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Marital conflict, negative temperament and problem behaviors of children: A test of stability and variability across time

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**Marital conflict, negative temperament and problem behaviors of children:
A test of stability and variability across time**

by

Molly Sween

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Sociology

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Iowa State University

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2011

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ABSTRACT

Drawing on transactional family systems as the guiding theoretical perspective, this research uses the dataset, “National Survey of Family and Households” to assess the ways that marital conflict and negative attributes of children (i.e. negative temperament and problem behaviors) may mutually influence one another over three Waves of data. According to this perspective, the family, similar to other systems or social institutions within society, consists of interrelated subsystems that impact and shape one another across time. As such, I predicted that marital conflict and negative attributes of children mutually influence one another over time which was tested through running cross-lagged structural equation models. Results show that within-wave effects (i.e. reciprocal) are present between marital conflict and negative child temperament in childhood (Wave 1) as well as between marital conflict and problem behaviors in adolescence (Wave 2). This indicates that marital conflict and negative child attributes demonstrate a stronger relationship contemporaneously rather than across time (i.e. no cross-lagged effects were found).

CHAPTER 1: INTRODUCTION

Violence in the Household

Violence experienced within the household is a serious and pervasive problem. While many social and legal traditions of the past condone domestic violence (DV) (DeVasto, 2003), we have witnessed a significant ideological shift within the past 30 years regarding both the public and Criminal Justice System's response¹. Spearheaded by small feminist and grassroots organizations, advocates argued that violence that occurred within the home was a social problem that needed to be taken seriously. These groups succeeded and in recent years the Criminal Justice System's response to intimate partner violence has entailed swifter and more severe punishments. While the general public quickly understood the negative impact that violence has on the abused partner, it was a slower process to understand how this violence impacts other members of the family; namely children who may directly or indirectly witness it (Fantuzzo and Mohr, 1999).

In the 1980s numerous studies documented the negative impact that witnessing violence in the household has on children. Research showed that when children grow up in abusive households that they are at greater risk of being abused themselves (Carlson, 1984; Smith-Slep and O'Leary, 2005) and that witnessing DV can enhance children's problem behaviors (Rosenbaum and O'Leary, 1981; Hughes and Barad, 1983; Hershorn and Rosenbaum, 1985). Two main threads in this early research were that growing up in an

¹Domestic violence, intimate partner violence, violence in the home, and interparental violence are terms that will be used interchangeably throughout the paper.

abusive household may 1) increase the chances of child abuse, or 2) negatively impact developmental outcomes of children (Geffner, Spurling Ingelman, and Zellner, 2003).

Even in the context of less severe forms of violence such as marital conflict, the same general patterns hold true regarding detrimental effects for children. According to Cummings, El-Sheikh, Kouros, and Buckhalt, “all forms of marital conflict, including physical, verbal, or covert (e.g., silent treatment) evoke negative affect and distress in children” (2009:4). An early meta-analysis conducted by Grinch and Fincham (1990) noted consistent patterns within the literature; interparental conflict is related to child adjustment problems. These are often expressed as problem behaviors that can take the form of both externalizing and internalizing disorders (Davies, Hops, Alpert, and Sheerber, 1998). Children exposed to parental conflict may also have a harder time regulating emotions and have problems with cognitive functioning (Kitzmann, Gaylord, Holt, and Kenny, 2003).

Exposure to conflict in the home can result in negative developmental outcomes for children that are likely to have long lasting effects. While each child is different and some are more resilient to the violence than others (Hughes, Graham-Bermann, and Gruber, 2001), there appears to be common themes among the literature with respect to the long-term effects that can result from exposure to parental conflict. For example, retrospective studies have found that violent behaviors in the later stages of life (such as adolescent violence, experiencing abuse in intimate relations, and abusing children) have been linked to childhood neglect, abuse, and exposure to domestic violence (Rossman, 2001). Research has also demonstrated that witnessing violence in the home can impact an individual’s physical and

emotional health. As an example, Forsstrom-Cohen and Rosenbaum (1985) found that college women who were exposed to domestic violence while growing up reported higher levels of depressive symptoms compared to women who were not exposed to domestic violence. Less is known from prospective studies since they overwhelmingly focus on children who are abused, but viewed as a whole, this research points toward the relationship between parent-to-child aggression and criminality, psychiatric issues, lower education, and difficulty with intimate relationships (Rossman, 2001).

An interesting and controversial question that is often overlooked when analyzing the relationship between parental violence and children is: *can attributes of children effect parental conflict?* Research has shown that parents are more attentive to confederate children who are trained to be responsive than those who were unresponsive (Cantor and Gelfand, 1977) and that irritable babies received less visual and physical involvement from their mothers versus non-irritable babies (van den Boom and Hoeksma, 1994). In regards to violent households, Gill (1970) found that children who were described as being persistent criers or burdensome to their caregivers were also the children among families who were singled out for battering. In each of these studies, attributes of the child elicited parental reactions. While limited research has explored these types of relationships (Cummings et al., 2009), scholars are increasingly calling attention to the ways that attributes of children may act as a mediator and/or moderator between the “marital conflict—child development connection” (El-Sheikh and Whitson, 2006: 30).

Another way of looking at the relationship between parental conflict and outcomes of children is that characteristics of *both* parents and the children may influence one another over time altering dynamics within the parent-child and parent-parent relationship.

Increasingly, investigators test this idea under the rubric of reciprocal-effects in that attributes of parents *and* children interact and shape one another across time. According to Cox, Paley, and Hartner:

To understand how marital conflict affects the way parent-child relationships develop, it is important to conceptualize the family as a system with multiple, mutually influential levels and relationships existing across time (2001:249-250).

This train of thought is heavily influenced by a transactional systems model which argues that “individual family members are necessarily interdependent, exerting a continuous and reciprocal influence on one another” (Cox and Paley, 1997: 246).

Research Focus and Goals

This research is largely exploratory in nature with the overall goal of assessing the ways that attributes of both parents and children may reciprocally influence one another over time. Drawing on a longitudinal dataset that includes both parent and child variables, I explore the relationship between marital conflict and developmental outcomes of children. Specifically, I look at how marital conflict (operationalized as arguing heatedly/shouting) and childhood behavioral problems (operationalized as externalizing and internalizing symptomology and negative temperament) may influence one another concurrently as well as across time. While previous literature illuminates the unidirectional ways that parents’ impact

development of children (parent-effects) or how characteristics of children can impact their parents (child-effects), this research aims to demonstrate that parental conflict and problematic behaviors of children should not be decoupled, but rather, understood through a framework of mutually influential processes (reciprocal-effects).

Chapter Outlines

In Chapter 2, I discuss information presented through theoretical and empirical research on children exposed to violence in the household to illustrate problematic outcomes that can result from exposure to marital conflict. As will be shown, children who are exposed to marital conflict are prone to developmental, psychological, behavioral, and emotional problems (Rossman, 2001). The second part of the chapter entails a discussion of how socialization literature frames the parent-child relationship. The greatest amount of attention will be paid to reciprocal-effects as this component of the literature shapes the methodologies used in the current study.

In Chapter 3, I describe the dataset that informs this research, variables that are of interest, and present results from exploratory and confirmatory factor analyses. These techniques were used to determine which variables would be included in future analyses; it was determined that four latent child factors [*(-)Temperament T1*, *(-)Temperment T2*, *Externalizing Symptomology*, *Internalizing Symptomology*] and one parent observed variable best fit the data [*Argue Heatedly/Shout*]. Chapter 3 also provides a discussion of descriptive reports for the parent variable by gender of the respondent.

After conducting preliminary analyses, Chapter 4 first presents the findings from linear and logistic regression analyses to investigate the relationship between the parent and child latent variables. The second half of Chapter 4 presents results from three cross-lagged structural equation models that were set up to explore how parents' arguing and attributes of children may influence one another concurrently as well as across time. Each of these models was tested to determine if gender of the child differentially impacted results as previous research notes that boys and girls process parental conflict differently.

Chapter 5 provides a discussion and conclusion section where I re-summarize key findings from the research. Next, I discuss contributions of this research as well as highlight suggested avenues for future research. Chapter 5 ends with a discussion of the limitations of the research and concludes with a presentation of future research that I plan to conduct based on findings from this research.

CHAPTER 2: LITERATURE REVIEW

Exposure to Violence in the Household

Although estimates of the numbers of children who are either exposed to/witness violence and conflict within the household are inconsistent, the literature unanimously speaks to the negative consequences that can result from growing up in this type of environment. In the following section, I will first discuss prevalence rates of children who are exposed to or witness violence in the home paying attention to how definitional issues complicate the ways that social scientists conceptualize and measure violence within the home. Next, I discuss developmental outcomes of children who are exposed to/witness violence and conflict in the household. I pay particular attention in this section to externalizing and internalizing disorders and sex of child as boys and girls process and react to interparental violence differently.

Prevalence and Measurement Issues

Children's exposure to violence and conflict within the household became a serious social concern in the 1980s and shortly thereafter, numerous studies set out to understand how prevalent and severe the occurrence of violence in the home was. Initial studies estimated that as many as 3.3 million children were exposed to domestic violence in the home every year (Carlson, 1984) with more recent estimates stating that as many as 10 million children are exposed yearly (Straus, 1992). The number of children exposed to marital violence and conflict has often been underestimated (Cummings, et al., 2009). Some recent scholarly estimates place exposure to at least one instance of marital violence at

approximately 15.5 million (30%) (McDonald, Jouriles, Ramisetty-Mikler, Caetano, and Green, 2006).

While these numbers are startling, numerous researchers have called attention to our inability to get exact numbers due to measurement and sampling issues. For example, the largest issue relating to measurement is the inconsistency of how researchers operationalize the variables they set out to explore. Onyskiw argues that “*exposure* is still only a crude measure of children’s *awareness* of violence in their families” [emphasis original] and that often these terms are used interchangeably among social scientists (2003: 34). Jouriles, McDonald, Norwood, and Ezell (2001) raise similar concerns about measurement as it relates to conceptualization of exposure; does violence experienced in utero, physically witnessing versus overhearing arguments or shouting, or the aftermath of the violence one month to one year later count as *exposure*? Regardless of inconsistency of operationalization and our inability to get a fully accurate depiction of prevalence, scholars argue that children exposed to or who witness violence or marital conflict in the household is a problem of tremendous social concern (Tjaden & Thoennes, 2000; Cummings et al., 2009).

Developmental Outcomes

Children who are exposed to violence and conflict in the household are at risk of for developmental, psychological, behavioral, and emotional problems. Research has shown that children who are exposed to conflict in the home are prone to developing behavioral and emotional problems (Sternberg, Lamb, Greenbaum, Cicchetti, Dawud, Cortes, Krispin, & Lorey, 1993) and that children who witness domestic violence tend to lag behind their non-

exposed peers in both social and cognitive competencies (Onyskiw, 2003). There have been numerous meta-analysis conducted on childhood exposure to violence in the home (Buehler, Anthony, Krishnakumar, Stone, Gerard, and Pemberton, 1997; Kitzmann et al., 2003; Wolfe, Crooks, Lee, McIntyre-Smith, and Jaffe, 2003; Evans, Davies, and DiLillo, 2008) and children's adjustment to witnessing domestic violence and marital conflict (Onyskiw, 2003; Chan & Yeung, 2009). The unanimous and often repeated findings from these studies are that children who are exposed to/witness domestic violence are likely to exhibit problem behaviors in the form of negative internalizing (i.e. problems regulating emotions, depressive symptoms, and excessive worry or anxiety) and externalizing behaviors (i.e. aggression or violent behavior, problems socializing with others, and disruptive or self-destructive behaviors) (Jaffe, Wolfe, Wilson, & Zak, 1986; Evans, 2008).

Externalizing and Internalizing Symptomology

The distinction between externalizing and internalizing disorders is “a frequently used categorization of children's emotional and behavioral problems” (Onyskiw, 2003:14). In a meta-analysis of 47 studies focused on the topic of domestic violence and child's adjustment, all but one study examined externalizing symptoms with 43 of them also examining internalizing disorders. The primary mechanism through which externalizing and internalizing disorders have been measured by social scientists is the Child Behavior Checklist (CBCL) developed by Achenbach and Edelbrock (1983). The CBCL is a measure of children's problem behaviors that can be administered to parents, school teachers, and the child. These items measure multi-dimensional problem behaviors such as delinquency,

aggression, cruelty, depression, social withdrawal, and somatic complaints (Achenbach, 1991). Although studies might differ in their categorizing of these disorders, internalizing problems typically involve “behavior that is over-controlled, anxious, and inhibited (e.g. sadness, withdrawal, and anxiety)” while externalizing problems typically involve “behavior that is under-controlled, aggressive, and antisocial (e.g., fighting, disobedience, and destructiveness)” (Onyskiw, 2003:14).

Numerous studies on the relationship between problem behaviors of children and marital conflict have also focused on the ways boys and girls differentially respond to violence within the home. Although specific findings may vary from study to study (Rossman, Hughes, and Rosenberg, 2000), “in general, research suggests that boys demonstrate more externalizing behaviors while girls tend to display more internalizing behaviors” (Evans et al., 2008: 133). For example, Holden and Ritchie (1991) found that (domestic violence) shelter children displayed more internalizing behaviors than children in the control group and that shelter girls ranked higher on internalizing disorders than shelter boys. Davies and Lindsay (2004) found similar results when investigating how interparental conflict was related to adjustment problems in boys and girls. They found that interparental conflict was a stronger predictor of adolescent internalizing symptoms for girls than boys; a finding which was consistent across type of informant (mother or child). Results from a national survey conducted by Onyskiw and Hayduk (2001) found that boys used more physical and indirect forms of aggression than girls in response to interparental violence. Even in the context of simulated violence boys and girls tend to respond differently. For

example, El-Sheikh and Reiter (1996) found that in reaction to videotaped physical arguments between adults that girls reacted by displaying more overt distress and anxiety than boys.

Child's Temperament as An Influence on the Marital Relationship

Whereas the primary focus of early research on marital conflict looked at the impact that parents have on child responses, increasingly, scholars are calling attention to the ways that attributes of children can also shape parental responses (Patterson, 1982; Thornberry, 1987 and 1996).

Emery, Fincham, and Cummings (1992) remind us that not all effects of marital conflict on children are unidirectional. It may be the case that a child's attributes contribute to how that child is parented, and temperament could play a role in this (Rossman et al., 2000: 49-50).

The concept of child temperament has garnered much theoretical and empirical research within the last 20-30 years. Scholars have had a hard time reaching consensus on how to define temperament (Goldsmith, Buss, Plomin, Rothbart, Thomas, Chess, Hinde, and McCall, 1987) mainly due to variations in conceptualization and the vast number of temperamental models introduced since the 1980s (for reviews see; Clark, 2000; DeLisi and Vaughn, 2011), "however, temperament is generally defined as the physiological basis for the motivational, affective, and regulation components of personality (Goldsmith et al., 1987)" (Lengua, West, and Sandler, 1998: 164).

Temperament is believed to be closely linked to a child's social and psychological development and might "influence or moderate key socialization experiences, such as parent-

child relationships” (Lengua et al., 1998: 164). Temperament may come to be a moderator in this and other relationships primarily because different temperamental styles elicit different reactions. “Parents respond to temperamental cues from their infants, and adjust their parenting behaviors accordingly”; therefore, a child characterized as having a difficult temperament would likely elicit a different parental response than the child described as having an easy temperament (DeLisi and Vaughn, 2011: 19). For example, research has shown that as infants become more temperamentally difficult, mother ratings indicate a decline in marital quality and increase in marital conflict (Belsky and Rovine, 1990) while other studies have shown a relationship between difficult child temperament and family strife (Burgess and Conger, 1978; Hakulinen, Laippala, and Paunonen, 1998).

Of equal importance is the ways that different temperamental styles present in childhood shape developing adolescent personalities. For example, a significant amount of research has been dedicated to understanding the evolution of childhood temperament in the later stages of life, and how early developmental styles in turn can impact the parent-child relationship (Fox and Henderson, 1999; Ramos, Guerin, Gottfried, Bathurst, Oliver, 2005). As an example, Kim, Conger, Lorenz, and Elder’s (2001) longitudinal study found that adolescent negative emotionality is related to parents negative emotionality and that each have a compounding effect over time. Similarly, Stice and Gonzales (1998) found that adolescent negative affectivity was inversely related to mothers’ and fathers’ positive behaviors.

A significant and often repeated finding from prospective longitudinal studies like those noted above is that negative child temperament is often related to later problem behaviors that can further complicate the parent-child relationship (Eisenberg, Cumberland, Spinrad, Fabes, Shepard, Reiser, Murphy, Losoya, and Guthrie, 2001). For example, in a longitudinal study that measured temperament and behavior problems across 12 years, Caspi, Henry, McGee, Moffitt, and Silva (1995) found that temperamental measures of children at ages three and five were correlated significantly with parent and teacher ratings of problem behaviors at ages 9, 11, 13, and 15. Bates, Pettit, Dodge, and Ridge (1998) found temperamental resistance during infancy (13-24 months) to be predictive of behavior problems in middle childhood. In the context of a more severe form of problem behavior (i.e. conduct disorders) Olson, Bates, Sandy, and Lanthier (2000) found that maternal ratings of difficult temperament at six months predicted mother ratings of conduct problems at age 17 while Guering, Gottfried, and Thomas (1977) found a similar relationship between reports of difficult temperament at six months and parent-rated conduct problems at age 12.

Theoretical Explanations of Family Socialization

Parent Effects

The dominant paradigm of family socialization is that one should look to the environment to understand why children behave the way that they do. Although a variety of developmental theories focusing on the role of parents have been presented over the years, “to date, no definitive, consensual, and inclusive theory of parenting has emerged” (O’Connor, 2002: 555). However, a theoretical framework that has been highly cited over the

years and had a substantial impact on theorizing about family socializing is social learning theory (Bandura, 1977). According to social learning theory, children learn through imitating others and since a majority of their early interactions occur within the family, “it is expected that parents will be the most salient role models that young children use to guide their development of social behavior” (Zimet and Jacob, 2002: 323). From a social learning perspective, children are viewed as relatively blank slates that absorb the stimuli and inputs administered through their environment. Part of this process entails parents actively and inadvertently shaping their child’s development through the parent-child relationship. As such, a majority of early research on family socialization focused on the role that parents play in shaping outcomes for their children and paid little to no attention to the possibility that the relationship could also unfold the opposite way (Maccoby, 1992).

Child Effects

“Most social science theories assume parent-to-child effects as the basic causal sequence because they do not believe that children have inherent attributes. If children do not have inherent attributes, then there is no starting point in the child. It is tabula rasa all over again” (Udry, 2003).

