between marital hostility and adolescents’ responses to marital conflict are moderate in magnitude. As such, in addition to the focus on intrapersonal factors in these two theories, interpersonal characteristics, especially the positive conflict processes, may serve as contexts in which the meaning of marital hostility is understood and ensuing development is shaped. Specifically, cooperative

marital conflict can be a potential protective factor that buffers the negative effects of marital hostility and thus may explicate the resilience of adolescents in the context of marital hostility.

The Moderating Role of Cooperative Marital Conflict

Although marital hostility has been associated with a plethora of adjustment problems among adolescents, some adolescents do not develop heightened levels of acting-out or mental problems and remain well-developed despite exposure to marital hostility (El-Sheikh & Harger, 2001; McCoy et al., 2009). The variability of adolescents' developmental outcomes in the context of marital hostility orients researchers to seek potential protective factors that may buffer the negative effects of marital hostility on adolescents' adjustment over time. The idea of overcoming the negative effects of marital hostility and coping successfully with these potentially traumatic experiences is consistent with a risk and resilience perspective, which guides this study by examining the protective role of cooperative marital conflict (Fergus & Zimmerman, 2005; Garmezy, Masten, & Tellegen, 1984; Luthar et al., 2000; Masten, 2004; Masten & Powell, 2003; Rutter, 2006a, 2006b, 2007).

A risk and resilience perspective posits that heterogeneity exists in outcomes following physical and psychosocial adversity (Rutter, 2006a, 2006b). This universality of heterogeneous development in the context of adversity highlights the reality of resilience for some adolescents who are exposed to marital hostility. A risk and resilience framework also emphasizes that resilience is not a static trait or a quality of adolescents that they present across unfavorable situations (Fergus & Zimmerman, 2005; Kaplan,

1999). Instead, resilience is context-specific (Cauce, Stewart, Rodriguez, Cochran, & Ginzler, 2003). As such, it is critical to identify potential factors that contribute to adolescents' resilience in the context of marital hostility to provide evidence for interventions to improve marital interactions and thus to reduce the ensuing, negative impact of marital hostility on youth development (Yates, Egeland, & Sroufe, 2003). When parents demonstrate hostility towards each other, they also may engage in cooperative marital conflict behaviors (Cummings & Davies, 2002), which may serve as resources in promoting adolescents' resilience in the context of marital hostility. As such, the present study seeks to examine the potential buffering effects of cooperative marital hostility in the context of marital hostility.

A risk and resilience perspective also guides this study because of its central focus on the importance of understanding the resilience process. It posits that it is critical to investigate and identify explanations for how resources interact with risk exposure to produce certain outcomes beyond the mere, direct ameliorating effects of resources (Fergus & Zimmerman, 2005; Luthar et al., 2000). Specifically, the buffering effects of cooperative marital conflict against the negative effects of marital hostility on adolescents' adjustment needs to be further explicated to provide a detailed picture of why cooperative marital conflict may promote adolescents' resilience within the context of marital hostility. The present study addresses this issue in at least two ways. First, given the multi-dimensionality nature of the cooperative marital hostility, particular dimensions of cooperative marital hostility, including constructive problem solving, marital warmth, and effective conflict resolution, are examined (Buehler et al., 1997), which may

facilitate adolescents' resilience despite marital hostility. It is important to note that examinations of the buffering effects of sub-dimensions of cooperative marital conflict are not subordinate to the significance of the overall cooperative marital conflict. That is, the non-significance of the ameliorating effects of cooperative marital conflict does not rule out the possibility of significance of a given sub-dimension of cooperative marital conflict. As such, the composite and the three dimensions are examined separately as potential moderating variables of the associations between marital hostility and adolescents' adjustment problems. Second, given that adolescents' responses to marital conflict play central roles in the context of marital hostility and have major implications for adolescents' long-term adjustment, the present study examines the potential buffering effects of cooperative marital conflict against the negative effects of marital hostility on adolescents' responses to marital conflict. It is conceivable that constructive problem solving behavior, warm expressions, and successful conflict resolution may decrease the potential heightened, negative responses to marital conflict when exposed to marital hostility (Cummings et al., 1989; Davies & Cummings, 1994; Grych & Fincham, 1993; Niemi, 1988), which ultimately may lower the probability of adjustment problems among adolescents. In sum, examining the ways by which resilience processes occur can possibly yield important information for designing appropriate interventions for families experiencing marital hostility (Sandler, Wolchik, Davis, Haine, & Ayers, 2003).

A risk and resilience perspective also proposes that resilience is multidimensional such that at-risk adolescents may develop heterogeneous functioning across different adjustment domains when resources are present (Luthar et al., 2000; Luthar, Doernberger,

& Zigler, 1993). Resources may be useful in buffering adolescents against risk for the development of some but not other problems or not to a same degree in magnitude.

Cooperative marital conflict or some particular components of positive conflict interactions may buffer the risk of marital hostility on adolescents' act-outing behavior but not mental problems or vice versa. For instance, adolescents who are overtly well-behaved may struggle with covert psychological difficulties (Luthar et al., 1993). The present study examines the potential buffering effects of cooperative marital conflict and its sub-dimensions on the effects of marital hostility on adolescents' two major domains of adjustment, externalizing and internalizing problems. Given that externalizing and internalizing problems often co-occur and are associated with one another meaningfully throughout the course of development (Bornstein, Hahn, & Haynes, 2010), this study examines them in the same model to account for their comorbidity.

Moreover, a risk and resilience perspective emphasizes examining adolescents' resilience in the context of marital hostility during developmental transitions (Masten, 2004). Early adolescence represents a key developmental transition that involves reorganization in multiple systems in response to changes within adolescents, contexts, and their complex interactions. This developmental transition, therefore, may present changes in vulnerabilities and opportunities, which is suitable for identifying resources in promoting resilience despite marital hostility. The identification of resources (cooperative marital conflict in this case) may help redirect the course of development for adolescents in the context of marital hostility once parental cooperative interactions have increased significantly. Finally, a risk and resilience theory highlights the use of a longitudinal

design in examining resilience (Masten, 2004; Rutter, 2007). Experiences following the risk exposure may affect the degree to which individuals overcome the stress or adversity. A period of time may be needed to utilize resources to overcome the adversity. In the context of marital hostility, adolescents' stabilized, negative responses to marital conflict rather than immediate responses to marital conflict take a toll on subsequent adjustment (Cummings & Davies, 2010). Moreover, parents' resolution and management of affect may not appear simultaneously with hostile conflict and the lagged peace between parents may signify to children the subsidence of the threat. As such, the buffering effects of cooperative marital conflict may display in long-term developmental outcomes. The present study, therefore, examines the buffering effects of cooperative marital conflict against the impact of marital hostility on adolescents' adjustment over three years of early adolescence.

In sum, guided by a risk and resilience perspective, this study examines the potential ameliorating effects of cooperative marital conflict and the sub-dimensions of cooperative marital conflict in the associations among marital hostility, adolescents' responses to marital conflict, and externalizing and internalizing problems over three years of early adolescence. The three dimensions of cooperative marital conflict examined include constructive problem solving, marital warmth, and effective conflict resolution.

CHAPTER III

LITERATURE REVIEW

Marital hostility is a salient characteristic of family risk that is associated consistently with adolescents' externalizing and internalizing problems over time (Cummings & Davies, 2010; Shelton & Harold, 2008). Guided by a process-oriented perspective, ample studies have examined adolescents' multiple responses to marital conflict as linking mechanisms between marital hostility and adolescents' adjustment problems. Limited studies, however, have examined the potential buffering effects of cooperative marital conflict against the negative effects of marital hostility on youth adjustment difficulties. Empirical evidence regarding the association between marital hostility and youth adjustment, the mediating effects of youth responses to marital conflict, and the moderating effects of cooperative marital conflict are reviewed.

Marital Hostility and Youth Adjustment: Direct Effects

The association between marital hostility and youth adjustment has been examined extensively. The most recent meta-analytic review on this association by Buehler and colleagues' (1997) found that the average effect size of the association between marital hostility and youth problem behavior was .35. This effect size is significantly stronger than that for covert conflict style (.28), withdrawn conflict style (.27), and the frequency of disagreements (.19). This supports the proposition that marital

hostility is a salient characteristic of conflict in families that is associated with youth adjustment problems. When differentiating between various dimensions of youth problem behavior, the average effect size of associations of marital conflict (including marital hostility and other styles of marital conflict) with youth externalizing problems, internalizing problems, and composite measures of externalizing and internalizing problems was .39, .31, and .21, respectively. The effect sizes for externalizing and internalizing problems were not significantly different from each other whereas the effect size for externalizing problems was stronger than that for the composite of externalizing and internalizing problems. As such, it is important to examine externalizing and internalizing problems in relation to marital hostility separately rather than aggregating them into a total problem behavior index.

This meta-analysis provides valuable information on the associations between marital hostility and youth externalizing and internalizing problems, but the effect sizes examined in this meta-analysis were mainly concurrent associations (89%). Recently, several longitudinal studies have been conducted to examine the effect of exposure to marital hostility on youth adjustment problems over time (e.g., Grych, Harold, & Miles, 2003; Shelton & Harold, 2008; Schoppe-Sullivan et al., 2007). These studies found that higher levels of marital hostility were associated with increases in externalizing and internalizing problems over time. Cui and colleagues (2005) extended this literature by examining associations between changes in marital hostility and changes in youth adjustment problems. They found that changes in marital hostility were associated significantly with changes in various indicators of externalizing and internalizing

problems over five years of adolescence. Overall, results of these longitudinal studies are consistent with those of the 1997 meta-analysis and they provide more rigorous evidence for the adverse effect of marital hostility on adolescents' externalizing and internalizing problems over time. In support of these results, Buehler and colleagues (Buehler, 2006; Buehler, Benson, & Gerard, 2006; Buehler et al., 2007) used longitudinal data from the Family Life Project and found in 416 two-parent families that higher levels of marital hostility were associated positively and significantly with increases in externalizing and internalizing problems from 6th grade to 8th grade over time. The significant associations remained even when parental depressive symptoms, parenting, and other family background variables (e.g., socio-economic status) were considered. To document the influence of marital conflict on youth adjustment during adolescents' transition to high school (i.e., from 8th grade to 9th grade), the present study examines the associations between marital hostility at adolescent 7th grade and changes in youth adjustment problems from 7th grade through 9th grade.

Marital Hostility and Youth Adjustment: The Mediating Effects of Youth Responses to Marital Conflict

In order to advance the understanding of how marital hostility undermines adolescents' development, a large body of research has examined potential mechanisms that link marital hostility and youth adjustment problems. Studies that were informed by cognitive-contextual theory and emotional security theory have suggested that children's responses to marital conflict across multiple domains (i.e., cognitive, emotional, and

behavioral domains) are among the major mechanisms that account for the adverse effect of marital hostility on youth development.

Cognitive Appraisals

Prior to reviewing the mediating roles of cognitive appraisals in explaining the association between marital hostility and youth adjustment, research that has examined associations (1) between marital hostility and cognitive appraisals, and (2) between cognitive appraisals and youth adjustment is described first. Associations between marital hostility and youth cognitive appraisals of marital conflict have been examined in several studies (Fosco & Grych, 2010; Grych et al., 2003). These studies demonstrated that exposure to marital hostility may elicit threat appraisals concurrently and over time, including general fears about conflict resulting in bad consequences and specific worries about the implication of marital hostility for themselves (e.g., injury) and their family (e.g., divorce; Atkinson, Dadds, Chipuer, & Dawe, 2009). Marital hostility also has led to heightened self-blame appraisals and diminished coping efficacy over time (Buehler et al., 2007). These findings support the proposition that marital hostility is associated with multiple cognitive responses to marital conflict.

Associations between cognitive appraisals and children's adjustment problems have been summarized in a meta-analysis of 71 studies (Rhoades, 2008). Actually, the largest number of studies ($n = 50$) have included cognitive responses, including perceived threat, self-blame, perceptions of control, and coping efficacy. The average effect sizes across all cognitive responses were .21 and .34 for externalizing ($n = 43$) and internalizing ($n = 45$) problems, respectively. For threat appraisals, the average effect

sizes were .21 and .40 for externalizing ($n = 32$) and internalizing ($n = 34$) problems, respectively. For self-blame appraisals, the average effect sizes were .28 and .36 for externalizing ($n = 34$) and internalizing ($n = 37$) problems, respectively. The significant associations (1) between marital hostility and cognitive appraisals, and (2) between cognitive appraisals and youth adjustment suggest that youth cognitive appraisals of marital conflict may serve as important mechanisms that link marital hostility and youth adjustment.

Cognitive appraisals of marital conflict, including perceived threat, self-blame, and coping efficacy, have been demonstrated in both cross-sectional and longitudinal studies as important factors that help explain how marital hostility is associated with youth adjustment problems (Buehler et al., 2007; Deboard-Lucas, Fosco, Raynor, & Grych, 2010; El-Sheikh & Harger, 2001; Fosco & Feinberg, 2015; Fosco & Grych, 2007, 2008; Grych & Fincham, 1993; Grych et al., 2000; Grych et al., 2003; Gerard, Buehler, Franck, & Anderson, 2005; Kerig, 1998; McDonald & Grych, 2006; Siffert & Schwarz, 2011). These studies have generated consistent evidence supporting cognitive appraisals in relation to adolescents' elevated internalizing and externalizing problems over time in the context of marital hostility.

Most of these empirical studies were cross-sectional, lending limited support to the important role of cognitive appraisals in explicating the effect of marital hostility on youth adjustment. Three studies (Buehler et al., 2007; Grych et al., 2003; Fosco & Feinberg, 2015) have employed longitudinal designs. These three studies found conflicting patterns. Grych et al. (2003) sampled 298 two-parent families with an early

adolescent (mean age was 11.67 at time 1) and found that youth perceived threat and coping efficacy assessed at time 2 partially mediated the association between marital hostility at time 1 and youth internalizing problems at time 2 whereas self-blame partially mediated the association between marital hostility and youth externalizing problem one year later. Buehler et al. (2007) examined both children's emotional and cognitive processes to marital hostility in 416 two-parent families and found the significant linking mechanism of self-blame for both internalizing and externalizing problems whereas coping efficacy failed to be a significant mediator. Youth perceived threat at time 2 mediated the association between marital hostility at time 1 and decreases in externalizing problems but not decreases in internalizing problems from time 1 to time 3. These different mediating patterns of cognitive appraisals may be due to the fact that Buehler et al. (2007) examined many intervening cognitive and emotional responses that are interrelated whereas Grych et al. (2003) only considered the cognitive responses. A recent study conducted by Fosco and Feinberg (2015) employed three-wave data and found that youth perceived threat emerged as a mediator between marital hostility and emotional distress, but not with behavior problems or subjective well-being. This study examined a cascade model and found that increased perceived threat in the context of marital hostility led to diminished self-efficacy beliefs, which in turn, were associated with later adjustment problems. This study highlights how adolescents' cognitive experiences specific to marital hostility can be related to adolescents' developmental outcomes over time.

Overall, research suggests that youth cognitive appraisals of marital conflict, including perceived threat, self-blame, and coping efficacy, are important intervening mechanisms underlying associations between marital hostility and youth adjustment problems. Although cognitive-contextual theory suggests that cognitive appraisals mainly explicate how marital hostility leads to youth internalizing problems, empirical evidence demonstrates that cognitive appraisals, especially self-blame, link marital hostility and externalizing problems as well.

Emotional Security

Prior to reviewing the mediating role of emotion security in the association between marital hostility and youth adjustment, research that has examined associations (1) between marital hostility and emotion security, and 2) between emotion security and youth adjustment is described first. Several studies demonstrated that exposure to marital hostility is associated with elevated levels of negative emotional reactions (Cummings, Goeke-Morey, Papp, & Dukewich, 2002), more hostile representations of the implications that marital discord have for the well-being of the self and family (Grych et al., 2000; Harold, Osborne, & Conger, 1997), and heightened levels of behavioral involvement (Davies, Harold, et al., 2002) or utilizations of avoidance strategies (Davies, Forman et al., 2002). Davies, Harold, and colleagues (2002) employed videotaped analogues of marital hostility to examine 327 sixth graders' responses to different modes of conflict scenarios. They found that children displayed more intervention and avoidance than aggression, more fear than anger, and elevated distress in response to child-related themes or threats to the intactness of the family than general forms of marital hostility.

Schermerhorn, Cummings, and Davies (2008) suggested that children's representations of marital hostility were associated with changes in their representations of reactivity to marital conflict over time. Davies et al. (2006) sampled 223 early elementary students and further confirmed the sensitization hypothesis of the emotion security theory that exposure to marital hostility is associated with increased levels of subjective emotional reactivity, negative representations of the interparental relationship, and overt behavioral reactivity over time. These findings provides evidence for the proposition that exposure to marital hostility elicits multiple responses of control systems to marital conflict.

Rhoades' (2008) meta-analysis found that indicators of emotion security, including negative emotions, behavioral involvement, and avoidance, were associated moderately with child and youth adjustment except for the non-significant association between avoidance and externalizing problems. Out of 71 studies, 18 studies assessed children's negative affective responses to marital conflict and the average effect sizes were .31 and .15 for internalizing ($n = 16$) and externalizing ($n = 16$) problems, respectively. A total of 22 studies examined behavioral responses to marital conflict. For behavioral involvement, the average effect sizes were .29 and .15 for internalizing ($n = 14$) and externalizing ($n = 16$) problems, respectively. Avoidance was significantly related to internalizing problems ($r = .26$; $n = 10$) but not significantly associated with externalizing problems ($r = .04$; $n = 10$). In addition to emotional reactivity and behavioral dysregulation, Davies, Forman and colleagues (2002) found for 924 early adolescents that hostile internal representations of marital hostility were associated significantly with youth behavior problems from multiple informants ($r_s = .11 - .47$).

These findings suggest that indicators of youth emotion security were associated significantly with youth adjustment, with stronger relationships with internalizing problems possibly than externalizing problems. The significant associations of emotion security with both marital hostility and youth adjustment suggest that emotion security may serve as important mechanisms that link marital hostility and youth adjustment.

