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During Infancy and Early Childhood

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Major professor

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THE EFFECTS OF FAMILY STRESS ON CHILD AGGRESSION DURING INFANCY AND EARLY CHILDHOOD

By

Urminda Sue Firlan-Whitsett

A DISSERTATION

Submitted to Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

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ABSTRACT

THE EFFECTS OF FAMILY STRESS ON CHILD AGGRESSION DURING INFANCY AND EARLY CHILDHOOD

By

Urminda Sue Firlan-Whitsett

The present study used structural equation modeling to investigate the relationship between family stress and child aggression. Precursors of aggressive behavior (child temperament, parent-child social interaction, parent disciplinary practices, family cohesion, and family demographics) were examined as potential mediators of the relationship between family stress and child aggression.

Data from the Detroit Skillman Parenting Education Program Evaluation (Stoffelmayr, Reischl, Lounsbury, & Firlan-Whitsett, 1998) were used to address these issues. Subjects included 260 families. Respondents were predominantly Black women with a mean age of 26.5 years. The children's ages ranged from 1-1/2 years to 4-1/2 years with a mean age of 31 months. There were comparable numbers of boys and girls.

Results of structural equation modeling indicated that family stress indirectly affected child aggressive behaviors. Specifically, increased levels of family stress resulted in decreased use of positive parenting practices. Less positive parenting practices predicted less adaptive child temperament. In

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turn, less adaptive child temperament predicted higher levels of aggressive behavior.

Overall the results of model 1, the best fitting original model, suggested that family stress, poor parent disciplinary practices, and difficult child temperament create a strong trajectory toward childhood aggression as early as 1-1/2 years of age. Although the Chi-Square [χ^2(df = 97, $\underline{N}$ = 260) = 129.50, $\underline{p}$ = .015] was significant, the GFI (.94) and the CFI (.84) were large and the RMSEA (.04) was small. Additionally, the data fit the rule of thumb that an acceptable fit exists if two times the degrees of freedom exceeds the χ^2[df = 97 x 2 = 194; 194 > 129.50]. Post hoc analyses were conducted in an attempt to understand why family cohesion did not mediate the relationship between family stress and child aggression in the original models. Alternate model 8 preserved all findings from the original models and further demonstrated that family cohesion mediates the deleterious effects of family stress on child behavior through its impact on parent disciplinary practices and also revealed a bi-directional relationship between parent disciplinary practices and child temperament.

Alternate model 8 provided the most insight toward understanding the impact of family stress on child aggression. These findings support the class of system models in human development that advance the notion that meaningful relationships can best be uncovered through the inclusion of multi-level variables and reciprocal processes.

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DEDICATION

This dissertation is dedicated to the youngest and oldest members of my family, who have both touched my life in a way that can not be captured by words. My Auntie Clio turned 100 years old, eleven days before my defense. Although she was born in 1900, she never settled for the notion of a "woman's place." She earned a reputation as being brash and abrasive as she pioneered into territories where women were not allowed. She has positively impacted the lives of others through her intellectual curiosity, strength of character, positive attitude, respect of the unknown, and philosophical nature. The intellect and insight she has shared with me over the years is a gift I will treasure forever.

My 2-1/2 year old son, Bryce, has given me a sense of balance in life. I have learned to love and cherish each minute as opposed to being driven by result oriented anxiety. Having a child and completing this dissertation are the two most difficult and rewarding ventures I have experienced. My anecdotal conclusions are that giving natural childbirth with no anesthesia was much easier than doing this dissertation and although it brings me great joy to become Dr. Firlan-Whitsett, it pales in comparison to the elation I feel every day that I spend with my son.

ACKNOWLEDGEMENTS

The completion of this dissertation is the result of incredible contribution on the part of many others in my life. I would first like to thank the Detroit Skillman Foundation, the Health Department Study Project Staff, and all of the families who participated in the study. In addition, each member of my committee gave of themselves to make my dissertation a valuable work and for that I am grateful to Hiram Fitzgerald, Alexander von Eye, Joel Nigg, and Bob Caldwell. Specifically, I would like to thank Dr. von Eye for lending his statistical expertise, sense of humor, and matter of fact style; Dr. Nigg for leads on the latest literature and his supportive defense demeanor; and Dr. Caldwell for thoughtful feedback on model construction at the outset of the process. I would like to provide special acknowledgement to my chair, Dr. Hiram Fitzgerald, for his support and guidance not only on this dissertation but throughout my graduate training. He continually set the bar higher while secretly working in the backdrop to ensure success.

I am eternally grateful to my parents. Each of them has given a special gift that has shaped and molded the person I am today. My mother, Pam Nelson, has taught me self sacrifice and the ability to creatively problem solve given limited resources. My step-father, Larry Nelson, has provided an example of sturdy, level-headed objectivity that is essential in the social sciences. My father, Jim Firlan, has given me the gift of strong

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work ethic and the confidence to "grab the bull by the horns" when faced with any challenge. My step-mother, Elaine Firlan, has taught me to love without jeopardizing who I am as a person.

A very special professor, Dr. Carl Taylor, saw this unique set of skills and chose to mentor me throughout my undergraduate and graduate training. It was the intriguing nature of his thought process that inspired me to want to tackle social problems and it was his belief in me that gave me the determination to accept the challenges of a Ph.D. program. The intellectual connection and friendship we have developed is one of the most meaningful rewards I have gained throughout this journey. In the beginning of my graduate training, Dr. Richard Lerner and Dr. Jacqueline Lerner provided opportunities and support above and beyond the call of duty. I will never forget what these individuals have done for me.

Three fellow doctoral students have played a special role in my life as I have navigated this tricky terrain. I would like to acknowledge Rosalind Johnson for her comradery, Lucy Seabrook for always providing a reality check and David Lounsbury for our motivational and strategizing sessions. My friend, Scott Thomas, served as a technical consultant throughout my graduate training and that assistance was invaluable. I would also like to thank Bob Manard for the inspirational role he played while I was running that final lap. Although my closest friends, Dawne Ross, Christine Witters, Nancy Firlan, Whitney Johnson, and Nikki Stubbert, played no particular role in this dissertation, their

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friendship and support have been instrumental to me as a person. We have each taken somewhat different paths, but the bonds that we have established will continue to play a valuable role in my life.

I am also indebted to my Aunt Anna and my brothers, Jim, Bob, and Chad. Each of these individuals has had a profound impact on who I am and has stood by me throughout life. Without their love, support, childhood cruelty, name calling, and antagonizing I may not have been thick skinned enough to make it through this program.

My husband, Brian Whitsett, is the calm in the storm for me. He has an endless capacity to provide loving support to me as I become overwhelmed and consumed with a variety of ventures. His trust and belief in me, inspire me to achieve more each day. At this point, I am eagerly looking forward to the next chapter in our life!

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Chapter 1

Introduction

This study was an attempt to construct a developmental model that would identify the probability of aggressive behavior given a particular set of individual, family, and social conditions. According to Garmezy (1985), harmonious family interaction is likely to serve as a protective factor against negative outcomes in the face of stress. However, a disharmonious family, alone, is not sufficient to predict aggressive behavior or any other negative childhood outcome (Huesmann, Eron, Lefkowitz, & Walder, 1984; Werner & Smith, 1982).

Therefore, in the examination of the relationship between family stress and child aggression, it was necessary to consider additional variables that potentially lead to the development of aggressive behaviors such as, child temperament, parent-child social interaction, parent disciplinary practices, family cohesion, and family demographics. Construction of a path model utilizing multilevel variables may provide a clearer understanding of the relationship between family functioning and child aggression.

Two path models were tested. The first path model articulates the relationship between family stress and

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child aggression as mediated by family cohesion (see Figure 1). This model asserts that family stress predicts family cohesion, parent disciplinary practices and parent/child social interaction style. The latter two variables are hypothesized to have a direct effect on child aggression and indirect effects through their impact on child temperament.

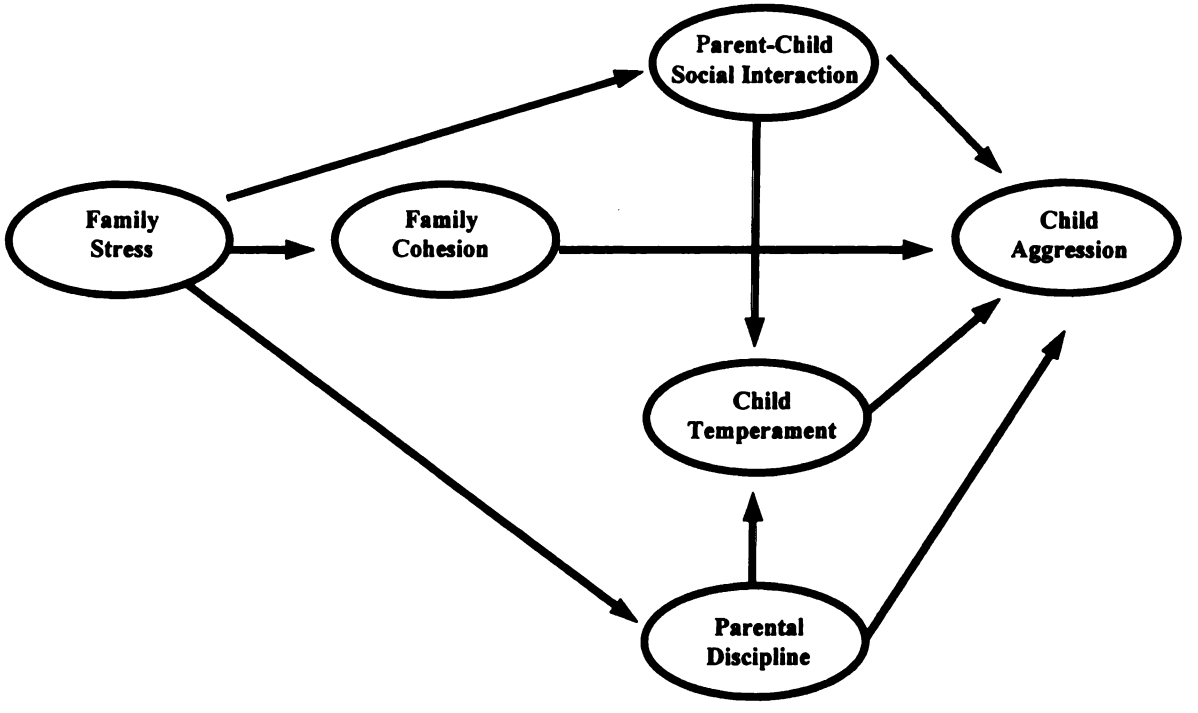

Figure 1. Conceptual Path Model of Family Stress to Child Outcomes as Mediated by Family Cohesion.

The second path model articulates the relationship between family stress and child aggression as moderated by family cohesion (see Figure 2). In other words, for families low

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in stress the effect of family cohesion should be negligible. However, for highly stressed families, family cohesion should play a crucial role in the prediction of child aggression. The second path model varies only with respect to the role of family cohesion; all other relationships are identical to those discussed for the first model.

In summary, the purpose of this study was to create a structural equation model to explain the nature of the relationship between family stress and child aggression. The aggression literature indicates that an aggregation of risk factors leads to greater predictability of aggressive behavior. Because combinations of variables play a role in differentiating aggressive behavior, precursors of aggressive behavior (child temperament, parent-child social interaction, parent disciplinary practices, family cohesion, and family demographics) were examined as potential mediators of the relationship between family stress and child aggression.