The parent-effects explanation of family socialization remained dominant and unchallenged until the early 1960s when researchers began to note the absence of “the child’s contribution to parent-child interactions” (Bell, 1971: 63). Perhaps the strongest proponent for incorporating the impact that the child can have on parent-child interactions was psychologist Richard Q. Bell. Over the course of many years and numerous publications (Bell, 1968, 1971; Bell and Harper, 1977; and Bell, 1979) Bell developed the control system model (1971) which later laid the groundwork for what has come to be known as “child-effects” research. According to the control system model, parents and children regulate one

another's behavior through eliciting reactions deemed appropriate for the given social situation and based on previous experiences. As such, a key component to socialization between parents and children is equilibrium between expectations and reactions. Therefore, children can and do alter their behaviors to get expected reactions out of parents, much in the same way that parents alter their behavior to get desired reactions out of their children (Bell and Chapman, 1986). Bell's control system model challenged the dominant view of the unidirectional nature of parent-to-child socialization and opened up the black-box of family socialization research.

Along with Richard Bell, another psychologist who is strongly opposed to parent-effects explanations of family socialization is Judith Rich Harris (1995, 1998, and 2006). She argues that:

The causal ordering between measures of parenting and measures of the child's temperament is reversed. Instead of family experiences affecting the child, the child is actually shaping the functioning of the family (Beaver and Wright, 2007: 644).

Taken to an extreme, Judith Rich Harris' work is viewed as antithetical to parent-effect research and as challenging the significance of parents (i.e. *do parents matter?*) (Galambos, Barker, and Almeida, 2003). Wright and Beaver (2005) emphasize that this is not the argument that Harris raises, rather she questions whether parents still will matter when taking parent and children's genetics and temperament into account.

Through the course of presenting his theoretical and conceptual frameworks of "child-effects" Bell also draws attention to the complexities involved with determining causality in parent-child relationships. He calls for going beyond dominant socialization (i.e.

unidirectional) approaches because “not only can one not interpret correlation between parent and child characteristics as indicators of the direction of effects, but as Scarr and McCartney (1983) also pointed out, the cause of these effects also cannot be interpreted” (Bell, 1986: 597). Of equal importance to understanding directionality and cause-effect relationships regarding family socialization is knowledge of what this process looks over time. According to Jaffee et al., unidirectional models of parent-child relations (child-to parent or parent-to child) cannot demonstrate how “parents and children mutually influence one another over time” (2004: 1055).

Understanding Reciprocity: A Transactional Systems Model

“Thomas and Chess emphasized that different children may have differential effects on others in their social world as a consequence of their specific characteristics of behavior or temperamental individuality; by affecting those who affect them, children may provide a source of their own development—they may contribute to their further individual trajectory of development” (Lerner, 1993: 101)

Whereas the above discussions emphasized theoretical explanations of socialization that happen in a rather linear fashion (with differing views regarding autonomy of the child), a transactional systems model argues that individuals within a system (i.e. family) mutually influence and shape the outcomes for themselves and those around them (Cook, 2001).

Viewing the family as a system recognizes that there are interrelated parts, or subsystems (such as the marital, parent-child, or sibling relationship) that interact and differentially shape family dynamics (Cox and Paley, 1997). As such, “systems perspectives suggest the importance of the constant interplay over time between levels and elements of a system” (Cox, Paley, and Hartner, 2001:249).

Viewing the family and the members within it as interrelated subsystems alters the way that social scientists conceptualize the parent-child relationship. Rather than argue that parent- *or* child-effects are the predominant theoretical explanation of family socialization, a transactional model argues that “the parent and child are assumed to form a dyadic system in which each person’s behavior is simultaneously both the cause and the consequence of their interaction outcomes” (Cook, 2001: 1180). Within the context of this research, it may be the case that attributes of both parent *and* child are impacting problematic behaviors and outcomes for the other:

Thus, we should be asking not only how marital conflict affects parent-child relationships, but also how the development of parent-child relationships feeds back into the course of the marital relationship. Does conflict in the parent-child relationship lead to marital conflict? Does the nature of the parent-child relationship affect children’s responses to marital conflict? Also, how do the responses of individual children to marital conflict feed back into the family system? (Cox, Paley, and Hartner, 2001:249).

As the above quote illustrates, it is important to examine the direction of these relationships to better understand how developmental processes can shape family outcomes.

Reciprocal Effects

In this section, I provide examples of empirical research that has explored the ways that parents and children can mutually influence one another. This body of research often falls under the rubric of reciprocal-effects or bidirectional research. Similar to a transactional model, reciprocal research views parents and children as agents whom equally contribute to and mold the parent-child relationship. While there is less research focused directly on how *marital conflict* and factors of children may mutually influence one another over time (with

exception, see Kelly and El-Sheikh, 2011), research has explored the potential bidirectional association between *parenting* and specific attributes of children such as disruptive psychopathology (Burke, Pardini, and Loeber, 2008), conduct problems (Hipwell, Keenan, Kasza, Loeber, Stouthamer-Loeber, and Bean, 2008; Pardini, Fite, and Burke, 2008), and antisocial behavior (Larsson, Viding, Rijdsdijk, and Plomin, 2008).

What follows is a discussion of three empirical studies that investigated the reciprocal association between parent and children attributes; such as, boys' externalizing problems and mothers' depressive symptoms (Gross, Shaw, and Moilanen, 2008), marital problems and internalizing/externalizing behaviors (Cui, Donnellan, and Conger, 2007), and poor parenting and problem behaviors (Huh, Tristan, Wade, and Stice, 2006). In the first study titled, *Reciprocal Associations between Boys' Externalizing Problems and Mothers' Depressive Symptoms*, Gross, Shaw, and Moilanen (2008) collected data from low-income families at seven points in time (as children aged from 5-15 years old) to assess the relationship between maternal depression and problem behaviors of adolescent boys. Drawing on both parental and child reports of problem behaviors, the authors found that there were both reciprocal-effects as well as autoregressive paths that were significant between maternal depression and antisocial behaviors of children across time. Specifically, they found that maternal depression ratings at age 11 were significantly correlated with antisocial behaviors at age 12 while antisocial behaviors at age 11 were significantly correlated with maternal depression at age 12. Similarly they found that antisocial behaviors at age 12 were significantly correlated with marital depression reports at age 15. The authors conclude that

these findings support a transactional model of parent-child effects between maternal depression and problem behaviors of adolescent boys (Gross, Shaw, Moilanen, 2008).

In the second study titled, *Reciprocal Influences between Parents' Marital Problems and Adolescent Internalizing and Externalizing Behavior*, Cui, Donnellan, and Conger (2007) collected data from 451 families annually from the years of 1989 to 1991. Although this resulted in the larger longitudinal dataset titled Iowa Youth and Families Project, measures used in this study were marital problems collected through self-reports by parents and adolescent self-reports on externalizing and internalizing symptoms and delinquency. Through modeling autoregressive (i.e. cross-lagged) effect, the authors found “evidence that marital conflict over child rearing significantly predicted adolescent delinquency and depressive symptoms across time and likewise adolescent problems significantly predicted conflict over child rearing” (Cui, Donnellan, and Conger, 1997: 1549).

The last study titled, *Does Problem Behavior Elicit Poor Parenting? A Prospective Study of Adolescent Girls*, Huh, Tristan, Wade and Stice (2006) collected longitudinal data from 496 adolescent girls to assess the relationship between parenting practices and problem behaviors. Measures of perceived parental support, parental control, externalizing symptoms and substance abuse were collected through questionnaires and structured interviews with the girls. Through running path analysis to test the reciprocal effect between parenting practices and problem behaviors, the authors found (contrary to their hypotheses) that problem behaviors in adolescent girls “had a greater impact on parenting than parenting did on girls’

problem behavior” indicating a greater child-effect explanation than a reciprocal one (Huh, Tristan, Wade, and Stice, 2006: 196).

Taken as a whole, these are but three of many studies that are assessing the transactional or reciprocal relationship between attributes of parents and children. Although each employed different methodologies, what united them was their emphasis on exploring the ways that parents and children can impact and shape outcomes for one another across time. Drawing on this transactional or reciprocal approach, this research sets out to explore how attributes of children and marital conflict may mutually influence one another across time.

Externalizing and Internalizing Hypotheses

Children exposed to violence and marital conflict within the home are at risk for developmental, psychological, behavioral, and emotional problems. Children exposed to marital conflict in the home are also more likely to have adjustment problems that are often manifested in the form of externalizing and internalizing disorders. Literature shows that exposed boys and girls tend to respond to domestic violence differently with boys being more likely to externalize while girls internalize. As such, I hypothesize:

Hypothesis 1: Boys are more likely to display externalizing symptoms in response to marital conflict while girls are more likely to display internalizing symptoms.

Hypothesis 2: Marital conflict is a predictor of child problem behaviors (i.e. externalizing and internalizing symptoms). Cross-lagged effects will be present in that marital conflict at Wave 1 will predict child’s problem behaviors at Wave 2.

Negative Child Temperament Hypotheses

Child temperament is a concept that has gained much attention within the last 20-30 years. Temperament is thought to shape social interactions such as those that often occur between parent and child. Research shows that negative temperament in infancy can have an adverse effect on parents (i.e. decline in marital quality and increase in conflict) as well as the whole family and that a negative temperament in childhood is predictive of problem behaviors in adolescent. As such, I hypothesize:

Hypothesis 3: Negative child temperament at infancy (Wave 1) is a predictor of problem behaviors at adolescence (Wave 2).

Hypothesis 4: Negative child temperament is a predictor of marital conflict. Cross-lagged effects will be present in that negative child temperament at Wave 1 will predict marital conflict at Wave 2 and negative child temperament at Wave 2 will predict marital conflict at Wave 3.

Reciprocal Hypotheses

Predominant views of socialization have isolated the effects that members within a family can have on one another when they parcel out effects into parent- or child-explanations. A more vibrant theoretical perspective, such as a transactional systems theory, views family members as part of a system comprised of subsystems that mutually influence and shape their social milieu. Drawing on this theoretical perspective, I hypothesize:

Hypothesis 5: Negative child temperament and marital conflict mutually influence one another over time (i.e. cross-lagged and reciprocal effects will be present).

Hypothesis 6: Child problem behaviors (i.e. internalizing and externalizing symptoms) and marital conflict mutually influence one another over time (i.e. cross-lagged and reciprocal effects will be present).

CHAPTER 3: DATA & PLAN OF ANALYSIS

As Chapter 2 illustrates, there are inherent flaws to traditional and unidirectional understandings of family socialization. Children exposed to violence and marital conflict in the home are at a greater risk of developing negative outcomes such as antisocial personality disorder, hostility and aggression, or displaying externalizing and internalizing symptoms (Sternberg et al., 1993; Jaffe, Wolfe, Wilson, & Zak, 1986; Evans, 2008). However, most studies do not take into account how proclivities of children may bring about negative outcomes for parents. Research on child temperament has shown that attributes of children can also impact parental outcomes, especially when a child is described as having a difficult or negative temperament (Burgess and Conger, 1978; Belsky and Rovine, 1990; Hakulinen, Laippala, and Paunonen, 1998).

While numerous methods could be used to assess reciprocal-effects, there are some inherent limitations to these approaches; namely ethical concerns and determining temporality. For example, in order to test a true reciprocal effect, researchers could design controlled experiments where they manipulated which child lived with which parents based on known temperament and behavioral variables. However, a study like this is not only impossible, but also highly unethical. A second approach could be to use cross-sectional data, yet this provides extremely limited ability to examine or make inferences about change over time (Harold and Conger, 1997). According to Burkholder and Harlow (2003), longitudinal research is advantageous for three reasons:

First, it allows researchers to discover patterns of covariation among variables by watching their behavior over time. Second, researchers can test models that

include data collected at multiple time points and thus allow testing both directions of potential causality that are more difficult to test in a cross-sectional design (i.e., does the independent variable cause the dependent variable or vice versa?). Finally, longitudinal data analysis provides estimates on relative construct stability by analyzing the relation between subsequent measurements of the same variable (465-466).

In order “to identify developmental sequences in major phases of the life cycle”, Bell claims that longitudinal studies are needed (1977: 92). With this in mind, I will be using data gathered from *A National Survey of Families and Households* to investigate how parental conflict and attributes of children may influence one another within as well as across different points in time. What follows is a detailed discussion of the data, selection and screening mechanisms used to derive the sample, and variables used in preliminary analyses.

Data Description

This study draws on data from *A National Survey of Families and Households* which is a multi-wave longitudinal study conducted by the University of Wisconsin-Madison. While the aim of the study was to provide information on overall family life, the researchers gathered data on a variety of topics, such as; current and former living arrangements, attitudes about marriage and cohabitation, educational attainment, decisions to have children, and employment patterns. The data collection spanned nearly 20 years allowing for researchers to examine family developmental processes over time. The data were collected at three points in time from three primary samples; main respondents, their spouse/cohabitating partners, and children identified as focal children.

The first wave of data collection took place between the years of 1987-1988 and included a nationally representative sample of 13,007 respondents collected from a cross-

section of 9,637 households. Of the 13,007 individuals included in Wave 1, 6,448 main respondents and 6,164 current spouses were interviewed. The second wave of data collection took place between the years of 1992-1994 and investigators conducted interviews with 10,007 of the original main respondents and 5,624 individuals identified as the current spouse or cohabitating partner of the main respondent. Wave 2 introduced data collection of children identified as “focal children” and interviews consisted of questions about both developmental outcomes as well as the children’s attitudes on a variety of family related issues. Investigators collected data from the focal child via telephone interviews and with children who were between the ages of 5-12 at Wave 1 and had aged to 10-17 years of age at Wave 2 (N=1,415) and between the ages of 13-18 at Wave 1 and had aged to 18-23 years of age at Wave 2 (N=1090). The third wave of data collection took place between the years of 2001-2002 and included interviews with 4,076 main respondents, 2,793 Wave1 spouses or cohabitating partners (irrespective of the current status of their union), and 4,128 eligible focal children, now between the ages of 18-33.

Dissertation Focus: Main Respondent & Spouse Interview Data

The questions that are of most interest to the current study deal with marital conflict and childhood developmental issues. While there are three primary sources from which variables of interest could be collected (main respondent, spouse, and focal child interviews), I gather data solely from main respondent and spouse interview data in order to trace the same married couples with the same focal children across the three waves. Initial inspections of the focal child telephone interviews revealed that there were no unique identifiers that

would allow me to link parent responses to those of their focal child. As such, interviews conducted with focal children will not be included as part of this analysis.

Main respondent and spouse data were collected through two types of mechanisms; interviews conducted with a researcher as well as self-reported questionnaires that were filled out by respondents. The interview data covered a broad range of topics such as household tasks, caregiving and receiving, relationships with family members (while growing up and in the present), and current relationship status. While interview data covered general and large categories of family related issues, the type of information that was collected via self-reported data was more sensitive in nature. This included information that a respondent may not feel comfortable reporting to a third party; such as, marital satisfaction/dissatisfaction, fidelity, and marital conflict and resolution strategies.

Data Sorting and Screening

For the purposes of investigating the relationship between parental violence and developmental outcomes of children, numerous data screening and sorting mechanisms were used prior to analyzing the data. The first type of relationship that was of interest was violence which occurred between intimate partners. To capture this, the data was sorted by marital status to only include data reported by married individuals who were living in the same household at the time of data collection. Along with sorting for marital status, couples were filtered out if they did not identify a focal child at Wave 1 (child between the ages of zero and four who would be followed-up in subsequent waves). This sorting mechanism yielded a sample size of 1,337 married couples who reported data on their focal child at

Wave 1. This sorting mechanism was applied to subsequent waves and due to sampling attrition and marriages that ended in separation or divorce, the sample size for Wave 2 was 909 married couples who reported data on the same focal child who had now aged to 5-17 years. Due to budgetary constraints and limited resources to track down previous participants, the researchers dropped their focus on focal children from the third wave of data collection. As such, main respondents were not asked question about their focal child at Wave 3, so focal child data is only present in Waves 1 and 2. The sample for Wave 3 then includes couples that stayed married to the same spouse across Waves 1, 2, and 3 (N=222).

Description of Variables

Marital Conflict Measures

There were two variables that were asked of both the main respondent as well as the spouse in all three waves regarding verbal and physical violence. These questions asked, “When you have a serious disagreement with your husband/wife, how often do you?” 1) *Argue heatedly or shout at each other?* 2) *End up hitting or throwing things at each other?* Responses were reported on a 5-point likert scale coded as 1=Never to 5=Always. Since I was interested in measuring violence between couples, I created an index of couple violence by adding main respondent and spouse data on each of these variables and then averaging their scores.

A preliminary inspection of these variables indicated that the variable *hit/throw* could not be used in analyses due to severe missing data and this variable displaying extreme

skewness and kurtosis². Frequency distributions of this variable indicate that overwhelmingly respondents reported that they never resolve disagreements with hitting/throwing things at each other (Wave 1: 815 of 1024 reported a response of never; Wave 2: 691 of 812 reported never; Wave 3: 176 of 187 reported never) so there were too few cases to use this variable. Skewness and kurtosis are two measures of non-normality which can impact the results of data analyses. While there is no unanimously agreed upon cut-off point regarding what constitutes *excessive* skewness or kurtosis, more stringent criteria are that skewness larger than two and kurtosis larger than seven indicates a problem (West, Finch, and Curran, 1995) with more lenient scores marking skewness larger than three and kurtosis larger than 10 as problematic and kurtosis larger than 20 as indicating a serious problem with the data (Kline, 1998). I ran a log transformation of *hit/throw* in an effort to bring about a more normal distribution of the responses; however the logged variable still displayed severe skewness and kurtosis (see Table 1 below). As such, I could not justify using *hit/throw* in analyses. So while my intention was to have both a physical and verbal dimension of violence between married couples, analyses only include the verbal dimension: *argue heatedly/shout*.

² All of the variables used in final analyses are neither skewed nor display kurtosis. These results are available upon request.

Table 1: Skewness and Kurtosis for Variable *Argue Heatedly/Shout*

Variable	Parent Hit/Throw		Log of Parent Hit/Throw	
	Skewness	Kurtosis	Skewness	Kurtosis
Wave 1	3.109	11.086	2.279	4.712
Wave 2	3.811	21.053	2.684	7.129
Wave 3	5.336	30.851	4.684	22.786

Domestic violence literature supports the assertion that females are more likely to report acts of violence mainly because males overwhelmingly tend to be perpetrators of violence against women (Tjaden & Thoennes, 2000; DeVasto, 2003; BJS Data Brief, February 2003). This tends to be in the case for reporting acts of physical violence to criminal justice authorities; however, this data was collected through self-administered questionnaires and explores couples arguing heatedly and shouting. A question of interest relating to the data that I will be analyzing is *do females report higher incidences of arguing and shouting than males?* Preliminary analysis finds evidence to answer yes to this question. Females are more likely than males to report scores falling in the upper three categories (3=Sometimes, 4=Often, 5=Always) in response to *How often do you argue heatedly or shout at each other when you have a serious disagreement with your husband/wife?* Figures 1-6 (see Appendix A) provide a visual breakdown of male and female self-reports to the variable *argue heatedly/shout*. As you can see, the beige, purple, and yellow bars are higher on average for females when compared to male responses.