As emotion security theory postulates that assessment of emotional security as a higher-order organization of multiple response systems can be more cogent, complete, and informative, studies examining the mediating roles of emotion security in the association between marital hostility and child adjustment mainly use a single, latent construct of emotion security instead of separate emotional, cognitive, and behavioral indicators. Davies and Sturge-Apple (2007) proposed to form profiles or composites of emotional security based on the measurement of various response systems. Using the Security in the Marital Subsystem scale, studies conceptualizing emotion security as a latent construct (Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006; Davies, Harold et al., 2002) have shown that emotional security is an important explanatory mechanism for associations between marital hostility and child adjustment problems. Davies, Harold et al. (2002) conducted the first longitudinal study and demonstrated that the latent construct of emotional security depicted an intervening process linking marital hostility at T1 with early adolescents' internalizing and externalizing symptoms at T2, controlling for alternative mechanisms (cognitive appraisals in study 2 and parenting in study 3). Cummings and colleagues (2006) examined the mediating role of emotional security in two independent samples. After

controlling for initial levels of child adjustment, emotional security in the context of marital hostility consistently was identified as the explanatory mechanism for changes of both internalizing and externalizing problems in children ranging in age from kindergarten through middle adolescence. It is important to note that these studies demonstrated that preserving and regaining emotion security in the marital system was a stage-salient task and an important goal during adolescence (Cummings & Davies, 2010) with the mediating effects stronger in adolescence than in childhood.

Given that different components of emotion security may have specific linking mechanisms in the association between marital hostility and youth adjustment, two studies examined the mediating roles of the three dimensions of emotion security in the context of marital hostility. Davies and Cummings (1998) conducted the first study to assess the role of the three component processes of emotion security in the association between marital hostility and youth adjustment. They found that 6- to 9-year-olds' emotional reactivity and internal representations of marital conflict partially mediated the association between marital hostility and child maladjustment. Harold et al. (2004) employed a longitudinal design and assessed marital conflict, early adolescents' (11-12 years old) emotional security about marital conflict, and youth adjustment using reports by mothers, fathers, and youth and videotaped analogue procedures completed by youth. They found that indicators of youth security in the interparental relationships (i.e., emotional reactivity, cognitive representations, and behavioral regulation) provided an indirect mechanism through which marital hostility affected youth internalizing and externalizing problems assessed 12 months later. Both of these studies found that

emotional reactivity, cognitive representations, and behavioral regulation are interrelated but distinct aspects of emotional insecurity.

Overall, research suggests that emotional reactivity, cognitive representations of marital conflict, and behavioral responses constitute critical components of emotion security in the marital relationships. These components are important intervening mechanisms underlying the association between marital hostility and youth adjustment problems.

Emotional, Cognitive, and Behavioral Responses to Marital Conflict: Integrative Studies

Guided by the cognitive-contextual theory and/or emotion security theory, emotional, cognitive, and behavioral responses to marital conflict serve as important linking mechanisms between marital hostility and youth adjustment, which raises questions about which processes may be the most salient as well as how they are interrelated (Grych et al., 2013). Most studies have found that the mediating effects of responses to marital conflict are partial (Grych et al., 2003; Harold et al., 2004), suggesting the need to integrate different complementary processes. As such, examining multiple mediators beyond single pathway in light of integration of multiple theoretical perspectives can strengthen the understanding of how marital hostility is associated with youth adjustment.

Derived from the cognitive-contextual framework and emotion security theory, respectively, constructs of cognitive appraisals and emotion security, however, are quite similar because both of them involve cognitions and emotions. Thus, studies that used

self-report measures, the Children's Perception of Interparental Conflict scale (CPIC; Grych, Seid, & Fincham, 1992) and the Security in the Interparental Subsystem scale (SIS; Davies, Forman, et al., 2002), may find it difficult to discriminate among different responses at the measurement level (Buehler et al., 2007; Grych et al., 2013). Despite the challenge, a handful of studies have integrated constructs drawn from both the cognitive-contextual framework and emotion security theory and examined the mediating roles of youths' multiple responses to marital conflict. Davies, Harold, et al. (2002) avoided confounding measurement of emotions and appraisals by removing three items from the Threat subscale of CPIC scale that the authors considered as assessing emotions rather than cognitions. Self-blame appraisals, threat appraisals, and the latent construct of emotional security were examined as competing mediators. They found in 327 Welsh sixth-graders that only emotional insecurity completely mediated the association between marital conflict (including marital adjustment and conflict management) and increases in internalizing and externalizing problems over one year whereas self-blame and perceived threat were not significant mediators. Although emotions are more heavily weighted in the emotional security than cognitive appraisals, the perception of danger (i.e., cognitive component) and the feeling of fear (i.e., emotional component) are interwoven in the threat appraisals (Grych & Cardoza-Fernandes, 2001) and thus the abbreviated threat scale may not be a valid measure (Grych et al., 2013).

Fosco and Grych (2008) also examined the mediational roles of cognitive and emotional responses to marital conflict along with triangulation. They assessed emotions by obtaining ratings of children and parents on children's responses to a parental conflict

solving discussion in the lab; they assessed cognitive appraisals using children's reports on the threat and self-blame subscales of the CPIC scale. The authors proposed and compared three models of mediating processes and a model conceptualizing emotional dysregulation, threat, self-blame, and triangulation as independent mediators was the best-fit model. They found in 150, 8-12 year-old children that threat was a unique mediator between marital hostility and internalizing problems, that self-blame was a unique mediator between marital hostility and both internalizing and externalizing problems, and that emotional dysregulation was not a mediator but was associated uniquely with both internalizing and externalizing problems. This study was limited by the cross-sectional design and its failure to include behavioral responses to marital conflict in the model.

Buehler and colleagues (2007) tried to disentangle the overlapping constructs of emotional security and cognitive appraisals by conducting a factor analysis of all the items from the CPIC scale and the SIS scale. Nine factors were identified: emotional dysregulation, internalization of feelings, avoidance, behavioral dysregulation, child involvement in conflict, constructive family representations, perceived threat to self and family, self-blame, and coping efficacy. They found in 416 early adolescents that emotional dysregulation, internalization of feelings, avoidance, constructive family representations (reverse coded), and avoidance were mediators between marital hostility and changes in internalizing problems over 2 years. Threat was a significant mediator between marital hostility and changes in externalizing problems. Self-blame was a significant mediator between marital hostility and changes in both internalizing and

externalizing problems. Overall, these integrative studies suggest that different youth responses to marital conflict may be unique and competing linking mechanisms for explaining the influence of marital hostility on adolescents' adjustment over time.

As such, consistent with an information processing model (Teasdale & Barnard, 1993), emotional, cognitive, and behavioral responses to marital conflict may function as related but distinct channels for processing information about marital hostility and have unique implications for youth adjustment over time (Mann & Gilliom, 2004). Prior studies, however, failed to treat emotional, cognitive, and behavioral responses to marital conflict as three overreaching and unique constructs. The present study seeks to address this issue by examining the potentially unique mediating effects of the three latent constructs of emotional, cognitive, and behavioral responses to marital conflict in the association between marital hostility and youth adjustment over time.

Marital Hostility and Youth Adjustment: The Moderating Role of Cooperative Marital Conflict

Responses to marital conflict generally account for a modest to moderate proportion of adolescents' individual differences in their adjustment (Rhoades, 2008), suggesting the importance of identifying factors beyond marital hostility and youth responses to marital conflict. Children's intrapersonal attributes (e.g., temperament and personality; David & Murphy, 2007), family attributes (e.g., parenting practices; Frosch & Mangelsdorf, 2001), and ecological contexts (e.g., race and culture; Cummings, Wilson, & Shamir, 2003) have been examined as critical factors that may alter the association between marital hostility and youth adjustment (see the review by Cummings

& Davies, 2010). The moderating role of cooperative marital conflict, however, has received relatively little empirical attention.

Although cooperative marital conflict has long been identified as an important aspect of marital interactions (Easterbrooks et al., 1994), the conceptualization of cooperative marital conflict has not been consistent across studies. For example, Cummings et al. (1981) and Goeke-Morey (1999) classified various conflict tactics enacted by fathers or mothers based on the emotional responses of toddlers and children 4–11 years of age, respectively. Both of these studies identified marital affection as the positive marital process. Goeke-Morey, Cummings, Harold, and Shelton (2003) examined the categories and continua of positive and negative marital conflict processes based on children's behavioral, emotional, and cognitive responses to different conflict tactics. Constructive tactics during marital interactions, including constructive problem solving, support, and affection, were classified into positive marital interactions. In addition to constructive problem solving and marital warmth, Davies and colleagues (Davies et al., 2012; McCoy et al., 2009) also assessed and included effective conflict resolution as an indicator positive marital interactions. As such, to obtain a more complete picture of the positive side of marital conflict processes, constructive problem solving, marital warmth, and effective conflict resolution are considered as sub-dimensions of cooperative marital conflict in the present study. Studies that have examined each dimension of cooperative marital conflict are described first. Next, studies that have examined a composite construct of the three dimensions are reviewed.

Constructive Problem Solving

Constructive problem solving refers to parents employing strategies to solve the problem and/or offering a possible solution to the problem (Goeke-Morey et al., 2003; Kerig, 1996). Indicators include negotiation, collaboration, reasoning, discussing, expressing thoughts and feelings, and apologizing. Goeke-Morey et al. (2007) examined various types of constructive problem solving in the marital conflict process and found that constructive ways of managing conflict, such as compromise and apology, were very common from children's perspectives. This suggests that constructive problem solving coexists with marital hostility and is a normative way of managing conflict.

Several studies have examined how constructive problem solving is associated with children's perceptions of the discord and responses to hostility. Darby and Schlenker (1982) reported that children as young as preschool age were sensitive to apologies, which elicited less blame, more forgiveness, more liking, and more positive evaluations from children than hostile interactions involving no apology. The influence of apology on children's judgments of adults' behavior increased with age. Cummings and colleagues (Cummings, Iannotti, & Zahn-Waxler, 1985; Cummings, Simpson, & Wilson, 1993; Cummings et al., 1989) further conducted several experimental studies and found that several constructive problem solving strategies, including negotiation, compromise, and apology, significantly reduced children's distress and angry responses to adults' hostile interactions.

Moreover, Cummings, Ballard, El-sheikh, and Lake (1991) compared children's responses to conflict as a function of different conflict management strategies, including

destructive problem solving strategies (i.e., hostility), passive strategies (submission, silent treatment, and changing the topic), and constructive problem solving strategies (i.e., compromise and apology). Results suggested that hostility elicited the most negative emotional reactions and constructive problem solving strategies elicited the least levels of anger and sadness from 5-19 year-old children. Adults' use of constructive problem solving significantly reduced anger and distress after exposure to hostility, greater than the utilization of passive strategies. Although these studies provided valuable evidence for the ameliorating effect of constructive problem solving against the negative impact of hostility on children's emotional responses, hostility was presented to children by experimenters in the lab and thus it is uncertain whether these results can generalize to everyday marital hostility at home.

To address this issue, Goeke-Morey et al. (2007) used parents' diary home reports of constructive problem solving strategies and children's emotional responses to marital discord and found that compromise is the most effective strategy in reducing children's negative emotional responses to marital conflict. This study provides additional support for the ecological validity of the protective effect of constructive problem solving in the context of marital hostility.

Overall, constructive problem solving has been suggested as an effective way of managing marital conflict that buffers the negative effect of marital hostility on children's negative responses to marital conflict. At least four gaps, however, remain to be addressed. First, prior studies place a central focus on children's immediate responses to marital conflict. No studies were found that have examined the ameliorating effect of

constructive problem solving on children's marital conflict responses over time. Second, children's emotional reactivity is the focus of previous research whereas children's cognitive and behavioral responses to marital conflict have received little attention. Third, the buffering effect of constructive problem solving in the context of marital hostility on children's adjustment over time has not been examined. Finally, prior studies either recruited infants and young children or sampled children over a wide range of age and thus little is known about the specific ameliorating effect of constructive problem solving among early adolescents. To address these issues, the present study examines the moderating effect of constructive problem solving in the association between marital hostility and children's cognitive, emotional, and behavioral responses to marital conflict and adjustment over time in a group of early adolescents.

Marital Warmth

Marital warmth refers to expressions of understanding, sympathy, and love between couples (Goeke-Morey et al., 2003). Indicators include appreciation, affection, warmth/support, endearment, listener responsiveness, and prosocialness. Marital hostility and warmth have been demonstrated as conceptually and empirically distinct marital features; this distinction is evidenced by their unique associations with marital satisfaction among middle-aged couples (Henry, Berg, Smith, & Florsheim, 2007). The recognition of co-occurrence of marital hostility and warmth during conflict processes suggests they may work in tandem to influence youth adjustment.

The preponderance of research on marital warmth and hostility, however, has focused on their impact on the marital relationship, rather than on child and youth

adjustment. Recent research has found that affection buffers the effect of marital hostility on parents' depressive symptoms (Proulx, Buehler, & Helms, 2009) and marital satisfaction (Fincham, 2003). Few studies have examined the potential mitigating effect of marital warmth against the negative effect of marital hostility on children's responses or adjustment over time although several studies have emphasized the significance of parents' emotionality during conflicts in communicating the meaning of marital interactions to children (Crockenberg & Langrock, 2001; Cummings et al., 2002). Shiflett-Simpson and Cummings (1996) examined the effects of parental emotions (i.e., positive and negative emotions) on children's perceptions of conflict. In the context of adults' positive emotional expressions during conflict scenarios, conflicts were perceived as more managed than when adults' emotional expressions were negative. Goeke-Morey et al. (2007) found in the diary reports that parents' positive emotions significantly decreased the negative influence of marital hostility on children's emotional reactivity (i.e., anger and distress). In sum, these studies suggest that marital warmth may be a critical facet of marital conflict processes that protects adolescents from the negative influence of marital hostility.

The small body of prior research, however, has not examined the moderating effect of marital warmth on the association between marital hostility and multiple responses to marital conflict and youth adjustment. Cross-sectional designs also limit the casual inference of the ameliorating effect of marital warmth for youth responses to marital conflict and adjustment over time. As such, the present study seeks to examine the moderating effect of marital warmth in the association between marital hostility and

children's cognitive, emotional, and behavioral responses to marital conflict and adjustment over time in the context of marital hostility.

Effective Conflict Resolution

Effective conflict resolution in the context of marital conflict refers to the subsidence of the tense and positive perceptions of the conflict ending after the argument. Effective conflict resolution is different from constructive problem solving such that the former is more of an evaluation of the *resolution outcome* and the latter happens during the *conflict process*. As reviewed above, early work by Cummings and his colleagues (e.g., Cummings et al., 1985) used the term *conflict resolution* but conceptualized it as adults' utilizations of problem solving strategies. It is worth noting that the analogue conflict scenarios that were used in these experimental studies ended with the presence of various problem solving strategies and thus children reacted to these conflicts based on both the information of observed problem solving strategies and appraisals of the resolution outcomes of conflict. The authors, however, did not explicitly assess conflict resolution and thus provided little empirical evidence for the potential ameliorating effect of effective conflict resolution in the context of marital hostility.

Recent research on marital hostility and child development generally conceptualizes conflict resolution as an important aspect of marital conflict (e.g., Ghazarian & Buehler, 2010) but limited studies have explicitly examined the possible mitigating effect of effective conflict resolution in the context of marital hostility. A tangential study by Tschann and colleagues (2002) examined the direct association between effective conflict resolution and 151 Mexican American adolescents' risk

behaviors, including substance use and sexual activity. They found that less effective conflict resolution was associated with higher emotional distress, which in turn was associated more risk behaviors. Kerig (1996) found that mothers who perceived poor conflict resolution reported more behavior problems of their 7-11 years old children, compared with the perception of mothers who reported good conflict resolution. Lindahl and Malik (2011) used an observational method and identified four marital conflict typologies. Among these four groups, the conflictual-hostile group demonstrated high levels of hostility and low levels of resolution whereas the conflict-expressive group was characterized by high levels of hostility but usually ended their discussions in a positive manner. Adolescents from the conflictual-hostile group of parents demonstrated higher levels of threat appraisals than did youth from the conflict-expressive group when family cohesion was low. This suggested that negative emotional expression is normative, but effective at helping solve disagreements when most conflict is negotiated or resolved. In sum, these studies suggest that effective conflict resolution buffers the negative impact of marital conflict on adolescents' negative cognitive appraisals and adjustment.

Clearly, the potential mitigating effect of effective conflict resolution in the context of marital hostility needs further empirical examinations because (a) longitudinal examinations of the buffering effect of effective conflict resolution are warranted, and (b) the ameliorating effect of effective conflict resolution against the negative impact on youth various responses to conflict needs to be examined. The present study examines the moderating effect of effective conflict resolution in the association between marital

hostility and children's cognitive, emotional, and behavioral responses to marital conflict and adjustment over time.

Cooperative Marital Conflict

Examining constructive problem solving, marital warmth, and effective conflict resolution in the context of marital hostility may provide valuable information regarding which process may be the salient processes that mitigate the negative effect of marital hostility. Furthermore, examining the overall cooperative marital conflict may provide insights regarding the additive or cumulative buffering effects of the sub-components. Three studies that have assessed cooperative marital conflict along with marital hostility in relation to children's responses to marital conflict and adjustment are reviewed.

McCoy et al. (2009) found that children's emotional security acted as an intervening variable between both cooperative marital conflict and marital hostility and children's prosocial behavior over time, even after controlling for prior levels of children's prosocial behavior at wave 1. This study indicated the importance of examining cooperative marital conflict beyond marital hostility in understanding children's responses to marital conflict. Davies et al. (2012) examined the comparable models of how cooperative marital conflict and marital hostility affected children's psychological adjustment in two samples of early adolescents and preschoolers. The findings supported the primacy of marital hostility in eliciting children's insecurity, which in turn gave rise to their internalizing and externalizing problems concurrently and over time. However, cooperative marital conflict still accounted for significant variability in child adjustment when marital hostility was not included in the model across two developmental stages, or

even when marital hostility was considered in the model for preschoolers. In the preschooler sample, children's emotional security (i.e., the latent construct of emotional, cognitive, and behavioral responses to marital conflict) mediated the association between cooperative marital conflict and adjustment problems. The failure to identify the unique contribution of cooperative marital conflict for child development among early adolescents may derive from the lack of long-term examinations under the cross-sectional design. Effects of parents' utilizations of constructive problem solving strategies, expressions of warmth, and effective resolution may not appear simultaneously with those of hostile conflict. The lagged peace between parents may signify to children the subsidence of the threat and thus may ameliorate the negative impact of marital hostility on youth responses and adjustment over time.