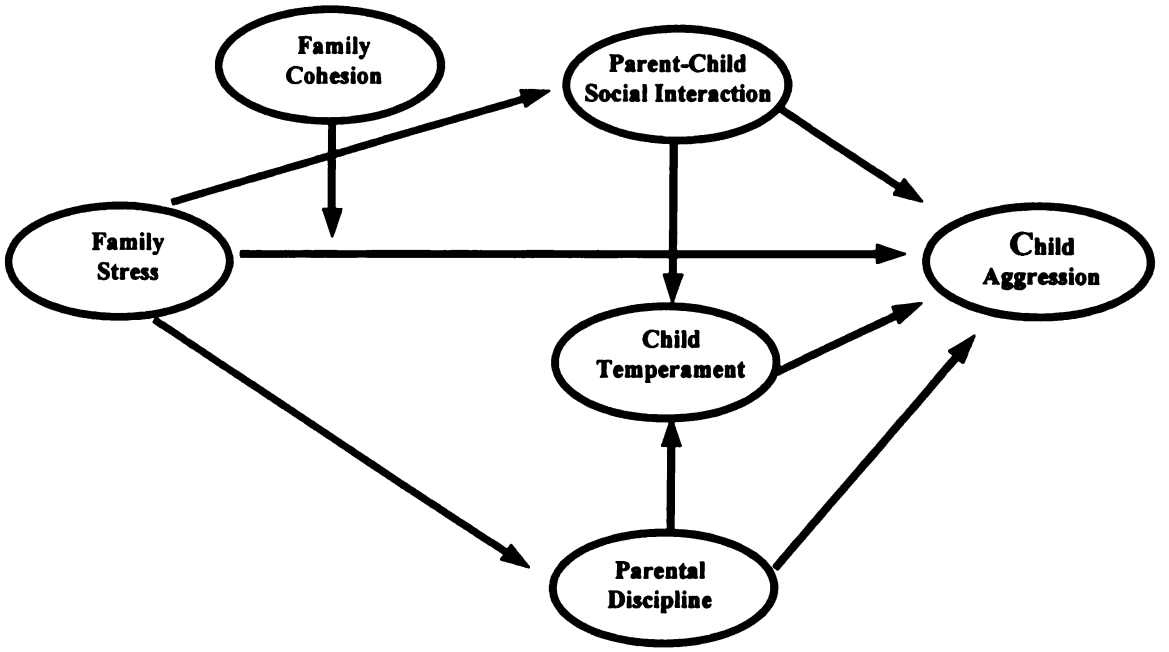

Figure 2. Conceptual Path Model of Family Stress to Child Outcomes as Moderated by Family Cohesion.

Chapter 2

Literature Review

Developmental Systems Theory provides the conceptual framework for the current study and provides conceptual support for the variety of variables included in the models. The first section of the literature review provides a summary of developmental systems theory. Next a general overview of factors related to aggression is examined to provide an introduction to and a general description of the variables as they relate to aggressive behavior. Following this general overview is a detailed literature review of the specific variables under study and how they relate to aggressive behavior in young children. This section details explicit support for the relationships in the models. Finally, the literature review discusses negative outcomes associated with early aggressive behavior. This section was designed to provide a description of the scope of the problem.

Developmental Systems Theory

According to stage theorists, the period of infancy and early childhood involves a series of developmental tasks that are accomplished through a combination of maturation and experience (Erikson, 1963; Piaget, 1969; Piaget, 1970). The developing child is confronted with the

task of negotiating and integrating the changes that occur at a multitude of levels involving sensory and perceptual, physical and motor, cognitive, and language systems.

Other changes occur outside the individual, more specifically within the individual's mesosystems (Wachs, 1992). According to Bronfenbrenner (1979), the mesosystem includes the interaction of various settings within which the individual interacts and which influence the developing organism. Changes at this level involve attachment relationships, social interactions, peer relations and play, and intraorganismic aspects of ego development (Ainsworth, 1973; Erikson, 1963; Piaget, 1969, 1970; Sroufe, 1979). According to the theoretical framework of Developmental Systems Theory (DST), the child's life and its processes are dynamic. That is, changes occur across time and developmental outcomes are the result of continual shaping and molding of the multitude of interactions occurring in the life of the individual (Ford & Lerner, 1992).

Additionally, interactive or reciprocal relationships exist between the individual and the context. Therefore, not only does the environment affect the individual but the individual affects the environment (Gottlieb, 1991; Schneirla, 1959). For instance, a child's negative reaction

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to some characteristic of a parent may cause the parent to alter or change that characteristic until it produces a more positive reaction in the child. In this case, the child's feedback actually changes the parent's behavior, thereby effectively changing the environment. This bi-directional or circular process leads to the child affecting the context as well as the context affecting the child; in other words, the child is an active participant in shaping his or her environment and is simultaneously impacted by it.

Furthermore, these interactions occur within and between several networks of the individual's life. Each individual is surrounded by and embedded in a variety of other networks (family, peers, educational system, church and other legal institutions, etc.). Interactions within a specific network impact future interactions within that network as well as those that occur in other networks (Bronfenbrenner, 1979). Therefore, successful negotiation of the tasks of infancy and early childhood must include an integration of the changes occurring at each level and the influence of each level on any other.

Factors Associated with Aggression

Although several studies have examined aggressive behavior in children, adolescents, and adults, studying

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aggression during the developmental tasks of early childhood may lend further insight toward understanding aggressive behavior. Transitional periods of development impose stressors that may place the individual at greater risk for negative outcomes. Conduct disorders and difficulty with self-regulation are examples of negative outcomes during childhood that may lead to aggressive behavior. The infant who is unable to successfully negotiate self-regulation of emotional state may be more likely in early childhood to participate in inappropriate acting out towards adults and peers. Furthermore, the transition into early childhood may exacerbate problematic behaviors of infancy, including lack of self-regulation. For instance, an infant who is unable to self-sooth may become a tantrum prone toddler, and later develop into an aggressive child, and still later a delinquent adolescent, and ultimately a criminal or violent adult due to a natural progression in severity of aggressive acts (Coie & Dodge, 1998; Farrington, 1978; Huesmann et al., 1984; Richman, Stevenson, & Graham, 1982).

Several studies have found that contextual variables are associated with aggressive and other anti-social behaviors in childhood. Some factors found to be associated with aggressive behavior are family demographics such as

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low socioeconomic status; low parental occupational status; family structure; large family size; and maternal age at birth of the first child (Farrington, 1992; Rosenbaum, 1989; Wells & Rankin, 1991). Also commonly associated with aggressive and antisocial child behavior are the adaptability, cohesion, and method of communication in the family. Specific findings are that erratic, harsh, physical or inconsistent punishment; poor supervision; parental rejection, indifference, or hostility; parental criminality; alcohol abuse; parental discord; and insecure parent-child attachments are all related to childhood and adolescent aggression (Eron, Huesmann, & Zelli, 1991; Kazdin, 1987a; Loeber, 1988; McCord, 1990; Patterson, Capaldi, & Bank, 1991; Wisdom, 1989).

In addition to the family characteristics discussed, the literature indicates that individual differences may play a role in attenuating or accentuating the negative impact of family discord. Within the aggression literature, gender, temperament, self-concept, interpersonal skills, motor development, and cognitive problem solving have each been found to be associated with level of aggression in individuals (Alexander, 1973; Berkowitz, 1978; Burdett & Jensen, 1983; Carlson, Lahey, & Neeper, 1984; Freedman,

Rosenthal, Donahoe, Schalndt, & McFall, 1978; Kendall & Braswell, 1985; Kinard, 1980; Reynolds, 1980).

As has been discussed above, familial characteristics as well as child characteristics are shown to be weakly predictive of aggressive behavior. However, it seems that severe antisocial and aggressive behavior are found only when a number of these factors concomitantly occur (Eron, 1982). Nonetheless, much of current research continues to examine relatively few variables at a time.

The remainder of the literature review details the current status of the field with respect to the factors that have been found to be associated with aggression in children. It is important to point out that literature examining hyperactivity, attention deficit disorder, noncompliance, child behavior problems, and discipline problems may be included in the literature review, as these variables are highly intertwined and are difficult to disentangle in early childhood. In fact, there is debate on whether these variables represent distinctly different behavioral tendencies or if they are different constructs that represent the same behavioral tendency (Campbell & Werry, 1986; Rutter, 1983).

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Family Stress is Linked to Child Aggression

Differential reaction to the same stressor has been demonstrated as evidence that the stressor alone does not affect the individual. Rather, it is the perception of the stimuli that determines the consequences of the stressor for any given individual (Lazarus & Folkman, 1984). Though an individual's perception or interpretation of the stimuli dictates the potency of the stressor, to some extent, there is a shared consensus regarding the types of events that are categorized as stressful (Lazarus & Folkman, 1984). Life event stressors include marriage/divorce, death of a loved one, birth of a child, and other normative transitions; daily hassle stressors include stubbing one's toe, running late for an appointment, missing a flight, and a whole host of other inconveniences. An aggregation of life events and or daily hassle stressors for a given family is likely to result in negative outcomes for the adults as well as the children in the family.

Problem behavior children are more likely to live in chronically stressful homes. Researchers have found that ongoing family stress is highly predictive of increased incidence and maintenance of problem behaviors in children (Campbell & Ewing, 1990; Richman et al., 1982; Rutter, 1987; Werner & Smith, 1982). Haapasalo and Tremblay (1994),

found familial adversity, low educational and occupational status of the parents, and mother's young age at the birth of the first child to be associated with boys' developmental patterns of physical aggressiveness.

Such individual differences as sex, temperament, and educational experiences have been shown to mediate the potential impact of family stress. For example, Rutter (1982), found two particularly intriguing results with regard to family adversity and problem behavior children. Boys were found more likely to show emotional and behavioral acting out in response to family discord than girls. This finding was not simply a reflection of the higher incidence of problem behavior in males but was an increase in risk for boys confronted with family discord. When faced with family discord, children of a difficult temperament also have an increased risk of developing problem behavior. The difficult child is more likely than his/her more mildly mannered counterpart to be the recipient of parent hostility and frustration. In other words, the difficult child receives the brunt of scapegoating when family tensions run high. This interaction style becomes the basis on which the child forms mental representations about relationships with

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Family Stress is Linked to Family Cohesion

Many theorists contend that the most profound impact of stress on the child is through its detrimental effect on family cohesion and parenting style (Belsky, 1984; Campbell, 1990). An aggregation of life stressors disrupts the family's ability to routinize itself. Schedules and structure are quickly tossed aside to address the latest crisis. This reactive adaptation precludes the presence of stability and security in the home. Living in a chaotic home, often leaves family members feeling disjointed and disconnected from one another.

In summary, parents plagued by stressors and difficult life circumstances, find it more challenging to provide a supportive environment for their children (McLoyd, 1989). A strong sense of unity is unlikely to co-occur with chaos, instability, and insecurity.

However, some families are able to maintain structure, stability, and security, despite an aggregate of stressors. This difference in family cohesion is thought to mediate or moderate the relationship between family stress and child outcomes (Kliewer & Kung, 1998; Rutter, 1987). It is possible that a cohesive family affords the child a secure

base that is considered a resource when the child cognitively appraises stressful life events (Kliewer, Sandler, & Wolchik, 1994). According to Garmezy (1985), harmonious family interaction is likely to serve as a protective factor against negative outcomes in the face of stress.

Family Cohesion is Linked to Child Aggression

According to Haddad, Barocas, and Hollenbeck (1991), a child's risk of developing conduct disorder is largely predictable by the quality of the child's social and family life. Specifically, findings indicated significantly lower levels of family cohesion in families of conduct disordered children than in families of other clinical or control group children. This notion is supported by the work of Roosa, Dumka, and Tein (1996), who found family cohesion to mediate the relationship between family drinking problems and family multiple risks and child conduct disorder. In studying the effects of family environment on child development, Fowler (1980) found an association between child aggression and hostility and family cohesiveness. Namely, those families low in cohesion were more likely to have an aggressive or hostile child.