Wave 1 Focal Child Variables (age 0-4)

Questions about focal children were asked of main respondents during the face-to-face interviews conducted with data collectors. The main respondent was given a prompt followed by a series of questions that they were supposed to answer for only the child who was identified as the focal child. The prompt went as follows: “I am going to read some statements that might describe a child's behavior. Please tell me whether each statement has been often true, sometimes true, or has not been true of (CHILD) during the past three months.” I reverse coded these answers to keep the direction of scale between the parent variables and Wave 2 focal child variables consistent with 1=Not True, 2=Sometimes True, and 3=Often True. The variables of interest are: *M295B: Is fussy or irritable*, *M295D: Loses temper easily*, *M295F: Is fearful or anxious*, and *M295G: Bullies, or is cruel or mean to others*.

Wave 2 Focal Child Variables (age 5-17)

Similar to Wave 1, main respondents were given a prompt and asked to answer questions about their children that were identified as the same focal child from Wave 1. The prompt is as follows: “Here are a few questions about your child, (focal child's name). Even though you may have other children, please only think about this child when you answer the following questions. These questions are about behavior problems that many children have. As you read each behavior, decide if it is not true, sometimes true, or often true of this child's behavior over the past three months.” These variables were coded 1=Not True, 2=Sometimes True, and 3=Often True. The variables of interest are: *MT701A: Has sudden changes in*

mood or feeling, MT701B: Feels or complains that no one loves him/her, MT701D: Cheats or tells lies, MT701E: Is too fearful or anxious, MT701F: Argues too much, MT701G: Has difficulty concentrating, cannot pay attention for long, MT701I: Bullies or is cruel or mean to others, MT701J: Is disobedient at home, MT701L: Has trouble getting along with other children, MT701M: Is impulsive, or acts without thinking, MT701N: Feels worthless or inferior, MT702B: Is restless or overly active, cannot sit still, MT702C: Is stubborn, sullen, or irritable, MT702D: Has a very strong temper and loses it easily, MT702E: Is unhappy, sad, or depressed.

Plan of Analysis

This study will use various methods to attempt to discern how marital conflict and problematic behaviors of children may influence one another over time. As Chapter 2 demonstrated, family dynamics can have a negative impact on the development of children while attributes of children can also have a detrimental impact on the parental relationship. A brief discussion of the creation and coding scheme of the parent variable has already been presented, so what follows is a detailed discussion of how the focal child variables were analyzed in order to determine underlying temperamental and internalizing/externalizing symptoms of focal children. In order to get at these relationships, exploratory (EFA) and confirmatory factor analyses (CFA) were run. These methods allow the researcher to determine which (if any) variables are related in such a way as to form latent constructs; the types of variables most often of interest to social scientists. Running these two methods is an important first step to take prior to running more advanced methods that explore relationships

between observed and latent constructs such as path analysis, measurement models, or structural equation modeling³.

Exploratory and Confirmatory Factor Analysis of Negative Temperament

Previous research on the topic of temperament points toward the types of variables that are most often characteristic of a difficult temperament⁴. Examples include negative mood, low approach, slow to adapt, impulsivity, inhibitory control, fussy/crying, overall attention required other than caregiving, and how easily upset (Bates, 1989; Ramos et al., 2005; Lengua and Kovacs, 2005). With this in mind, I had an idea of some variables of interest that might be indicative of negative temperament for children in my sample [*child fussy/irritable, loses temper easily, child fearful/anxious, and child bullies/cruel/mean to others*] so I used two screening mechanisms to determine which variables I would include in my measures of negative temperament. I first ran an exploratory factor analysis of the childhood temperament variables in PASW 18 followed by a confirmatory factor analysis in AMOS 18. I ran a principle component analysis with an oblique rotation (oblimin) due to the variables being correlated with one another (see Appendix B). Results presented in Table 2 below indicate a one factor solution with the four variables loading relatively heavily with approximately 43% of the variance being explained by this solution.

³ According to Farrell (1994), running CFA is the first step taken to assess the measurement model portion (i.e. specifying patterns between observed and latent variables) of structural equation models.

⁴ Rothbart (1982) cautions against using the term “difficult” because it implies that a child is at risk for developmental problems at later stages of their life (which may not be the case). As such, I am using negative temperament as opposed to difficult temperament throughout the remainder of the paper.

Table 2: Component Matrix for Factor Analysis of Wave 1 Temperament Variables (Principle Component Analysis)

Variable	T1 Child Temperament
Child Fussy or Irritable	.702
Child Loses Temper Easily	.722
Child is Fearful and Anxious	.558
Child Bullies/Cruel/Mean to Others	.619
Eigenvalue	1.709
Variance (%)	42.724

Note: Bold factor loadings denote variables contributing to each factor.

The exploratory factor analysis indicates that the four variables *child fussy/irritable*, *loses temper easily*, *child fearful/anxious*, *child bullies/cruel/mean to others* constitute an underlying latent factor. However, after running confirmatory factor analysis in AMOS, only the variables *child fussy/irritable* and *loses temper easily* adequately loaded on the construct “negative temperament” (.67 and .54 factor loading, respectively). When including *child fearful/anxious* and *child/bullies/cruel/mean to others* in the confirmatory factor analysis, their factor loadings were .35 and .41 (respectively) which are considered low and should not be interpreted. Therefore, negative temperament at Wave 1 is a latent construct represented by two variables: *child fussy/irritable* and *loses temper easily* ($\alpha=.531^5$).

⁵ Cronbach’s alpha (α) $>.70$ has widely been viewed as an acceptable measure of internal consistency. However, Cortina (1993) cautions that alpha is often misunderstood and affected by number of items and their

Similar to Wave 1, I first ran an exploratory factor analysis of negative temperament variables in Wave 2 followed by a confirmatory factor analysis to ensure the validity of the factor solution. Temperament is believed to be a biological or a heritable construct (Plomin and Rowe, 1977; Thomas and Chess, 1977; Rothbart, Ahadi, Evans, 2000) that demonstrates “consistency across situations, as well as relative stability over time” (Rothbart and Bates, 1998: 109; Clark, 2005; Caspi, Roberts, and Shiner, 2005). Therefore, I included two of the same measures from Wave 1; *child fussy/irritable* and *loses temper easily*. I included three additional variables to assess child temperament: *child argues too much*, *cannot concentrate*, and *restless or overly active*. Results presented in Table 3 below indicate a one factor solution with the five variables loading relatively heavily with approximately 49% of the variance being explained by this solution.

Table 3: Component Matrix for Factor Analysis of Wave 2 Temperament Variables (Principle Component Analysis)

Variable	T2 Child Temperament
Stubborn/Sullen/Irritable	.766
Strong/Short Temper	.745
Argues too much	.723
Cannot Concentrate	.606

dimensionality. Cortina suggests a 2 step process to determine unidimensionality: first run a principle-components analysis and “if this analysis suggests the existence of only one factor, than alpha can be used to conclude that the set of items is unidimensional” (Cortina, 1993: 103).

Table 3 (Continued)

Restless or Overly Active	.648
Eigenvalue	2.452
Variance (%)	49.031

Note: Bold factor loadings denote variables contributing to each factor.

While the results from exploratory factor analysis indicate that each of these variables significantly loaded on the factor, confirmatory factor analyses indicated that only three of the five variables had the heaviest loading on the latent construct of negative temperament at Wave 2. These were *child fussy/irritable*, *loses temper easily*, and *argues too much* (factor loadings .72, .70, and .64 respectively). When including *cannot concentrate*, and *restless or overly active* in the confirmatory factor analysis, their factor loadings were .44 and .48 (respectively). Therefore, negative temperament at Wave 2 is a latent construct represented by three variables: *child fussy/irritable*, *loses temper easily*, and *argues too much* ($\alpha=.739$).

Exploratory and Confirmatory Factor Analysis of Externalizing/Internalizing Symptoms

Two oft used measures of problem behaviors that children display are internalizing and externalizing symptoms (Davies et al., 1998). Previous research has pointed toward the type of variables that characterize internalizing and externalizing symptoms. Internalizing symptoms include: problems regulating emotions, depressive symptoms, excessive worry or anxiety, sadness, withdrawal, and anxiety, while examples of externalizing symptoms include: aggression or violent behavior, problems socializing with others, disruptive or self-

destructive behaviors, fighting, disobedience, and destructiveness (Jaffe et al., 1986; Onyskiw, 2003; Evans, 2008). As such, I selected variables of interest that might be indicative of internalizing symptoms [*sudden changes in mood, complains no one loves them, fearful or anxious, feels worthless, unhappy/sad/depressed*] and externalizing symptoms [*cheats/lies, bullies/is cruel, is disobedient (home), trouble getting along with other children, and impulsive/acts without thinking*]. Similar to child temperament, I first ran an exploratory factor analysis followed by a confirmatory factor analysis to test the validity of the latent constructs. Results presented in Table 4 below indicate a two factor solution with the first five variables loading the heaviest on factor one while the latter five variables loaded the heaviest on the second factor. Approximately 35% of the variance was explained by the first factor with an additional 12% explained by the second factor.

Table 4: Structure Matrix for Factor Analysis of Wave 2 Symptomology Variables (Principle Component Analysis with Oblimin Rotation)

Variable	Child Symptomology	
	1	2
Sudden Changes in Mood	.659	.424
Complains No One Loves Them	.709	.375
Fearful or Anxious	.599	.292
Feels Worthless	.761	.311
Unhappy/Sad/Depressed	.775	.298
Cheats or Lies	.241	.575

Table 4 (Continued)

Bullies or is Cruel	.289	.736
Is Disobedient (Home)	.415	.725
Trouble Getting Along	.331	.601
Impulsive	.328	.668
Eigenvalues	3.501	1.191
Variance (%)	35.011	11.911

Note: Bold factor loadings denote variables contributing to each factor.

In naming these factors, the labels of “internalizing” and “externalizing symptomology” seemed appropriate given that the first five variables are inwardly expressive whereas the last five variables expressed externally. Literature also supports these types of variables as being descriptive of internalizing and externalizing symptoms that children display.

A follow-up confirmatory factor analysis was run in AMOS in order to assess the validity of the latent constructs that were identified through the exploratory factor analysis. The variables *fearful/anxious* and *cheats/lies* did not significantly load in AMOS (.48 and .43 respectively) so a four indicator solution was most appropriate. The variables *sudden changes in mood*, *complains no one loves them*, *feels worthless*, and *unhappy/sad/depressed* all adequately loaded on the latent construct “internalizing symptomology” (.57, .64, .67, .65). The same pattern emerged when running a confirmatory factor analysis for externalizing symptomology yielding a four indicator solution with *bullies/is cruel*, *is*

disobedient (home), trouble getting along with other children, and impulsive/acts without thinking all significantly loading on the latent construct of “externalizing symptomology” (.58, .65, .53, .58) [*Internalizing* $\alpha=.725$; *Externalizing* $\alpha=.676$].

Variables Used in Models

From preliminary analyses it was determined that there is one parent variable and four child variables that will be used in further analyses (see Table 5 below for descriptive statistics). While the original intention was to use both measures of physical and verbal violence, descriptive data showed that the variable *hit/throw* was too flawed to use due to issues with skewness and kurtosis. As such, *argue heatedly/shout* is the one parent measure and treated as an observed variable in all analyses. Results from the exploratory and confirmatory factor analysis indicate that there are four latent children constructs: (-)*Temp T1*, (-)*Temp T2*, *Externalizing*, and *Internalizing*. (-)*Temp T1* consists of two observed variables [*child fussy/irritable* and *loses temper easily*], (-)*Temp T2* consists of three observed variables [*child fussy/irritable*, *loses temper easily*, and *argues too much*], while *Externalizing* and *Internalizing* consists of four observed variables each [Ex: *bullies/is cruel, is disobedient (home), trouble getting along with other children, and impulsive/acts without thinking*; In: *sudden changes in mood, complains no one loves them, feels worthless, and unhappy/sad/depressed*].

Table 5: Descriptive Statistics of Parent and Child Variables

Variable	Mean (SE)	SD
Wave 1 Argue/Shout ^a	2.258 (.024)	.780
Wave 2 Argue/Shout ^a	2.269 (.027)	.758
Wave 3 Argue/Shout ^a	1.989 (.051)	.713
(-)Temp T1 ^b		
<i>Fussy/Irritable</i>	1.98 (.018)	.573
<i>Temper</i>	1.99 (.023)	.711
(-)Tem T2 ^b		
<i>Fussy/Irritable</i>	1.57 (.021)	.610
<i>Temper</i>	1.47 (.021)	.628
<i>Argues Too Much</i>	1.77 (.022)	.650
Externalizing ^b		
<i>Bullies/Cruel</i>	1.28 (.017)	.497
<i>Disobedient (Home)</i>	1.64 (.019)	.559
<i>Hard to get Along</i>	1.27 (.016)	.474
<i>Impulsive</i>	1.61 (.020)	.600
Internalizing ^b		
<i>Sudden Changes/Mood</i>	1.70 (.021)	.635
<i>Complains Not Loved</i>	1.42 (.020)	.582
<i>Feels Worthless</i>	1.24 (.016)	.462
<i>Unhappy/Sad/Depressed</i>	1.23 (.015)	.452

Note: SE=standard error, SD=standard deviation.

a=5 point likert; 1=Never to 5=Always.

b=3 point likert; 1=Not True to 3=Often True.

CHAPTER 4: RESULTS

Chapter 3 presented a discussion of the data and preliminary statistical findings that justify the parent and child latent constructs. Chapter 4 begins with a presentation of linear and logistical regression analyses to assess the strength and magnitude of correlations between the parent and child variables. The overall goal of my analyses is to test how attributes of parents and children may influence one another both concurrently as well as across time. In order to investigate relationships between variables of interest, I ran different types of regression analyses. The first sets of analyses were multiple linear regressions to predict the relationship between parent and child latent variables. I followed this analysis with binary logistic regression models that dichotomized variables as falling above and below the mean to see if scoring high on negative child temperament and problematic behavior correlated with scoring high on parent arguing. The second half of Chapter 4 provides results from three cross-lagged structural equation models (discussion of this method provided later) that assess the direction and magnitude of relationships between parental arguing and negative child temperament and problem behaviors (i.e. externalizing and internalizing symptoms).

Linear and Logistic Regression

For the linear regressions, I recoded *argue heatedly/shout* to scores that fell above and below the mean (dichotomized 0, 1) and averaged the items forming the latent construct child scores [*(-)Temp T1*, *(-)Temp T2*, *Externalizing*, and *Internalizing*] and similarly dichotomized these variables based on the mean. I ran a total of four linear regressions per wave with data

for both child and parent variables (Wave 1 & Wave 2). After running the linear regressions, I ran binary logistic regression using the same variables described above setting below the mean to the reference category (0). Results of the linear and binary logistic regression analyses are presented below.

Wave 1: Regression Results

The results of the linear regression models for Wave 1 *argue heatedly/shout* by the child variables indicates that (-)Temp T1 and (-)Temp T2 are positively correlated with Wave 1 parent variables [(-)Temp T1: $\beta=.128$, $t=3.579$, $p=.000$; (-)Temp T2: $\beta=.131$, $t=3.488$, $p=.001$] while the coefficients for the remaining two latent constructs, *Externalizing* and *Internalizing* are not statistically significant. A follow-up binary logistic regression supports these results and Table 6 below presents the fit statistics for the model. The table reports coefficients, standard errors, and the odds ratio associated with each independent variable. Along with the -2 log-likelihood, the model also includes three goodness-of-fit statistics. The pseudo R^2 (Nagelkerke) is a measure of how well the model fits the data [larger values indicate better fit, range 0-1] while the Hosmer and Lemeshow and Deviance χ^2 statistics test whether or not the model adequately reproduces the observed data [where a non-significant p-value indicated good fit].

Table 6: Logistic Regression of Wave 1 Argue Heatedly/Shout by Child Variables

Latent Variable	Coefficient (SE)	Odds Ratio
(-)Temp T1	.441 (.213)	1.554*
(-)Temp T2	.544(.213)	1.722*
Externalizing	.222(.206)	1.249
Internalizing	-.057(209)	.944

Model Fit Statistics:
-2Log Likelihood: 63.212; $\chi^2 = 20.384$, 4df, p=.000
Nagelkerke $R^2 = .052$
Hosmer and Lemeshow: $\chi^2 = 2.218$, 6df, p=.899
Deviance $\chi^2 = 8.502$, 11df, p=.683

Note: *p=.05, SE=standard error.

As the above table indicates, similar to the linear regression models, binary logistic regression shows that there is a relationship between *argue heatedly/shout* and (-)Temp T1 and (-)Temp T2. More specifically, when scores are above the mean on the variables (-)Temp T1 and (-)Temp T2 the odds of the scores on *argue heatedly/shout* being above the mean increase by 55% and 72%, respectively [(1.554-1.00)*100=55.4% and (1.722-1.00)*100=72.2%].

Wave 2: Regression Results

The results of the linear regression models for Wave 2 *argue heatedly/shout* by the child variables indicates that (-)Temp T2 is positively correlated with Wave 2 parent variables [(-)Temp T2: $\beta = .081$, $t = 2.285$, $p = .023$] while *Internalizing* is approaching although

it does not reach significance at the .05 level [*Internalizing*: $\beta=.069$, $t=1.924$, $p=.055$]. The coefficients for the other two latent constructs [*(-)Temp T1* and *Externalizing*] are not statistically significant. Similar to Wave 1, I ran a binary logistic regression which resulted in a non-significant p-value for the overall model fit ($p=.064$). While this indicates that strictly speaking the findings from the model should not be interpreted, I have provided the results in Table 7 below to show that although the overall model is not statistically significant, the latent construct *(-)Temp T2* is significant.

Table 7: Logistic Regression of Wave 2 Argue Heatedly/Shout by Child Variables

Latent Variable	Coefficient (SE)	Odds Ratio
(-)Temp T1	.152 (.196)	1.164
(-)Temp T2	.385(.198)	1.470*
Externalizing	.133(.192)	1.143
Internalizing	-.016(.194)	.984

Model Fit Statistics:
-2Log Likelihood: 70.400; $\chi^2=8.882$, 4df, $p=.064$
Nagelkerke $R^2=.020$
Hosmer and Lemeshow: $\chi^2=8.237$, 6df, $p=.221$
Deviance $\chi^2=13.064$, 11df, $p=.289$

Note: * $p=.05$, SE=standard error.