Beyond the direct impact of cooperative marital conflict on children's and adolescents' responses to marital conflict and adjustment, a tangential study found that aggressive marital conflicts are less distressing to children when they occur in the context of frequent marital disagreements (Erath, Bierman, Conduct Problems Prevention Research Group, 2006). Marital aggression in combination of high levels of disagreement may present a mixed of cooperative marital conflict and hostility whereas marital aggression in the context of low levels of disagreement may present mostly hostility. Thus, cooperative marital conflict may function as an ameliorating factor in the association between marital aggression and youth distress.

Overall, although these initial empirical examinations provide insights for the importance of examining the cooperative marital conflict in the context of marital

hostility, no solid evidence has been established with regards to the interactive effects between marital hostility and cooperative marital conflict. As such, the present study seeks to examine the moderating effect of cooperative marital conflict in the association between marital hostility and children's cognitive, emotional, and behavioral responses to marital conflict and adjustment over time.

Hypotheses

Accumulating evidence has suggested that marital hostility and cooperative marital conflict may interact to influence adolescents' responses to marital conflict and adjustment over time. The present study builds on this evidence and proposes that cooperative marital conflict moderates (i.e, buffers) the associations among marital hostility, youth responses to marital conflict, and youth adjustment over time.

Specifically, hypotheses are as follows:

1. Marital hostility is associated with increases in adolescents' internalizing and externalizing problems over time.
2. Cooperative marital conflict and the sub-dimensions of cooperative marital conflict moderate associations between marital hostility and increases in youth adjustment problems over time. Specifically, associations between marital hostility and increases in youth internalizing and externalizing problems over time are weaker when cooperative marital conflict or each of the sub-dimensions of cooperative marital conflict is higher than when they are lower.
3. Cognitive appraisals mediate the association between marital hostility and increases in internalizing and externalizing problems over time; emotion reactivity

mediates the association between marital hostility and increases in internalizing problems over time; finally, behavioral responses mediate between marital hostility and increases in internalizing and externalizing problems over time.

4. Cooperative marital conflict and the sub-dimensions of cooperative marital conflict moderate the relations of marital hostility to adolescents' responses to marital conflict. Specifically, associations between marital hostility and adolescents' cognitive, emotional, and behavioral responses to marital conflict are weaker when cooperative marital conflict or each of the sub-dimensions of cooperative marital conflict is higher than when they are lower.

CHAPTER IV

METHODS

Sampling Procedures and Characteristics

This study is part of a larger study that examined associations between marital conflict and adolescent adjustment during youths' transition into adolescence (Buehler, 2006). The larger study began in 2001 and recruited 2,297 sixth grade adolescents from 13 middle schools in Knox County, Tennessee. Sixth graders were invited to participate in this study because they were beginning the transition from childhood into adolescence. The sample was representative of families in the county in terms of race, parents' marital status, and family poverty status.

Families with two married parents or long-term cohabitants and no step-children were eligible to participate in the longitudinal study. Stepfamilies were not included in the initial sample because stepfamilies differ from families without stepparents in the home and funds were inadequate to collect questionnaire and observational data from a large enough sample of stepfamilies to conduct group comparisons (Hetherington et al., 1999). A subsample of 1,131 families was eligible and invited to participate. Of the 1,131 families, 416 families (37% response rate) agreed to participate in the 4-year study. Eligible participating families were similar to eligible nonparticipating families on all study variables reported by youth on the school-based questionnaire (Cook, Buehler, & Blair, 2012).

At the onset of the longitudinal study (6th grade-W1), adolescents ranged in ages from 11 to 14 ($M = 11.86$, $SD = 0.69$). Participants were primarily European American (91%) and 51% ($n = 211$) were girls. Three percent of participating families were African American, which was lower than the percentage of married African American couples with children younger than 18 years old in the county (5%) and the United States (7.8%; U.S. Census Bureau, 2000a, Table PCT27 of SF4). The median level of education for parents was an associate's degree, which was similar to European American adults over 24 years of age in the county (county mean category was some college, no degree; U.S. Census, 2000b, Table P148A of SF4). The median level of household income for participating families was about \$70,000, which was higher than the median 1999 income for married European Americans in the county (\$59,548, U.S. Bureau, 2000c, Table PCT40 of SF3; \$64,689 inflation-adjusted dollars through 2001).

Participation declined over time: 416 families participated at W1, 366 families participated at W2, 340 families at W3, and 320 families at W4 (77% retention of W1 families). Most adolescents were in 7th grade at W2 ($M = 13.11$, $SD = .65$), in 8th grade at W3 ($M = 14.10$, $SD = .65$), and in 9th grade at W4 ($M = 15.10$, $SD = .65$). However, analyses revealed that there were no significant differences between retained and families lost to attrition on any study variables in the larger study (Buehler, 2006). To document the influences of marital conflict on youth adjustment during adolescents' transition to high school, the present study used data at W2 (7th grade), W3 (8th grade), and W4 (9th grade).

Data Collection Procedures

The data collection procedures for W2 (7th grade), W3 (8th grade), and W4 (9th grade) are described. Questionnaire and observational methodologies were used to collect data. Participants were asked to complete questionnaires once a year for three years. Questionnaires were mailed to parents and youth to complete independently. Questionnaires were completed when youth were in 7th grade (W2), one year later in 8th grade (W3), and two years later in 9th grade (W4). During a yearly home visit, the completed mailed questionnaires were collected, and parents and youth completed another set of questionnaires containing particularly sensitive information.

During the home visit, families also participated in four observed interaction tasks. For each task, the home visitor explained the task to the family members involved, helped the family complete a sample question, introduced the family members on the tape, and went to a part of the house where the participating family members could not be heard. The whole interaction was recorded on videotape. Interaction tasks were based on tasks used by the Iowa Youth and Family Project (IFIRS; Melby & Conger, 2001). For purposes of the present study, only interaction task 3 was used. Task 3 lasted 20 minutes and was a problem-solving task, in which mothers, fathers, and adolescents were involved. The task focused on issues identified by family members on the Issues Checklist given before the interaction task (Conger et al., 1992). The problem-solving task was used because this study is interested in assessing marital interactions that occur within a given family context when the child was present.

Data were coded using the Iowa Family Interaction Rating Scales (IFIRS; Melby & Conger, 2001). Trained coders who had passed several written tests and viewing tests rated the videotaped tasks. To assure accuracy of observers' ratings, coders had to pass criterion viewing exams above 80%. To assess reliability of data, 20% of tasks were coded by an independent rater. Observations were conducted when youth were in 7th grade (W2), one year later in 8th grade (W3), and two years later in 9th grade (W4). Families were compensated \$120 for their participation at 7th grade (W2), \$135 at 8th grade (W3), and \$150 at 9th grade (W4).

Measures

The present study used a three-wave, yearly longitudinal design (one year interval between two consecutive waves) to examine effects of marital hostility and cooperative marital conflict on adolescents' adjustment problems through adolescents' multiple responses to marital conflict. Marital hostility was measured using wives/mothers' reports, husbands/fathers' reports, and observer ratings during 7th grade (W2). Cooperative marital conflict was measured using wives/mothers' reports, husbands/fathers' reports, and observer ratings at 7th grade (W2) and 8th grade (W3). Adolescents' responses to marital conflict were measured using adolescents' self-reports at 8th grade (W3). Adolescent externalizing and internalizing problems were measured using parents' reports and adolescents' self-reports at 7th grade (W2; baseline control) and 9th grade (W4). The multi-informant, multi-method design (i.e., using different methods to collect data on independent variables and dependent variables) results in findings that are less susceptible to inference errors by minimizing shared method

variance (Bank et al., 1990). Dependent variables assessed at baseline (adolescent adjustment at 7th grade-W2) were included to allow for the examinations of associations between predictors and changes in dependent variables. These choices can reduce inference threats associated with internal validity.

Marital Hostility (7th grade)

Marital hostility was measured at 7th grade (W2) using wives/mothers' reports, husbands/fathers' reports, and observer ratings. Thirteen items from the Conflicts and Problems Solving Strategies questionnaire (Kerig, 1996) and five items of Buehler et al.'s (1998) measure of overt conflict were used for wives/mothers' and husbands/fathers' reports (i.e., questionnaire method). Sample items were "When my spouse and I disagree, I tell my spouse to shut up," and "I criticize my spouse." The response format ranged from 0 (never) to 5 (always). Wives/mothers and husbands/fathers each completed the 18-item hostility scale for their own and spouses' behaviors. To capture the dyadic nature of the marital hostility, wives/mothers' self-reports and reports of their spouses' behaviors were aggregated as mothers' reports of the dyadic marital hostility. Husbands/fathers' self-reports and reports of their spouses' behaviors were aggregated as fathers' reports of marital hostility. Cronbach's α was .90 for mothers' self-reports and .92 for mothers' reports of spouses' behaviors; Cronbach's α was .90 for fathers' self-reports and .94 for fathers' reports of spouses' behaviors.

Four scales from the IFIRS comprised the observation ratings of marital hostility: expressed hostility, angry coercion, verbal attack, and antisocial (Melby et al., 1993). Each rating was scored for behavior from father to mother and from mother to father. All

the content was rated from the assessed interaction during the family problem-solving task. In the IFIRS (Melby et al., 1990), expressed hostility was defined as displays of hostile, angry, critical, disapproving, or rejecting behavior from one parent to the other parent. Angry coercion was defined as displays of attempts to control or change the behavior or opinions of the other parent, or attempts to get the other parent to do what the focal wants in an angry, hostile manner. Verbal attack was defined as displays of unkind statements that appear intended to demean, hurt, or embarrass the other parent. Antisocial behavior was defined as displays of behavior that are insensitive, obnoxious, rude, uncooperative, or unsociable. The response format for the rating scale ranged from 1 (not characteristic) to 9 (mainly characteristic). The observational measure of marital hostility for this study was created by averaging the 8 observer ratings at 7th grade ($\alpha = .83$). Interrater reliability was assessed by calculating single-item intraclass correlation coefficients (ICCs) based on a one-way random effects ANOVA (Melby & Conger, 2001). The average ICC for this composite measure was .72, which is adequate for these rating scales and comparable to other studies that have used IFIRS ratings (Melby & Conger, 2001). Total scores of mothers' reports, fathers' reports, and observers' ratings were used as manifest indicators of the latent construct of marital hostility.

Cooperative Marital Conflict (7th and 8th grade)

Constructive problem solving, marital warmth, and effective conflict resolution were indicators of cooperative marital conflict. The three indicators were measured during 7th grade (W2) and 8th grade (W3).

Constructive problem solving was measured using wives/mothers' reports and husbands/fathers' reports. Eleven items adapted from Rands et al. (1981), the compromise subscale of the Conflict Resolution Scale (Gottman, 1994), and the compromise subscale of the Conflict and Problems-Solving Scale (Kerig, 1996) were used for wives/mothers' and husbands/fathers' reports. Sample items were "When you have disagreements with each other, we try to work out a compromise," and "You talk it out with the other one." The response format ranged from 0 (never) to 5 (always). Wives/mothers and husbands/fathers each completed the 11-item scale for their own and spouses' behaviors. Wives/mothers' self-reports and reports of their spouses' behaviors were aggregated as mothers' reports of constructive problem solving. Husbands/fathers' self-reports and reports of their spouses' behaviors were aggregated as fathers' reports of constructive problem solving. At 7th grade, Cronbach's α was .86 for mothers' self-reports and .91 for mothers' reports of spouses' behaviors; Cronbach's α was .87 for fathers' self-reports and .93 for fathers' reports of spouses' behaviors. At 8th grade (W3), Cronbach's α was .90 for mothers' self-reports and .93 for mothers' reports of spouses' behaviors; Cronbach's α was .89 for fathers' self-reports and .91 for fathers' reports of spouses' behaviors. Wives/mothers' reports and husbands/fathers' reports were averaged to create a composite questionnaire measure of constructive problem solving at 7th grade (W2) and 8th grade (W3), respectively.

Marital warmth was measured using wives/mothers' reports, husbands/fathers' reports, and observer ratings. Five items from the warmth subscale of the Iowa Youth and Family Project (Melby, Ge, Conger, & Warner, 1995) were used for wives/mothers' and

husbands/fathers' reports (i.e., questionnaire method). Sample items were "Act loving and affectionate toward her," and "Let her know that you appreciate her ideas or the things she does." The response format ranged from 0 (never) to 7 (always).

Wives/mothers and husbands/fathers each completed the 5-item scale for their own and spouses' behaviors. Wives/mothers' self-reports and reports of their spouses' behaviors were aggregated as mothers' reports of marital warmth. Husbands/fathers' self-reports and reports of their spouses' behaviors were aggregated as fathers' reports of marital warmth. At 7th grade (W2), Cronbach's α was .92 for mothers' self-reports and .95 for mothers' reports of spouses' behaviors; Cronbach's α was .92 for fathers' self-reports and .94 for fathers' reports of spouses' behaviors. At 8th grade (W3), Cronbach's α was .93 for mothers' self-reports and .95 for mothers' reports of spouses' behaviors; Cronbach's α was .93 for fathers' self-reports and .96 for fathers' reports of spouses' behaviors.

Five scales from the IFIRS comprised the observation measure of marital warmth: warmth/support, endearment, listener responsiveness, communication, and prosocialness (Melby et al., 1993). Each rating was scored for behavior from father to mother and from mother to father. All the content was rated from the assessed interaction during the family problem-solving task. In the IFIRS (Melby et al., 1990), warmth/support was defined as expressions of interest, care, concern, support, encouragement, or responsiveness between parents. Endearment was defined as verbal expressions of personalized and unqualified approval of the other parent and behaviors that convey extreme commitment and global compliments regarding the other parent. Listener responsiveness was defined

as one parent attending to, showing interest in, acknowledging, and validating the verbalizations of the spouse through the use of behaviors such as nonverbal backchannels and verbal assents. Communication was defined as the speaker's ability to neutrally or positively express his/her own point of view, needs, and wants in a clear, appropriate, and reasonable manner, and to demonstrate consideration of the other interactor's point of view. Prosocialness was defined as demonstrations of cooperativeness, sensitivity, helpfulness, willingness to change own behavior for the other, and willingness to comply with needs and wishes of others. The response format for the rating scale ranged from 1 (not characteristic) to 9 (mainly characteristic). The observational measure of marital warmth was created by averaging the 8 observer ratings for 7th grade (W2; $\alpha = .83$) and 8th grade (W3; $\alpha = .81$), respectively. The average ICC for this composite measure was .62 for 7th grade (W2) and .66 for 8th grade (W3), which are adequate for these rating scales and comparable to other studies that have used IFIRS ratings (Melby & Conger, 2001). Wives/mothers' reports, husbands/fathers' reports, and observers' ratings were standardized and averaged to create a composite measure of marital warmth.

Effective conflict resolution was measured using wives/mothers' self-reports, husbands/fathers' self-reports, and youth self-reports. Ten items from the Multidimensional Assessment of Interparental Conflict Scale (MAIC; Tschann et al. 1999) and one item written for this study was used for wives/mothers' and husbands/fathers' reports. Sample items were "After an argument with your spouse, you still feel angry at your spouse," and "Still feel bothered by the problem?" The response format ranged from 0 (never) to 7 (always). This measure was reverse coded. As an

additional item, wives/mothers and husbands/fathers also were asked: “Which statement best describes you and your spouse’s disagreements?” Response options ranged from 1 (most of our disagreements don’t get solved) to 3 (most of our disagreements get completely solved). Wives/mothers’ and husbands/fathers’ reports were standardized and averaged. Higher scores indicate higher levels of effective resolution. At 7th grade (W2), Cronbach’s α was .90 for mothers’ reports and .89 for fathers’ reports. At 8th grade (W3), Cronbach’s α was .79 for mothers’ reports and .76 for fathers’ reports.

Five items from the Children’s Perception of Interparental Conflict scale (CPIC; Grych et al. 1992), four items from the Multidimensional Assessment of Interparental Conflict Scale (MAIC; Tschann et al. 1999), and one item written for this study were used for youth reports. Sample items were “Even after my parents stop arguing they stay mad at each other,” and “When an argument between my parents is over I think my parents are just pretending everything is okay.” Response options ranged from 1 (false) to 3 (true) for the CPIC, and from 1 (almost never) to 5 (almost always) for the MAIC. This measure was reverse coded. As an additional item, youth also were asked: “Which statement best tells about most of your mom and dad’s disagreements?” Response options ranged from 1 (most of their disagreements don’t get solved) to 3 (most of their disagreements get completely solved). Items for youth reports of conflict resolution were standardized and averaged. Higher scores indicate higher levels of effective resolution. At 7th grade (W2), Cronbach’s α was .85 for youth reports. At 8th grade (W3), Cronbach’s α was .86 for youth reports. Wives/mothers’ reports, husbands/fathers’ reports, and youth reports were averaged to create a composite measure of effective conflict resolution.

Youth Responses to Marital Conflict (8th grade)

Youth responses to marital conflict were measured at 8th grade (W3) using youth reports. The Children's Perceptions of Interparental Conflict scale (CPIC; Grych et al., 1992) and the Security in the Interparental Subsystem scale (SIS; Davies, Forman et al., 2002) comprised the measure. Of the CPIC scale, six items comprised the perceived threat subscale (e.g., when my parents argue I'm afraid that something bad will happen; $\alpha = .85$). Five items comprised the self-blame subscale (e.g., When my parents argue I'm afraid that something bad will happen; $\alpha = .79$). Six items comprised the coping efficacy (e.g., When my parents argue I'm afraid that something bad will happen; $\alpha = .68$). A 3-point response format was used for CPIC that ranged from 1(false) to 3 (true).

Of the SIS scale, twelve items comprised the emotional reactivity subscale (e.g., When my parents argue I feel upset; $\alpha = .88$). Twelve items comprised the internal representation subscale (e.g., When my parents have an argument I worry about my family's future; $\alpha = .80$). Twelve items comprised the behavioral regulation subscale (e.g., When my parents have an argument I try to solve the problem for them; $\alpha = .84$). A 4-point response format was used for SIS. Given the overlap and redundancy of these two scales, an exploratory factor analysis of items from two instruments (Buehler et al., 2007) was used to generate specific response factors that assess the cognitive, emotional, and behavioral domains.