At the other end of the spectrum, cohesive families serve as a protective factor or buffer against negative

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child outcomes even in the face of serious life stressors. Burbach and Borduin (1986) demonstrated that families characterized by warmth and cohesiveness were likely to experience fewer behavioral problems with their children than were families lacking these characteristics.

One difficulty with family cohesion as a construct is determining whose opinion is most reflective of actual family cohesion: mother, father, child, observer, or some combination (Feldman, Wentzel, & Gehring, 1989). Another difficulty is deciphering the mechanisms by which family cohesion acts to affect child outcomes. Some research suggests that high levels of family stress are mediated by family cohesion (Roosa, Dumka, & Tein, 1996). Other research suggests that family cohesion moderates the relationship between family stress and child outcomes (Kliewer & Kung, 1998; Weist, Freedman, Paskewitz, Proescher, & Flagherty, 1995). Despite these controversies, family cohesion's impact on child behavior problems has been a robust finding throughout the literature (Barber & Buehler, 1996; Kliewer & Kung, 1998; Maccoby & Martin, 1983; Mason, Cauce, Gonzales, Hiraga, & Grove, 1994; Pillay, 1998; Roosa et al., 1996; Tolan, Gorman-Smith, Huesmann, & Zelli, 1997).

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It is difficult to determine the mechanisms by which family cohesion serves as a protective factor against negative child outcomes. As mentioned earlier, it is possible that a cohesive family affords the child a secure base that is considered a resource when the child cognitively appraises stressful life events (Kliewer et al., 1994). However, it is also possible that families lacking cohesion are also lacking in other areas, which results in deleterious effects on their children. Although the exact mechanisms by which family cohesion acts to protect children have not been studied exhaustively, there is some work in the field that suggests low levels of family cohesion is related to poor family communication and negative parenting practices.

Family stress has been demonstrated to negatively impact parenting practices (Giles-Sims, Straus, & Sugarman, 1995; Justice & Justice, 1976; Rutter, 1987). Belsky (1984) found it likely that the impact of stress on the child is through its detrimental effect on family cohesion and parenting style. Deater-Deckard, Pinkerton, and Scarr (1996) found that mothers reporting high stress and low levels of social support were more likely to have problem behaviored children. Speaking specifically to the mechanism by which family cohesion works, Tolan, Gorman-Smith,

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Huesmann, and Zelli (1997) reported a strong and positive relationship between family cohesion and family communication. Furthermore, these researchers found family cohesion to be associated with parental discipline and monitoring styles. Coughlin and Vuchinich (1996) also revealed a strong correlation between parent-child relations, measured similarly to typically used family cohesion instruments, and parental disciplinary practices. These studies suggest that the mechanism by which family cohesion acts to impact child relations may be embedded in family communication style and parental disciplinary practices.

Parent Disciplinary Practices are Linked to Child Aggression and to Child Adaptive Behavior

Parental use of harsh discipline places children at risk for a variety of negative developmental outcomes including delinquency, conduct disorder, aggressive behavior, psychopathology, academic failure, substance abuse, and peer and familial discord (Kazdin, 1987b; Maccoby & Jacklin, 1983). Many of these developmental outcomes follow the child into adulthood where the harshly disciplined child becomes the harshly disciplining parent. This cycle of violence has been demonstrated in many

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Additional studies have demonstrated a strong relationship between social economic status and harsh parenting practices (Bronfenbrenner, 1977; Garbarino, 1976). This makes it difficult to determine if the cycle of violence is a direct result of harsh discipline or an indirect result of the cycle of poverty. That is, does harsh discipline provide a parenting model that the adult child reflexively replicates or does transmission of social economic status from parent to child, cause similar stressors which result in the adult child's use of harsh punishment? It is also possible that children raised by use of harsh discipline come to value a strict and harsh disciplinary style.

Burgess and Youngblade (1988) propose that a general personality style is transmitted across generations rather than a specific parenting style. In other words, the transmission is much more global than a set of parenting practices but instead involves an interactional style that encompasses social interaction with one's children and extends into other domains of life as well (Caspi & Elder, 1988; Patterson et al., 1989). Simons, Whitbeck, Conger, and Chyi-In (1991) attempted to identify the mechanisms

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most responsible for the generational transmission of harsh parenting practices. They found only weak or inconclusive support for the indirect but did find support for a direct relationship. In other words, it seems most likely that the transmission of harsh parenting style is due to reflexive reenactment of the aggressive parenting model.

This assertion is supported by the development of models that implicate parental use of coercive discipline in the development of coercive behaviors in children (Patterson, 1986; Patterson & Bank, 1986). Ineffective parental discipline in combination with poor parental monitoring is predictive of early childhood conduct problems (Eddy & Fagot, 1991; Patterson et al., 1989). Specific findings are that erratic, harsh, physical or inconsistent punishment; poor supervision; parental rejection, indifference, or hostility are all related to childhood and adolescent aggression (Eron et al., 1991; Kazdin, 1987b; Loeber, 1988; McCord, 1990; Patterson et al., 1991; Wisdom, 1989). Ineffective parenting styles often lack the use of rationalization as a part of the punishment process. Rationalization occurs when a parent explains to the child why punishment is necessary and what purpose the punishment is to serve. These sorts of exchanges are thought to assist the child with the

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internalization of parental standards. Internalization of parental expectation is the goal of the co-regulation stage of child development. Once the child has internalized parental standards, the child is capable of self-regulation. Because this entire process is thwarted by inept parenting styles, the child does not arrive at the stage of successful self-regulation (Kuczynski, 1984; Maccoby & Martin, 1983).

In addition to directly impacting the child's ability to self regulate, coercive parenting styles deprive the child of opportunities to develop logical thinking skills. Effective punishment includes justification for parental behavior, which lays the foundation of logic for a developing child. The child becomes aware that particular behaviors have necessary consequences and from these learnings the child generalizes this expectation to other life experiences. The ability to reflect on the logic behind decisions is an essential ingredient in developing and maintaining relationships with others and in being able to communicate effectively.

Parent/Child Social Interaction Style is Linked to Child Aggression and to Child Adaptive Behavior

Epidemiological and clinical studies have demonstrated an association between preschool behavior problems and

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family factors (Campbell, Breaux, Ewing, Szumowski, & Pierce, 1986; Fraiberg, 1980), particularly relevant is parent-child social interaction style (Baird, Haas, McCormick, Carruth, & Turner, 1992; Baumrind, 1971) and quality of attachment (Erikson, Sroufe, & Egeland, 1985).

Parent interaction style has a marked impact on a child's development. Through interaction with parents, children learn how to communicate with others. Much of the parent/child social interaction research focuses on attachment issues (Ainsworth, 1973; Crandell, Fitzgerald, & Whipple, 1997; Crowell, O'Connor, Wollmers, Sprafkin, & Rao, 1991; Haft & Slade, 1989). Although this body of literature elucidates the potential causes for effective and ineffective communication styles and provides an alternative method to assess the parent/child relationship, a detailed literature review of attachment is beyond the scope of the current study.

However, it is important to point out that attachment theorists find parents with secure attachments to their parental figures are more likely to engage in positive interactions with their own children. Several studies support a generational transmission of insecure attachments between caregivers and their offspring (Crandell et al., 1997; Crowell & Feldman, 1989; Griffin & Harlow, 1966; Haft

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& Slade, 1989). This pattern of generational transmission of negative parent interaction style is important in view of the fact that interaction style forms the basis for the child's knowledge of cause and effect and development of communication skills, social interaction skills, and style of interactaction with others (Adamson & Bakeman, 1985; Ladd & Kochenderfer-Ladd, 1998; Mallinckrodt, 1992; Oldershaw & Walters, 1989).

Both physical and nonphysical forms of play have been demonstrated to influence the developmental outcomes of early childhood (MacDonald & Parke, 1984; Parke & Tinsley, 1987; Power, 1985; Power & Parke, 1982). Fathers typically engage in more physical forms of play than do mothers. This form of play is assumed to assist the development of affect regulation, while also providing the child with the opportunity to practice regulation of aggressive behaviors (MacDonald & Parke, 1984; Parke & Tinsley, 1987; Power, 1985). Nonphysical play, synchronized turn taking behaviors, and verbal exchanges, which characterize play more typical of mothers, are thought to teach children strategies to initiate and maintain peer interactions (MacDonald & Parke, 1984; Power, 1985). Children's interactive abilities emerge through parent interaction and

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are later transferred to exchanges with peers (Adamson & Bakeman, 1985).

Maccoby (1980) has argued that a number of parent variables are important in reducing the likelihood of child behavior problems. This multifaceted interaction of parent variables includes parental warmth, response contingency, facilitation of self discovery, and sensitivity of control (Baird et al., 1992; Baumrind, 1971; Crandell et al., 1997; Dowdney, 1985; Gardner, 1987; Parpal & Maccoby, 1985a; Pettit & Bates, 1989). It is not the mere frequency of particular parenting behaviors that provide meaning but the patterns and combinations of behaviors that occur. These dyadic profiles provide insight into the nature and quality of parent-child social interactions (Ainsworth, Blehar, Waters, & Wall, 1978; Baird et al., 1992; Chess, Thomas, & Birch, 1959; Mahoney, Fors, & Wood, 1990).

Parent response contingency provides the child with the fundamental knowledge necessary to understand cause and effect relationships. When a parent effectively responds to the child's expression of need, the child learns that a behavior has meaning to others and consequence to him/herself (Lewis & Goldberg, 1969). It is through such exchanges that children learn that they are capable of impacting the surrounding environment (Mallinckrodt, 1992).

Such understanding is necessary for the formulation of self-regulatory behaviors (Parpal & Maccoby, 1985b), a process often found lacking in aggressive children.

Haft and Slade (1989) found that insecure mothers were inconsistently responsive to infant affective expressions or were consistently rejecting, while secure mothers demonstrated consistently positive response contingency. During the first year of a child's life, particularly the first quarter of the first year, Isabella, Belsky and von Eye (1989) found that mothers' contingent responses were positively related to children's secure attachments. Maccoby and Martin (1983) contend that consistent, positive responsiveness combined with mutual expressions of warmth and enjoyment, may provide the foundation for cohesive relationships and enhance the likelihood of cooperation between mother and child. Supporting this assertion, Isabella and Belsky (1991) found that 1-month old infants of inconsistent and unresponsive mothers were more likely to be insecurely attached at the 3- and 9-month follow-up observation.

The impact of parent directiveness is somewhat unclear. Several studies have found parent directiveness to provide a scaffold for development and to be associated with positive child outcomes. For example, parent

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directiveness has been found to broaden the child's scope of interest, provide alternative methods of play, and set goals for the child to progress to forms of play that require increasingly complex cognitive processing (Gardner, 1994; Landry, Garner, Swank, & Baldwin, 1996; Tannock, 1988).

However, another body of literature has indited parent directiveness as being stifling, overbearing, and restrictive in the range of child play experimentation. Theorists holding the latter view, contend that parent directiveness decreases the child's process of self-discovery, removes the intrinsic incentive of play, and deprives the child of creative expression in play (Mahoney, Finger, & Powell, 1985). In comparing low and high risk preterm infants, Garner and Landry (1994) found that maternal directive behavior tended to overload the high risk preterm infants.

In an attempt to reconcile this discrepancy in findings, researchers have begun to examine potential subcomponents of play that may further elucidate the effect of parent directiveness. When directiveness co-occurs with facilitation and child participation then optimal infant development is supported. On the contrary, optimal infant development is thwarted when the directiveness crosses the

line and becomes intrusive (Barnard & Kelly, 1990; Tannock, 1988). Maternal sensitivity of control is typically operationalized by the style of directives the mother gives. Studies have found that child compliance levels are related to maternal sensitivity of control. Namely, if these directives are issued in an authoritarian style as opposed to an explanatory style, nonproblem children are less likely to comply with parental directives (Kuczynski, 1984; Schaffer & Crook, 1979). Conversely, the explanatory directive is more likely to result in child internalization of parental standards (Baumrind, 1971; Maccoby & Jacklin, 1983).