The linear regression analyses demonstrated that at Wave 2, *(-)Temp T2* was significantly correlated with *argue heatedly/shout* with *Internalizing* approaching significance. Results for the binary logistic regression were non-significant with the only coefficient that was

significant being (-)Temp T2. No interpretive analyses are presented due to overall non-significance of model.

To reiterate the key points from the previous analyses, both the linear and binary logistic regression indicate that (-)Temp T1 and (-)Temp T2 are correlated with the measure *argue heatedly/shout* although to different degrees in each wave. For Wave 1, the results of the linear and binary logistic regression were identical and showed that both (-)Temp T1 and (-)Temp T2 were statistically correlated with *argue heatedly/shout* at Wave 1. Analyses run for Wave 2 resulted in mixed but similar findings. The only significant child variable was (-)Temp T2 which was statistically significant from the linear and binary logistic regression analyses (although the binary logistic model was non-significant). Another point worth mentioning is that although not statistically significant, the variable *Internalizing* approached significance in the linear regression analysis ($p=.055$).

Wave 1 and Wave 2: Regression Results

The previous analyses showed the effects of *argue heatedly/shout* by four different child latent constructs at Wave 1 and Wave 2. Running the analyses in such a way treats the effects of *argue heatedly/shout* as distinct moments in time. However, “marital (or interpartner) conflict and violence and dysfunction in other family systems may have a cumulative impact on negative emotional and behavioral processes in children” (Cummings, 1998: 61). A question of interest is *what impact do persistently arguing families have on behavioral outcomes of children raised in those environments?* In order to investigate this

question, I created an average score of Wave 1 and Wave 2 *argue heatedly/shout* and re-ran analyses described above.

The results of the linear regression models for Wave 1 and Wave 2 *argue heatedly/shout* by the child variables indicates that (-)Temp T1, (-)Temp T2 and *Internalizing* are all positively correlated with the Wave 1 and Wave 2 parent variable [(-)Temp T1: $\beta=.121$, $t=2.675$, $p=.008$; (-)Temp T2: $\beta=.135$, $t=3.444$, $p=.001$; *Internalizing*: $\beta=.086$, $t=2.169$, $p=.030$] while the coefficient for *Externalizing* is not. A follow-up binary logistic regression supports these results although the latent construct *Internalizing* drops out of significance when comparing scores that are below and above the mean. Table 8 below presents the coefficients, standard errors, and the odds ratio associated with each independent variable.

Table 8: Logistic Regression of Waves 1 & 2 Argue Heatedly/Shout by Child Variables

Latent Variable	Coefficient (SE)	Odds Ratio
(-)Temp T1	.434 (.220)	1.543*
(-)Temp T2	.570(.222)	1.769*
Externalizing	.176(.216)	1.192
Internalizing	-.001(220)	.996

Model Fit Statistics:

-2Log Likelihood: 65.528; $\chi^2=19.482$, 4df, $p=.001$

Nagelkerke $R^2=.054$

Hosmer and Lemeshow: $\chi^2=3.633$, 6df, $p=.726$

Deviance $\chi^2=8.670$, 11df, $p=.652$

Note: * $p=.05$, SE=standard error.

As the above table indicates, similar to the linear regression models, binary logistic regression shows that there is a relationship between Wave 1 and Wave 2 *argue heatedly/shout* and (-)Temp T1 and (-)Temp T2. More specifically, when scores are above the mean on the variables (-)Temp T1 and (-)Temp T2 the odds of the scores on Wave 1 and Wave 2 *argue heatedly/shout* being above the mean increase by 54% and 77%, respectively [(1.543-1.00)*100=4.3% and (1.769-1.00)*100=76.9%].

Follow-Up Correlation Analyses

The previous analyses investigated the relationship between the parent and child latent constructs, but of equal interest is the relationship between the child variables. For example, *is there a relationship between negative temperament and problem behaviors (i.e. externalizing or internalizing symptoms)?* Along the same lines, what do these relationships look like over time and do these relationships strengthen or disappear as children age? In order to address these questions, I ran a correlation table including all latent constructs. Results of this analysis indicate that all of the child variables correlate with one another with the strongest relationships existing between (-)Temp T2 and the *Externalizing* and *Internalizing* variables. Table 9 below reproduces part of the correlation table that is presented in the Appendix (see Appendix C).

Table 9: Correlations of Child Latent Constructs

Variable	1	2	3	4
1. (-)Temp T1	-			
2. (-)Temp T2	.194**	-		
3. Externalizing	.183**	.449**	-	
4. Internalizing	.170**	.405**	.327**	-

Note: * p=.05; ** p=.01.

Results from linear and logistic regression indicate that there is a statistically significant relationship between many of the parent and child latent variables. For example, the two latent constructs that were significant in nearly every wave of analyses were (-)Temp T1 and (-)Temp T2 indicating that there is a relationship within time as well as across waves with regard to parents arguing/shouting heatedly and children's negative temperament. Another variable which was statistically significant in the second and third analyses (Wave 2 and Wave 1 + Wave 2) was the latent construct *Internalizing* indicating that there is a statistically significant relationship between parents arguing/shouting heatedly and children displaying internalizing behaviors.

Regression analyses focused on the relationships between parental arguing and attributes of children. Of equal interest is the relationship between child temperament and internalizing/externalizing symptoms. A bivariate correlation of the four latent child constructs shows that all of the variables are correlated with one another to varying degrees. The strongest correlations occurred among variables within Wave 2 as is illustrated by

columns two and three of the correlation table above. While *Externalizing* was not statistically significant in any of the linear or logistic regression analyses, it is worth pointing out that *Externalizing* is positively correlated with (-)TempT1 [$r=.183$] and (-)Temp T2 [$r=.449$] which means that the more externalization the more negative temperament at T1 and T2. This indicates that although the variable *Externalizing* was not correlated with the variable *argue heatedly/shout*, it does correlate with other child latent constructs, and as such, should remain in future analyses.

Cross-Lagged Structural Equation Modeling

Structural equation modeling combines multiple regression and factor analysis into a single method and allows the research to “study a large number of independent, mediator, and dependent factors to examine both their direct and indirect hypothesized relations” (Burkholder and Harlow, 2003: 466). In particular, cross-lagged structural equation models are useful because this approach “permits variables to be both a cause and an effect” (Farrell, 1994: 486) and through the use of autoregressive, synchronous, and cross-lagged effects, “allows the investigator to explore plausible alternative explanations, such as reversed or reciprocal effects” (Grunberg, Moore, Sidora, and Greenberg, 2006: 51). As such, this method will provide a robust way to assess change as well as examine cause effect relationships between parent and child variables.

All analyses for the cross-lagged structural equation models were run in AMOS 18 using full information maximum likelihood (FIML). Rather than use a corrective procedure to addressing missing data issues, in FIML “missing values are not imputed, but all observed

information is used to produce the maximum likelihood estimation of parameters” (Acock, 2005: 1018)⁶. FIML is viewed as providing substantial improvements over traditional missing data techniques such as listwise/pairwise deletion or mean substitution (Arbuckle, 1996) and numerous Monte Carlo simulation studies have shown FIML to perform better than other frequently used missing data techniques (Enders, 2001; Enders and Bandalos, 2001).

Conceptual Models 1, 2a, and 2b and Hypotheses

In total, I ran one model to assess the relationship between marital conflict and child temperament measures (*Hypotheses 4 & 5*) and two models to assess the relationship between marital conflict and externalizing/internalizing symptomology of children (*Hypothesis 1*). As discussed in Chapter 2, an individual’s temperament is believed to be stable across time and situations. Therefore, I included measures of temperament at both T1 and T2 in Model 1. Literature presented in Chapter 2 also demonstrated that there is a relationship between negative temperament in childhood and problem behaviors in adolescence (i.e. internalizing and externalizing disorders). Therefore, I ran Models 2a & 2b with negative child temperament at T1 and externalizing/internalizing disorders at T2. Figure 1 below provides an example of a conceptual model of parent argue heatedly/shout by child temperament (Model 1) while Figure 2 provides an example of a conceptual model of parent argue heatedly/shout by child internalizing/externalizing symptomology (Model 2a & 2b). I

⁶ The data in this sample is missing at random (MAR). There is no discernable patten to missing data and it was assumed that since longitudinal data is being analyzed that attrition would lead to missing values.

first ran each model for the whole sample and then followed up with analyses to test if sex of the focal child differentially impacted the model.

Figure 1: Conceptual Model 1-Argue Heatedly/Shout by Negative Child Temperament

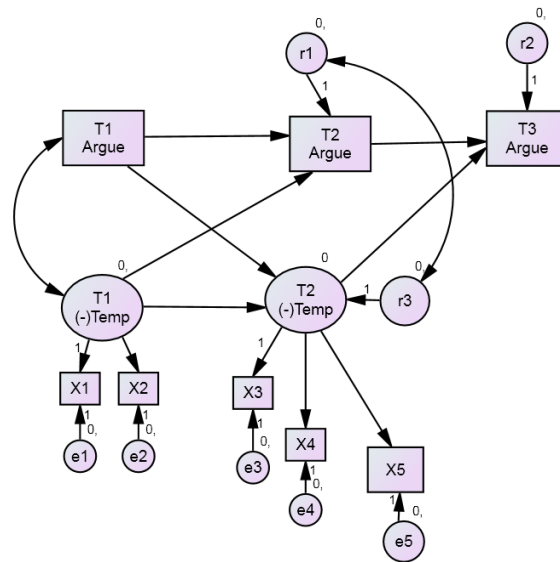
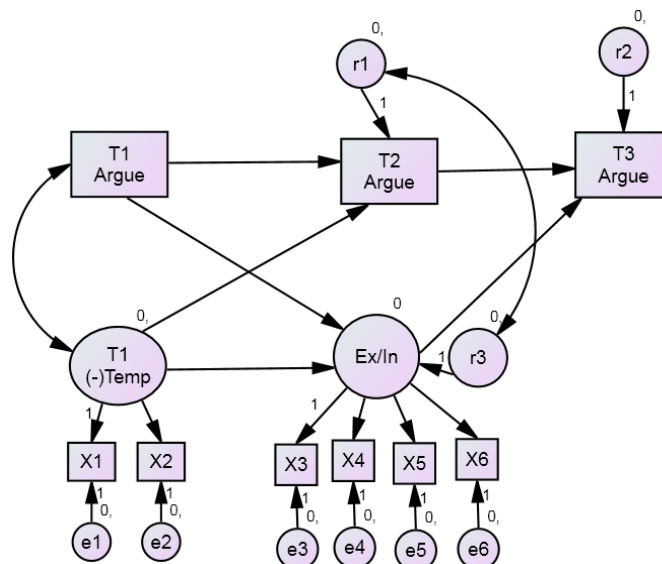


Figure 2: Conceptual Model 2a & 2b-Argue Heatedly/Shout by Child Ex/In Symptomology



Interpretive Fit Statistics

Numerous fit statistics have been established in structural equation modeling (SEM) to help researchers determine how well the proposed theoretical model reproduces their empirical data. The first statistic used to assess model fit is the χ^2 goodness-of-fit statistic. This statistic “assesses the magnitude of discrepancy between the sample and fitted covariance matrices” and the generally accepted rule-of-thumb is that an overall χ^2 of non-significant indicates good fit (Hu and Bentler, 1999: 2). However, it is rather common knowledge and an often referenced caveat that the overall χ^2 goodness-of-fit statistic should be interpreted with caution due to it being too stringent in large samples [resulting in overall significance] and too lenient in small samples [resulting in non-significance] (Hoyle, 1993; Hu and Bentler, 1995; Bryne, 2001). As a result, “soon it became apparent that the χ^2 test was too dependent on sample size to be useful in many situations” (Fan, Thompson, and Wang, 1999: 60).

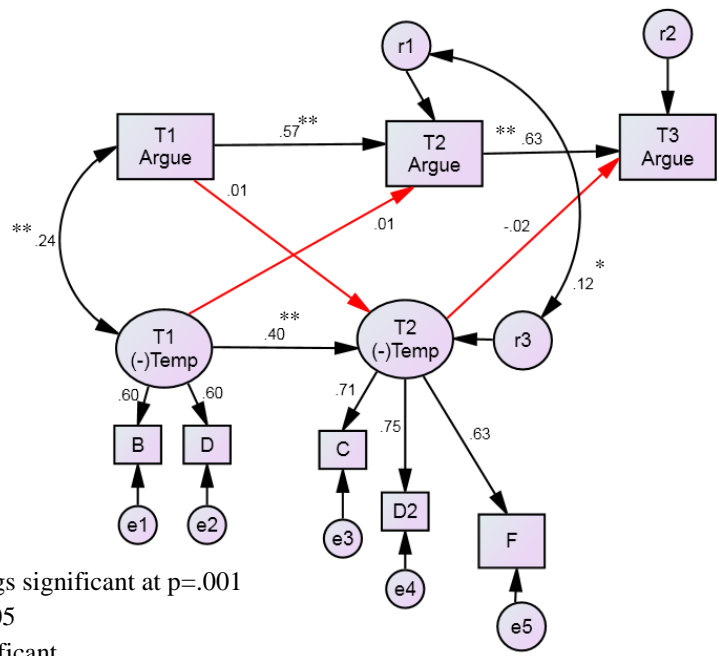
Along with the overall χ^2 discussed above, a variety of fit indices have been established over the years in an effort to overcome χ^2 interpretation issues relating to sample size (Bentler and Bonnett, 1980). Fit indices often have a minimum and maximum value and are interpreted as falling within or outside of acceptable ranges “to assess the degree of congruence between the model and data” (Hu and Bentler, 1995: 81). Although there is little consensus about which indices should be interpreted and which are least likely to be impacted by sample size, often referenced statistics are the overall χ^2 , the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). In order to find

support for a model, results should indicate a non-significant χ^2 (as noted above though, results are impacted by sample size), CFI > .90, and RMSEA < .05 (Ramos et al., 2005)⁷.

Model 1: Argue Heatedly/Shout by (-) Temperament

Results for Model 1 are presented below along with a discussion of some of the key findings. As with this and all following models, non-significant paths are noted in red. Model 1 fits the data well as indicated by the fit statistics falling within acceptable ranges [$\chi^2=27.872$, df=15, p=.022; CFI=.989; RMSEA=.025].

Figure 3: Model 1: Argue Heatedly/Shout by (-) Temperament



Note: All factor loadings significant at p=.001
 **p=.001; ^=.01; *p=.05
 Red paths are not-significant

⁷ Hu and Bentler (1999) have proposed that fit indices should be held to higher standards (such as > .95) due to the frequently noted issues with χ^2 results; however Marsh, Hau, and Wen (2004) counter that this cut-off is too stringent. Similarly, qualifiers have been added to interpreting RMSEA. Values less than .05 indicate good fit, with values as high as .08 representing reasonable or mediocre fit and values greater than .10 indicating poor fit (Jöreskog, 1993; Bryne, 2001).

Figure 3 (Continued)

Model 1 Fit Statistics: $\chi^2=27.872$, $df=15$, $p=.022$

CFI=.989

RMSEA=.025

As Figure 3 above illustrates, within wave parent-child variables and stability coefficients are statistically significant for this model. For example, *argue heatedly/shout* at Wave 1 is correlated with *argue heatedly/shout* at Wave 2 ($r=.57$) while Wave 2 to Wave 3 is also statistically significant and large in magnitude ($r=.63$). This may indicate that marital conflict increases in intensity for those couples' that identified frequently arguing heatedly/shouting to resolve disagreements. However, it may also be the case that attributes of children affect parental arguing. Chapter 2 presented research that explored the detrimental effects that difficult or temperamentally negative children can have on the parental relationship and as such, I hypothesized:

Hypothesis 4: Negative child temperament is a predictor of marital conflict. Cross-lagged effects will be present in that negative child temperament at Wave 1 will predict marital conflict at Wave 2 and negative child temperament at Wave 2 will predict marital conflict at Wave 3.

As Figure 5 demonstrates, there is no evidence to support this hypothesis in that the cross-lagged paths from child to parent are non-significant.

Drawing on a transactional systems model and reciprocal effects research presented in Chapter 2, I hypothesized:

Hypothesis 5: Negative child temperament and marital conflict mutually influence one another over time (i.e. cross-lagged and reciprocal effects will be present).

There is partial evidence to support this hypothesis in that the within wave coefficients were significant while the cross-lagged paths were non-significant. For example *argue heatedly/shout* at Wave 1 is statistically significant with (-)Temp T1 ($r=.24$) with a similar pattern emerging between *argue heatedly/shout* and (-)Temp at Wave 2 ($r=.12$). While these findings illustrate a relationship between child temperament and marital arguing, there is no way to discern cause from effect or to establish temporal sequences from the results.

Testing for Gender Effects

I ran cross-group equality constraint models in order to determine if sex of the focal child differentially impacts the models. Cross-group equality constraint models allow researchers to parcel out effects of their models (*i.e.* different means, factor loadings, coefficients, etc.) to determine whether or not there are statistically significant differences between the groups under investigation. In order to run this type of analysis, restricted models are compared to an unrestricted model and when the chi-square nested model comparison is statistically significant ($p<.05$), the unrestricted model is favored over the restricted model (Bryne, 2001; Bryne, 2004; Ramos et al., 2005). Phrased another way, “If the relative fit of the constrained model is much worse than that of the unconstrained model, one concludes that the direct effects differ across the groups” (Kline, 1998: 182). The two constrained models that I ran tested for equality between factor loadings and equality between coefficients in order to see if certain variables loaded differently on the latent

constructs and if relationships between the latent child constructs and parent variable were different between boys and girls.

Gender Effects for Model 1: Argue Heatedly/Shout by (-) Temperament

Results of the cross-group equality constraints for Model 1 are presented in Table 10 below. As the table indicates, neither the factor structure nor the stability and cross-lagged coefficients are significantly different between the boys and girls model. This indicates that freely estimating these parameters (as opposed to setting them equal) does not significantly add information to the model, and as such, it can be assumed that the structure of the groups are fairly equivalent. The results show that there are no statistically significant effects based on gender of focal child, therefore, I did not run any further analyses controlling for gender.