Youth Adjustment (7th and 9th grade)

Youth externalizing and internalizing problems were measured at 7th grade (W2; baseline controls) and 9th grade (W4; dependent variables) using parents' reports and

youth self-reports. For externalizing problems, mothers and fathers completed the Parent version of the CBCL separately and youth completed the Child Behavior Checklist-Youth Self Report (Achenbach, 1991a, 1991b). Sample items were "I lie or cheat" and "I disobey at school." The response format ranged from 0 (not true) to 3 (very true or often true). Raw scores were used (Achenbach, 1991b). Cronbach's α was .87 at 7th grade (W2) and .89 at 9th grade (W4) for mothers' reports, .89 at 7th grade (W2) and .90 at 9th grade (W4) for fathers' reports, and .90 at 7th grade (W2) and .90 at 9th grade (W4) for youth reports. Summary scores of mothers' reports, fathers' reports, and youth reports were used as manifest indicators of the latent construct of externalizing problems.

For internalizing problems, fathers and mothers completed the Parent version of the CBCL separately and youth completed the Child Behavior Checklist-Youth Self Report and the Children's Depression Inventory (Achenbach, 1991a, 1991b; Kovacs, 1992). For the CBCL measures, the response format ranged from 0 (not true) to 3 (very true or often true). Cronbach's α was .85 at 7th grade (W2) and .87 at 9th grade (W4) for mothers' reports, .85 at 7th grade (W2) and .88 at 9th grade (W4) for fathers' reports, .90 at 7th grade (W2) and .90 at 9th grade (W4) for youth reports of CBCL. For the CDI measure, youth chose one of the three descriptions of depressive symptoms that fit best their feelings during the past two weeks. Cronbach's α was .83 at 7th grade (W2) and .83 at 9th grade (W4) for youth reports on the CDI. Mothers' reports and fathers' reports were averaged to create a composite measure of parents' reports of youth's internalizing problems. Summary scores of parents' reports, youth reports of CBCL, and youth reports of CDI were used as manifest indicators of the latent construct of internalizing problems.

Analytic Strategies

Descriptive statistics were estimated using SPSS (version 20). Hypotheses were tested using structural equation modeling (SEM; Mplus 7.4). SEM is chosen as the major statistical technique because it (a) adequately handles measurement error (Kline, 2011), and (b) allows the creation of latent variables and provides overall model fit (Bollen & Curran, 2005). Three fit indices, including chi-square (χ^2), the Comparative Fit Index (CFI; acceptable $>.90$, good fit $>.95$), and the Root Mean Square Error of Approximation (RMSEA; acceptable $<.08$, good fit $<.05$) were used to evaluate the fit of the proposed model to the observed data (Kline, 2011). The chi-square value, which provides a test of the differences between the observed and model implied covariance matrices, is sensitive to sample size whereas the other three are less influenced by sample size.

A full information maximum likelihood estimation procedure (FIML) was used to deal with missing data. Missing data are endemic to longitudinal data (Acock, 2005; Young & Johnson, 2013). Prior to dealing with the missing data, it is recommended to perform initial descriptive and comparison analyses to identify the nature and extent of missing data (Widaman, 2006). It is common to examine the differences of demographic and other variables of interest based on the attrition, or missing patterns of the outcome variables. In addition, the major variables can be regressed on other variables with attrited status as a moderator to explore whether relationships among all variables vary between retention and attrition groups (Raver, 2003). Despite missing patterns and the amount of missing data, traditional approaches, including listwise or case deletion, pairwise deletion, mean substitution, and indicator/dummy variable adjustment are not

optimal solutions for missing values because these approaches can result in “serious biases in a positive or a negative direction, increases in Type II errors, and underestimating correlations and b weights” (Acock, 2005, pp. 1017-1018). Single imputation is good to document the small amount of missing data. However, if the amount of missing data in the entire dataset is moderate or large (10-15 % or higher) and data are missing completely at random (MCAR) or missing at random (MAR), multiple imputation (MI) and full information maximum likelihood (FIMI) are considered as state of the art methods (Schafer & Graham, 2002). Multiple imputation can generate both unbiased point estimates and valid estimated standard error by pooling of the parameter estimates from 5 to 10 imputed datasets (Schafer & Graham, 2002). However, the full information maximum likelihood approach does not impute missing values, but rather uses all the available information to provide a maximum likelihood estimation (Schafer & Graham, 2002). These two methods generally are alternatives to each other. FIML can be more efficient given that multiple imputation (MI) deals with missing data, does parameter estimation, and estimates standard errors in separate steps. In this study, FIML was used in all SEM analyses as a method to handle missing data.

Multiple methods, informants, and measures were used to create latent constructs in the structural model. Problems with shared method variance are inevitable in longitudinal research and these problems may result in overestimation of the cross-wave path coefficients of interest (Cole & Maxwell, 2003). Use of multi-method, multi-informant, and multi-measure helps minimize shared method variance and informant bias (Bank et al., 1990). Structural equation models were estimated to examine the direct

effect of marital hostility on adolescents' changes in adjustment problems over time, the mediating effects of youth responses to marital conflict, and the moderating effect of cooperative marital conflict.

Mediating Models

Mediating models were employed to examine children's multiple responses to marital conflict serving as linking mechanisms underlying associations between marital hostility and adolescent adjustment. The hypothesis was tested that adolescents' cognitive, emotional, and behavioral responses to marital conflict mediate the association between marital hostility and increases in internalizing and externalizing problems over time (3rd hypothesis).

At least three different approaches, including causal steps approach, the product of coefficients approach, and a bootstrapping approach, have been suggested to examine mediating effects (Hayes, 2009; Preacher, Rucker, & Hayes, 2007). The causal steps approach lacks statistical power and does not explicitly provide a numerical value of the strength of the mediated effect (MacKinnon & Fairchild, 2009). The causal steps approach also is difficult to apply to multiple-mediator models (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The product of coefficients approach estimates indirect effects (i.e., products of regression coefficients) and directly tests the indirect effects by assuming a normal distribution of the products of coefficients in the population, which is always violated. The bootstrapping approach uses a resampling strategy to calculate indirect effects with no assumption about the shape of sampling distribution of the coefficients (Preacher et al., 2007). As such, a bootstrapping approach is one of the valid

and powerful methods for testing mediating effects (MacKinnon et al., 2002; MacKinnon, Lockwood, & Williams, 2004; Hayes, 2009) and thus the present study used a bootstrapping approach to estimate the mediating effects.

Hypothesis 3 is supported if the mediating coefficients of children's responses in associations between marital hostility and increases in adolescent externalizing and internalizing problems are significant. Specifically, for a given 95% bootstrapped confidence interval, if zero is not between the lower and upper bound, the mediating effects are different from zero with 95% confidence (Hayes, 2009). Otherwise, this hypothesis is rejected. Although not specified in the hypothesis, comparisons of mediating effects across mediators can be achieved by imposing equality constraints on products of paths and using chi-square difference test to compare the baseline model and the constrained model (Preacher & Hayes, 2008).

Moderating Models

Moderating models were used to examine the moderating effects of cooperative marital conflict and its three indicators in explaining the associations of marital hostility with youth responses to marital conflict and youth adjustment problems. Moderating models assume that the effect of an independent variable on a dependent variable varies depending on the level of the moderator (Baron & Kenny, 1986). The hypothesis was tested that cooperative marital conflict and the sub-dimensions of cooperative marital conflict moderate associations between marital hostility and increases in youth adjustment problems over time (2nd hypothesis). The hypothesis also was tested that cooperative marital conflict and the sub-dimensions of cooperative marital conflict

moderate the relations of marital hostility to adolescents' responses to marital conflict (4th hypothesis). The analytic processes for these hypothesis testing are similar and thus the moderating effects of cooperative marital conflict in explaining the association between marital hostility and increases in youth adjustment difficulties is specified as an example.

An interaction term was created by multiplying the mean-centered sum score of marital hostility and cooperative marital conflict. The product term was added as manifest predictors to the model, along with the constituent main effects (Benson & Buehler, 2012; Proulx, Buehler, & Helms, 2009). Significant moderating effects were probed with multi-group SEM analyses (Kline, 2011). Specifically, the sample was divided into three groups: a lower-risk group, representing the top third highest scores on cooperative marital conflict, a higher-risk group, representing the lowest third on cooperative marital conflict, and an average group, representing those in the middle (Kiesner & Pastore, 2005).

The comparison was made between the lower and higher-risk groups. Specifically, a baseline model will be specified such that all the associations in the model are freely estimated between the low risk group and the high risk group. A constrained model then specified that associations between marital hostility and changes in youth adjustment be constrained to be equal across these two groups of families. Model fit indices in the free model for both groups were examined to see whether the proposed patterns of associations between marital hostility and increases in youth adjustment adequately represent the data across both groups. Model fit indices were then be compared across the two nested models and significant differences in model fit suggest the significant

moderating effects of cooperative marital conflict on at least some associations specified in the model. As mentioned above, chi-square difference tests are highly sensitive to a large sample size and that even trivial differences for studies with large samples ($N = 366$ in this case) can produce significance for chi-square difference calculations (Cheung & Rensvold, 2002). As such, as suggested, CFI and RMSEA also were compared across groups. Significant differences in model fit indices were probed by comparing parameters across groups using the critical ratio (C. R.) statistic (i.e., value larger than 1.96 at $p < .05$ following a Z distribution; Benson & Buehler, 2012).

As such, the hypothesis is supported if the positive associations between marital hostility and increases in externalizing and internalizing problems are smaller in the lower-risk group with higher cooperative marital conflict than those in the higher-risk group with lower cooperative marital conflict. Otherwise, this hypothesis is rejected.

CHAPTER V

RESULTS

Preliminary Results

Exploratory Factor Analyses of Youth Responses to Marital Conflict (Mediator)

Before presenting correlations, an exploratory factor analysis (EFA) of the 8th grade items from the Children's Perceptions of Interparental Conflict scale (CPIC, 16 items) and the Security in the Interparental Subsystem scale (SIS, 37 items) was conducted to identify sub-dimensions of youth responses to marital conflict. MPLUS 7.4 was used. The EFA procedure in MPLUS differs from that in other programs. In addition to guiding the specification of the number of factors, fit indices also are calculated (even though this is exploratory rather than confirmatory). The root mean square error of approximation (RMSEA) statistic was used and an $RMSEA < .05$ indicates a good fit (Rodebaugh, Holaway, & Heimberg, 2008; Steiger & Lind, 1980). Importantly, this analytic program also offers estimation formulas that are best for the analysis of single items that have fewer than 11 response categories (Long's cut-off between ordinal and interval measurement levels). The responses ranged from 1 to 3 for CPIC items and from 1 to 4 for SIS items and thus the items were treated as categorical variables because the frequency distributions suggested an ordinal rather interval level of measurement. The estimator, WLSMV, was used to adjust standard errors for items that are ordered categories. An oblimin rotation was used that allows for nonorthogonal factors. A

nonorthogonal factor structure was expected because youth responses often are correlated (Cummings & Davies, 2010; Grych & Cardoza-Fernandes, 2001).

One to ten factors were requested. The RMSEA fell below .05 with 4 factors (.042). Thus, the factor structure for 4 factors to 10 factors was examined. Items loading at an absolute value .40 or higher (Tabachnick & Fidell, 2001) were considered meaningful and retained as factor indicators. Cross-loading items (i.e., items loading on more than one factor at an absolute .40 or higher) across solutions were dropped sequentially (Brown, 2006; Floyd & Widaman, 1995) until non- or cross-loading items were no longer observed. The five-factor solution was selected (RMSEA = .028; see Table 1). This five-factor solution had item loadings that made sense conceptually. Twenty-one items were eliminated due to low primary loadings (< .40) or due to strong loadings on primary and secondary factors, which suggests low discriminant validity. Thirty-two items remained. There were no cross-loading items in the final solution and all items loaded on their primary factor at an absolute value of .40 or higher, thus demonstrating excellent simple structure (Thurstone, 1947).

The five factors were emotion reactions and dysregulation (14 items; includes behavioral dysregulation), lower constructive representations (4 items), self-blame (6 items), perceived threat to self and family (4 items), and lower coping efficacy (4 items). The primary factor loadings were high (87.5% above .60). The differences between primary and secondary loadings were larger than .20 for all items. The identified five factors were used in subsequent analyses.

Description of Variables

Means, standard deviations, skewness, and kurtosis are presented in Table 2. Skewness values typically should fall between 1 and -1, with a 0 representing a normally distributed variable. Kurtosis values range from a -2 to infinity, with negative values representing a platokurtic distribution and positive values representing a leptokurtic distribution (Kline, 2005). Observational ratings of marital hostility, youth responses to marital conflict except coping efficacy, and youth adjustment problems were slightly positively skewed and leptokurtic, indicating that, on average, relatively low levels of marital hostility were observed. Also, youth scored relatively low on adjustment problems and responses to marital conflict except lower coping efficacy. Values tended to aggregate more around the mean. Given that slightly skewed and leptokurtic data will not bias the results and the tradition of prior studies (Buehler et al., 2007), the data were used to test hypotheses without transformation.

Correlations among indicators are presented in Table 2. All correlations were in the expected directions and indicated significant relationships among key study variables. Mother-reported marital hostility was associated negatively with internalizing and externalizing measures; father-reported marital hostility was associated with parent-reported adjustment problems at both 7th grade and 9th grade, but was associated only with youth-reported internalizing measures at 9th grade; the observational ratings of marital hostility was not associated with any youth adjustment problem measures. The associations were small in magnitude.

Parent-reported marital hostility was associated positively with youth responses to marital conflict measures except for lower constructive representations. The observational rating of marital hostility was only associated with coping efficacy. The associations were small in magnitude.

Youth responses to marital conflict were associated with most indicators of adjustment problems. As exceptions, emotion reactions and dysregulation was not associated with parent-reported externalizing problems at both time points and lower constructive representations was not associated with parent-reported internalizing problems at 7th grade. The associations were small in magnitude.

Hypothesis 1 Testing: Direct Associations between Marital Hostility and Adolescents' Adjustment Problems

To examine the first hypothesis that marital hostility is associated with adolescents' internalizing and externalizing problems over time, marital hostility, and adolescents' internalizing and externalizing problems were included in the model (Figure 2). In order to minimize problems of mono-method bias, the manifest variable error terms for adjustment problem measures were allowed to correlate within waves and across waves (represented by double-headed arrows in Figure 2) (Kenny & Kashy, 1992; Kenny, Kashy, & Bolger, 1998). The correlated error terms between youth-reported depressive symptoms at 7th grade and at 9th grade and between externalizing problems at 7th grade and at 9th grade led to non-positive definite covariance matrix thus these correlations of error terms were set to zero.

Model fit was acceptable, $\chi^2(41) = 129.62, p < .01, CFI = .95, RMSEA = .077$.

Marital hostility was associated with increases in externalizing problems over time; marital hostility was not associated with changes in internalizing problems. Adolescents' pubertal status was controlled.

Youth Gender Moderation

The direct associations between marital hostility and adolescents' adjustment problems also were examined across boys and girls. Prior to the examination of the invariance of structural paths, the invariance of measurement models was examined first. Moderation analyses for the measurement model of the model indicated that the fit of the constrained model and the model where factor loadings of marital hostility and adolescents' adjustment problems at both 7th grade and 9th grade were allowed to vary did not differ significantly ($\Delta\chi^2 = 4.82, \Delta df = 6, p > .05$). This suggested that measurement models evidenced weak invariance across boys and girls.

Invariance of the structural paths was then examined across boys and girls. Specifically, a fully constrained model was compared to one in which all parameters in the model except the two structural paths from marital hostility to internalizing and externalizing problems at 9th grade, respectively, were constrained to be equal across boys and girls. Given that there is no consensus over the priority of doing an omnibus test or doing individual tests when there are multiple structural paths in multi-group SEM analyses (Herman, Lambert, Reinke, & Ialongo, 2008), both the omnibus test and individual tests of multiple structural paths were conducted. In the omnibus test, the comparison between the constrained model and the model in which the structural paths

were allowed to vary was not significantly different, $\Delta\chi^2 = .27$, $\Delta df = 2$, $p > .05$. In individual follow-up analyses, the comparisons between the constrained model and models which any one of the structural paths of interest was allowed to vary across girls and boys were not significantly different, either. The results indicated that associations between marital hostility and changes in adjustment problems over time did not differ for male and female adolescents.

Thus, hypothesis 1 was partially supported. Marital hostility was associated with increases in externalizing problems over time; marital hostility, however, was not associated with changes in internalizing problems. A narrative description of the results for Hypothesis 1 through 4 is presented in Table 3.

Hypothesis 2 Testing: The Moderating Effect of Cooperative Marital Conflict in the Direct Associations between Marital Hostility and Adolescents' Adjustment Problems

The second hypothesis was that cooperative marital conflict moderates associations between marital hostility and changes in youth adjustment problems over time. To test this hypothesis, marital hostility, cooperative marital conflict, and adolescents' internalizing and externalizing problems were included in the model (Figures 3 through 6). The moderating effects of cooperative marital conflict in general and the three dimensions of cooperative marital conflict in particular were examined in separate models.

For the model in which general cooperative marital conflict was the moderator, model fit was acceptable, $\chi^2(55) = 166.60$, $p < .01$, CFI = .94, RMSEA = .075. The

interaction between marital hostility and cooperative marital conflict was not statistically significant in the prediction of changes in adolescents' adjustment problems over time (Figure 3). The direct association between marital hostility and increases in externalizing problems over time still was significant. In addition, cooperation during marital conflict was associated with decreases in adolescent internalizing problems over time ($\beta = -.19, p < .05$; i.e., a significant main effect).

For the model in which constructive problem solving was the moderator (Figure 4), model fit was acceptable, $\chi^2(55) = 165.97, p < .01$, CFI = .94, RMSEA = .062. The interaction between marital hostility and constructive problem solving in the prediction of changes in internalizing problems at 9th grade was marginally significant ($\beta = .11, p = .063$). Specifically, marital hostility was not associated with changes in externalizing problems either when constructive problem solving was low ($\beta = -.04, p > .05$) or high ($\beta = .05, p > .05$). This disordinal interaction did not support the hypothesis that constructive problem solving buffers the negative effects of marital hostility on changes in youth problem behaviors over time because neither estimate was significantly different from zero.

For the model in which marital warmth was the moderator (Figure 5), model fit was acceptable, $\chi^2(55) = 156.29, p < .01$, CFI = .94, RMSEA = .071. The interaction between marital hostility and marital warmth in the prediction of adolescents' adjustment problems was not significant. Marital warmth was associated with decreases in internalizing problems over time ($\beta = -.22, p < .05$).