With respect to the typical developmental trend, Power (1985) found that with increasing infant age, mothers of girls were more directive during play, whereas mothers of same aged boys were less directive. In 3-year olds, Campbell (1986) found the reverse scenario; mothers were more directive of sons than of same aged daughters. It also seems that mothers of children with disabilities seem to exert much more directiveness than do mothers of normal children (Campbell, 1973; Cunningham, Reuler, Blackwell, & Deck, 1981; Tannock, 1988).

Parent intrusiveness is characterized by parental behaviors that "overload" the child and fail to respect the

child's boundaries and disengagement cues (Beebe & Stern, 1977; Field, 1982b; Ladd & Kochenderfer-Ladd, 1998). Researchers have characterized child-parent interactions as: action cycles (Spitz, 1964), reciprocal processes (Brazelton, 1988), or processes of adaptation (Thoman, Becker, & Freese, 1978). All of which imply a bi-directional relationship that is dependent on a delicate balance of give and take, expression and reception, and interpretation and responsiveness between the members of the dyad. Although, this research focuses on the bi-directionality of the child-parent relationship, these researchers agree that the mother, possessing higher levels of cognitive awareness and ability to be empathic, carries the burden of responsibility for ensuring that rhythmic or synchronous exchanges occur.

Asynchronous exchanges can occur for a magnitude of reasons. For instance, a particular child may provide only weak and ambiguous cues to the mother, the mother may lack the social perception necessary to pick up on the child's cues, or the mother may not value or grant the child's right to autonomy (Barnard & Kelly, 1990; Field, 1982a; Goldberg, 1977; Isabella, Belsky, & von Eye, 1989). In a sample of 73 physically abusive mothers and 43 matched control mothers, Oldershaw, Walter, and Hall (1989) found

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abusive mothers to engage in significantly more intrusive behaviors while interacting with their children aged 18 to 92 months. Particularly interesting is the finding that these mothers continued to give a directive even after the child was complying. In some cases, the child was engaging in a behavior prior to the mother's initial directive to engage in that behavior. In other words, the intrusive mothers seemed fully unaware of the child's compliance, but continued to give the same directive, even when the child was already in compliance with the directive.

When a child becomes overloaded, attempts are made to withdraw from the overwhelming stimuli. Under such circumstances the child will generally try to escape from the source of overload. Typical responses include attempts to turn away from the parent, shift activities, cease to respond to parent questions, clench fists, grimace, contract muscles of torso, neck, and shoulders, or otherwise ignore the perceived parental assault of verbal and/or physical stimuli (Baird et al., 1992; Barnard & Kelly, 1990; Field, 1982a). The purpose of such behavior is to eliminate the source of overload so that the system can reestablish a sense of equilibrium. Whenever parents ignore such disengagement cues, the child loses the opportunity to practice the process of self regulation. If parents

continually ignore disengagement cues the child will eventually resign to a position of learned helplessness. Feeling unable to effectively communicate his/her wishes and feeling unable to effect change in the environment the child may cease to willingly engage in social exchanges (Abramson, Seligman, & Teasdale, 1978).

Children of intrusive parents are found to experience a whole host of negative outcomes. Children of intrusive parents tend to be less compliant and more aggressive (Oldershaw, Walter, & Hall, 1989), obtain lower developmental scores (Mahoney et al., 1985), engage in conflictual sibling interactions (Volling & Belsky, 1992), are less liked by peers (Berghout-Austin & Knudsen-Lindauer, 1990; Putallaz, 1987), and are more likely to be rated by teachers as exhibiting more helpless behaviors and to be less competent than their classmates (Nolen-Hoeksema, Wolfson, Mumme, & Guskin, 1995).

Parent facilitation allows for or follows the infant's behavior and allows the infant's withdrawal behavior. This interaction style is thought to teach the child that his/her preferences and boundaries are respected, while simultaneously demonstrating the parent's interests in the child's activity (Baird et al., 1992). The advantage of this style is that it promotes exploration and self-

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discovery. Attachment theorists have found securely attached mothers to be more supportive (Crowell et al., 1991) and to use an interaction style that promoted self-discovery (Crowell & Feldman, 1989). McCollum and Stayton (1985) found an increase in child's social communication skills following parental use of a facilitative style. Tomasello and Farrar (1986) found that children of facilitative parents developed language skills more quickly than children of parents using other interaction styles. A potential shortcoming of this parenting style is that it does not provide a challenging environment to stimulate the child to higher levels of cognitive play, as does a more directive style (Gardner, 1994; Landry et al., 1996; Tannock, 1988).

Infant initiation involves an active verbal, gestural, physical, or proximal seeking behavior engaged in by the infant and directed toward the parent (Baird et al., 1992). Infant initiation demonstrates the child's willingness and desire to engage in social exchanges with the parent and seems to positively influence the parent's interaction style. Best, House, Barnard, and Spicker (1994) found cultural differences in child initiations of affection and showing and sharing behaviors. These differences were related to parental interaction style as well as to sex of

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the child. It seems likely that parenting style and child initiation are bi-directionally related.

Girolametto (1988) found an increase in child initiation following parental training and use of appropriate response contingency. Additionally, developmentally delayed infants have been found to initiate social interaction, without first being prompted by an adult, less often than their normal peers (Mahoney et al., 1990). However, it should also be noted that a subset of mother's of children with Down Syndrome made more than twice as many initiations toward their children than the other subgroup of Down Syndrome mothers or controls. Forster, Eyberg and Burns (1990) found conduct problem children to initiate fewer questions or comments of praise during the Child Directed Interaction Phase of the Dyadic Parent-child Interaction Coding System. This is particularly striking since this section of the instrument is designed to allow the child the opportunity to lead the free play. Parent interaction style that encourages child initiation helps the child to develop social interaction skills and later positive peer relations (MacDonald & Parke, 1984). For these reasons, infant initiation is included as an important measure of parent-child social interaction.

Dyadic theme continuity exists when the theme of social interaction is carried over from one 15 second period to the next and involves related simultaneous or turn-taking behaviors by both partners (Baird et al., 1992). Mothers of children with communication skill deficits have been found to display low levels of dyadic theme continuity (Tomasello, 1988). Parental directives toward continuing the cycle of play are highly motivating to young nonproblem children (Rheingold, Cook, & Kolowitz, 1987). Theme continuity requires a sequential exchange of behavior and ideas from parent to child and from child back to parent. Infants are stimulated by the realization that their actions influence the reactions of another (Papousek, 1967). Additionally, these types of interactions teach the child about reciprocity which the child will later use to sustain healthy peer and family relationships (Bronfenbrenner, 1993). Consequently, ability of the dyad to sustain a theme of social interaction is indicative of positive child development outcomes.

With respect to aggression and other problem behaviors, researchers consistently find distinctions in parent interaction style across groups of problem and nonproblem children. Furthermore, mothers show surprising stability in their style of interaction (Campbell et al.,

1986). Nuttall, Stollak, Fitzgerald, and Messe (1985) found mother's perceptions of child behavior to affect the quality of parent-child social interaction.

Campbell, Breaux, Ewing, Szumowski, and Pierce (1986) found mothers of problem children aged 2 to 3 years provided more redirection at initial assessment and made more negative control statements at follow-up than did mothers of nonproblem children. Overall, mothers of problem children and of controls significantly decreased the frequency of structuring and negative control statements at follow-up. However, in comparison to one another, control group mothers made significantly fewer negative control statements than mothers of problem children. During initial assessment, mothers of problem youngsters suggested alternative activities more frequently than control group mothers. At the follow-up assessment the mothers of problem children and the mothers of the control group children no longer differed in frequency of suggesting alternative activities. In summary, problem dyads were rated as showing less positive affect, more conflict, and less appropriate directiveness than control dyads. Similarly, mothers of hyperactive children engage in more directive and negative patterns of interaction than do mothers of nonhyperactive

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Gardner (1994) found different social interaction styles in mothers of problem versus mothers of nonproblem children. He reports, mothers of nonproblem children tended to initiate more activity, provide suggestions, ask questions of, use sensitive forms of control, be highly responsive, and engage in more positive affect than the mothers of problem children. In addition to parent-child social interaction differences across problem dyads and nonproblem dyads, some gender difference have been found. Boys were provided with more structure and given alternative activities more often than girls. Mothers of boys and girls did not differ in frequency of praise or negative control statements. Boys, however, were more noncompliant than girls (Campbell et al., 1986).

Some research suggests that these communication differences are parental reactions to the child's behavior. Barkley and Cunningham (1980) observed a change in social interaction style of mothers whose hyperactive children were on stimulant medication. While the children were on medication, there was a decrease in frequency of mother intervention. Presumably, because the child's behavior was medically corrected, mothers spontaneously changed their

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behavior to meet the new demands of the child's behavior. On the contrary, many researchers feel strongly that parental communication style precedes problem behaviors and in fact sets the stage for maladaptive development. For example, Maccoby and Martin (1983) assert that maternal deficits in responsiveness, warmth and sensitivity are likely to be causal factors in establishing a developmental trajectory of behavior problems.

In the absence of positive parent/child social interaction, children are at risk of developing maladaptive communication styles and ineffective interpersonal skills. Children high in aggressiveness or other antisocial behaviors are commonly lacking interpersonal skills and effective means of communication. Therefore, they are often rejected by their peers (Carlson et al., 1984), often times this deficiency also affects the youth's interactions with adults, including parents, teachers, and other authority figures (Freedman et al., 1978).

Child Age is Linked to Child Aggression

Studies have demonstrated remarkable stability in aggressive behavior (Baron & Richardson, 1994; Conger & Miller, 1966; Kupersmidt & Coie, 1990; Robins, 1966; West & Farrington, 1973). What is less clear is at what age aggression emerges and how aggression changes with age.

Speaking to the onset of physical aggression, Tremblay and his colleagues (1999) found a substantial increase in physical aggression from 12 to 17 months of age in a retrospective study involving 511 17-month old children. Tremblay contends that research involving an adolescent onset of aggressive behaviors is misleading. He found that 80% of the 17-month olds in his study were already exhibiting aggressive behavior and he projects that most of the others experience this onset by two years of age.

Studies involving the developmental trends of aggressive behavior behavior tend to be quite dated (Hapkiewicz, 1974; Hartup, 1974; Shantz & Pentz, 1972) and offer competing conclusions (Fagot & Hogan, 1985; Feshbach, 1970; Hartup, 1974).

Some theorists claim that aggression increases with age (Cairns, Cairns, Neckermann, Ferguson, & Gariepy, 1989; Loeber and Stouthamer-Loeber, 1998). In a longitudinal study of aggressive behavior and television viewing, Eron, Huesmann, Brice, Fisher, and Mermelstein (1983) found aggression to increase over time, at least up until age 11.

Others claim that aggression decreases with age (Cairns & Cairns, 1994; Loeber, 1982; Tremblay, 1999). Fagot and Hogan (1985) report decreases in aggressive

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behavior (taking objects, hitting, kicking, and pushing) from 18 to 35 months in a sample of 48 toddlers.

It is quite possible that findings are not as discrepant as they appear on the surface. Perhaps overall, aggressive behaviors decrease over time as children learn to inhibit aggressive behavior and become better able to verbally express themselves but for children who do not master these skills aggressive behaviors escalate. Stattin and Trost (2000) found that early childhood conduct problems escalated with age only when accompanied by poor parent-child relationships.