Table 10: Gender Effects of Model 1: Argue Heatedly/Shout by (-) Temp

$\Delta\chi^2$ Results for Unrestricted vs. Restricted Models

Unrestricted Model vs. Restricted Factor Loadings Model

$\Delta\chi^2$ 2.174/3df; p=.537

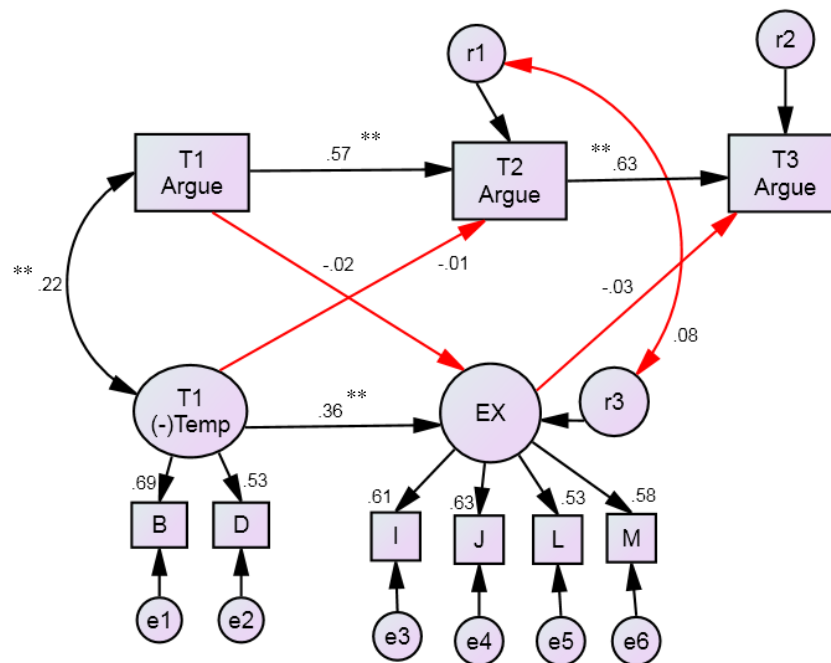
Unrestricted Model vs. Restricted Coefficient Model

$\Delta\chi^2$ 8.066/7df; p=.327

Model 2a: Argue Heatedly/Shout by Externalizing Symptomology

Results for Model 2a are presented below along with a discussion of some of the key findings. Model 2a fits the data well as indicated by the fit statistics falling within acceptable ranges [$\chi^2=50.895$, df=22, p=.000; CFI=.972; RMSEA=.031].

Figure 4: Model 2a: Argue Heatedly/Shout by Externalizing Symptomology



Note: All factor loadings significant at $p=.001$

** $p=.001$; ^ $=.01$; * $p=.05$

Red paths are not-significant

Model 2a Fit Statistics:

$\chi^2=50.895$, $df=22$, $p=.000$

CFI=.972

RMSEA=.031

As Figure 4 above illustrates, parent-child variables at Wave 1, (-)Temp T1 and Externalizing, and stability coefficients for argue heatedly/shout are statistically significant for this model. Stability coefficients for argue heatedly/shout have not changed from Model 1 [Wave 1→Wave 2 $r=.57$; Wave 2→Wave 3 $r=.63$] because no cross-lagged paths are significant. This indicates that any change between Wave 1 and 2 is attributed to stability rather than partitioned between direct and indirect effects. There is a statistically significant

relationship between (-)Temp T1 and *Externalizing* ($r=.36$) indicating that negative child temperament is modestly predictive of later externalizing symptoms. Similar to Model 1, *argue heatedly/shout* at Wave 1 is statistically significant with (-)Temp T1 ($r=.22$) although within wave effects are not found between *argue heatedly/shout* and *Externalizing*. As was the case with Model 1, although reciprocal effects are present temporal sequences cannot be determined.

Gender Effects for Model 2a: Argue Heatedly/Shout by Externalizing Symptomology

Results of the cross-group equality constraints for Model 2a are presented in Table 11 below. As the table indicates, neither the factor structure nor the stability and cross-lagged coefficients are significantly different between the boys and girls model. However, due to previous research indicating that boys and girls process marital conflict differently (boys externalize more; girls internalize more), I ran further analyses to assess the impact of gender on externalizing symptomology.

Table 11: Gender Effects of Model 2a: Argue Heatedly/Shout by Externalizing

$\Delta\chi^2$ Results for Unrestricted versus Restricted Models
Unrestricted Model vs. Restricted Factor Loadings Model $\Delta\chi^2$ 5.055/4df; $p=.282$
Unrestricted Model vs. Restricted Coefficient Model $\Delta\chi^2$ 10.147/8df; $p=.255$

Due to literature presented in Chapter 2, I hypothesized:

Hypothesis 1: Boys are more likely to display externalizing symptoms in response to marital conflict while girls are more likely to display internalizing symptoms.

The results presented in Table 11 above show a non-significant nested χ^2 statistic which indicates that freely estimating these parameters (as opposed to setting them equal) does not significantly add information to the model. Although this demonstrates that the structure of the groups are fairly equivalent (i.e. factors and cross-lagged/stability coefficients), it tells us little about variation in how boys and girls score on externalizing symptomology. Table 12 below presents results from an independent-sample *t* test which shows that boys mean response is higher on the variable *Externalizing* in relation to girls. Although this does not indicate support for *Hypothesis 1*, it indicates that there is a difference between boys and girls regarding externalizing symptoms. The results do not provide any further information regarding boys externalizing symptoms *in relation* to marital conflict; however, additional analyses will return to *Hypothesis 1* to further assess the relationship between marital conflict, focal child's gender, and externalizing/internalizing symptoms.

Table 12: Independent *t*-Test of Externalizing Symptomology by Gender

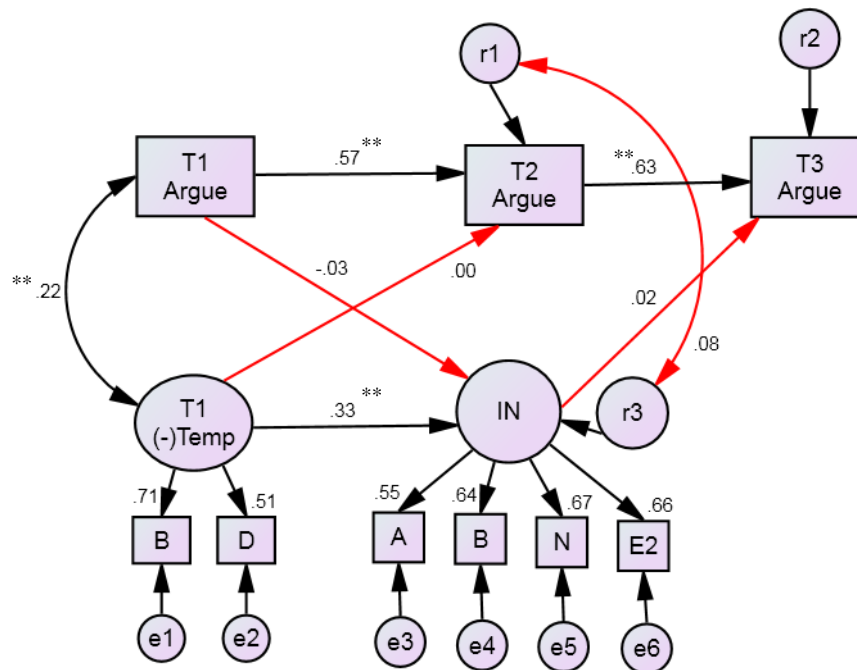
	N	Mean	SD	<i>t</i> / <i>df</i>
<i>Gender</i>				
Male	452	1.495	.396	3.547/858**
Female	408	1.403	.355	

Note: SD=standard deviation; **p=.001. Coded 1=Not True to 3=Often True.

Model 2b: Argue Heatedly/Shout by Internalizing Symptomology

Results for Model 2b are presented below along with a discussion of some of the key findings. Model 2b fits the data well as indicated by the fit statistics falling within acceptable ranges [$\chi^2=44.824$, $df=22$, $p=.003$; CFI=.981; RMSEA=.028].

Figure 5: Model 2b: Argue Heatedly/Shout by Internalizing Symptomology



Note: All factor loadings significant at $p=.001$

** $p=.001$; ^ $p=.01$; * $p=.05$

Red paths are not-significant

Model 2b Fit Statistics:

$\chi^2=44.824$, $df=22$, $p=.003$

CFI=.981

RMSEA=.028

Model 2b resulted in nearly identical results as was the case with Model 2a. As Figure 5 shows, the stability coefficients are statistically significant as well as the within wave

coefficient between *argue heatedly/shout* at Wave 1 and (-)*Temp T1* ($r=.22$). The only information that changed from Model 2a & 2b is the coefficient that went from Wave 1 to Wave 2 for focal child. The relationship between (-)*Temp T1* and *Externalizing* ($r=.36$) was only modestly stronger than the relationship between (-)*Temp T1* and *Internalizing* ($r=.33$) which may indicate that children who score higher on negative temperament in childhood are more likely to display externalizing as opposed to internalizing symptoms during adolescence.

Gender Effects for Model 2b: Argue Heatedly/Shout by Internalizing Symptomology

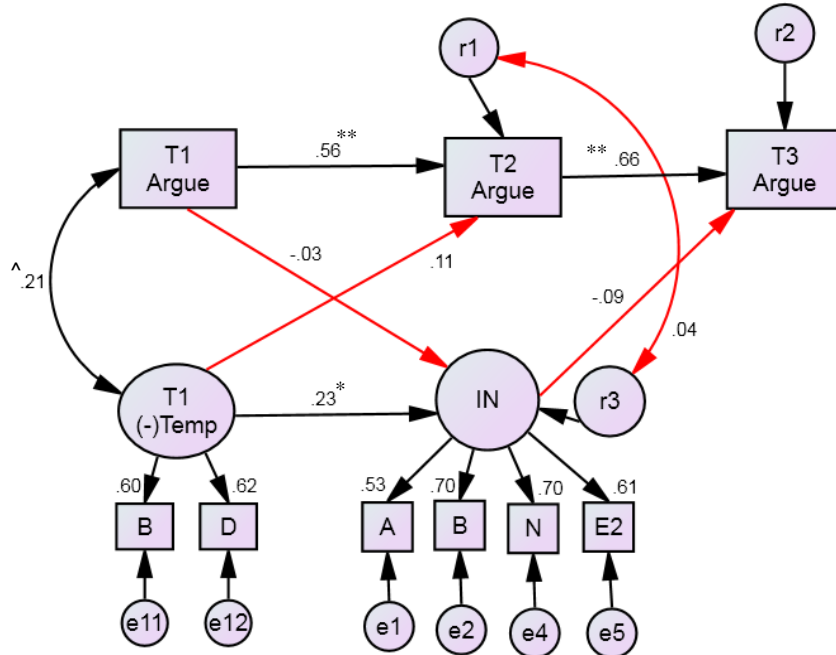
Results of the cross-group equality constraints for Model 2b are presented in Table 13 below. Unlike Models 1 & 2a, there is a significant gender effect when looking at the relationship between parents arguing and internalizing symptomology of the child. As the table indicates, both the factor structure and the stability and cross-lagged coefficients are significantly different between the boys and girls model. As such, further analyses based on gender of focal child will be presented below.

Table 13: Gender Effects of Model 2b: Argue Heatedly/Shout by Internalizing

$\Delta\chi^2$ Results for Unrestricted versus Restricted Models
Unrestricted Model vs. Restricted Factor Loadings Model $\Delta\chi^2$ 12.839/4df; $p=.012$
Unrestricted Model vs. Restricted Coefficient Model $\Delta\chi^2$ 21.118/8df; $p=.017$

Figure 6: Model 2b: Boys Model

Model 2b: Boys

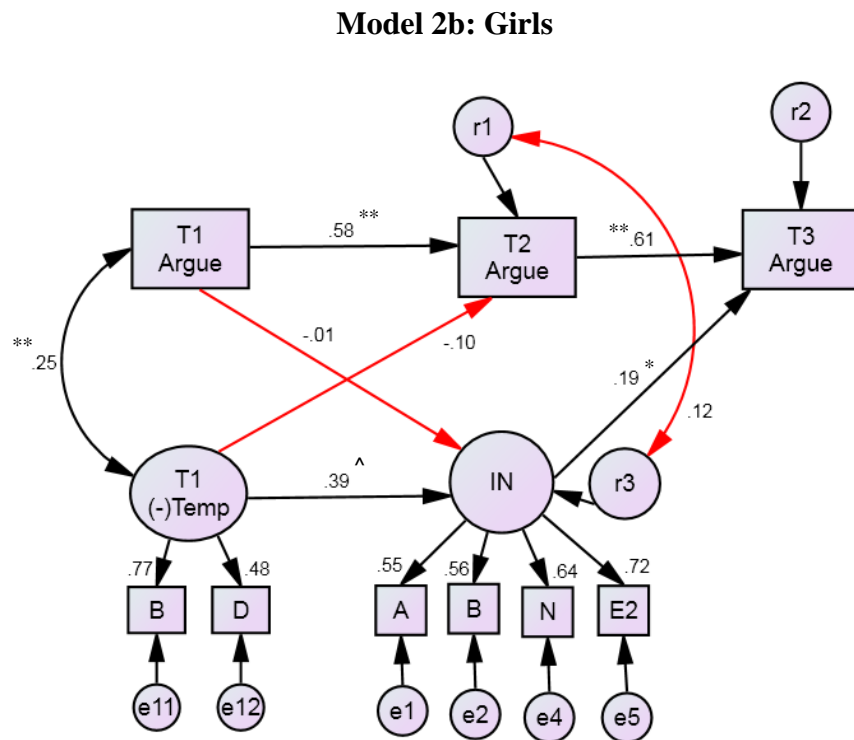


Note: All factor loadings significant at $p=.001$

** $p=.001$; $\wedge = .01$; * $p=.05$

Red paths are not-significant

Figure 7: Model 2b: Girls Model



Note: All factor loadings significant at $p=.001$
 $**p=.001$; $^{\wedge}=.01$; $*p=.05$
 Red paths are not-significant

For presenting the significant findings of Model 2b by gender of focal child, I will discuss the models first in comparison to the overall model, and then in comparison to each other. Remarks will be presented at the end of this discussion regarding the impact that gender has on the model.

Model 2b: Boys Compared to Overall Model

Some significant findings can be noted when comparing the model for boys to the overall model. For example, when comparing Figure 5 to Figure 6, similar structures of non-

significant cross-lagged paths and a non-significant within wave effect for Wave 2 are noted. However, what is different between the overall and boys' model is the magnitude of the coefficient between (-)Temp T1 and *Internalizing* symptomology which appears to be smaller in the boys as compared to the overall model [Overall Model ($r=.33$); Boys' Model ($r=.23$)]⁸.

Model 2b: Girls Compared to Overall Model

As was the case with the boys' model, some significant differences can be noted between the overall and girls' model. For example, when comparing Figure 5 to Figure 7, the cross-lagged effects between Waves 1 and 2 are similarly non-significant, however the coefficient path from *Internalizing* to parent *argue heatedly/shout* at Wave 3 is significant in the girls' model. Similar to the overall model, the coefficient path from (-)Temp T1 to *Internalizing* is significant. Differences emerge, however, when comparing the magnitude of these relationships between the overall and girls' model. For example, the magnitude of the coefficient path from (-)Temp T1 to *Internalizing* appears larger in magnitude when compared to the overall model [Overall Model ($r=.33$); Girls' Model ($r=.36$)]. Another notable difference emerges for the girls' model; the path from *Internalizing* to parent *argue heatedly/shout* is statistically significant and fairly substantial in magnitude ($r=.19$). This indirect effect from girls at Wave 2 to parents at Wave 3 also slightly decreases the magnitude of the stability coefficient between *argue heatedly/shout* Wave 2 to Wave 3 [Overall Model ($r=.63$); Girls' Model ($r=.61$)].

⁸ All paths which appear to be significantly different to the naked eye will be tested to determine that the path in question is in fact statistically different between the boys and girls models. These findings are presented under the heading "Statistically Testing for Significant Paths."

Model 2b: Boys Model Compared to Girls Model

Some significant findings can be noted when comparing the results between the boys' and girls' model. For example, the magnitude of path coefficient from *(-)Temp T1* to *Internalizing* is substantially different between the boys' and girls' model [Boys' Model ($r=.23$); Girls' Model ($r=.39$)]. This may indicate that there is a stronger relationship between negative temperament in childhood and internalizing symptoms for girls as compared to boys. Although this does not fully support *Hypothesis 1* (due to there being a non-significant cross-lagged path from *argue heatedly/shout* at Wave 1 to *Internalizing*), the findings presented above do demonstrate that there appears to be a gendered effect in that girls identified as having a negative temperament in childhood may be more likely than boys to display internalizing symptoms.

Statistically Testing for Significant Paths

Three paths appear (to the naked eye) to be different in magnitude between the boys' and girls' models [$T1 \text{ Argue} \rightarrow (-)Temp T1$; $(-)Temp T1 \rightarrow Internalizing$; $Internalizing \rightarrow T3 \text{ Argue}$]. However, follow-up analyses indicate that the only statistically significant path is $Internalizing \rightarrow T3 \text{ Argue}$ ($p=.049$) while the other two paths are non-significant [$T1 \text{ Argue} \rightarrow (-)Temp T1$ ($p=.335$); $(-)Temp T1 \rightarrow Internalizing$ ($p=.628$)]. This indicates that the discussion above should be contextualized in that magnitude changes between boys' and girls' paths appear to be significant, but are only statistically different for the path from *Internalizing* to *T3 Argue*. As such, this finding shows that girls internalizing symptomology in adolescence has a negative impact on parent's arguing heatedly/shouting at a later point in time.

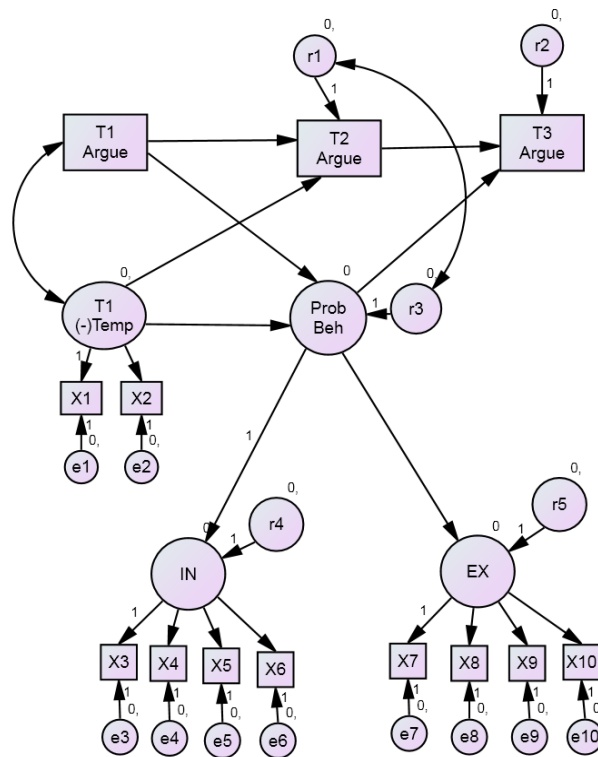
Conceptual Model 3 and Hypotheses

Discussions provided in Chapter 2 highlighted how children with adjustment problems often display externalizing and internalizing symptoms. A significant amount of research has focused on the structure of externalizing and internalizing disorders to debate whether these problems are indicative of a single underlying construct or are better conceptualized as distinct phenomenon (Jessor and Jessor, 1977; Gilmore, Hawkins, Catalano, Day, and Moore, 1991; Farrell, Danish, and Howard, 2000). However, Reitz, Dekovic, and Meijer (2005) argue out that researchers should not view these as 2 distinct symptoms or disorders due to the significant amount of comorbidity displayed between them. As such, Reitz et al. (2005) speculate that externalizing and internalizing symptoms may constitute a higher-order factor. Through running confirmatory factor analyses on data that consisted of 650, 13-14 year olds who filled out the Youth Self-Report, they found that a two-factor model with a higher-order factor (i.e. problem behavior as a higher order factor; ex/in as lower-order factors) better explained their data than a one-factor model (i.e. problem behavior) or a two-factor model without the higher-order factor (i.e. externalizing and internalizing behaviors) (2005: 578-579).