For the model in which effective conflict resolution was the moderator (Figure 6), model fit was acceptable, $\chi^2(55) = 147.52, p < .01, CFI = .95, RMSEA = .068$. The interaction between marital hostility and effective conflict resolution in the prediction of changes in adolescents' adjustment problems was not significant.

Youth Gender Moderation

The moderating effects of cooperative marital conflict in the associations between marital hostility and adolescent adjustment problems were examined across girls and boys. For the model that cooperative marital conflict was the moderator, the comparison between the constrained model and the model in which the structural paths were allowed to vary was not significantly different, $\Delta\chi^2 = .61, \Delta df = 2, p > .05$. This suggests that the lack of moderating effects of cooperative marital conflict was similar across girls and boys.

For the model in which constructive problem solving was the moderator, the comparison between the constrained model and the model in which the structural paths were allowed to vary was not significantly different, $\Delta\chi^2 = 1.49, \Delta df = 2, p > .05$. Again, this suggests that the lack of moderating effects of constructive problem solving was similar across girls and boys.

This lack of youth gender moderation also was evident in the model for marital warmth, $\Delta\chi^2 = 1.04, \Delta df = 2, p > .05$, and for effective conflict resolution, $\Delta\chi^2 = 2.28, \Delta df = 2, p > .05$. In sum, the association between marital hostility and youth adjustment problems did not vary by parents' cooperative marital conflict or by youth gender.

Hypothesis 3 Testing: The Mediating Effects of Youth Responses to Marital Conflict of the Direct Association between Marital Hostility and Adolescents' Adjustment Problems

The third hypothesis was that youth responses to marital conflict mediate the associations between marital hostility and changes in adolescents' adjustment problems. To test this hypothesis, marital hostility, youth responses to marital conflict, and adolescents' internalizing and externalizing problems were included in the model (Figure 7). Youth responses to marital conflict were conceptually associated with each other and thus were correlated.

Model fit was acceptable, $\chi^2(86) = 254.26, p < .01, CFI = .92, RMSEA = .073$. The total indirect effect of youth responses to marital conflict in explaining the association between marital hostility and changes in internalizing problems over time was significant: $\beta = .08, 95\% [.01, .28]$. The indirect effect of emotion reactions and dysregulation for increases in internalizing problems was significant: $\beta = .04, 95\% [.01, .09]$. The indirect effects of the other responses to marital conflict for changes in internalizing problems were not significant: $\beta = .01, 95\% [-.01, .05]$ for constructive representations; $\beta = .01, 95\% [-.03, .05]$ for self-blame; $\beta = .001, 95\% [-.05, .06]$ for perceived threat for self and family; and $\beta = .03, 95\% [-.02, .08]$ for coping efficacy.

The total indirect effect of youth responses to marital conflict in explaining the association between marital hostility and changes in externalizing problems over time was not significant: $\beta = .02, 95\% [-.04, .10]$. The indirect effects of all the responses to marital conflict for changes in externalizing problems were not significant: $\beta = -.02, 95\%$

[-.07, -.002] for emotional reactions and dysregulation; $\beta = .01$, 95% [-.004, .04] for lower constructive representations; $\beta = .03$, 95% [-.01, .08] for self-blame; $\beta = .02$, 95% [-.02, .08] for perceived threat for self and family; and $\beta = -.01$, 95% [-.06, .03] for lower coping efficacy.

In sum, youth responses to marital conflict did not mediate the significant association between 7th grade marital hostility and increases in adolescent externalizing problems over time. There was, however, a significant indirect pathway from 7th grade marital hostility to increases in adolescent internalizing problems at 9th grade through adolescent's emotional reactions and dysregulation to marital hostility during 8th grade. The term indirect is used for internalizing problems (rather than mediating) because the initial association between marital hostility and changes in youth internalizing problems was not statistically significant.

Youth Gender Moderation

The mediating effects of youth responses to marital conflict in explaining the association between marital hostility and changes in youth adjustment problems were examined across girls and boys. For the omnibus test, the comparison between the constrained model and the model in which the structural paths were allowed to vary was not significant, $\Delta\chi^2 = 18.64$, $\Delta df = 15$, $p > .05$. In individual follow-up analyses, the comparison between the constrained model and the model in which perceived threat to self and family in relation to changes in externalizing problems was allowed to vary was marginally significant, $\Delta\chi^2 = 3.70$, $\Delta df = 1$, $p = .055$. Specifically, the association between perceived threat to self and family and increases in externalizing problems was

significant for girls ($\beta = .21, p < .05$), but not for boys ($\beta = -.04, p > .05$). The indirect effect of perceived threat to self and family in explaining the association between marital hostility and increases in externalizing problems was statistically significant for girls, $\beta = .05, 95\% [.002, .17]$, but not for boys, $\beta = -.01, 95\% [-.07, .02]$. For girls, the direct association between marital hostility and changes in externalizing problems was no longer significant ($\beta = .04, p > .05$). As such, there was a moderated mediation effect in that youth gender moderated the mediating effects of perceived threat to self and family in explaining the association between marital hostility and increases in externalizing problems over time. Perceived threat to self and family completely mediated the association between marital hostility and increases in girls' externalizing problems over time. Perceived threat to self and family did not mediate the association between marital hostility and increases in boys' externalizing problems over time.

Overall, the hypothesis regarding mediating effects of youth responses to marital conflict in explaining associations between marital hostility and adolescents' adjustment problems was partially supported. The indirect effect of emotion reactions and dysregulation in explaining how marital hostility was associated with increases in internalizing problems was significant; the mediating effect of perceived threat to self and family in explaining marital hostility and increases in externalizing problems was significant for girls.

Hypothesis 4 Testing: The Moderating Role of Cooperative Marital Conflict in the Associations between Marital Hostility and Youth Responses to Marital Conflict

The fourth hypothesis was that cooperative marital conflict moderates the associations between marital hostility and youth responses to marital conflict. To examine this hypothesis, marital hostility, cooperative marital conflict, adolescents' responses to marital conflict, and adolescents' changes in internalizing and externalizing problems were included in the model. Please note that even though adolescent problems were included in this model, the moderating effects were examined only for the associations between marital hostility and youth responses to marital conflict.

Across Boys and Girls

General cooperative marital conflict. For the model in which general cooperative marital conflict at 7th grade was the moderator, model fit was acceptable, $\chi^2(104) = 306.54, p < .01, CFI = .91, RMSEA = .073$. The interaction between marital hostility and cooperative marital conflict was associated with lower constructive representations ($\beta = -.25, p < .01$; constructive representations was reverse scored) and self-blame ($\beta = .20, p < .01$). Specifically, marital hostility was associated positively with lower constructive representations when cooperative marital conflict was low ($-1SD, \beta = .21, p < .01$), but was not associated with lower constructive representations when cooperative marital conflict was high ($+1SD, \beta = -.13, p > .05$). As such, cooperative marital conflict provided some protection against marital hostility in the prediction of youths' lower constructive cognitive familial representations. Marital hostility was not associated with self-blame when cooperative marital conflict was low ($-1SD, \beta = .10, p > .05$), but was

associated positively with self-blame when cooperative marital conflict was high (+1SD, $\beta = .30, p < .01$). Thus, cooperative marital conflict exacerbated parent's marital hostility shaping adolescent's appraisals of self-blame for the conflict.

Constructive problem solving. For the model in which the constructive problem solving at 7th grade was the moderator, model fit was acceptable, $\chi^2(104) = 306.41, p < .01, CFI = .91, RMSEA = .073$. As with general marital cooperative conflict, the interaction between marital hostility and constructive problem solving was associated with lower constructive representations ($\beta = -.20, p < .01$) and self-blame ($\beta = .18, p < .01$). Specifically, marital hostility was associated positively with lower constructive representations when constructive problem solving was low (-1SD, $\beta = .25, p < .01$), but was not associated with lower constructive representations when constructive problem solving was high (+1SD, $\beta = -.16, p > .05$). Marital hostility was not associated with self-blame when constructive problem solving was low (-1SD, $\beta = .12, p > .05$), but was associated positively with self-blame when constructive problem solving was high (+1SD, $\beta = .35, p < .01$).

Marital warmth. For the model in which marital warmth at 7th grade was the moderator, model fit was acceptable, $\chi^2(104) = 306.41, p < .01, CFI = .91, RMSEA = .073$. The interaction between marital hostility and marital warmth was associated with lower constructive representations ($\beta = -.17, p < .01$) and self-blame ($\beta = .17, p < .01$). Specifically, marital hostility was associated positively with lower constructive representations when marital warmth was low (-1SD, $\beta = .18, p < .01$), but was not associated with lower constructive representations when marital warmth was high (+1SD,

$\beta = -.12, p > .05$). Marital hostility was not associated with self-blame when marital warmth was low ($-1SD, \beta = .08, p > .05$), but was associated positively with self-blame when marital warmth was high ($+1SD, \beta = .37, p < .01$).

Effective conflict resolution. For the model in which effective conflict resolution at 7th grade was the moderator, model fit was acceptable, $\chi^2(104) = 268.13, p < .01$, CFI = .93, RMSEA = .066. The interaction between marital hostility and effective conflict resolution was associated with lower constructive representations ($\beta = -.21, p < .01$). Specifically, marital hostility was associated positively with lower constructive representations when effective conflict resolution was low ($-2SD, \beta = .36, p < .05$), but was not associated with lower constructive representations when effective conflict resolution was high ($+1SD, \beta = -.26, p > .05$).

Youth Gender Moderation

The moderating effects of cooperative marital conflict in associations between marital hostility and youth responses to marital conflict were examined across girls and boys. For the omnibus model in which the general cooperative marital conflict at 7th grade was the moderator, the comparison between the constrained model and the model where the structural paths were allowed to vary across girls and boys was not significant, $\Delta\chi^2 = 9.50, \Delta df = 5, p > .05$. In individual follow-up analyses, the comparison between the constrained model and the model in which the interaction between marital hostility and cooperative marital conflict in relation to lower constructive representations was allowed to vary was significantly different, $\Delta\chi^2 = 4.14, \Delta df = 1, p < .05$. Specifically, marital hostility interacted with cooperative marital conflict in the prediction of lower

constructive representations was significant for girls ($\beta = -.40, p < .01$), but not for boys ($\beta = -.13, p > .05$). For girls, marital hostility was associated positively with lower constructive representations when cooperative marital conflict was low ($-1SD, \beta = .33, p < .01$), but was associated negatively with lower constructive representations when cooperative marital conflict was high ($+1SD, \beta = -.37, p < .05$). As such, there was a 3-way interaction among marital hostility, cooperative marital conflict, and youth gender in the prediction of adolescents' lower constructive representations. Higher marital hostility was associated with girls' lower constructive representations when their parents had lower cooperative marital conflict. Higher marital hostility were associated with girls' higher constructive representations when their parents had higher cooperative marital conflict. Marital hostility, however, was not associated with boys' constructive representations.

The comparison between the constrained model and the model in which the interaction between marital hostility and cooperative marital conflict in relation to self-blame was allowed to vary also was significant, $\Delta\chi^2 = 5.68, \Delta df = 1, p < .05$. Specifically, marital hostility interacted with cooperative marital conflict in the prediction of self-blame for boys ($\beta = .50, p < .01$), but not for girls ($\beta = .06, p > .05$). For boys, marital hostility was associated positively with self-blame when cooperative marital conflict was high ($+1SD, \beta = .61, p < .01$), but was not associated with self-blame when cooperative marital conflict was low ($-1SD, \beta = .08, p > .05$). As such, there was a 3-way interaction among marital hostility, cooperative marital conflict, and youth gender in the prediction of adolescents' self-blame. Marital hostility was associated with boys' self-blame when

their parents had higher levels of cooperative marital conflict. Marital hostility was not associated with girls' self-blame nor when youths' parents had lower levels of cooperative marital conflict for both boys and girls.

Constructive problem solving. For the model in which constructive problem solving was the moderator, the omnibus comparison between the constrained model and the model in which the structural paths were allowed to vary was not significant, $\Delta\chi^2 = 8.49$, $\Delta df = 5$, $p > .05$. Examining specific aspects of youth responses, the comparison between the constrained model and the model in which the interaction between marital hostility and constructive problem solving in relation to self-blame was allowed to vary was significantly different, $\Delta\chi^2 = 6.05$, $\Delta df = 1$, $p < .05$. Specifically, marital hostility interacted with constructive problem solving in the prediction of self-blame for boys ($\beta = .48$, $p < .01$), but not for girls ($\beta = .02$, $p > .05$). For boys, marital hostility was associated positively with self-blame when constructive problem solving was high (+1SD, $\beta = .59$, $p < .01$), but was not associated with self-blame when constructive problem solving was low (-1SD, $\beta = .13$, $p > .05$). As such, there was a 3-way interaction among marital hostility, constructive problem solving, and youth gender in the prediction of adolescents' self-blame. Marital hostility was associated with boys' self-blame when their parents had higher levels of constructive problem solving. Marital hostility was not associated with girls' self-blame nor when youths' parents had lower levels of constructive problem solving for both boys and girls.

Marital warmth. For the model in which marital warmth was the moderator, the omnibus comparison between the constrained model and the model in which the

structural paths were allowed to vary was not significant, $\Delta\chi^2 = 5.89$, $\Delta df = 5$, $p > .05$. Examining specific aspects of youth responses, the comparison between the constrained model and the model in which the interaction between marital hostility and marital warmth in relation to lower constructive representations was allowed to vary was marginally significant, $\Delta\chi^2 = 3.48$, $\Delta df = 1$, $p = .062$. Specifically, marital hostility interacted with marital warmth in the prediction of lower constructive representations for girls ($\beta = -.31$, $p < .01$), but not for boys ($\beta = -.11$, $p > .05$). For girls, marital hostility was associated positively with lower constructive representations when marital warmth was low ($-1SD$, $\beta = .26$, $p < .05$), but was associated negatively with lower constructive representations when marital warmth was high ($+1SD$, $\beta = -.23$, $p < .05$). As such, there was a 3-way interaction among marital hostility, marital warmth, and youth gender in the prediction of adolescents' lower constructive representations. Higher levels of marital hostility were associated with girls' lower constructive representations when their parents had lower levels of marital warmth. Higher marital hostility was associated with girls' higher constructive representations when their parents had higher levels of marital warmth. Marital hostility, however, was not associated with boys' constructive representations.

Effective conflict resolution. For the model in which effective conflict resolution was the moderator, the omnibus comparison between the constrained model and the model in which the structural paths were allowed to vary was not significant, $\Delta\chi^2 = 8.97$, $\Delta df = 5$, $p > .05$. Examining specific aspects of youth responses, the comparison between the constrained model with the model in which the interaction between marital hostility

and effective conflict resolution in relation to lower constructive representations was allowed to vary across was significant, $\Delta\chi^2 = 4.74$, $\Delta df = 1$, $p < .05$. Specifically, marital hostility interacted with effective conflict resolution in the prediction of lower constructive representations for girls ($\beta = -.34$, $p < .01$), but not for boys ($\beta = -.07$, $p > .05$). For girls, marital hostility was associated positively with lower constructive representations when effective conflict resolution was low ($-1SD$, $\beta = .15$, $p < .05$), but was associated negatively with lower constructive representations when effective conflict resolution was high ($+1SD$, $\beta = -.45$, $p < .01$). As such, there was a 3-way interaction among marital hostility, effective conflict resolution, and youth gender in the prediction of adolescents' lower constructive representations. Higher marital hostility was associated with girls' lower constructive representations when their parents had lower levels of effective conflict resolution. Higher marital hostility was associated with girls' higher constructive representations when their parents had higher levels of effective conflict resolution. Marital hostility, however, was not associated with boys' constructive representations.

Overall, the buffering effects of cooperative marital conflict in the associations between marital hostility and youth responses to marital conflict were partially supported. Cooperative marital conflict in general, marital warmth, and effective conflict resolution in particular ameliorated the negative impact of marital hostility on adolescents' lower cognitive representations among girls. Unexpectedly, marital hostility was associated with boys' self-blame only when their parents demonstrated higher levels of cooperative marital conflict and constructive problem solving.

CHAPTER VI

DISCUSSION

Marital hostility is a salient risk factor for the development of problem behavior among children and adolescents (Buehler et al., 2007; Cui & Conger, 2008; Davies et al., 2012). Yet few studies have examined a positive side of marital conflict, cooperative marital conflict in the context of marital hostility, in relation to early adolescents' adjustment. As a result, little is known about the interactive effects between marital hostility and cooperative marital conflict on adolescents' adjustment over time. Furthermore, even fewer researchers have examined the mechanisms that explain the contributions of cooperative marital conflict to early adolescents' resilience, ameliorating the potentially deleterious effects of marital hostility on youth well-being over time.

This study contributes to the literature by examining the potentially buffering effects of cooperative marital conflict against the negative impact of marital hostility on early adolescents' adjustment over time. The study suggests the possibility of resilience, with parents' and adolescents' strengths being tapped to overcome the negative impact of adversity. Research that examines families and youth development or marital relationships and youth development is more likely to be framed within the context of risk, deficit, and vulnerability (Cummings & Davies, 2010; Grych & Fincham, 1993). Theory and research rarely recognize both challenges and strengths in everyday family

interactions and even fewer studies have examined their interactive effects on youth development, although there is a growing body of literature on social capital and families (e.g., Furstenberg, 2005). A shift to understanding strengths in the context of challenges and adversity may have the potential to increase a sense of self-efficacy in families and youth. Specifically, this study seeks to identify the strength in the marital conflictual interactions in relation to youth adjustment over time through examining four major research questions.

Direct Associations between Marital Hostility and Adolescents' Adjustment Problems

Marital Hostility and Changes in Early Adolescents' Externalizing Problems

Marital hostility at 7th grade was associated with increases in early adolescents' externalizing problems from 7th grade to 9th grade. This supports the hypothesis derived from social learning theories. Adolescents pay attention to parents' hostile interactions, retain the interactions as behavioral guide in their minds, practice these hostile interactions with others, and motivate themselves to approach their own social and relational interactions in a hostile way when hostility is rewarded in their parents' interactions (Bandura, 1986; Maccoby & Martin, 1983). Over time, adolescents' aggression may stabilize and develop into a repertoire of heightened externalizing problems. This proposition has been supported by various cross-sectional and several longitudinal studies (Buehler et al., 1997; Grych et al., 2003; Schoppe-Sullivan et al., 2007). The significant association between marital hostility and increases in externalizing problems found in the present study is consistent with prior theory and research findings.