Child Sex is Linked to Child Aggression

Previous researchers expected and accepted gender differences in aggression studies as evidence for biological differences across the sexes. Current research is reshaping the way we interpret gender differences. Maccoby and Jacklin (1980) found school-aged boys to be more aggressive than girls. Burdett and Jensen (1983) also found boys significantly more aggressive than girls. Quite unexpectedly however, the young males in their study became less aggressive from third to sixth grade, while the aggressive behavior of the girls increased during this same time frame. Several researchers find that gender

differences are partially explained by the operational definition of aggression and the setting of the study.

Dishion, Patterson, and Kavanagh (1992) discuss the importance of the context in which the child's behavior is being measured. For instance, using the Child Behavior Checklist (Achenbach, 1992), they found girls to show levels of problem behavior equal to that of their male counterparts within the context of the family. However, within the context of the school setting the level of problem behavior of girls was only half that of the boys.

Tremblay et al. (1999) found aggressive behavior was influenced by an interaction effect between sex and presence of a sibling. Presence of a sibling increased the likelihood of physically aggressive behavior for both males and females. In the absence of a sibling, boys were more likely to exhibit aggressive behavior than girls.

Other evidence suggests that levels of aggressive behavior are similar across gender but differ in content or type of aggression. According to Bjorkqvist, Lagerspetz, and Kaukiainen (1992), males are more likely to participate in physical aggression whereas females are more likely to aggress in less direct ways. That is, males are more likely to hit, kick, or punch others and girls are more likely to ignore, talk negatively about, or reject others. Also

supporting this view is the work of Crick and Grotpeter (1995), they have classified aggression into overt aggression (more typical of boys) and relational aggression (more typical of girls).

Child Temperament is Linked to Child Aggression

Although much of this literature is in a state of transition, temperament plays an important role in explaining individual differences. Early temperament may impact the nature of child relationships with parents, peers, and educators. If continuity is assumed, temperament may also impact the adult relationships with intimate partners, social networks, and employers. The nature of temperament's influence on development is not fully understood but it is generally agreed that temperament plays a significant role in development across the lifespan.

Strongest support for the influence of child temperament is found in the behavioral outcomes literature. Research indicates that child temperament is related to later behavior and other self regulation processes. Block and Block (1980) have demonstrated stability in ego resiliency and ego control over the course of development. In their longitudinal study, these two processes remained relatively stable from age 3 to age 23. Moreover, patterns

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in these processes were significantly related to behavioral outcomes, including aggressive behavior that persisted into early adulthood (Block, Block, & Keyes, 1988).

Caspi and Silva (1995) found impulsiveness at age 3 to be related to adult behavior. More specifically, as adults these individuals reported low tolerance for frustration, relationships marked by discord, and they scored notably high in negative emotionality. On the contrary, inhibition at age 3 was related to lack of assertiveness in adulthood. These individuals reported exercising caution in their personal relationships and scored low in social potency. Newman et al. (1997) found that undercontrolled child temperament at age 3 resulted in lower levels of adult adjustment and increased interpersonal conflict across settings. In a longitudinal study examining the relationship between temperament, family characteristics and crime convictions, temperament at age three was the only discriminating factor between 18 year olds arrested for violent verses nonviolent crimes (Henry, Caspi, Moffitt, & Silva, 1996). These examples demonstrate the potentially far reaching impact of temperament style.

The research of Chess and Thomas (1977) suggests that children's early temperamental characteristics shape adult personality development and psychopathology. They have

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found child temperament classification as easy or difficult to discriminate later outcomes. Difficult temperament style provides particularly powerful prediction of later adjustment problems across settings. For example, data from the New York Longitudinal Study revealed that individual early childhood differences in temperament traits including irregularity, nonadaptability, intensity, and negative mood were related to externalizing problems in late childhood (Chess & Thomas, 1987). In a sample of 3 to 5 year old boys, Jansen, Fitzgerald, Ham, and Zucker (1995) found that those expressing characteristics of difficult temperament were more likely to score in the clinical range of total behavior problems than were their more mildly mannered peers. Similarly, Pettit and Bates (1989) found early difficult temperament in infants to predict both internalizing and externalizing problems through 5 years of age.

Temperament style impacts less dramatic aspects of life as well. As discussed in Buss and Plomin (1984), temperament may guide environment selection processes. Thus, temperament may influence preference for an environment in addition to exerting an influence on the environment.

Child Temperament is Linked to Parent/Child Interaction Style and Parent Disciplinary Practices

Parents play a crucial role in the development of their children. Temperament theorists have attempted to understand the influence of temperament through examination of the parent-child relationship. It seems likely that parents may alter their behavior or response patterns, depending on the temperament of the child. According to interactional theory, child temperament is likely to play a role in the nature and quality of the parent-child relationship. As indicated by the findings of Bates, Olson, Pettit, and Bayles (1982), revealing differences in the nature and quality of the parent-child relationship may not provide self evident insight. For example, in their study, difficult children were found to receive more parental attention than did easier children. Parental attention is a factor typically found to be associated with more positive outcomes (O'Connor, Sigman, & Brill, 1986).

Studies of parent-infant relationships have not found infant temperament to impact the quality of caregiver responsiveness (Daniels, Plomin, & Greenhalgh, 1984). Sroufe contends that the quality of attachment security is not impacted by child temperament. Because caregivers are likely to make necessary adaptations to their child's

temperament, he calls for an emphasis on these processes instead (as cited in Bates, 1987). Therefore it seems that early in a child's life, parents are willing to make the necessary adjustments to remain responsive to the needs of their infant. Perhaps, this explains the general lack of differences observed in parent behavior across the care of infants of various temperament styles.

Despite the sparse evidence to support temperament's impact on infant/caregiver relationships, by two years of age the influences of temperament become more detectable. Perhaps by this time the parent views the child as more capable of making adjustments to demands. Lee and Bates (1985) found that mothers of difficult sons were less controlling and directive than were mothers of easy sons. Instead of proactive methods of regulation, these mothers resorted to reactive methods. That is, increased use of short and negative verbal exchanges and physical restraint were found to accompany difficult child temperament. In this study, circular reactions were observed. In other words, the child's behavior problems escalated in response to maternal control and maternal control became more reactive in response to increased behavior problems. This example clearly demonstrates the potential for the child's temperament to elicit particular environmental stimuli.

In addition to impacting parent disciplinary techniques, child temperament may play a role in determining parent or educator teaching strategy. Maccoby, Snow, and Jacklin (1984) found gender differences in parental teaching practices across temperament. More specifically, they found that mothers of difficult sons were less instructive but mothers of difficult daughters were more instructive than were mothers of easy sons or daughters. As in the case with findings related to temperament and parent responsiveness, further interpretation of findings will be required as perplexing relationships such as those reported by Maccoby et al. are found.

The goodness-of-fit model supported by Lerner and Lerner (1987) is an attempt to understand such interactional processes. It is circular functions that are thought to mediate the child outcomes that are related to particular temperament styles (Lerner & Lerner, 1987). For example, a child who sleeps irregularly, may not present difficulty for parents who have flexible schedules. However, for the parent that has demanding, rigidly structured job requirements this same infant could be viewed as difficult. The parents' interpretation of the child's temperament depends upon the context. Therefore,

the issue is not the child's temperament or the demands of the context; rather the crucial factor is the goodness-of-fit between the child's temperament and the demands of the context.

A child is exposed to many different contexts, some of which may impose conflictual demands. A child that experiences goodness-of-fit within the home environment may be confronted with conflicts in the school environment or vise versa. For example, if irregularity is expected and accepted within the family, an arrhythmic child experiences goodness-of-fit. However, upon entering the educational system that is structured and orderly, the arrhythmic child may be faced with tensions not previously experienced. This is just one of many possible examples of the goodness-of-fit concept.

Stability of Aggression

The stability of anti-social behavior across childhood and into adolescence is demonstrated by the findings of several studies (Baron & Richardson, 1994; Conger & Miller, 1966; Robins, 1966; West & Farrington, 1973). Haapasalo and Tremblay (1994) found fighting patterns alone to be strong predictors of self-reported delinquency across a group of 10 to 14 year old boys. In fact, several studies find that the strongest behavioral indicator of delinquency is

childhood aggression (Eron, Walder, Huesmann, & Lefkowitz, 1974; Farrington, 1978; Roff & Wirt, 1984). Aggressive behavior may establish itself in the early elementary years and can maintain a high degree of stability over time (Loeber & Dishion, 1983; Olweus, 1979; Rutter, 1982; West & Farrington, 1973).

Unfortunately, aggression, once established, appears to be self-perpetuating and highly resistant to change (Huesmann et al., 1984). Not only does aggression remain stable within the individual, across time but also it is highly stable within families. In fact, stability across generations, as measured by Huesmann et al. (1984), is even more pronounced than stability within the individual. Stability does not appear to be markedly affected by gender differences. Some studies find aggression to be more stable in female than in male populations (Eron, Huesmann, Lefkowitz, & Walder, 1972), while others find the reverse relationship (Huesmann et al., 1984; Olweus, 1981), and still others report non-significant differences in stability by gender. Despite this controversy, most researchers find aggression to be relatively stable in both male and female populations.

Aggression as a Predictor of Academic Failure

Many researchers find that unidentified early aggressive behavior, because of its remarkable stability, leaves the youth vulnerable to substantial risks for negative academic outcomes and decreased life chances. Children and adolescents with severe antisocial behaviors are more likely to be academically inferior to their nonaggressive peers. This includes lower levels of achievement, lower grades, and deficiencies in specific skill areas (Ledingham & Schwartzman, 1984).

It seems that teacher perceptions of aggressive youth are also affected. According to Glueck and Glueck (1950), teachers perceive aggressive students as less interested, less invested, and less engaged in academic activities. However, due to the interaction of factors, it is difficult to determine if the child's aggression provokes negative attitudes from educators or if the educators' negative attitudes toward the child provoke the aggressive behavior. In some studies, low achievement, low vocabulary, and poor verbal reasoning in children in late elementary school were predictive of later delinquency (Farrington, 1979; Wolfgang, Figlio, & Sellin, 1972). Similarly, the strongest delinquency predictor during the high school years is low grade point average (Polk, 1975; Robins, 1966).

Findings by Havighurst, Bowman, Liddle, Mathews, and Pierce (1962) and Cairns, Cairns, and Neckerman (1989) suggest that aggressive behavior is related to early school withdrawal. The nature of this relationship is difficult to decipher, it may be that the youth's aggression creates an atmosphere of social rejection, which the youth eventually attempts to escape through dropping out of school. However, it is possible that aggressive behavior detracts from the student's ability and willingness to learn, causing the youth to withdraw from school due to feelings of failure and inadequacy. Kuperschmidt and Coie (1990) report that both aggression and frequent school absences are significant predictors of early school withdrawal. It seems reasonable that frequent absences are a precursor to actual withdrawal, however, frequent absences may reveal essential qualities regarding the nature of the familial context of the child. Children who are chronically absent from school or move more frequently than others are also at higher risk for early school withdrawal (Cairns & Cairns, 1994). Therefore, it appears that frequent moving, lack of strong social relationships, and aggressive behavior seriously increase a youth's chances of school failure and drop-out.

Aggression as a Predictor of Delinquency and Other Negative Outcomes

Childhood aggression is typically studied as a precursor to adolescent delinquency (Roff, 1992). Evidence from several studies, including many using longitudinal designs, converges to demonstrate that early aggressive behavior is indicative of later aggressive, delinquent, or antisocial behavior (Farrington, 1979; Huesmann et al., 1984; McCord, 1983; Pulkkinen, 1983; Stattin & Magnusson, 1989; Tremblay et al., 1992). For instance, Stattin and Magnusson (1989) claim that aggression in boys aged 10 to 13 years is highly related to criminal behavior up to age 26. Similarly, Roff and Wirt (1984) contend that aggressive behavior in peer-rejected boys significantly predicts later delinquency. Also predictive of delinquency are high levels of family adversity and punishment and low levels of monitoring or supervision as perceived by the youth (Haapasalo & Trembly, 1994; Laub & Sampson, 1988; McCord, 1983). Parker and Asher (1987) suggest that problematic peer relations may be a general indicator of negative outcomes as opposed to being predictive of a specific negative outcome. This assertion is also supported by Kupersmidt and Coie's (1990) report that rejected youth

are more likely than average, popular, or even neglected youth to face a variety of nonspecific negative outcomes.