In following their example, I set up a model with problem behavior as a higher-order factor. Literature presented in Chapter 2 demonstrated that there is a relationship between negative temperament in childhood and problem behaviors in adolescence (i.e. internalizing and externalizing disorders). Therefore, I ran Model 3 with negative child temperament at T1 and the higher-order factor problem behavior at T2. This more complex model was run to

assess the relationship between child temperament and problem behaviors (*Hypothesis 3*) and marital conflict and problem behaviors (*Hypotheses 2 & 6*). Figure 8 below provides an example of an empty conceptual model of parents arguing heatedly/shouting by child temperament and problem behavior (Model 3). I first ran each model for the whole sample and then followed up with analyses to test if gender of the focal child significantly altered the results.

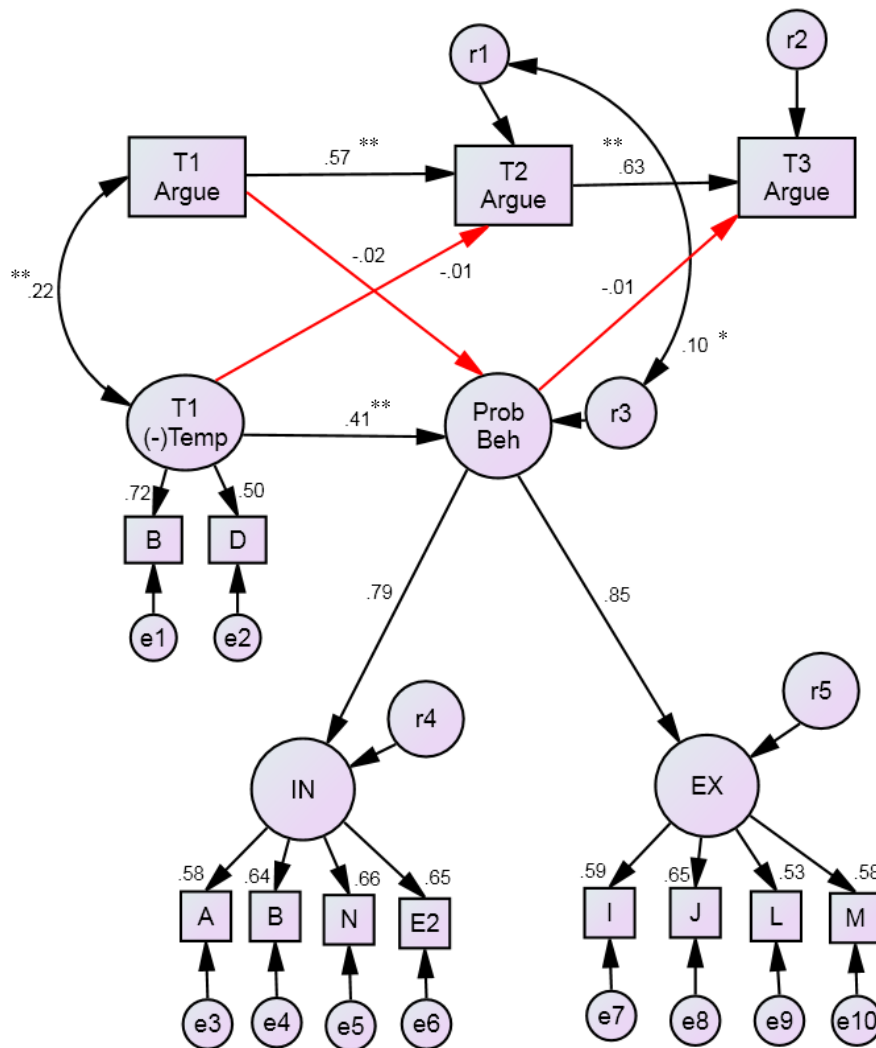
Figure 8: Conceptual Model 3-Argue Heatedly/Shout by Child Problem Behavior



Model 3: Argue Heatedly/Shout by Problem Behavior

Results for Model 3 are presented below along with a discussion of some of the key findings. Model 3 fits the data well as indicated by the fit statistics falling within acceptable ranges [$\chi^2=120.591$, $df=58$, $p=.000$; $CFI=.968$; $RMSEA=.028$].

Figure 9: Model 3: Argue Heatedly/Shout by Problem Behavior



Note: All factor loadings significant at $p=.001$

** $p=.001$; ^ $=.01$; * $p=.05$

Red paths are not-significant

Figure 9 (Continued)

Model 3 Fit Statistics: $\chi^2=120.591$, $df=58$, $p=.000$

CFI=.968

RMSEA=.028

As Figure 9 above illustrates, parent-child variables at Wave 1 and Wave 2, (-)Temp T1 and *Problem Behavior*, and stability coefficients for *argue heatedly/shout* are statistically significant for this model. Similar to Models 1, 2a, and 2b the stability coefficients between Wave 1→Wave 2 and Wave 2→Wave 3 for *argue heatedly/shout* have not changed [($r=.57$) and ($r=.63$), respectively] due to there being no significant cross-lagged paths (and as such, no partitioning of the effects).

Unlike the previous models, Model 3 differs in structure. Models 2a and Model 2b treated externalizing and internalizing symptoms as two separate constructs. Similar to the approach taken by Reitz et al. (2005), Model 3 treated externalizing and internalizing symptoms as lower-order factors of a higher-order construct called *Problem Behaviors* (the higher-order factor solution best fit the data I am analyzing [see Appendix D]). Some interesting findings can be noted. First, the factor loadings for *Internalizing* and *Externalizing* were both statistically significant and loaded heavily on the higher order factor of problem behaviors (.79 and .85, respectively). Second, the path coefficients between (-)Temp T1 and *Externalizing* in Model 2a and (-)Temp T1 and *Internalizing* in Model 2b were smaller [($r=.36$) and ($r=.33$), respectively] than the path coefficient between (-)Temp T1 and *Problem Behavior* in Model 3 ($r=.41$). This finding may demonstrate that the relationship between

negative temperament in childhood is more strongly related to the higher-order construct, *Problem Behaviors* than to the latent constructs *Externalizing* or *Internalizing* separately. Both of these findings indicate that a richer theoretical explanation of the relationship between negative temperament in childhood and later problem behaviors is best captured by looking at externalizing *and* internalizing symptoms concurrently.

Chapter 2 presented theoretical and empirical research that showed a relationship between childhood temperament problems and later problem behaviors of adolescents. Namely, research shows that children identified as having a negative (or difficult) childhood temperament are those most likely to also be identified as displaying adjustment issues or problem behaviors during adolescence. Based on this body of literature, I hypothesized:

Hypothesis 3: Negative child temperament at infancy (Wave 1) is a predictor of problem behaviors at adolescence (Wave 2).

Findings presented above, namely the stronger predictive power between (-)Temp T1 and *Problem Behaviors* as compared to (-)Temp T1 and *Externalizing/Internalizing* run separately, provide support for *Hypothesis 3*.

Literature presented in Chapter 2 illustrated the negative consequences that can accompany growing up with violence and marital conflict in the household. For example, children exposed to violence in the home are more prone to developmental, psychological, behavioral, and emotional problems that often manifest themselves in the form of problem behaviors. As such, I hypothesized:

Hypothesis 2: Marital conflict is a predictor of child problem behaviors (i.e. externalizing and internalizing symptoms). Cross-lagged effects will be present in that marital conflict at Wave 1 will predict child's problem behaviors at Wave 2.

As Figure 9 demonstrates, there is no evidence to support this hypothesis in that the cross-lagged paths from child to parent are non-significant.

Drawing on a transactional systems model and reciprocal effects research presented in Chapter 2, I hypothesized:

Hypothesis 6: Child problem behaviors (i.e. internalizing and externalizing symptoms) and marital conflict mutually influence one another over time (i.e. cross-lagged and reciprocal effects will be present).

There is partial evidence to support this hypothesis in that the within wave coefficients were significant while the cross-lagged paths were non-significant. For example *argue heatedly/shout* at Wave 1 is statistically significant with (-) *Temp T1* ($r=.22$) with a similar pattern emerging between *argue heatedly/shout* and *Problem Behaviors* at Wave 2 ($r=.10$). While these findings do illustrate a relationship between problem behaviors of children and marital conflict, there is no way to discern cause from effect or to establish temporal sequences from the results.

Gender Effects for Model 3: Argue Heatedly/Shout by Problem Behavior

Results of the cross-group equality constraints for Model 3 are presented in Table 14 below. Similar to Model 2b (*Internalizing*), there is a statistically significant gender effect when looking at the relationship between parents arguing and problem behaviors of the child. As the table indicates, both the factor structure and the stability and cross-lagged coefficients are significantly different between the boys' and girls' model. As such further analyses based on gender of focal child will be presented below.

Table 14: Gender Effects of Model 3: Argue Heatedly/Shout by Problem Behavior

$\Delta\chi^2$ Results for Unrestricted versus Restricted Models

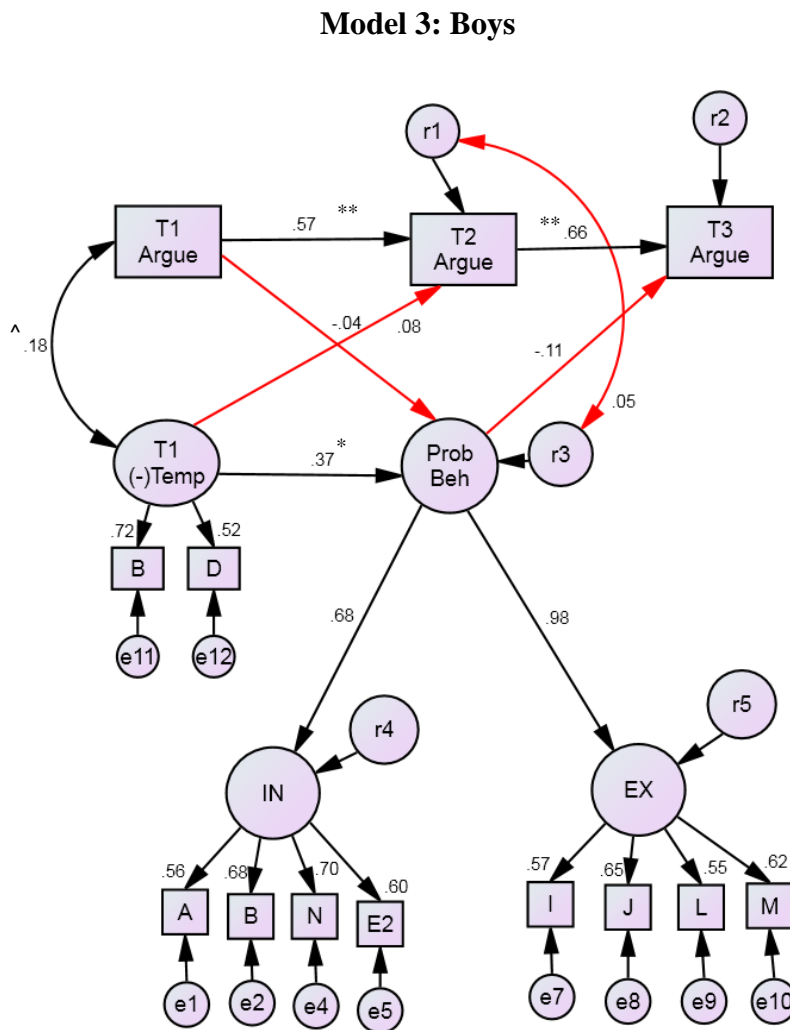
Unrestricted Model vs. Restricted Factor Loadings Model

$\Delta\chi^2$ 17.280/8df; p=.027

Unrestricted Model vs. Restricted Coefficient Model

$\Delta\chi^2$ 23.885/12df; p=.021

Figure 10: Model 3: Boys Model

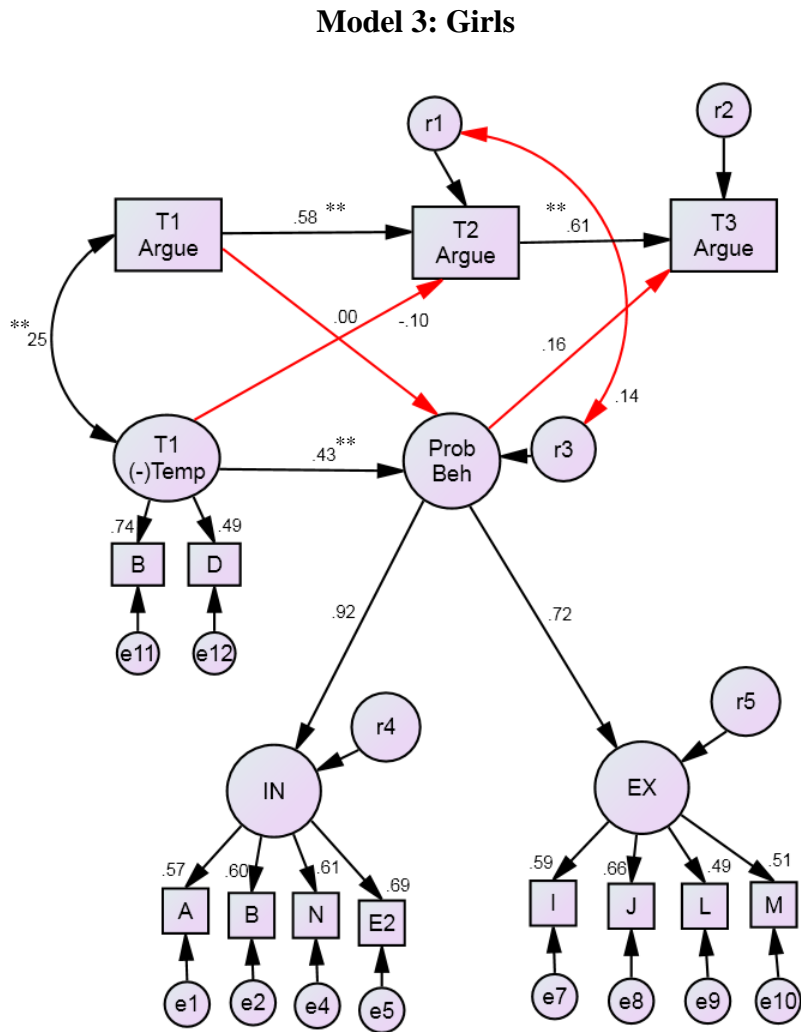


Note: All factor loadings significant at p=.001

**p=.001; ^ =.01; *p=.05

Red paths are not-significant

Figure 11: Model 3: Girls Model



Note: All factor loadings significant at p=.001

**p=.001; ^ =.01; *p=.05

Red paths are not-significant

For presenting the significant findings of Model 3 by gender of focal child, I will discuss the models first in comparison to the overall model, and then in comparison to each other.

Remarks will be presented at the end of this discussion regarding the impact that gender has on the model.

Model 3: Boys Compared to Overall Model

Significant findings can be noted when comparing the model for boys to the overall model. For example, when comparing Figure 9 to Figure 10, similar structures of non-significant cross-lagged paths are noted; however, the within wave effect between *argue heatedly/shout* Wave 2 and *Problem Behavior* drops out of significance. This may indicate that there is a non-significant parent-child effect at Wave 2 because problem behavior is more heavily influenced by stable personality characteristics (i.e. a negative temperamental style in childhood that develop into problem behaviors in adolescence) than attributes of parents arguing. Comparisons of the overall and boys' model also indicates that the coefficient paths are smaller between *argue heatedly/shout* at Wave 1 to (-)Temp T1 [Overall Model (r=.22); Boys' Model (r=.18)] and (-)Temp T1 to *Problem Behaviors* [Overall Model (r=.41); Boys' Model (r=.37)].

Model 3: Girls Compared to Overall Model

As was the case with the boys' model, the cross-lagged paths and parent-child coefficient at Wave 2 were non-significant. Also as was the case in the boys' model, the path coefficients between *argue heatedly/shout* to (-)Temp T1 and (-)Temp T1 to *Problem Behavior* are different in comparison to the overall model. However, while the boys' model indicated a decrease in the magnitude of these coefficient paths when compared to the overall model, these paths were larger in the girls' model (*argue heatedly/shout* to (-)TempT1 [Overall Model (r=.22); Girls' Model (r=.25)]; (-)Temp T1 to *Problem Behavior* [Overall Model (r=.41); Girls' Model (r=.43)]).

Model 3: Boys Model Compared to Girls Model

Some significant findings can be noted when comparing the results between the boys' and girls' model. For example, the magnitude of path coefficient from (-)Temp T1 to *Problem Behaviors* appears substantially different between the boys' and girls' model [Boys' Model ($r=.37$); Girls' Model ($r=.43$)]. Similar results were found in Model 2b with the strength of magnitude between (-)Temp T1 and *Internalizing* being stronger for girls as compared to boys. This may indicate that girls identified as having a negative temperament in childhood are more prone to display problem behaviors in adolescence that is more often seen in the form of internalizing symptoms. Comparisons of the factor structure for *Problem Behaviors* in the boys' and girls' model supports this assumption. The factor *Internalizing* loaded more heavily for girls while the factor *Externalizing* loaded more heavily for the boys' model [*Problem Behavior* Girls' Model: *Internalizing* (.92), *Externalizing* (.72); *Problem Behavior* Boys' Model: *Internalizing* (.68), *Externalizing* (.98)].