The finding also extends the proposition to include the negative impact of marital hostility on youth externalizing problems during the high school transition (i.e., from 8th grade through 9th grade).

The learning processes of acting out behaviors in the context of marital hostility also suggest that adolescents may develop aggressogenic cognitions when experiencing marital hostility in the families (Grych et al., 2013; Marcus et al., 2001). Supporting this explanation, a number of studies showed that children's hostile attribution bias (Marcus et al., 2001) and legitimacy of aggression (Fite et al., 2008; Kinsfogel & Grych, 2004) serve as mediators in the association between marital hostility and children's externalizing problems concurrently and prospectively. Future studies are warranted to examine whether adolescents' aggressogenic cognitions explain how marital hostility leads to elevated externalizing problems during early adolescence.

The differential developmental trajectories of aggression and delinquency also may need specific examinations in the context of marital hostility. As found in various community samples, aggression typically decreases over the course of adolescence. Benson and Buehler (2012) focused on the early and middle adolescent years and found adolescents demonstrated a significant linear declining trend of aggression from 6th grade through 9th grade. A large-scale survey also suggested a decreasing trend of physical aggression between ages 8 and 15 (Maughan, Rowe, Messer, Goodman, & Meltzer, 2004). Delinquency, on the other hand, typically increases during adolescence and reaches a peak in late adolescence and early adulthood, which is defined as the age-crime curve (Blonigen, 2010). Antisocial behavior also increases with age and this holds for

both boys and girls (Farrington, 2009). As such, aggression and delinquency or antisocial behavior could be considered as distinct constructs given their different development courses. As a result, marital hostility may be associated with the trajectory of externalizing problems differently depending on the types of problems. This is an area for future research attention.

Marital Hostility and Changes in Early Adolescents' Internalizing Problems

From a stress process perspective, high levels of hostile interactions between parents can be stressful for adolescents (Cassel, 1976; Cummings et al., 1981; Pearlin & Turner, 1995). Marital hostility may be associated with elevated levels of adolescents' internalizing problems over time through physiological and psychological stress-mediated processes. This proposition has been supported by several longitudinal studies (Schoppe-Sullivan et al., 2007; Shelton & Harold, 2008). Contrary to theory and prior research, marital hostility at 7th grade in this sample was not associated with increases in early adolescents' internalizing problems from 7th grade to 9th grade. One possible explanation is that marital interactions may carry less weight in relation to youth internalizing problems during the school transition from 8th grade to 9th grade. Barber and Olson (2004) examined the patterns of change in perceived school and youth functioning, and the extent to which family and school environment predicted changed youth functioning. They found that youth internalizing problems did not vary by whether the transition occurred in conjunction with one or more family problems reported in the same year. Perceived changes in several elements of the school environment (e.g., perceived change in teacher support), however, did significantly explain changes in levels of youth

internalizing problems during the transition to high school in the Barber and Olson sample.

Another possibility may be the nature of the developmental trajectory of internalizing problems during early adolescence. According to the zero-order correlations, marital hostility at 7th grade was associated with higher levels of internalizing problems at both 7th grade and 9th grade. When internalizing problems at 7th grade was controlled, however, marital hostility was not associated with *increases* in early adolescents' internalizing problems from 7th grade to 9th grade. Although youth tend to display increased internalizing problems during early adolescence due to increased vulnerability and reactivity to stressful events involving others, and greater rumination about events and emotions (Leadbeater, Blatt, & Quinlan, 1995; Nolen-Hoeksema, 1994; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000), internalizing problems might peak before entering high school. Adolescents may be able to handle stressors over time because of their significant increased reasoning and decision-making capabilities associated with brain development in the frontal lobes (Reyna & Farley, 2006). As such, marital hostility can be stressful for youth, but it might not lead to increases in depression, anxiety, or somatic complaints. Future studies are warranted to replicate the finding of the association between marital hostility and youth internalizing problems during the transition to high school.

The Moderating Effect of Cooperative Marital Conflict in the Direct Associations between Marital Hostility and Adolescents' Adjustment Problems

Considering adolescents' heterogeneous adjustment in the context of marital hostility, cooperative marital conflict might serve as one of the resources that contributes to adolescents' resilience in the presence of marital hostility (Cummings & Davies, 2002; Rutter, 2006a, 2006b). Few studies have examined the potentially buffering effect of cooperative marital conflict against the negative impact of marital hostility on adolescents' adjustment. Some tangential studies have suggested that the cooperative marital conflict in general and effective conflict resolution in particular may protect children from developing problem behavior (Erath et al., 2006; Kerig, 1996). Moving one step further, the present study examined the moderating effect of cooperative marital conflict and three dimensions of cooperative marital conflict in mitigating the negative impact of marital hostility on increases in problem behavior over the course of early adolescence.

Contrary to the hypothesis, no significant ameliorating effect of cooperative marital conflict was found. One possibility is that the messages cooperative marital conflict convey may not be beneficial in terms of reducing adolescents' worries, anxiety, and acting out behaviors because the meanings of these messages might vary across adolescents (Grych & Fincham, 1990). Some adolescents might interpret parents' constructive ways of managing conflict as efforts in working out the differences, maintaining a happy marriage and family, and reducing future incidents of conflicts and arguments. Others, however, might hold pessimistic views and perceive the seemingly

positive interactions as useless in the context of fighting, arguing, and screaming. Based on differential perceptions, adolescents may display different emotional, cognitive, and behavioral reactions to marital conflict. It is also conceivable that adolescents' responses to marital conflict are considered as more proximally susceptible to the impact of marital hostility and cooperative marital conflict than is more distal adjustment problems. As such, examining adolescents' reactions to marital hostility might provide more insights for how cooperative marital conflict may buffer the negative impact of marital hostility on the development of problem behavior. Furthermore, during early adolescence, other socializing forces, including peers and school factors, are becoming increasingly important in shaping the developmental changes of problem behavior as youth start to broaden their social world (Steinberg, 2000). As a result, without considering peer and school influences, it might be difficult to detect the buffering effect of cooperative marital conflict in the presence of hostile marital interactions.

Although the moderating effect of cooperative marital conflict was not significant, marital warmth was associated with decreases in internalizing problems above and beyond marital hostility (i.e., unique, main effects). Prior family process literature mainly focuses on marital warmth in relation to marital relationships rather than in relation to child and youth adjustment (Fincham, 2003; Proulx et al., 2009). This finding adds to the literature by suggesting that positive marital interactions may imply love, harmony, and support to youth even when youth have witnessed parents' hostile interactions. Youth also might be less likely to regulate their exposure to marital hostility by intervening in disputes when parents constructively manage the discord (Cummings & Davies, 1996).

Over time, youth might be less likely to become distressed and anxious during early adolescence.

Future studies are warranted to replicate the potential buffering effect of cooperative marital conflict on other domains of adolescent adjustment, especially positive aspects of social functioning. Theoretically, a developmental psychopathology approach suggest the importance of understanding adolescents' development as a whole, both the positive and negative aspects of development and well-being (Cumming, Davies, & Campbell, 2000). Examination of the prosocial behavior beyond the general problem behavior would provide a more complete picture of whether and how cooperative marital conflict contributes to adolescents' resilience in the context of marital hostility. Although research is sparse pertaining to the positive side of marital interactions and adolescent development, a small body of research has suggested that cooperative marital conflict is associated with increases in children's prosocial behavior during the early childhood, above and beyond the main effects of marital hostility (Davies et al., 2012; McCoy et al., 2009). Additionally, parents' use of constructive problem solving skills and effective conflict resolution has helped children develop problem solving and coping skills of their own (Bryant & DeMorris, 1992; Goodman et al., 1999). As such, it is plausible that cooperative marital conflict or the sub-dimensions of cooperative marital conflict may supply needed resources that promote adolescents' resilience for the development of prosocial behavior in the presence of marital hostility. This is an area for future research attention.

The Mediating Effects of Youth Responses to Marital Conflict of the Direct Association between Marital Hostility and Adolescents' Adjustment Problems Externalizing Problems

The hypothesis that youth responses to marital conflict mediate the association between marital hostility and changes in adolescents' externalizing problems was partially supported. The association between marital hostility and increases in externalizing problems was completely mediated by perceived threat to self and family for girls. Perceived threat to self and family is considered as the secondary cognitive appraisal of marital hostility. Adolescents' appraisals of marital hostility are critical attempts to understand the nature and causes of stressors (i.e., marital hostility), its implications for them and their family, and what they can do about it (Grych & Cardoza-Fernandes, 2001). Once youth perceive that marital hostility is relevant for them (a primary appraisal), they may feel threatened by marital hostility because they think that this continued hostility may lead to relationship disruption or dissolution or that this hostility may escalate and/or be directed toward themselves (Davies et al., 2002). Although perceived threat has been suggested to increase youth risk for internalizing problems, several studies also have found a significant mediating effect of threat for externalizing problems (Grych et al., 2003; Kim, Jackson, Conrad, & Hunter, 2008). Youth may react to their worry and fear in the context of marital hostility by modeling parents' maladaptive communication modes in their social interactions in order to protect themselves from negative emotions.

The mediating effect of perceived threat to self and family as relevant for girls but not for boys is consistent with the communal hypothesis. Davies and Lindsay (2004) drew on a gender socialization model to explicate the different reactions of boys and girls to marital conflict. Both boys and girls may conform to gender role expectations such that girls are more likely to emphasize communal goals or interpersonal connectedness whereas boys might stress agentic goals, assertion, or individual well-being (Davies & Lindsay, 2001). The differentiation of gender roles becomes increasingly larger during adolescence and may lead to greater differentiated reactivity to marital discord (Davies & Lindsay, 2004). Girls' tendencies toward communion may exacerbate the negative effects of witnessing marital hostility on their adjustment. The significant mediating effect of perceived threat for girls found in this sample supported this idea. Other scholars, however, have suggested that marital hostility may have a stronger effect for boys' adjustment problems than girls', especially externalizing problems (Kinsfogel & Grych, 2004; Simon & Furman, 2010). Boys are more likely to focus on their own needs and thus may consider aggressive ways of conflict styles, which they watch and learn in their parental conflict scenarios, as acceptable or even effective ways to express their anger or achieve their goals (Simon & Furman, 2010). Future studies should assess the potential mechanisms (i.e., tendencies toward communion and aggressogenic beliefs) and examine each together to better understand gender differences in this pathway.

Internalizing Problems

The hypothesis that youth responses to marital conflict mediate the associations between marital hostility and changes in adolescents' internalizing problems was partially

supported. Rather than a mediating effect, however, there was an *indirect effect* from marital hostility to increases in internalizing problems through emotion reactions and dysregulation. The term indirect effect is used rather than mediating effect given the main effect of marital hostility on increases in adolescent internalizing problems was not statistically significant. Theoretically, the goal of preserving emotional security in face of marital hostility is hypothesized to link marital hostility and adolescent development (Waters & Cummings, 2000). Emotional reactions (e.g., fear, anger, vigilance, and distress) and regulation of exposure to conflict (e.g., mediation, avoidance, and behavioral dysregulation) constitute important response systems to preserve security in the interparental system. Repeated activation of emotional and behavioral responses systems following exposure to marital hostility can be maladaptive for child's psychological adjustment over time due to priming effects, interruptions with stage-salient tasks, and potential malfunction of reactions to stress and conflict in alternative contexts (Davies et al., 2006; Grych et al., 2013). The significant indirect effect from marital hostility to increases in internalizing problems through emotion reactions and dysregulation found in this sample supports this emotional security proposition and also is consistent with results from prior cross-sectional and longitudinal studies (Davies & Cummings, 1998; Davies, Harold et al., 2002; Harold et al., 2004).

The Moderating Role of Cooperative Marital Conflict in the Associations between Marital Hostility and Youth Responses to Marital Conflict

The hypothesis that cooperative marital conflict in general and the sub-dimensions of cooperative marital conflict in particular buffer the negative impact of

marital hostility on adolescents' responses to marital conflict was partially supported. Specifically, marital hostility was associated positively with girls' lower constructive representations when cooperative marital conflict in general, marital warmth, or effective conflict resolution was low. Marital hostility was associated negatively with girls' lower constructive representations when cooperative marital conflict in general, marital warmth, or effective conflict resolution was high. A risk and resilience perspective emphasizes the importance of understanding the resilience process beyond the factors that supply the resources for resilience (Fergus & Zimmerman, 2005; Luthar et al., 2000). Given the multi-dimensional nature of cooperative marital conflict (Buehler et al., 1997), the examination of sub-dimensions of cooperative marital conflict in relation to adolescents' resilience in the context of marital hostility may provide more theoretical and empirical insights. It seems that the buffering effect of overall cooperative marital conflict for constructive representations is driven by marital warmth and effective conflict resolution rather than by constructive problem solving.

Marital warmth is a distinct construct from marital hostility and represents the emotional atmosphere in the marital relationships (Henry et al., 2007). Youth constructions of the meanings of the marital conflict based on their repeated experiences with parents' conflict and cooperative marital conflict may alter the negative cognitive representations of hostile interactions. In support of this idea, prior research suggests that parents' emotionality during conflicts communicates the meaning of marital interactions to children (Crockenberg & Langrock, 2001; Cummings et al., 2002; Shifflett-Simpson &

Cummings, 1996). Specifically, children perceive that adults' conflicts are more managed when adults' emotional expressions are positive than negative.

In this study, marital hostility was associated with lower constructive representations when marital warmth was low. Hostile marital interactions threaten youth security about marital and family relationships and thus adolescents predict that parents may not work out the disagreement and the family may become unstable (Cummings & Davies, 2010). Marital hostility, however, was associated with higher constructive representations when marital warmth was high. The positive atmosphere (i.e., emotionality) and behavior (i.e., content) during the conflict process may imply parents' efforts to work out differences to achieve harmony in the marital and family relationships. Extending prior research focusing on the buffering effect of positive emotionality during conflict interactions on children's reactions to marital conflict, the finding from this sample suggests that parents' both positive emotionality and behavior during hostile interactions have salutary effects on early adolescents' cognitive representations of the marital and family systems over time in the context of marital hostility.

Effective conflict resolution also is distinct from marital hostility and refers to the overall perception of the subsidence and resolution state of the conflict ending. There is evidence that youth perceive less threat when marital hostility was negotiated or resolved (Lindahl & Malik, 2011). As such, both the warmth and resolution state cues may imply to youth positive, sympathetic, and harmonious representations of the marital and family relationships, which ultimately could help reduce the weakening, disrupted representations constructed from hostile marital interactions.

Constructive problem solving, however, did not serve as a buffering factor in the context of marital hostility. Parents' employment of problem solving skills during hostile interactions may not adequately imply positive sign of family harmony as compared to the emotional atmosphere during and after conflict processes and episodes.

Overall, the findings from this study were consistent with the proposition that conflict is inevitable during marital interactions and may have either negative or positive impact on youth adjustment depending how parents manage the conflict (Grych et al., 2013). This contributes to the understanding of the specificity of the cooperative marital conflict that could protect adolescents from the negative impact of hostile marital interactions. Future prevention and intervention could promote parents' expressions of understanding, sympathy, and love as well as their efforts to resolve conflict in order to reduce the levels of negative appraisals following marital hostility (Goeke-Morey et al., 2003).

The ameliorating effects of cooperative marital conflict in general, and marital warmth and effective conflict resolution in particular are only found for girls but not for boys. Again, this is consistent with the communal hypothesis (Davies & Lindsey, 2001) and girls might be more likely to detect the positive cues during the conflict processes and thus are able to reduce negative representations.

Contrary to the expectation, marital hostility was associated with boys' self-blame only when their parents demonstrated higher levels of cooperative marital conflict and constructive problem solving. Prior research has consistently found a direct effect of simulated or daily constructive problem solving such as compromise and apology on

reducing children's emotional and cognitive responses to marital conflict using cross-sectional designs (Cummings et al., 1991; Goeke-Morey et al., 2007). The present study extends the literature by examining the moderating effect of constructive problem solving on reducing adolescents' multiple responses to marital conflict over time in the presence of marital hostility. The unexpected result may be that boys are confused by the mixed cues of high levels of cooperative marital conflict in the context of marital hostility and may blame themselves for the hostile interactions over time. Future studies are needed to further understand the underlying processes associated with this particular finding.

Limitations and Suggestions for Future Research

This study makes an important contribution to the literature focusing on the moderating effects of cooperative marital conflict against the negative impact of marital hostility on adolescents' adjustment and youth responses to marital conflict. Nevertheless, several limitations should be addressed in further studies.

The current study relied on prospective data and was unable to draw conclusions about causality or direction of effects. Specifically, adolescents' responses to marital conflict at 7th grade were not controlled, which represents a threat to internal validity. Actually, associations between marital conflict and youth responses to marital conflict may be reciprocal. Theoretically, emotional, cognitive, behavioral responses to marital conflict might serve as responses systems to regain acceptable levels of emotional security (Cummings & Davies, 1996). For instance, youth involvement in marital conflict may signal to parents about the potential negative impact on children and thus potential effective management of conflict might be enhanced. In support of this idea,

Schermerhorn and colleagues have found that children's ensuing perceived agency (i.e., impulses to influence marital conflict) and agentic behavior (i.e., behavioral involvement) following marital conflict was associated with reduced marital conflict over time (Schermerhorn, Cummings, & Davies, 2005, 2008). In spite of the reciprocal association, the findings in the present study still are meaningful. The findings are consistent with theories suggesting that marital hostility leads to multiple responses to marital conflict among adolescents. Furthermore, intervention and prevention on reducing marital discord is promising for reducing youth negative responses to marital conflict.

The generalizability of findings may be influenced by characteristics of the sample. Participants represented two-parent families of largely European American descent. Thus, these results may not be applicable to adolescents from different ethnic groups and family structures. No studies, to my knowledge, have examined the potentially buffering effect of cooperative marital conflict across ethnic groups and families of different structures (e.g., single families, stepfamilies). The present study represents initial research effort at examining cooperative marital conflict in relation to early adolescents' adjustment and responses to marital conflict over time in the context of marital hostility. Future studies are needed to replicate the findings in diverse sample and elucidate the underlying processes with regards to possible similarities and differences across different populations.