The link between aggression and negative outcomes warrants sufficient concern to further explore its origins and maintenance. These issues must be better understood in order to create and implement effective methods of prevention and intervention. Aggressiveness and related problem behaviors comprise an alarming 30-50% of all child and adolescent clinic referrals (Gilbert, 1957; Herbert, 1978).

Hypotheses

As discussed in the literature review, there is a debate about the exact nature of the relationship between family stress and family cohesion. Some research suggests that the effects of high levels of family stress are mediated by family cohesion. Other research suggests that family cohesion moderates the relationship between family stress and child outcomes. Therefore, this study will examine two competing path models. The first path model articulates the relationship between family stress and child aggression as mediated by family cohesion. This model asserts that family stress predicts family cohesion, which in turn predicts both parent disciplinary practices and parent/child social interaction style. The latter two

variables are hypothesized to have a direct effect on child aggression and indirect effects through their impact on child temperament. Specific hypotheses are presented in Figure 3 by indicating the expected valence for each relationship present in model 1.

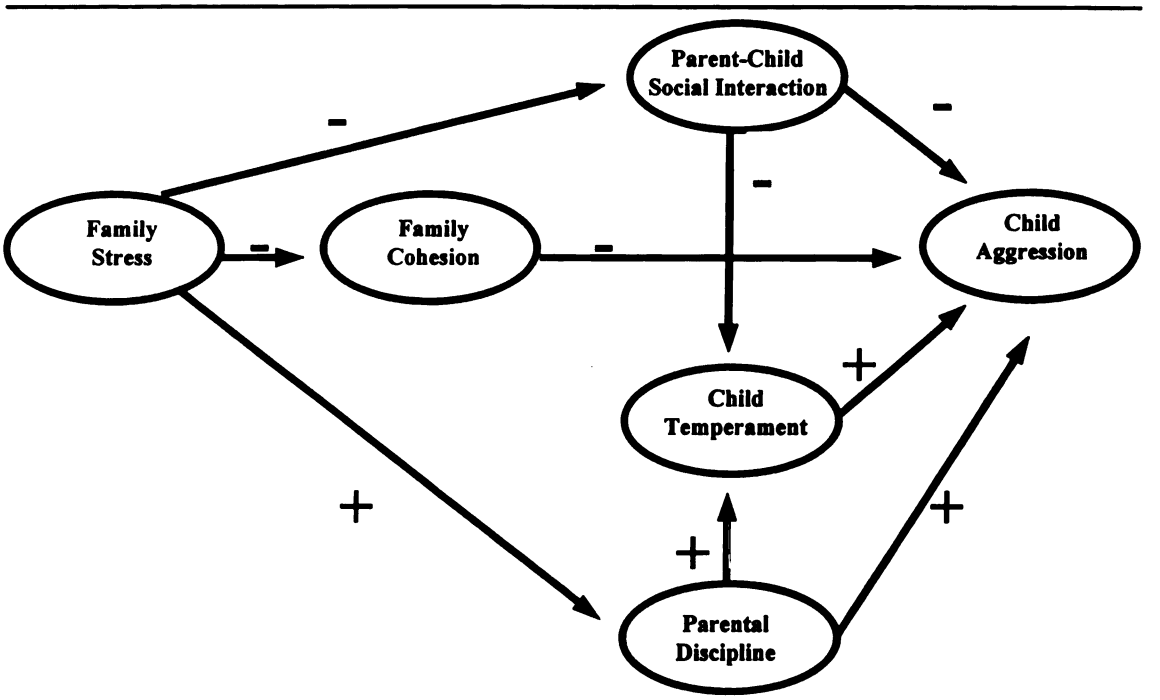

Figure 3. Expected Valence for Path Model of Family Stress to Child Outcomes as Mediated by Family Cohesion.

The second path model articulates the relationship between family stress and child aggression as moderated by family cohesion. In other words, for families low in stress the effect of family cohesion will be negligible. However,

for highly stressed families, family cohesion will play a crucial role in the prediction of child aggression. The second path model varies only with respect to the role of family cohesion; all other relationships are identical to those discussed for the first model. Specific hypotheses are presented in Figure 4 by indicating the expected valence for each relationship present in model 2.

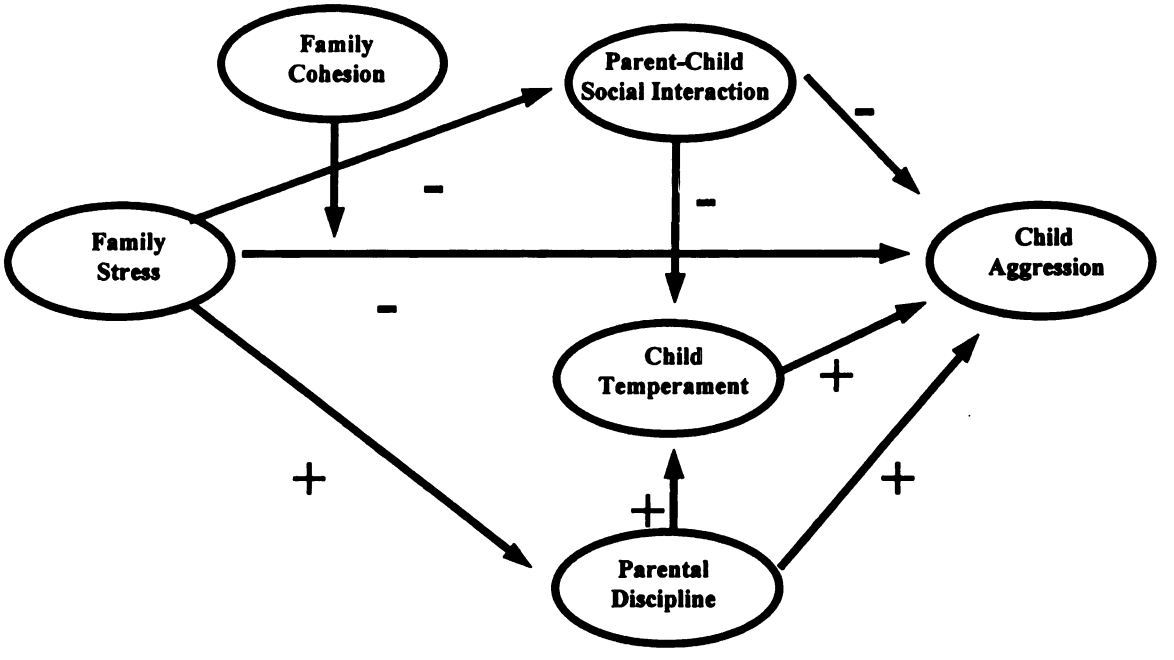

Figure 4. Expected Valences for Path Model of Family Stress to Child Outcomes as Moderated by Family Cohesion.

Chapter 3

Methods

Subjects

The sample for the current analysis was drawn from the Detroit Skillman Parenting Education Program Evaluation project undertaken by Stoffelmayr and his colleagues (1998). The initial plan was to gather data from a total of 300 families. A group of 100 families were to be taken from each of three populations. Therefore, the three hundred families were to be comprised of 100 families who participated in parenting workshops and counseling services provided through the Detroit Health Department Program, Detroit Family Program (DFP; clinic based experimental group); 100 families who participated in a family outreach program, Para-professional Outreach Program (PPOP; home based experimental group); and 100 families who did not participate in either of the above programs (control group). From each of the 300 families, two subjects were studied, the primary caregiver and the target child. Due to budgetary and time constraints we were able to locate and complete interviews with a total of 268 families (85 DFP; 91 PPOP; and 92 Controls). Of these 268 families, two families were not included in the Skillman analysis as a result of missing data. An additional six families were

excluded from analysis in the current study due to the fact that the child's age in each case fell outside of acceptable boundaries for the Child Behavior Checklist/2-3. Therefore, the current study included data on a total of 260 families.

In addition to program participation, subjects from DFP and PPOP were required to have at least one child aged 1-1/2 to 4-1/2 years, living in their home at the time of the study (at least 50% of the time), for which s/he was the primary caregiver. Control subjects lacked exposure to both DFP and PPOP (determined by a previous study's control group or by a screening questionnaire) and were required to have at least one child aged 1-1/2 to 4-1/2 years, living in their home at the time of the study (at least 50% of the time), for which s/he was the primary caregiver.

There are a total of 520 subjects, the primary caregiver and the target child, 1-1/2 to 4-1/2 years of age, from each of 260 families. If more than one child fell within the designated age range, then the target child was randomly chosen. Primary caregivers were predominantly women, 250 (96.2%) and only 10 (3.8%) were men. Age ranged from 17 to 45 years with a mean of 26.5 years. Of the 260 adult subjects, 210 (80.8%) were Black; 37 (14.2%) were Hispanic or Latino; 11 (4.2%) were white; one was Asian-

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Pacific; and one individual classified her ethnic background as other. English was reported as the primary language used in the home for 90% of the families. In addition, 9.2% used Spanish as the primary language spoken at home. Religion was an important part of the subjects' lives. Of the 260 families, 153 (58.8%) reported belonging to a church, mosque, or synagogue. Of those belonging to a religious institution, 57.5% reported attending worship services at least once a week. Over 1/2 of caregivers were single and never married (57.7%). Educational backgrounds of the subjects varied but the majority (66.9%) tended to cluster around completion of high school or less. See Table 1 for the complete respondent demographic profile.

Table 1. Respondent Demographic Profile

Respondent Demographic Profile	n	%	Mean	Std Dev
Sex				
Female	250	96.2		
Male	10	3.8		
Total	260	100.0		
Age in Years				
17-19	21	8.1		
20-23	70	26.9		
24-28	84	32.3		
29-34	49	18.8		
35-39	16	6.2		
40-45	12	4.6		
Total	252	96.9	26.5	6.10
Racial/Ethnic Background				
Hispanic/Latino	37	14.2		
African American	210	80.8		
Asian/Pacific Islander	1	0.4		
White	11	4.2		
Other	1	0.4		
Total	260	100.0		
Primary Language				
English	234	90.0		
Spanish	24	9.2		
Other	2	0.8		
Total	260	100.0		
Education				
Less than High School	85	32.7		
Vocational Training	5	1.9		
Completed High School/GED	84	32.3		
Some College	60	23.1		
Two Year College Degree	14	5.4		
Four Year College Degree	6	2.3		
Professsional/Graduate School	5	1.9		
Total	259	99.6	3.12	1.17

Table 1. (cont'd).