As was the case in Model 2b, these additional findings about the factor structure for boys and girls *Problem Behaviors* does not fully lend support for *Hypothesis 1* (boys more likely to externalize in response to marital conflict, girls internalize); there is a non-significant cross-lagged path from *argue heatedly/shout* at Wave 1 to *Problem Behaviors*. The findings above do demonstrate that there appears to be a gendered effect in relation to *Internalizing* and *Externalizing* symptoms. Girls identified as having a negative temperament in childhood appear more likely to display problem behaviors in the form of internalizing

symptoms while boys are more likely to display problem behaviors in the form of externalizing disorders.

Statistically Testing for Significant Paths

Four paths appear (to the naked eye) to be different in magnitude between the boys' and girls' models [T1 Argue \rightarrow (-)Temp T1; (-)Temp T1 \rightarrow Problem Behavior; Problem Behavior \rightarrow Internalizing; Problem Behavior \rightarrow Externalizing]. However, follow-up analyses indicate that the only statistically significant path is *Problem Behavior \rightarrow Externalizing* ($p=.043$) while the other three paths are non-significant [T1 Argue \rightarrow (-)Temp T1 ($p=.400$); (-)Temp T1 \rightarrow Problem Behavior ($p=.733$); Problem Behavior \rightarrow Internalizing ($p=.322$)]. This indicates that the discussion above should be contextualized in that magnitude changes between boys' and girls' paths *appear* to be significant, but are only statistically different for the path *Problem Behavior* to *Externalizing*. As such, this finding shows that the lower-order construct of *Externalizing* is significantly different between boys and girls, but that this is not the case for the lower-order construct of *Internalizing*. It is hard to draw any conclusive statements from this evidence, but it does demonstrate that boys and girls may be more *dissimilar* when it comes to externalizing symptomology and more *similar* when it comes to internalizing symptomology.

Summary Remarks on Models 1, 2a, and 2b

I drew on previous literature as well as preliminary analysis to help me construct the cross-lagged SEM Models presented above. In Model 1, I tested the relationship between parents arguing and negative temperament of the focal child at T1 and T2; Models 2a & 2b

tested the relationship between parents arguing and negative temperament of the focal child at T1 and internalizing/externalizing symptoms at T2; and Model 3 tested the relationship between parents arguing and negative temperament of the focal child at T1 and the higher-order factor of problem behaviors at T2. While each of these models set out to explore different hypotheses (many of which were tested across models), a review of models with corresponding hypotheses follows:

Model 1: *Argue Heatedly/Shout by (-) Temperament*

Hypothesis 4: Negative child temperament is a predictor of marital conflict. Cross-lagged effects will be present in that negative child temperament at Wave 1 will predict marital conflict at Wave 2 and negative child temperament at Wave 2 will predict marital conflict at Wave 3.

Hypothesis 5: Negative child temperament and marital conflict mutually influence one another over time (i.e. cross-lagged and reciprocal effects will be present).

Models 2a & 2b: *Argue Heatedly/Shout by Ex/Internalizing Symptomology*

Hypothesis 1: Boys are more likely to display externalizing symptoms in response to marital conflict while girls are more likely to display internalizing symptoms.

Model 3: *Argue Heatedly/Shout by Problem Behavior*

Hypothesis 2: Marital conflict is a predictor of child problem behaviors (i.e. externalizing and internalizing symptoms). Cross-lagged effects will be present in that marital conflict at Wave 1 will predict child's problem behaviors at Wave 2.

Hypothesis 3: Negative child temperament at infancy (Wave 1) is a predictor of problem behaviors at adolescence (Wave 2).

Hypothesis 6: Child problem behaviors (i.e. internalizing and externalizing symptoms) and marital conflict mutually influence one another over time (i.e. cross-lagged and reciprocal effects will be present).

Because there were no statistically significant cross-lagged effects in any of the models, there is limited support for many of the hypotheses presented above. For example, there is no

support for *Hypotheses 2 or 4* which indicates that there are no parent- or child-effects present between negative child temperament, problem behaviors, or marital conflict.

However, there is partial support for *Hypotheses 5 and 6* as reciprocal effects were found but not cross-lagged effects. Model 1 indicated a within wave (i.e. reciprocal) effect between parents arguing and child's negative temperament at Wave 1 ($r=.24$) and Wave 2 ($r=.12$) while Model 3 indicated a within wave (i.e. reciprocal) effect between parents arguing and negative temperament of child at Wave 1 (.22) and parents arguing and problem behavior of child at Wave 2 ($r=.10$). Although each of these path coefficients are modest in magnitude, findings may suggest that parental arguing and "negative" attributes of children have a detrimental influence upon one another that is seen contemporaneously but not across time.

Hypotheses 1 and 3 had the most conclusive support with Models 2b and 3 showing the greatest support for *Hypothesis 1*. For example, gender effects were found for Model 2b and when investigated, it was shown that the path coefficient between negative temperament at Wave 1 and internalizing symptoms at Wave 2 was substantially larger for girls compared to boys [$(r=.39)$ and $(r=.23)$, respectively]. Gender effects were found in Model 3 as well and showed that the factor structure of *Problem Behaviors* was notably different between girls and boys with the girls' model loading more heavily on internalizing symptoms and the boys' model loading more heavily on externalizing symptoms [*Problem Behavior Girls' Model: Internalizing (.92), Externalizing (.72); Problem Behavior Boys' Model: Internalizing (.68), Externalizing (.98)*]. As was the case with *Hypotheses 5 and 6*, *Hypothesis 1* was only partially supported as there was no relationship between externalizing/internalizing and

marital conflict (i.e. cross-lagged effect). *Hypothesis 3* had the most conclusive support seen in Model 3; the path coefficient between negative temperament in childhood and problem behaviors in adolescence was statistically significant and strong in magnitude ($r=.41$).

CHAPTER 5: DISCUSSION & CONCLUSION

Discussion and Conclusion

A significant amount of research has documented the negative impact that marital conflict can have on children such as developmental, psychological, cognitive, and emotional problems (Rossman, 2001). These developmental issues are most often displayed in the form of problem behaviors that can manifest themselves as internalizing (i.e. problems regulating emotions, depressive symptoms, and excessive worry or anxiety) and/or externalizing symptoms (i.e. aggression or violent behavior, problems socializing with others, and disruptive or self-destructive behaviors) in later stages of life (Jaffe et al., 1986; Evans, 2008). While the traditional approach to understanding family dynamics has been framed through parent socialization research, increasingly scholars called attention in the 1960s to the ways that children may also actively shape their social environment. This train of thought was most heavily advocated by developmental psychologists Richard Bell and led to the body of research we now call child-effects (Bell, 1968, 1971; Bell and Harper, 1977; and Bell, 1979). This thread of research focused on the way that attributes and characteristics of children can influence both the larger family system as well as those subsystems within it (i.e. parent-child, parent-parent, and sibling relationships) and gave agency to children where little had been before.

One attribute of children that garnered research interest from a child-effects framework was the concept of child temperament. Temperament is generally defined as “the physiological basis for the motivational, affective, and regulation components of personality

(Goldsmith et al., 1987)” (Lengua, West, and Sandler, 1998: 164) and is viewed as an important concept since temperamental styles may “influence or moderate key socialization experiences, such as parent-child relationships” (Lengua et al., 1998: 164). The first contemporary scholars to document a relationship between temperamental styles and reactions from parents were Thomas and Chess (1977). Drawing on a longitudinal study of 141 infants collected over 6 years, Thomas and Chess “utilized a reciprocal understanding of temperament where infant reaction patterns...interacted with environmental conditions” in ways that shaped both their “psychological and social development” (DeLisi and Vaughn, 2001).

As research continued to advance and demonstrate the ways that children may actively shape their own environments, scholars became increasingly wary of framing the family socialization process in a unidirectional framework. These criticisms lead to the development of reciprocal or transactional systems research which views that family as composed of interrelated parts mutually influencing one another over time. This body of research has grown within the past 10-20 years and the end of Chapter 2 presented a discussion of empirical research that has documented reciprocal, bidirectional, and transactional relationships between attributes of children and parents⁹.

A transactional family system perspective argues that the family, similar to other systems or social institutions within society, consists of interrelated subsystems. For

⁹ For example, many of the studies I found utilizing a reciprocal framework were published from 2000-on and there have been numerous special issues dedicated to understanding bidirectional (see, *Journal of Abnormal Child Psychology* 2008, vol. 36) and reciprocal parent-child relationships (see, *Journal of Social and Personal Relationships* 1997, vol. 14).

example, these subsystems may consist of smaller relational units such as parent and child, parent and parent, or sibling subsystems. Two key tenants of this theoretical perspective are, 1) that these subsystems are believed to mutually influence and shape the outcomes for themselves as well as those around them (Cook, 2001) and 2) that these subsystems are “exerting a continuous and reciprocal influence on one another” over time (Cox and Paley, 1997: 246). As such, this theoretical perspective is helpful for conceptualizing the types of reciprocal relationships that I tested in my models.

Using a transactional family systems model, this research set out to explore how marital conflict and attributes of children may mutually influence one another over time. Whereas the predominate view of the relationship between marital conflict and children is that dynamics going on between the marital couple are what lead to problem behaviors in children (i.e. externalizing and internalizing symptoms) temperament literature challenges this parent-to-child effect by showing that negative temperamental styles of children also effects the marital relationship.

Drawing on this knowledge, I use the dataset, *National Survey of Families and Households* to test three cross-lagged reciprocal effects models. Numerous methodologies were used to help me derive the form and content of variables in these models starting with exploratory and confirmatory factor analyses. After establishing which variables would be in the final analyses, I ran linear and logistic regressions to determine the strength of relationships between the parent variable (*argue heatedly/shout*) and four latent child constructs ((-)Temp T1, (-)Temp T2, *Externalizing* and *Internalizing*). The final methodology

I used included testing cross-lagged structural equation models to examine several hypotheses. While some hypotheses had more conclusive support than others, the overall findings indicate (for my sample) that marital conflict, negative child temperament, and problem behaviors in adolescence do not have a compounding or additive effect. Rather, findings from all of the models show within wave effects that are more indicative of these effects being correlated at a single time period rather than influencing one another across time. These findings may indicate that interactions within the family can impact developmental trajectories even if these findings are not significant across waves. Perhaps it is due to the relative stability of many of the variables under investigation. For example, the coefficient associated with the variable argue heatedly/shout demonstrated a significant amount of stability over time [Argue T1 → Argue T2 ($r=.57$); Argue T2 → Argue T3 ($r=.63$) although numbers slightly altered in gender models]. Similarly, there was a significant amount of stability associated with many of the child variables as well [$(-)Temp T1$ and $(-)Temp T2$ ($r=.40$)]. Taken as a whole, these results do not disprove a developmental explanation of the relationship between marital conflict and negative child temperament/problem behaviors. Rather, alternative explanations can be presented such as stability findings muting the potential to find statistically significant cross-lagged effects which highlights the significant interplay between parents and children which occur simultaneously.

Two additional findings are worth noting. First, the only model to have a significant cross-lagged path was the girls' model for *Internalizing* (Model 2b). Results from cross

group equality constraint and significant path tests indicate that the path from *Internalizing* to T3 Argue was statistically significant ($p=.049$; $r=.19$). This shows that girls' internalizing symptomology at Wave 2 is significantly correlated with parents arguing heatedly/shouting at Wave 3 with increases in girls' internalizing leading to parents increased arguing. While this is speculation, perhaps these findings illustrate that girls' internalizing has a detrimental effect on the parental relationship which can lead to an increase in arguing. Further exploration of this relationship is needed to explain why girls' internalizing has an impact on the marital relationship at a later point in time.

A second significant finding was that similar to Reitz, Dekovic, and Meijer (2005), I found through running confirmatory factor analysis that a higher-order factor best fit my data compared to a one-factor or two-factor (without the higher-order) solution. Reitz et al., assert that they are one of the first groups of researchers to test for and find a significant higher-order construct. As such, it is hard to fully contextualize what these results show, but my findings demonstrate that the comorbidity between externalizing and internalizing symptomology may be so extreme that these constructs really constitute a larger issue captured under the construct *Problem Behavior*. Results from cross group equality constraints appear to hint that boys and girls display problem behaviors differently with lower-order paths for boys loading more significantly on externalizing symptoms and lower-order paths from girls loading more heavily on internalizing symptoms. However, follow-up significant path tests indicate that the lower-order construct of *Externalizing* is statistically different between boys and girls while the lower-order construct of *Internalizing* is not. It is

hard to draw conclusive remarks from these findings, but perhaps it is the case that it is easier to recognize the differences between boys and girls with regard to externalizing symptoms as compared to internalizing symptoms. Additional research is needed to explore what the higher-order construct of *Problem Behavior* indicates, especially since this is the second study to test and find that a higher-order construct best fits the data. Along these same lines, additional research is needed to further understand how boys and girls differently display problem behaviors in the forms of externalizing and internalizing symptoms.

Research Contributions

Although these findings do not support the types of relationships that I hypothesized would be present in my data, they do add to the growing body of literature on reciprocal or bidirectional effects. Further, these findings add context to the complexities that often accompany researching the topic of marital conflict and developmental outcomes for children. In going back to the longer quote presented on page 23; Cox, Paley, and Hartner (2001) assert that “we should be asking not only how marital conflict affects parent-child relationships, but also how the development of parent-child relationships feeds back into the course of the marital relationship” (2001: 249). This research attempted to address questions of this nature through assessing reciprocal and cross-lagged relationships rather than utilizing a traditional unidirectional approach.

My findings also add context to the parent-child relationship in that I found statistically significant relationships between the parent and child variables within waves. These findings are interesting in that they demonstrate positive correlations; however, they

do not add information regarding the temporal sequences between these variables. For example, it may be the case that a child described as being negatively temperamental puts a strain on the marital relationship resulting in increased reports of marital conflict. An equally plausible explanation could be that increases in marital conflict put a strain on the child which is expressed as negative temperament. Although I have demonstrated that this relationship exists, I am unable to answer which is more likely to be the cause versus the effect.

Another contribution of this research is that my findings can be applicable to both academic as well as non-academic audiences. For example, I drew on very broad research to explore family processes and illustrated how literatures that are often viewed as disparate can complement and build upon one another. In this respect, it is my hopes that academics find this research helpful as they further explore developmental trajectories and interactions between parents and children over time. Along with academics, I see this research as being applicable to clinical practitioners, parents, and larger social institutions (such as social workers) that are responsible for responding to violence and conflict that occurs within the home. From a clinical standpoint, this research may be helpful to counselors and/or parents to better understand the ways that temperament can impact family dynamics. Although no solutions or best practices are offered throughout the course of this research, findings show that there are interactions going on simultaneously between parents and children that can have a detrimental effect upon one another (i.e. increased marital conflict in response to increasingly negative temperament and problem behaviors, and vice versa). Regarding social

institutions that may find this research of use, perhaps my findings will help social workers to better provide counseling to the entire family in those that are ridden with violence and conflict. Along these same lines, perhaps my findings will help social workers to explore the various ways that characteristics of parents and children may mutually influence one another over time, expanding the scope of their counseling repertoire to include family, not only parent or children counseling separately.

Limitations of the Study

As with any research there are limitations of this study. The three primary limitations I will discuss relate to identification of mediator and moderator effects, reporter bias and establishing developmental sequences, and conceptualization of marital conflict.

Mediator/Moderator Effects

One of the complexities involved with exploring parent-child effects is ensuring that the relationship in question is not being impacted by a separate and unaccounted for variable. For example, while this research set out to explore the relationship between marital conflict and attributes of children, I did not control for any potential mediator or moderator variables that might impact this relationship. Researchers assert that “interparental conflict affects children not in isolation, but rather in the context of multiple family systems and processes” that should be understood within “broader family, ecological, and developmental milieu” (Cummings and Davies, 2010: xi, 100). As such, it is important for researchers to contextualize the whole picture by taking into account the various ways that other

relationships or preexisting processes could alter the marital conflict-child development link. In studying two child outcomes and one dimension of marital conflict I acknowledge that there may be limited explanatory power behind the significant reciprocal path coefficients that I found within my models. However, what follows is a discussion of some larger contextual factors that may impact marital conflict and child outcomes over time even though I did not directly test for these effects.

According to Rhoades, “it is not the conflict itself but rather more proximal processes that must account for the relation between interparental conflict and child behavior problems” (2008: 1942). These proximal processes could include preexisting characteristics of the parents and/or children that may alter the parent child relationship and impact prevalence and severity of marital conflict present in these families. For example, research has shown that parent’s psychopathology can have a significant impact on both the marital relationship as well as the overall functioning of the family. Examples might include how parental depression impacts the marital conflict developmental child outcome link (Kuros, Merrilees, and Cummings, 2008) and how temperament and coping levels of parents to stress may differentially impact how they react to problematic children.

In the context of child characteristics that may impact marital conflict, research has shown that not all children who witness interparental violence respond with problem behaviors (Jouriles, Murphy, and O’Leary, 1989). This emphasizes that there may be inherent differences between children that allow them to better cope and adapt within stressful environments. The opposite could be true as well in that some children are more

prone to respond negatively to minor stimuli. A growing body of research is focusing on what risk and protective factors may help account for a child's ability to handle stressful environments and react with less problematic forms of behavior.

Another potential explanation of the marital conflict child development link is that rather than there being preexisting differences between parents and children that impact marital conflict and developmental outcomes of children, it may be the case that larger societal forces are shaping family dynamics. According to Cummings and Davies (2010):

Families' functioning takes place in the broader context of socioeconomic conditions, neighborhoods, schools, communities, and cultures. Each of these ecological characteristics may in itself alter the magnitude or form of the association between the marital conflict and children's adjustment (100).

This is to say that while it is important to understand how relationships within families can shape developmental outcomes of both parents and children, it is equally important to understand families are part of, and shaped by, larger social intuitions that they are imbedded within.

Reporter Bias and Establishing Developmental Sequences

A second limitation of my study is a frequently noted problem that occurs when researching parent-child effects and that is reporting bias. For example, data that investigates characteristics of both parents and children is often collected from one source; the parent. This is problematic in that perceptions of parents are what are used to measure attributes of children. Take for example the relationship between parenting and child temperament. According to Putnam, Sanson, and Rothbart (2002) the most frequently used source for child

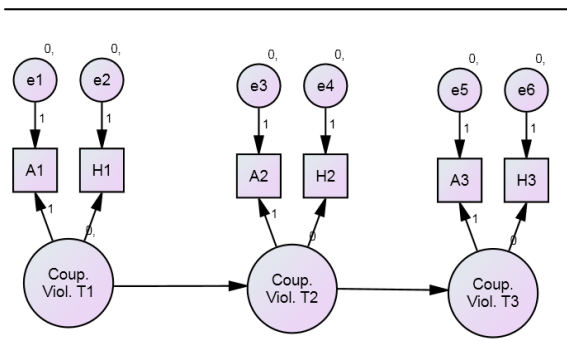
temperament is parental reports. “If parent report is also used to assess parenting, there is clear potential for non-independence of measures, because characteristics of the parent may affect their reports of both their parenting practices and their child’s temperament” (2002: 258). Therefore, *perceptions* may not accurately transfer to actual *characteristics* of children. This may have impacted my results in that the variables I am using are based on parent perceptions which are highly contingent upon many other factors that I could not account for. For example, parents may have different thresholds for their child’s behaviors (good or bad) and results could be inconsistent due to these rather subjective reports. Similarly, because the data was collected at three points in time, the results may be capturing time-specific reports that are again highly contingent upon many factors. However, this limitation cannot be overcome but only acknowledged as I am using a secondary dataset.