Aside from the limitations, the present study provides important insights for prevention and intervention efforts at reducing the negative impact of marital hostility on youth well-being. An understanding of the moderating value of cooperative marital

conflict on the effects of marital hostility on adolescents' adjustment allows for better prediction, prevention, and intervention of the development of adjustment problems during early adolescence. First, the salient ameliorating effects of cooperative marital conflict provide plausible evidence in explaining why not all youth experiencing marital hostility develop maladaptive problems over time (El-Sheikh & Harger, 2001). The present study provides valuable information on the potential mitigating effects of cooperative marital conflict on youth responses to marital conflict in the presence of marital hostility. Second, the findings in the present study provide research-based evidence for designing prevention and intervention efforts at reducing the negative impact of marital hostility on children and adolescents' well-being. Training on expressions of affection, love, and appreciation, and displaying effective conflict resolution for parents could be integrated into programs to reduce youth negative response to marital conflict. An important caveat is that these positive conflict process needs to be instructed and practiced at the same time when hostile marital conflict happens. Actually, several psychoeducation programs that provides knowledge about marital conflict and teaches parents conflict management skills have been found to be effective in reducing the incidents of conflict, and to improve marital and children's well-being over time (Cummings, Faircloth, Mitchell, Cummings, & Schermerhorn, 2008; Faircloth, & Cummings, 2008; Faircloth, Schermerhorn, Mitchell, Cummings, & Cummings, 2011). These intervention programs, however, were limited by the major focus on instructions of problem solving skills, a small enrollment of participants, and confined group of parents (having children 4-8 years of age). Future interventions are

needed to expand the contents by including marital warmth and effective conflict resolution and examine the effectiveness across different groups of parents varying by ethnicity, country, and age of child.

Conclusion

This study examined the buffering effects of cooperative marital conflict against the negative impact of marital hostility on early adolescents' adjustment and responses to marital conflict over time. Cooperative marital conflict did not ameliorate the association between marital hostility and youth adjustment over time. Cooperative marital conflict in general, and marital warmth and effective conflict resolution in particular, buffered the negative impact of marital hostility on adolescent girls' constructive representations. Cooperative marital conflict in general, and constructive problem solving in particular, amplified the negative impact of marital hostility on adolescent boys' self-blame. Findings highlight the importance of considering and examining the positive side of conflict process in relation to youth adjustment over time in the context of marital hostility. Results also contribute to theory development by providing evidence for the distinctness of cooperative marital conflict and marital hostility and their interactive effects on youth responses to marital conflict. Given the consistent pathological effects of marital hostility for the development of a wide domain of youth adjustment, further studies should continue to examine the buffering effects of cooperative marital conflict in the presence of marital hostility for other domains of youth adjustment and across different groups of families and youth.

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APPENDIX A
TABLES AND FIGURES

Table 1. Factor Loading Matrix of the Exploratory Factor Analysis (EFA)

		EFA			
	Emotional reaction and dysregulation	Lower constructive representations	Self-blame	Perceived threat to self and family	Lower coping efficacy
1. I feel angry.	.80	.12	.08	-.36	.05
2. I feel sad.	.85	-.02	-.05	-.11	.07
3. I try to hide what I'm feeling.	.64	.11	.08	-.01	.10
4. I can't stop thinking about their problems.	.77	.12	-.02	.17	-.04
5. It ruins my whole day.	.68	.01	.20	.15	-.07
6. I can't seem to calm myself down.	.68	.16	.17	.15	-.09
7. I can't seem to shake off my bad feelings.	.74	.21	.12	.11	-.05
8. I try to pretend that things are better.	.67	.01	.14	-.18	-.07
9. I feel sorry for one or both of my parents.	.68	-.13	.01	.07	.04
10. I try to be on my best behavior.	.57	-.30	-.08	-.12	-.06
11. I don't know what to do.	.75	-.05	.01	.11	.08
12. I wait and hope things will get better.	.65	-.31	-.15	.07	.09
13. I end up doing nothing even though I wish I could do something.	.78	-.08	-.07	-.10	.20
14. I keep really still, almost as if I were frozen.	.72	-.08	-.07	.07	.13
15. The family is still able to get along with each other (R).	.02	.74	.03	-.08	.06

Note. R reverse coded. Bold loadings indicate the loadings for a given factor that the item was loaded on.

Table 1. *Continued*

		EFA			
	Emotional reaction and dysregulation	Constructive representations	Self- blame	Perceived threat to self and family	Coping efficacy
16. I know they still love each other (R).	-.05	.99	-.10	.05	.004
17. I know that everything will be okay (R).	.07	.88	-.06	.14	.02
18. I believe that they can work out their differences (R).	.02	.89	-.004	-.02	-.01
19. My parents often get into arguments about things I do at school.	-.06	.25	.69	-.18	.03
20. It's usually my fault when my parents argue.	.04	-.08	.90	.08	-.04
21. My parents' arguments are usually about something I did.	-.12	.02	.95	.02	.05
22. Even if they don't say it, I know I'm to blame when my parents have arguments.	.14	-.06	.80	.16	-.02
23. My parents usually argue or disagree because of things I do.	.03	.01	.92	-.004	.03
24. My parents get into arguments when I do something wrong.	.03	-.03	.80	-.03	.17
25. When my parents argue I worry about what will happen to me.	.04	.12	.24	.50	.12
26. When my parents argue I worry that one of them will get hurt.	.01	.14	-.02	.73	.11
27. When my parents argue I worry that they might get divorced.	.23	.05	.06	.73	-.01
28. When my parents argue I'm afraid that something bad will happen.	.21	.002	.18	.70	.13
29. When my parents argue I can usually help make things better (R).	.10	.04	.09	-.31	.61
30. When my parents argue there's nothing I can do to stop them.	-.22	-.02	-.01	.07	1.01
31. When my parents argue there's nothing I can do to make myself feel better.	.04	.32	.02	.09	.52
32. When my parents argue they don't listen to anything I say.	.03	.09	.24	-.01	.53

Table 2. Descriptive Statistics and Intercorrelations between Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1. Marital Hostility-MR	-----			-.50	-.28	-.56	-.52							.14	.13	.18	.28
2. Marital Hostility-FR	.61	-----		-.48	-.30	-.53	-.51							.10	.14	.11	.31
3. Marital Hostility-OR	.24	.31	-----	-.20	-.09	-.14	-.17							.04	.07	.07	.09
4. CPS	-.51	-.54	-.25	.76	.51	.56	.74	-.13	-.10	-.06	-.14	-.24	-.20	-.22	-.08	-.17	
5. Marital Warmth	-.29	-.35	-.15	.62	.67	.37	.63	-.07	-.16	-.02	-.08	-.12	-.20	-.24	-.08	-.16	
6. ECR	-.51	-.50	-.23	.57	.42	.78	.65	-.31	-.27	-.27	-.30	-.43	-.32	-.32	-.18	-.20	
7. CMC	-.52	-.55	-.25	.93	.82	.72	.81	-.18	-.18	-.11	-.18	-.28	-.26	-.29	-.12	-.20	
8. ERD	.21	.16	.04	-.10	-.07	-.24	-.14	-----					.29	.23	.12	.05	
9. Lower CR	.08	.10	.02	-.02	-.11	-.20	-.10	.06	-----				.15	.19	.11	.24	
10. SB	.23	.11	-.03	-.06	.04	-.16	-.06	.30	.15	-----			.23	.22	.27	.26	
11. Perceived Threat	.25	.18	.06	-.08	.00	-.18	-.09	.49	.26	.32	-----		.22	.20	.16	.14	
12. Lower Coping Efficacy	.26	.24	.13	-.18	-.08	-.37	-.22	.26	.25	.26	.26	-----	.32	.26	.20	.16	
13. Internalizing-YSR	.14	.09	.05	-.10	-.02	-.30	-.13	.22	.17	.29	.20	.38	.47	.67	.54	.32	
14. Internalizing-CDI	.11	.10	.05	-.12	-.04	-.30	-.16	.17	.17	.31	.16	.34	.64	.34	.43	.37	
15. Externalizing-YR	.17	.06	.01	.00	.07	-.21	-.02	.13	.12	.28	.16	.22	.67	.55	.50	.43	
16. Externalizing-PR	.26	.30	-.01	-.14	-.14	-.16	-.17	.06	.22	.24	.11	.20	.26	.26	.42	.80	
	W2	W2	W2	W2	W2	W2	W2	W3	W3	W3	W3	W3	W3	W2	W2	W2	W2
<i>M</i>	1.76	1.76	2.04	-.01	-.01	-.001	-.01	1.60	1.62	1.18	1.17	1.56	9.48	1.59	8.78	7.34	
<i>SD</i>	.43	.45	.92	.78	.71	.44	.56	.51	.83	.34	.35	.44	8.33	2.56	6.96	5.69	
Skewness	.43	.70	1.22	.12	-.29	-.32	.02	1.27	1.44	2.48	2.42	.82	1.67	3.00	2.06	1.23	
Kurtosis	-.31	.32	1.61	.19	.17	-.43	-.13	1.98	1.26	7.29	6.06	.36	4.57	11.47	7.06	1.64	
				W3	W3	W3	W3						W4	W4	W4	W4	
<i>M</i>				-.01	-.01	-.01	-.01						7.92	1.87	8.58	6.91	
<i>SD</i>				.79	.75	.46	.58						7.46	2.68	7.40	6.28	
Skewness				-.24	-.51	-.43	-.27						1.56	2.28	1.31	1.32	
Kurtosis				.22	.90	-.25	-.12						3.08	6.15	1.89	1.57	

Note. CPS: Constructive Problem Solving. ECR: Effective Conflict Resolution. CMC: Cooperative Marital Conflict. ERD: Emotion Reactions and Dysregulation. Lower CR: Lower Constructive Representations. MR: Mother-Report. FR: Father-Report. OR: Observational Rating. PR: Parent-Report. YR: Youth Report. Bold correlations are significant at $p < .05$. Correlations with cooperative marital conflict at W3 and adjustment problems at W4 were above the diagonal. Correlations with cooperative marital conflict at W2 and adjustment problems at W2 were below the diagonal.

Table 3. Summary of Results for Hypotheses 1 through 4

	Hypothesis 1		Hypothesis 2		Hypothesis 3		Hypothesis 4	
	MH →PB	Youth Gender moderation	MH × CMC → PB	Youth Gender moderation	MH → YRTMC →PB	Youth Gender moderation	MH × CMC → YRTMC →PB	Youth Gender moderation
MH in relation to PB	Sig. for increases in Ext. over time	B=G	N/A	N/A	N/A	N/A	N/A	N/A
Moderating effects of CMC	N/A	N/A	Not Sig.	B = G	N/A	N/A	Sig. for lower CR and SB.	For girls: Sig. for Lower CR; For boys: Sig. for SB.
Moderating effects of CPS	N/A	N/A	Not Sig.	B = G	N/A	N/A	Sig. for Lower CR and SB.	For boys: Sig. for SB.
Moderating effects of MW	N/A	N/A	Not Sig.	B = G	N/A	N/A	Sig. for Lower CR and SB.	For girls: Sig. for Lower CR.
Moderating effects of ECR	N/A	N/A	Not Sig.	B = G	N/A	N/A	Sig. for Lower CR.	For girls: Sig. for Lower CR.
Mediating effect of YRTMC	N/A	N/A	N/A	N/A	Sig. indirect effect: MH→ERD→Int.	For girls: Sig. complete mediating effect: MH→PT→Ext.	N/A	N/A

Note. MH: Marital hostility. CMC: Cooperative marital conflict. CPS: Constructive problem solving. MW: Marital warmth. ECR: Effective conflict resolution. YRTMC: Youth responses to marital conflict. ERD: Emotion Reactions and Dysregulation. PT: Perceived Threat. Lower CR: Lower Constructive Representations. PB: Adjustment problem behavior. Int: Internalizing problems. Ext. Externalizing problems. Sig: Significant.

Figure 2. Associations among Marital Hostility and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control. $N = 366$; Comparative Fit Index = .94; Root Mean Square Error of Approximation = .063. MR: Mother Report; FR: Father Report; OR: Observer Rating; PR: Parent Report; YR: Youth Report. Nonsignificant Coefficients are Indicated by Dotted Lines.

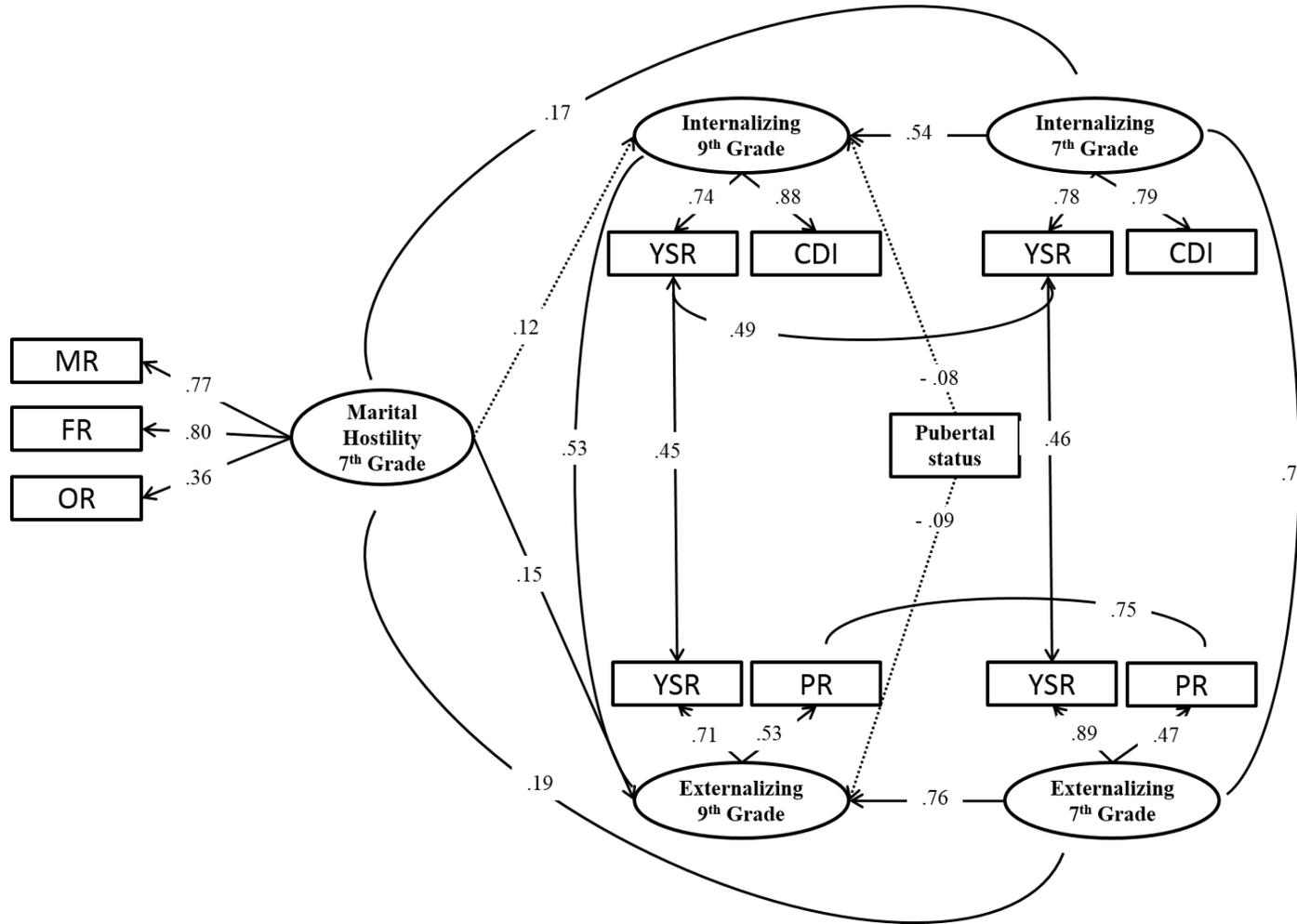


Figure 3. Associations among Marital Hostility, Cooperative Marital Conflict, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control. $N = 366$; Comparative Fit Index = .94; Root Mean Square Error of Approximation = .063. MR: Mother Report; FR: Father Report; OR: Observer Rating; PR: Parent Report; YR: Youth Report. Nonsignificant Coefficients are Indicated by Dotted Lines. Correlations of Marital Hostility, Cooperative Marital Conflict, and the Interaction between Marital Hostility and Cooperative Marital Conflict with Internalizing Problems at 7th Grade were: $\beta = .16, p < .05$, $\beta = -.16, p < .01$, and $\beta = -.07, p > .05$, Respectively. Correlations of Marital Hostility, Cooperative Marital Conflict, and the Interaction between Marital Hostility and Cooperative Marital Conflict with Externalizing Problems at 7th Grade were: $\beta = .18, p < .01$, $\beta = -.06, p > .05$, and $\beta = -.04, p > .05$, Respectively.