Respondent Demographic Profile	n	%	Mean	Std Dev
Employment				
Yes	108	41.5		
No	152	58.5		
Total	260	100.0		
Hours of Work Per Week				
0	150	57.7		
1 to 20	16	6.2		
21 to 40	85	32.7		
More than 40	8	3.1		
Total	259	99.7	14.6	18.28
Current Marital Status				
Married	67	25.8		
Single-Never Married	150	57.7		
Divorced	9	3.5		
Widowed	2	0.8		
Separated	12	4.6		
Partnered	19	7.3		
Total	259	99.7		
Member of Church, Temple, Mosque or Synagogue				
Yes	153	58.8		
No	106	40.8		
Total	259	99.6		

In summary of the family demographic profile, employment status reflected educational attainment with 152 (58.5%) of the adult subjects unemployed and 108 (41.5%) employed. Of those that worked 17.6% worked under 40 hours per week, 51.9% worked 40 hours per week, and the remainder of individuals worked over 40 hours each week. Annual earnings also reflected the educational attainment data, 55% made less than $15,000. A full 53.5% of the sample received some form or public aid such as ADC or food stamps and 72.7% had government funded healthcare through Medicaid or Medicare. The number of residents living in the home at the time of the interview ranged from 2 to 17, with a mean of 4.8. While many of the residents were family, there is evidence that non-family members were residing in these households. Taking a closer look at the composition of the household, 65.8% of the households consisted of two generations, 32.2% consisted of three generations, and 1.5% consisted of four generations. Keep in mind, the target child may have a teenaged sibling with a child of his/her own living with the family. There was one adult female resident in 61.5% of these households, 27.7% had two adult female residents, three adult females were present in 7.3% of homes, and 2.3% had four adult female residents. This contrasts sharply with the data on male presence in the household. There was

no adult male resident in almost 1/2 of the homes (48.8%). One adult male was present in 41.9% of homes, 7.3% had two adult male residents and 1.5% had three adult male residents. Although there seem to be several adults in many of these households, the primary caregiver reported that they were the only parental adult in 64.6% of these homes. See Table 2 for the complete family demographic profile.

Table 2. Family Demographic Profile.

Family Demographic Profile	n	%	Mean	Std Dev
Adjusted Gross Income				
$2,500	53	20.4		
$7,500	40	15.4		
$12,500	50	19.2		
$17,500	30	11.5		
$22,500	27	10.4		
$30,000	58	22.3		
Total	258	99.2	$15,232.60	$9,977.81
Government Assistance				
Yes	139	53.5		
No	119	45.8		
Total	258	99.3		
Medicaid or Medicare Health Care				
Yes	189	72.2		
No	69	26.5		
Total	258	98.7		
Parent/s in Household				
1	168	64.6		
2	91	35.0		
Total	259	99.6		
Number of Household Residents				
2	24	9.2		
3	45	17.3		
4	63	24.2		
5	44	16.9		
6	43	16.5		
7	23	8.8		
8	8	3.1		
9	3	1.2		
10-17	6	2.4		
Total	259	99.6	4.8	2.02

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Table 2. (cont'd).

Family Demographic	n	%	Mean	Std Dev
Generations in				
2	171	65.8		
3	84	32.3		
4	4	1.5		
Total	259	99.6	2.36	
Adult Females in				
1	160	61.5		
2	72	27.7		
3	19	7.3		
4	6	2.3		
Total	257	98.8	1.5	
Adult Males in				
0	126	48.5		
1	109	41.9		
2	19	7.3		
3	4	1.5		
Total	258	99.2	.6	

In summary of the child demographic profile, the children's ages ranged from 1-1/2 years to 4-1/2 years with a mean age of 31 months and a mode of 24 months. There were comparable numbers of boys and girls with 145 (55.8%) girls and 115 (44.2%) boys. The ethnic backgrounds of the children were almost identical to that of their primary caregiver. Of the 260 child subjects, 210 (80.8%) were black, 38 (14.6%) were Hispanic or Latino, 8 (3.1%) were white, 0 Asian-Pacific, and 3 other. See Table 3 for the complete child demographic profile.

Table 3. Child Demographic Profile.

Child Demographic Profile	n	%	Mean	Std Dev
Sex				
Girls	145	55.8		
Boys	115	44.2		
Total	260	100.0		
Age in Months				
17-24	91	35.0		
25-30	51	19.6		
31-36	39	15.0		
37-42	33	12.7		
43-48	32	12.3		
49-53	14	5.4		
Total	260	100.0	31.35	9.66
Racial/Ethnic Background				
Hispanic/Latino	38	14.6		
African American	210	80.8		
Asian/Pacific Islander	0	0.0		
White	8	3.1		
Other	3	1.2		
Total	259	99.7		

Procedure

Assessors were hired and trained by Stoffelmayr and his research team. The initial training was an eight hour session held at Michigan State University. This training session provided an overview of the study, addressed issues of confidentiality, diversity, interview technique, and administration. Two additional six hour training sessions were held to familiarize assessors with the battery of instruments used in the study. Each assessor scheduled a

practice interview with a family member or friend. The field supervisor observed these in home practice interviews, and provided feedback to each assessor. At bi-monthly meetings assessors had further opportunity to discuss any concerns or problems with the instrument or interview technique.

At the end of the observed, practice interview, the assessors were given a file for each participant that included contact information and the assessment materials. The assessor contacted each participant by telephone in order to schedule two home visits. The first visit required two hours and consisted of administration of Segment A of the research questionnaire and video tapping of a child/parent play interaction. This segment of the research questionnaire required the presence of the caregiver, the target child, the assessor, and the technical support staff. After the assessor had scheduled the appointment with the participant, she called Michigan State University to schedule one of the technical support staff. At this time the assessor provided the date, appointment time, meeting time, participant's home phone number, and meeting location with directions.

The assessor and the technical support staff arrived at the participant's home on the scheduled date. The following procedures then occurred:

1) Confidentiality and purpose of the study were discussed and the consent form signed.

2) The assessor read the items of the questionnaire and marked off the participant's responses.

3) The TSS video taped a 10 minute segment of a parent/child play interaction (this was a free form play interaction with no introduction of stressful stimuli).

4) The participant received a check for $20.00 for the completed procedure. If not already done, the assessor scheduled a home visit to complete Segment B of the research questionnaire.

The second visit required an hour and a half and consisted of administration of Segment B of the research questionnaire. This segment of the research questionnaire required only the presence of the assessor and the caregiver. The assessor arrived at the participant's home on the scheduled date. The following procedure then occurred:

1) Subject was reminded of confidentiality.

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2) The assessor read the items of the questionnaire and marked off the participant's responses.

3) The participant received a check for $20.00 for the completed procedure.

Information was collected from the client by a trained interviewer. The interviewer completed a cover page that summarized client identifying information, such as name, address, telephone number, place of employment, and name of an alternative contact person. We have found that this information is often necessary when trying to locate clients for follow-up interviews. A nine digit identification number was assigned to clients using the last three digits of their social security number, followed by their date of birth. Each interview is kept in a file folder. The tab of the folder has the first three letters of the client's last name, and the identification number. When the files were taken to the office on campus, the cover page and consent form were removed from the file, and filed separately. Files were brought into the office approximately every two weeks. The cover page was accessed to contact the subject for any missing data. The interview, which is only identified by the identification number, was entered onto the data system, and then filed by the first

three letters of the client's last name. All filing cabinets were locked when not in use.

If the client could not be located directly at the time of a prospective follow-up, other contacts provided by the client were used. In these cases, the interviewer self identified as a member of the Health Care Study Project, and mentioned that the client agreed to participate in an interview. No mention of City of Detroit Health Clinics or the Parenting Education and Advocacy Program was made to anyone other than the client.

Instruments

Several instruments were used in this study. In many cases there are multiple instruments for a given construct. Instruments are listed and described below under the construct name they represent.

Family Stress

Family stress "refers to demands (or conflicts among them) that tax or exceed available resources (internal and external) as appraised by the person involved" (Lazarus, 1998, p. 198). As measured in the current study, the appraisal process is unknown. Therefore, an accumulative stressor approach will be used.

Difficult Life Circumstances (DLC). The Difficult Life Circumstances Scale, developed by Barnard (1989), measures the existence of chronic family problems. The DLC taps into problems concerning significant others, drug/alcohol exposure or abuse, financial strain, unemployment, emotional and/or physical abuse, childrearing, crime, and illnesses. There are a total of 28 binary items. Responses reflect the presence or absence of a particular problem. Items answered as present are summed to provide an overall score for difficult life circumstances. A score of six indicates increased risk for negative parent, child, and family outcomes.

The DLC has been demonstrated to hold significant relationships with other maternal and child variables. In relation to maternal variables the DLC was positively correlated with maternal depression as measured by the Beck Inventory and was negatively correlated with social support. In relation to child variables, the DLC was positively correlated (.22) with the Achenbach Child Behavior Checklist and was negatively correlated with the Bayley Mental Developmental Index (-.39), stability of secure attachment (-.23), and the Preschool Language Scale (-.44). Concerning parenting variables, the DLC was negatively correlated with both the HOME Inventory and

NCATS. Test-retest reliability ranges from .40 to .70. Because this scale assesses a broad range of potential problems faced by families, internal consistency is not found nor is it expected (K. E. Barnard, personal communication, April 4, 1999).

The instrument used in this study consisted of 22 of the original 28 items. One item was deleted because it inquired about child abuse. The other five items omitted were redundant to items in other questionnaires. As a result of confirmatory factor analysis an additional twelve items were omitted. Further analyses were therefore based on a final scale of ten items with an average inter-item correlation of .18 and cronbach alpha of .69. Lower reliabilities were accepted on this measure due to the nature of the instrument, as discussed above.

The COPE Inventory (COPE). The COPE Inventory developed by Carver, Scheier, and Weintraub (1989), measures patterns of dispositional or situational coping styles. The Cope is a 60 item inventory that taps into fifteen domains of coping style. Thirteen of which are: Active coping, Planning, Suppression of competing activities, Restraint coping, Seeking social support for instrumental reasons, Seeking social support for emotional reasons, Positive reinterpretation and growth, Acceptance,

Turning to religion, Focus on and venting of emotions, Denial, Behavioral disengagement, and Mental disengagement. The other two subscales are exploratory and are not part of the published materials; these are Alcohol/drug use and Humor.

To assess an individual's dispositional style the respondent is instructed to consider his/her usual coping response to answer each of the 60 items on a four point Likert-type scale. The items are scored 1 to 4 and represent how much an individual engages in a particular style of coping: 1equals not at all, 2 equals somewhat, 3 equals quite a bit, and 4 equals a great deal. Each scale score is computed by summing the four items for that scale. To assess the situational style rather than the dispositional style of the individual, the instructions ask the respondent to think of a recent (within the past two months) upsetting event and respond to each of the 60 items according to how the respondent coped with that particular event.

Exploratory factor analysis of the situational coping strategies revealed factors comparable to those found for the dispositional coping strategies (Carver, Scheier, & Weintraub, 1989). Factor loadings for the subscales ranged from a high of .81 to .95 for Turning to Religion, to a low

of .29 to .42 for Active coping. Eight week test-retest reliability for a sample of college students ranged from .46 to .86 across the subscales. Concurrent and discriminant validity were obtained for several of the subscales. For example, Active coping and Planning subscales were found to positively correlate with Type A personality, optimism, self-esteem, and individual hardiness. Those classified as active copers scored lower in trait anxiety. As expected, the Denial and Behavior Disengagement subscales showed the opposite relationship with these variables. Interestingly, four of the subscales were significantly correlated to a measure of social desirability: Positive reinterpretation and growth (.23), Focus on and venting of emotions (-.17), Behavioral disengagement (-.20), and Alcohol/drug disengagement (-.27). Sex differences have been reported for three subscales. Women reported higher use of social support (for emotional and instrumental reasons) than did men and men reported coping strategies that involved alcohol/drug disengagement more than women (Carver, Scheier, & Weintraub, 1989).

The instrument used in this study assessed situational coping strategies and used two rather than four items for each subscale. All items were reworded and the

Denial subscale was replaced by two items reflecting an isolation/sulking orientation. This yielded a total of 30 items with a possible range of 2 to 8 on each subscale and an overall range of 30 to 120. As a result of confirmatory factor analysis an additional eight items were omitted. Because of this, total score ranges decreased to 22 to 88. Further analyses were based on a final scale of 22 items with an average inter-item correlation of .30 and Cronbach alpha of .91.