A second issue related to the data has to do with the large gaps between waves of data collection. This in and of itself is not problematic, however, it can be complicated trying to determine developmental sequences of children as they transition through important stages in their lives when there is so much variability between the ages of children (Cummings, 1998). For example, I have loosely conceptualized that Wave 1 is capturing childhood (age 0-4) while Wave 2 is capturing adolescence (age 5-17). However, there are limitations to drawing too many conclusive remarks about findings from Wave 2 due to the large variability in development that occurs between the ages of 5-17. While this is a limitation of the data, this may impact my results in that experiences of children who are age five are highly different than those of children who are 17 years of age.

Conceptualization of Marital Conflict

A third limitation of this research has to do with conceptualization. Throughout this research I have drawn on family violence and marital conflict literature to shape arguments relating to my hypotheses and findings. However, due to the severe skewness and kurtosis as well as missing data issues present in the variable *hit/throw* (discussed in Chapter 3), I was only able to use the variable *argue heatedly/shout* as a measure of marital conflict. Initially, the plan for data analysis included creating latent factors for couple violence that included dimensions of both verbal (*argue heatedly/shout*) and physical violence (*hit/throw*). A visual representation is presented in Figure 12 below with A=argue and H=hit/throw. While this approach was not justifiable due to the issues already noted above, I acknowledge that *argue heatedly/shout* is conceptually different from marital conflict.

Figure 12: Couple Violence T1, T2, T3



Future Research Based on Findings

Based on the findings of my research, I propose that additional research is needed to further explore marital conflict, negative temperament, and problem behaviors from a

reciprocal framework. While my findings show within wave effects, further research is needed to explicate the temporality between these effects. Having a clear and more accurate picture of the way these developmental sequences unfold over time will lead to better and more precise intervention strategies. For example, when finding a relationship between parent arguing and negative temperament at Wave 1 and negative temperament at Wave 1 and problem behaviors at Wave 2; questions arise about where the problem originates. Is there some inherent attribute of that child that regardless of their environment would have lead them to develop problem behaviors, or did they develop problem behaviors as a result of marital conflict altering their temperamental traits in childhood? Additional research is needed to further our understanding of temporality between these types of relationships.

Personal Future Research Agenda

I have only scratched the surface of the ways that marital conflict and child temperament/problem behaviors may mutually influence one another over time. This dataset is vast and expansive and I have only begun to tap into the potential that lies within. The first way I want to more broadly explore this dataset is through extending my sampling framework. For example, since I limited my sample to married couples who reported data on a focal child, there were a wide variety of variables that I was unable to explore. Given my training in criminology, I was initially drawn to variables that measured more “traditional” forms of problem behaviors (i.e. juvenile delinquency) such as truancy, expulsion or suspension, run-ins with police, and alcohol or drug abuse. Given that these variables were

not asked about focal children but rather whichever child the parent randomly picked, I was unable to explore these variables in relation to marital conflict.

A second way I want to further explore this dataset is through inspecting the telephone interviews with focal children. As was mentioned above, relying solely on one reporter for sources of information about attributes of parents and children is likely to skew results. After expanding the sampling framework, I would like to assess how children perceive the parent-child relationship and collect any information that may be offered from the child's perspective on marital conflict. In the later waves of data collection, focal children also offer up information on their status as parents. My hopes here would be to use the multiple sources of data across the three Waves to map out developmental trajectories of children exposed to violence during childhood.

**APPENDIX A: MALE AND FEMALE RESPONSES
FOR VARIABLE ARGUE HEATEDLY/SHOUT**

Figure 1: W1 Main Respondent

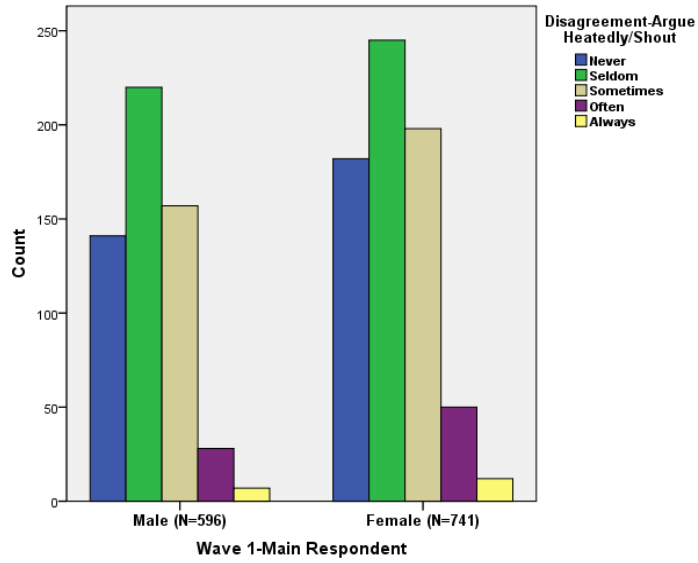


Figure 2: W1 Spouse

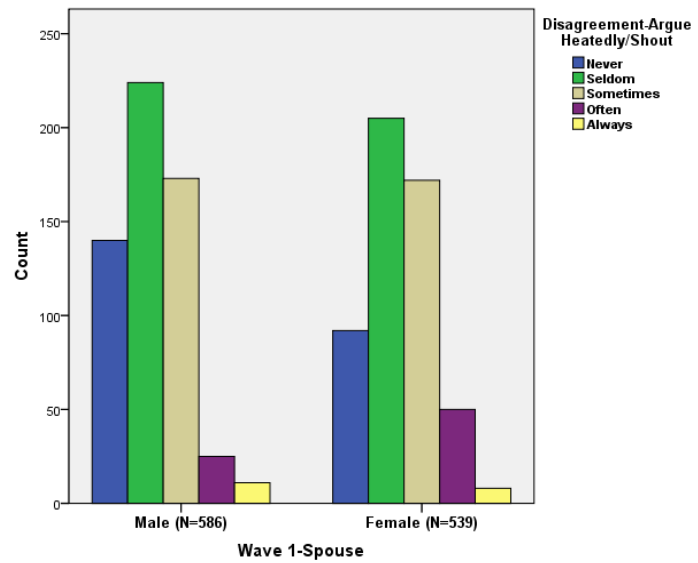


Figure 3: W2 Main Respondent

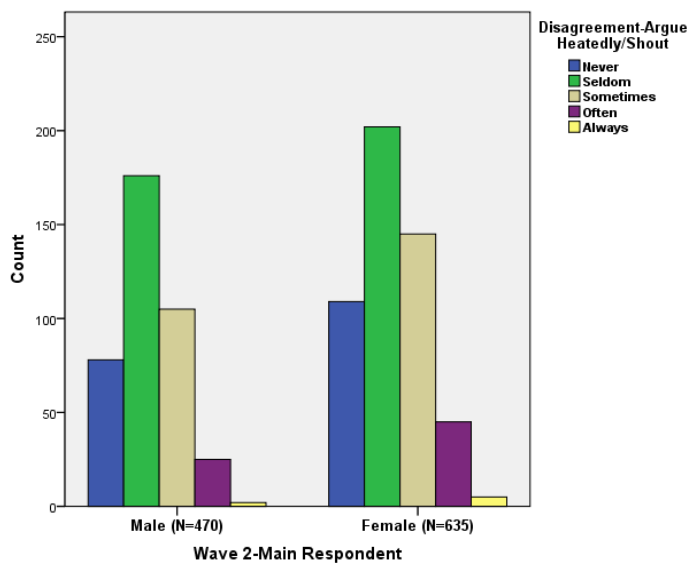


Figure 4: W2 Spouse

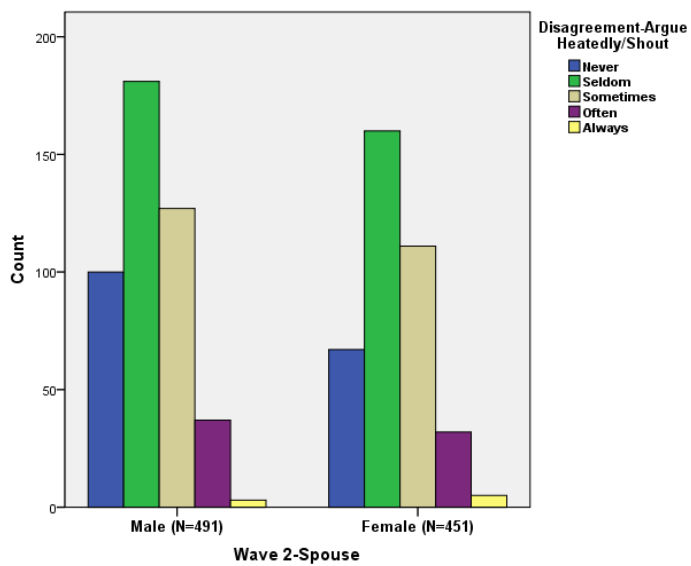


Figure 5: W3 Main Respondent

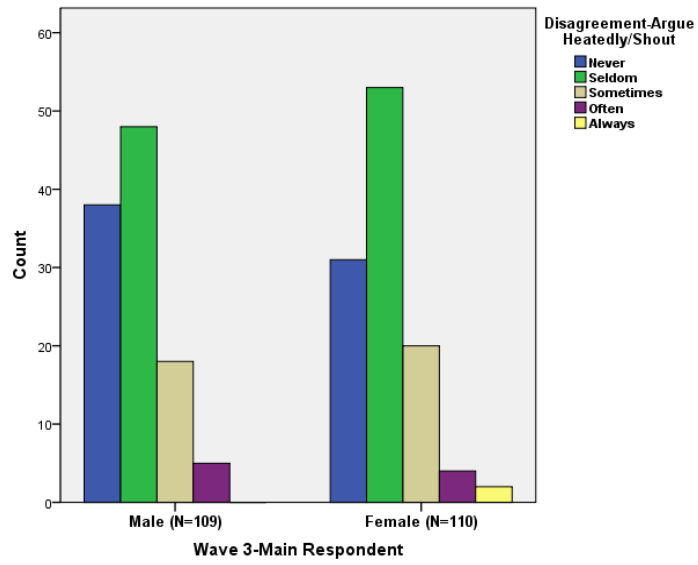
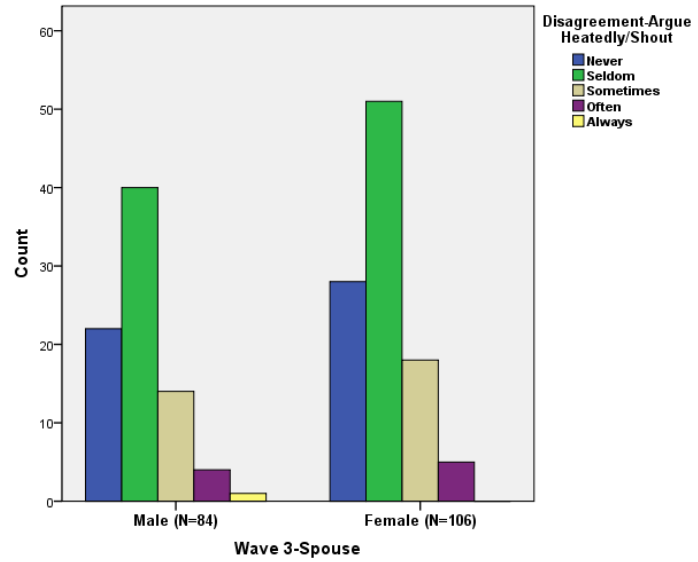


Figure 6: W3 Spouse



APPENDIX B: CORRELATION TABLE OF ALL VARIABLES IN THE ANALYSES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
W1 Avg Argue	1															
W2 Avg Argue	.562**	1														
W3 Avg Argue	.558**	.609**	1													
Fussy/Irritable	.136**	0.072	-0.006	1												
Temper	.145**	.101*	0.069	.361**	1											
Stubborn/Irritable	.078*	.087*	0.02	.182**	.134**	1										
Temper	0.039	.107**	.153*	.160**	.207**	.538**	1									
Argues too Much	.126**	.130**	0.107	.196**	.171**	.449**	.467**	1								
Changes in Mood	0.05	0.056	0.019	.195**	.136**	.398**	.394**	.343**	1							
Complains Not Loved	0.03	.083*	-0.014	.159**	.094*	.321**	.337**	.302**	.383**	1						
Feels Worthless	0.015	0.012	.164*	.142**	0.038	.300**	.267**	.278**	.340**	.430**	1					
Sad/Depressed	0.065	.077*	0.04	.163**	.080*	.332**	.301**	.262**	.358**	.395**	.473**	1				
Bullies/Cruel	0.047	0.052	0.015	.179**	.115**	.377**	.385**	.363**	.238**	.242**	.234**	.190**	1			
Is Disobediant	0.056	.101**	-0.038	.172**	.084*	.444**	.406**	.432**	.330**	.318**	.234**	.301**	.407**	1		
Trouble Getting Along	-0.012	-0.008	0.066	.151**	.112**	.278**	.311**	.279**	.219**	.217**	.264**	.233**	.346**	.269**	1	
Impulsive	0.024	0.045	-0.036	.135**	.089*	.353**	.295**	.308**	.252**	.218**	.278**	.208**	.301**	.387**	.349**	1

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

**APPENDIX C: CORRELATION TABLE OF LATENT
VARIABLES IN THE ANALYSES**

	1	2	3	4	5	6	7
W1 Parent Argue/Shout Heatedly	1						
W2 Parent Argue/Shout Heatedly	.420**	1					
W1 + W2 Parent Argue/Shout Heatedly	.700**	.746**	1				
(-)Temp T1	.128**	0.067	.121**	1			
(-)Temp T2	.131**	.081*	.135**	.194**	1		
Externalizing	0.071	0.033	0.066	.183**	.449**	1	
Internalizing	0.064	0.068	.086*	.170**	.405**	.327**	1

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

APPENDIX D: COMPARISON OF FACTOR STRUCTURE FOR *PROBLEM BEHAVIORS*

All factor loadings are significant at $p=.001$. According to the fit statistics, the higher-order factor best fits the data ($CFI > .90$, $RMSEA < .05$). This is also supported when looking at the Akaike Information Criteria (AIC) as smaller AIC indicates a more parsimonious model (Jöreskog, 1993; Byrne, 2001; Burkholder and Harlow, 2003).

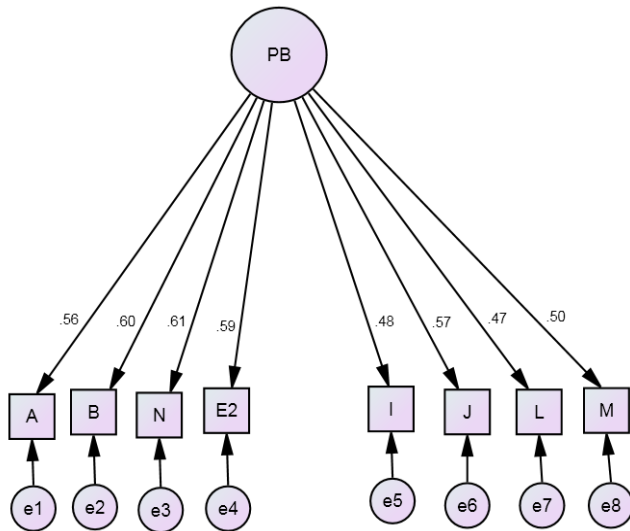
1-Factor Solution Fit Statistics:

$\chi^2=212.023$, $df=20$, $p=.000$

CFI=.863

RMSEA=.085

AIC=260.023



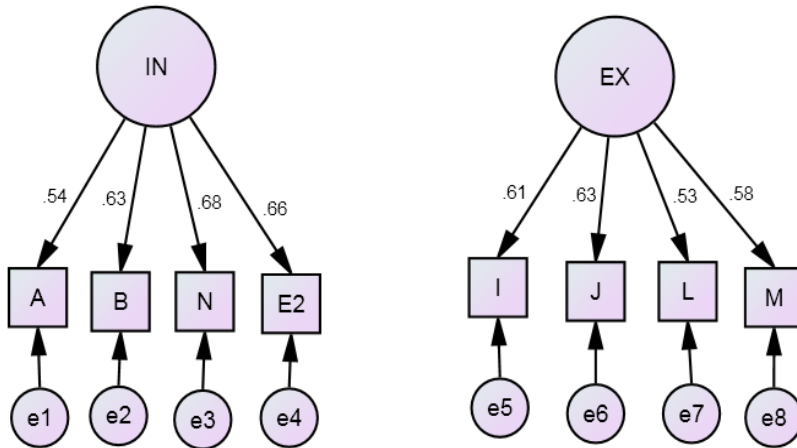
2-Factor Solution Fit Statistics:

$\chi^2=289.516$, $df=20$, $p=.000$

CFI=.808

RMSEA=.100

AIC=337.516



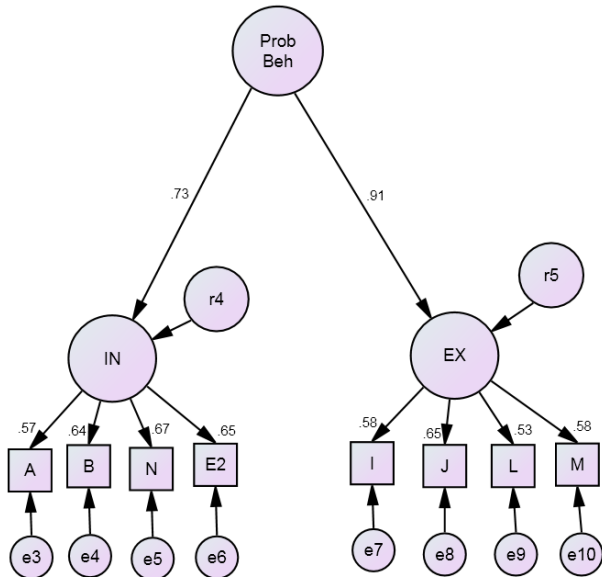
Higher-Order Factor Solution Fit Statistics:

$\chi^2=71.006$, $df=19$, $p=.000$

CFI=.963

RMSEA=.045

AIC=121.006



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