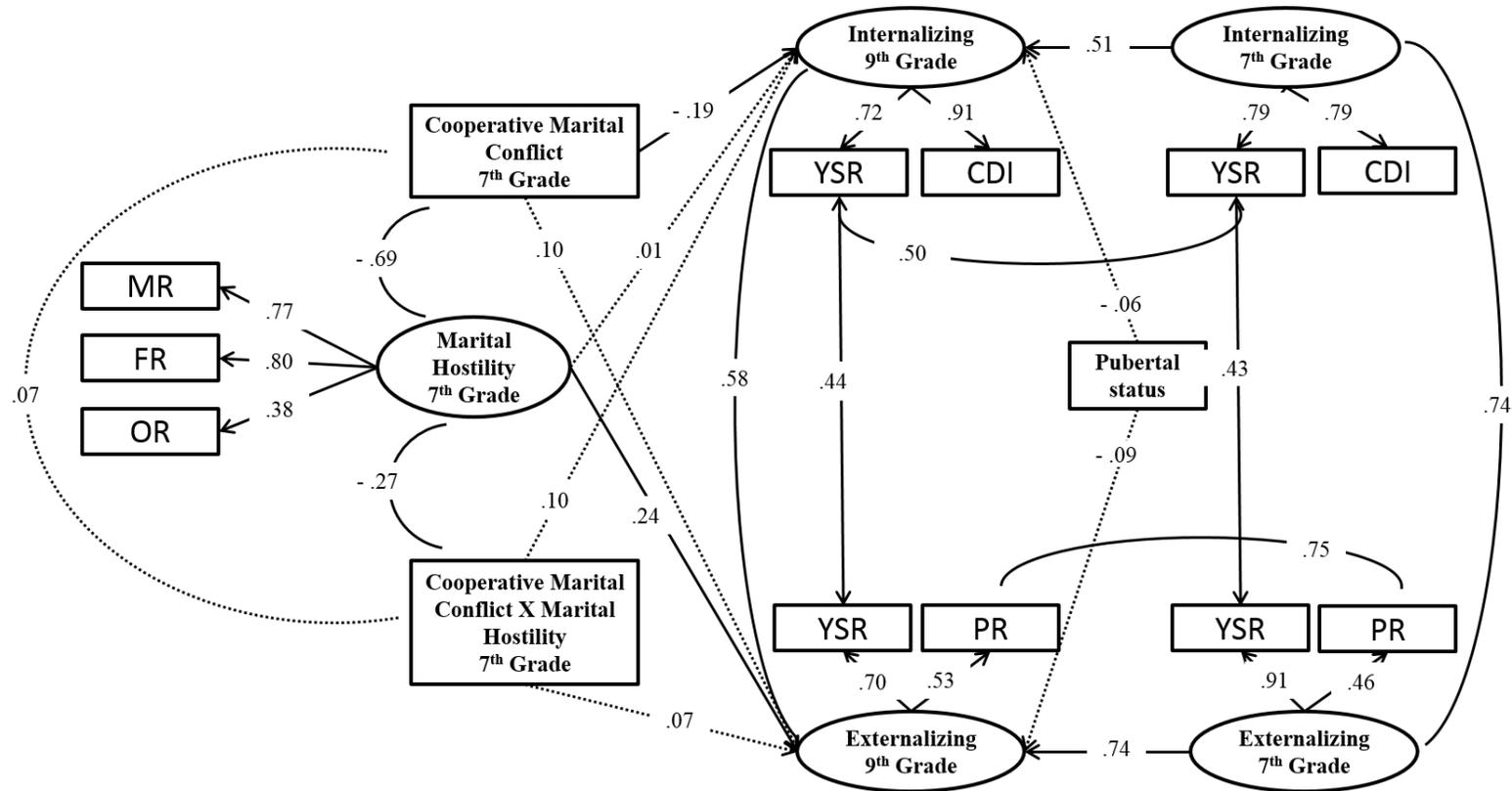


Figure 4. Associations among Marital Hostility, Constructive Problem Solving, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control. $N = 366$; Comparative Fit Index = .94; Root Mean Square Error of Approximation = .063. MR: Mother Report; FR: Father Report; OR: Observer Rating; PR: Parent Report; YR: Youth Report. Nonsignificant Coefficients are Indicated by Dotted Lines. Marginally Significant Coefficients were Indicated by Inter-Dotted Lines. Correlations of Marital Hostility, Constructive Problem Solving, and the Interaction between Marital Hostility and Constructive Problem Solving with Internalizing Problems at 7th Grade were: $\beta = .16, p < .05, \beta = -.12, p < .05,$ and $\beta = -.07, p > .05,$ Respectively. Correlations of Marital Hostility, Constructive Problem Solving, and the Interaction between Marital Hostility and Constructive Problem Solving with Externalizing Problems at 7th Grade were: $\beta = .19, p < .01, \beta = -.04, p > .05,$ and $\beta = -.07, p > .05,$ Respectively.

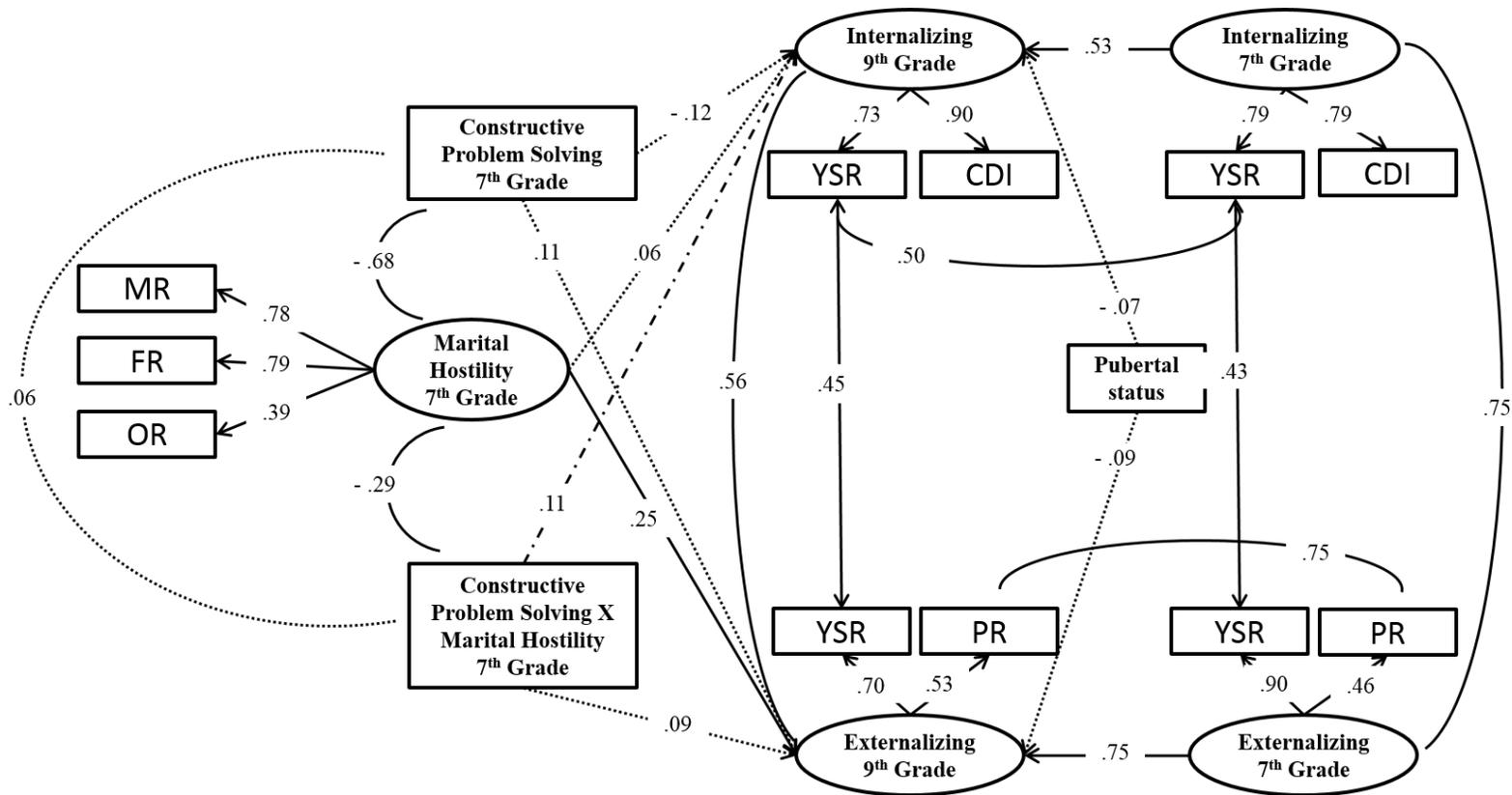


Figure 5. Associations among Marital Hostility, Marital Warmth, and Youth's Internalizing and Externalizing Problems Over Time with Baseline Control. $N = 366$; Comparative Fit Index = .94; Root Mean Square Error of Approximation = .071. MR: Mother Report; FR: Father Report; OR: Observer Rating; PR: Parent Report; YR: Youth Report. Nonsignificant Coefficients are Indicated by Dotted Lines. Marginally Significant Coefficients were Indicated by Inter-Dotted Lines. Correlations of Marital Hostility, Marital Warmth, and the Interaction between Marital Hostility and Marital Warmth, with Internalizing Problems at 7th Grade were: $\beta = .16, p < .05$, $\beta = -.03, p < .05$, and $\beta = -.06, p > .05$, respectively. Correlations of Marital Hostility, Constructive Problem Solving, and the Interaction between Marital Hostility and Constructive Problem Solving with Externalizing Problems at 7th Grade were: $\beta = .17, p < .01$, $\beta = .05, p > .05$, and $\beta = -.01, p > .05$, respectively.

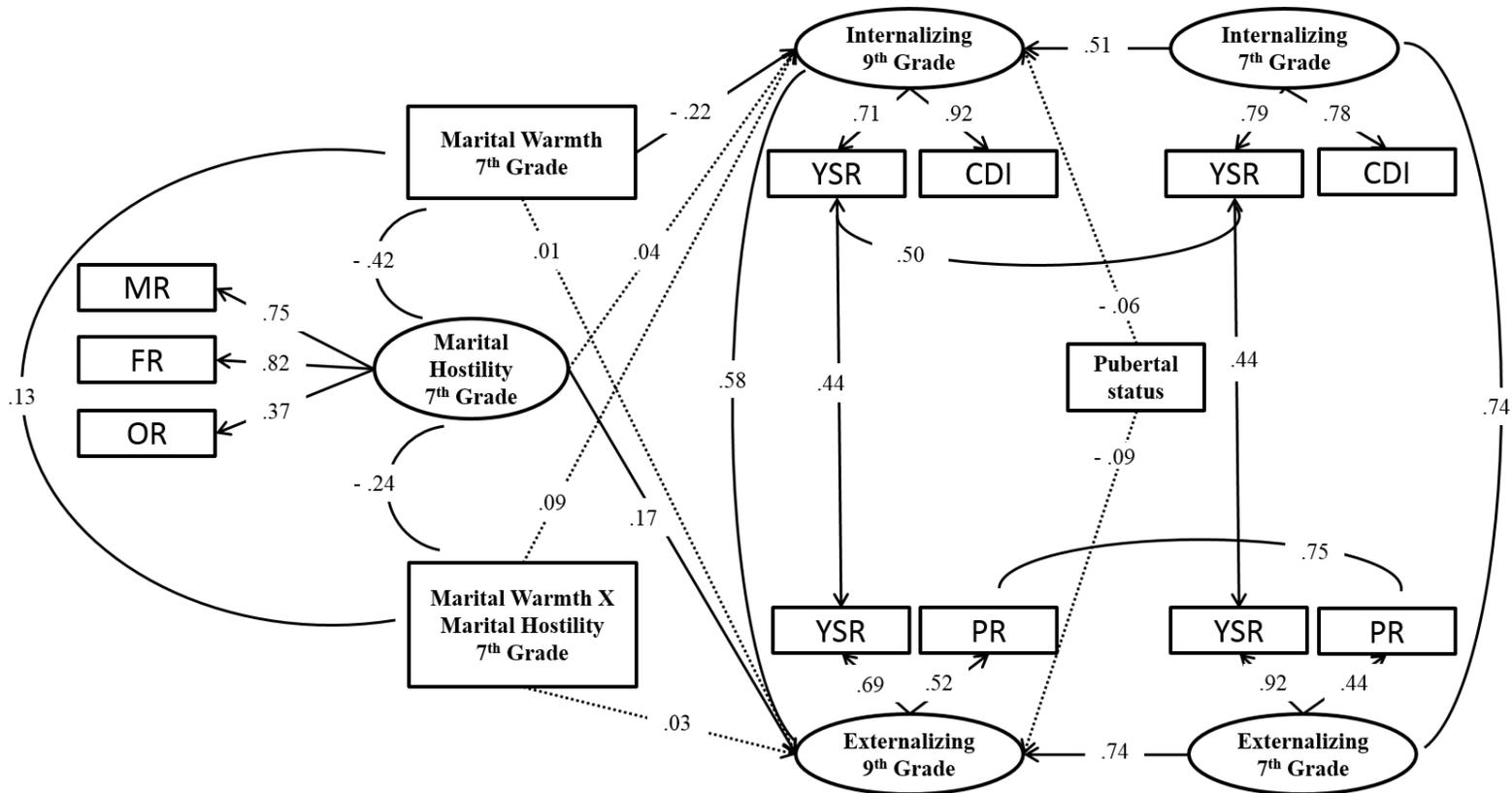


Figure 6. Associations among Marital Hostility, Effective Conflict Resolution, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control. $N = 366$; Comparative Fit Index = .95; Root Mean Square Error of Approximation = .057. MR: Mother Report; FR: Father Report; OR: Observer Rating; PR: Parent Report; YR: Youth Report. Nonsignificant Coefficients are Indicated by Dotted Lines. Marginally Significant Coefficients were Indicated by Inter-Dotted Lines. Correlations of Marital Hostility, Effective Conflict Resolution, and the Interaction between Marital Hostility and Effective Conflict Resolution with Internalizing Problems at 7th Grade were: $\beta = .17, p < .05$, $\beta = -.35, p < .01$, and $\beta = -.02, p > .05$, respectively. Correlations of Marital Hostility, Effective Conflict Resolution, and the Interaction between Marital Hostility and Effective Conflict Resolution with Externalizing Problems at 7th Grade were: $\beta = .20, p < .01$, $\beta = -.25, p > .05$, and $\beta = .02, p > .05$, respectively.

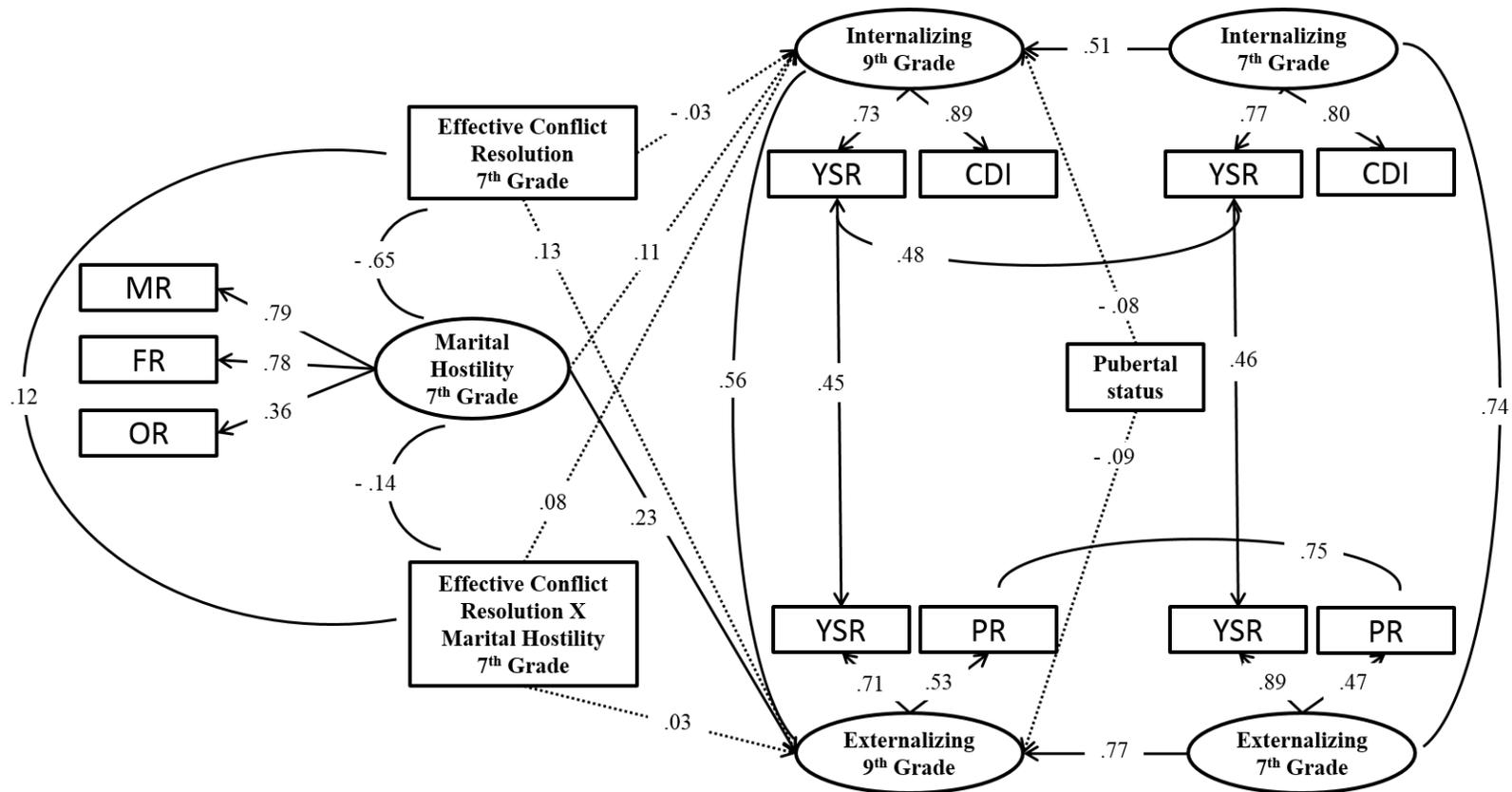


Figure 7. Associations among Marital Hostility, Youth Responses to Marital Conflict, and Adolescents' Internalizing and Externalizing Problems Over Time with Baseline Control. $N = 366$; Comparative Fit Index = .92; Root Mean Square Error of Approximation = .073. Coefficients for Marital Hostility in Relation to Internalizing and Externalizing at 9th Grade: $\beta = .05, p > .05$, and $\beta = .14, p > .01$, Respectively. Coefficients for Marital Hostility in Relation to Internalizing and Externalizing at 7th Grade: $\beta = .23, p < .01$, and $\beta = .23, p < .01$, Respectively. Correlations of Emotion Reactions and Dysregulation with Lower Constructive Representations, Self-Blame, Perceived Threat to Self and Family, and Lower Coping Efficacy were $\beta = .03, p > .05$, $\beta = .25, p < .01$, $\beta = .43, p < .01$, and $\beta = .21, p < .01$, Respectively. Correlations of Lower Constructive Representations with Self-Blame, Perceived Threat to Self and Family, and Lower Coping Efficacy were $\beta = .12, p < .05$, $\beta = .24, p < .01$, and $\beta = .22, p < .01$, Respectively. Correlations of Self-Blame with Perceived Threat to Self and Family, and Lower Coping Efficacy were $\beta = .26, p < .01$, and $\beta = .21, p < .01$, Respectively. Correlations of Perceived Threat to Self and Family with Lower Coping Efficacy were $\beta = .19, p < .01$.