Family Map (FM). This instrument was designed by the MSU Adult Outcome Evaluation Team in order to get a clear picture of who is living in the home. The Family Map is in the form of a chart. This chart is to be filled in with the name, sex, and age of those persons living in the same residence as the respondent. The map instructs the respondent to place persons living in the household into one of the following categories: Respondent's Grandparents; Respondent's Parents, Step Parents, or Guardians; Respondent; Respondent's Child of Focus (target child); Respondent's Spouse or Partner; Respondent's Children and Other Children Cared for by Respondent; Other Adults (e.g., brothers, sisters, aunts, uncles); and Other Children (e.g., brothers, sisters, cousins). This graphic presentation was thought most capable of capturing the

complexity of resident relationships in many of the households of the study (Stoffelmayr, Reischl, Mavis, & Nijjer, 1993b)

Demographics (D). The Demographic information taps into the background information of the subjects covering: 1. Personal data (sex, occupation, ethnic/racial background, language); 2. Family Information (marital status, family income, government assistance, and type of health care). There are 12 items in the demographics questionnaire. Most of these items supply categorical data. (Stoffelmayr, Reischl, Mavis, & Nijjer, 1993a).

Family Cohesion

Family Cohesion is the "degree of commitment, help, and support family members provide for one another" (Moos, 1986, p. 1). Family Routines are highly correlated to Family Cohesion and are arguably tied to Family Cohesion (Boyce, Jensen, James, & Peacock, 1983). "Routines are observable, repetitive behaviors which involve two or more family members and which occur with predictable regularity in the daily life of the family" (Jensen, James, Boyce & Hartnett, 1983, p. 201).

Family Environment Scale (FES). The Family Environment Scale, developed by Moos and Moos (1981), assesses family environment with respect to interpersonal

relationships, emphasis of personal growth, and family structure. These three domains are conceptual and as such, are not actually scored. The 10 subscales, consisting of nine true/false items each for a total of 90 items, are scored and used to describe the three domains. The 10 subscales are Cohesion, Expressiveness, Conflict, Independence, Achievement Orientation, Intellectual-Cultural Orientation, Active-Recreational Orientation, Moral Religious Emphasis, Organization, and Control. The items are scored 1 for true and 0 for false for a possible range on each subscale of 0 to 9. Based on the normative data provided in the Family Environment Scale Manual, normal families had a mean cohesion score of 6.61 and a standard deviation of 1.36. Distressed families had a mean cohesion score of 5.03 and a standard deviation of 1.98 (Moos, 1986).

The internal consistency is reported to range from .64 for Independence to .79 for Cohesion. Test/retest reliability ranges from .68 for Independence to .86 for Cohesion. Intercorrelations for the subscales are around .20 indicating distinct but related constructs. Discriminant validity has been demonstrated by the instrument's ability to distinguish families with normal children and those with behavior problem children.

Similarly, the instrument has been useful in discriminating between normal families and those with a history of psychiatric disorders. The Cohesion subscale is significantly and positively correlated (.35) with the Family Routines Inventory, another measure of family cohesion, strength, and stability (Jensen, James, Boyce, & Hartnett, 1983).

The current study utilized only the Cohesion subscale. This nine-item subscale was used to supplement other measures of family environment, including the FRI. Further analyses were based on a final scale of 9 items with an average inter-item correlation of .30 and cronbach alpha of .80.

Family Hardiness Index (FHI). The Family Hardiness Index, developed by McCubbin, McCubbin, and Thompson (1987), measures the respondent's perception of the family as a unit and additionally, assesses the typical response patterns of the family to life stressors. The instrument consists of 20 items. The items are scored 0 to 3 and represent the degree to which each statement describes the respondent's family. The response choices are: 0 being definitely false of the respondent's family, 1 being mostly false of the respondent's family, 2 being mostly true of

the respondent's family, and 3 being definitely true of the respondent's family.

An overall score for family hardiness can be obtained by reverse scoring items with a negative item-total correlation and then summing the values of all responses. The score range is 0 to 60. The FHI consists of four subscales: Co-oriented Commitment, Confidence, Challenge, and Control. Co-oriented Commitment subscale reflects the family's strengths, dependability, and degree to which members work together. The Confidence subscale reflects the family's ability to plan, appreciate one another's efforts, endure hardships, and experience life as purposeful and meaningful. The Challenge subscale measures the family's attempts to support and encourage new activities. The Control subscale measures the family's perception of being in control of things that happen or being a passive recipient of life circumstances.

The internal reliability of the FHI is .82. Factor loadings for the four subscales ranged from .51 to .68 for Co-oriented Commitment, .58 to .76 for Confidence, .52 to .71 for Challenge, and .77 to .84 for Control. The FHI was found positively correlated with other commonly used measures of family: FACES II (.22), Family Time and Routines (.23), and Family Satisfaction (.20).

A total of 10 items, from three subscales were used in this study. Six of the Co-Oriented Commitment subscale's eight items were selected. The two items omitted had substantially lower loadings on the factor. All three of the Control External subscale's items were selected. One of the four items was used from the Confidence subscale. This item addressed the ability to cope in the face of additional problems and was particularly relevant to our sample.

In this study, items are scored 1 to 4 and represent the degree to which each statement describes the respondent's family. The response choices are: 1 being definitely true of the respondent's family, 2 being mostly true of the respondent's family, 3 being mostly false of the respondent's family, and 4 being definitely false of the respondent's family. Therefore, the score range for this study is 10 to 40. An overall family hardiness score was computed as an average of all items. As a result of confirmatory factor analysis, two additional items were omitted: the one Confidence subscale item and one of the three Control External subscale items. Further analyses were based on an eight item scale with an average inter-item correlation of .37 and cronbach alpha of .82.

Family Routines Inventory (FRI). The Family Routines Inventory, developed by Jensen, James, Boyce, and Hartnett (1983), measures family routines as an indication of family strength, cohesion, predictability, and stability (Boyce, Jensen, James, & Peacock, 1983). The FRI consists of 28 items, that tap into the observable, repetitive and consistently predictable behaviors that include at least a dyad in the family. The items are scored 0 to 3 and represent the frequency of behavior, with 0 being a routine that is almost never practiced by the family, 1 being a routine carried out 1-2 times a week, 2 being a routine carried out 3-5 times a week, and 3 being an everyday routine. The authors have proposed three alternative scoring systems, however, the frequency score has been recommended as preferable due to its increased test/retest reliability (.79 as compared to .74 and .75). This scoring system results in a possible range of 0 to 84.

Concurrent validity was established using four subscales from the Family Environment Scale (Moos & Moos, 1981). The FRI held statistically significant correlations at the .001 level with each of the four FES subscales: Cohesion (.35), Organization (.36), Control (.20), and Conflict (-.18). The FRI was also found to be significantly correlated with two demographic variables, namely income

(-.14) and age of oldest child (.27). The authors contend that these demographic relationships are explained by a family's typical developmental trend. As parents and their children age, there is typically an increase in family income. As children age, parents tend to decrease the level of routinization in attempt to respect the adolescent's emerging autonomy. These developmental trends could account for the correlation between family routines, age of oldest child, and income.

This study utilized 19 of the 28 FRI items. Three items were excluded because they were applicable to older children. For example, "Children do their homework at the same time each day or night during the week." Four items were eliminated because they were specific to working parents and over 1/2 of our subjects were unemployed. Two other items were excluded due to redundancy with other measures in the study. In this study, items are scored 1 to 4 and represent the frequency of behavior, with 1 being a routine that is practiced less than weekly by the family, 2 being a routine carried out 1-2 times a week, 3 being a routine carried out 3-5 times a week, and 4 being an everyday routine. For this study the possible range of FRI scores is 19 to 76.

Factor anlaysis suggested dropping an additional seven items. This resulted in a 12 item scale with an average inter-item correlation of .21 and cronbach alpha of .76. Upon further qualitative analysis it seemed that family routines may be tapping into a construct other than Family Cohesion as measured by the Family Hardiness Index and the Family Environment Scale. For this reason, Family Routines was omitted as an indicator of Family Cohesion. Further analyses, therefore, do not include this instrument.

Parent-Child Social Interaction

Parent-Child Social Interaction is "an active mutual/reciprocal exchange. Social interaction may involve aspects of the environment, but must include overt behavior directed to the dyad partner by each dyad member." Coded behaviors include: response contingency, directiveness, intrusiveness, facilitation, initiation, participation, signal clarity, intentional communicative acts, and theme continuity (Baird, Haas, McCormick, Carruth, & Turner, 1992, p. 550).

Parent Infant Social Interaction Code (PISIC). The Parent Infant social Interaction Code, developed by Baird, Haas, McCormick, Carruth, and Turner (1992), was designed to measure infant parent social interaction through four parent variables (response contingency, facilitation,

directiveness, and intrusiveness), four infant variables (signal clarity, initiation, intentional communicative acts, and participation), and one dyadic variable (theme continuity).

Each caregiver/child dyad is instructed to play as they normally would when not feeding, changing, or bathing the child. A standard set of toys is provided to the dyad but it is not required that they be used. Ten minutes of play is video recorded with time lapse in seconds recorded on the tape for coding purposes. An additional five minutes of clean up time was recorded but is not part of the Parent Infant Social Interaction Code requirement. The first 5 minutes of play is considered warm up, the next five minutes is viewed and coded in 15 second segments. Each of the nine variables listed above is coded as present or absent during each 15-second interval. Although normative data are not available, supportive literature lends insight into the interpretation of the presence or absence of individual variables and more importantly, the unique combinations and co-occurrences of variables can be assessed.

A total of six coders were trained during 40 hours of group sessions. Recommended training is a total of 12 hours, however, only one coder was able to achieve 80%

reliability on each construct with such minimal training. We proceeded to train the remaining coders until each of the six coders established 80% reliability on each construct. A sequence of training, testing, and retraining was followed until we were able to establish the requisite reliability on each construct. The third test provided adequate results, with all coders achieving a minimum of 80% agreement on each of the nine constructs. Across the three tests, coders obtained the following average percent of exact agreement with the standard training tape for presence or absence of each behavioral construct: parent response contingency (97%), facilitation (73%), directiveness (89%), intrusiveness (97%), signal clarity (95%), initiation (93%), intentional communicative acts (79%), participation (82%), and theme continuity (85%). Once we began the coding process, coders were retested for reliability after every 20 interviews coded.

As a result of confirmatory factor analysis, the nine behaviors were divided into four constructs (joint action, guidance, exchange and intrusion). Child participation and theme continuity, together, defined joint action. Guidance was comprised of parent facilatation and parent directiveness. Exchange was measured by parent response contingency, child initiation and intentional communicative

acts. Parental intrusive behaviors were the only indicator on the fourth construct.

Parental Discipline

Parental discipline is defined as actions the primary caregiver takes to modify the child's inappropriate behavior and consistency of enforcement. Types of discipline range from ignoring the situation to hitting the child. Consistency assesses the parent's level of disciplinary follow through (Patterson, 1986; Power, 1993).

Parenting Dimensions Inventory (PDI). The Parenting Dimensions Inventory, developed by Slater and Power (1987), measures parenting attitudes and behaviors. The PDI taps into three global dimensions of parenting (Support, Control, and Structure). Each of the three parenting dimensions consists of three subscales. Support is measured by the Nurturance, Sensitivity, and Non-Restrictive Attitude subscales. Control is measured by the Type of Control, Amount of Control, and Maturity Demands subscales. Structure is measured by the Involvement, Consistency, and Organization subscales. Slater and Power (1987) found discriminant validity for the PDI in several different studies. The PDI was shown to predict parent ratings of child behavior problems and child social competence.

This study utilized questions from two subscales, Consistency and Control. Five items are used from the Consistency subscale. Responses are captured on a four point Likert-type scale ranging from 1, not at all like me to 4, a lot like me, for a possible score range of 5 to 20. Four of the six hypothetical situations involving misbehavior on the part of the child are used from the Control subscale. Below each hypothetical situation is a list of possible parent disciplinary responses ranging from "Let the situation go" to "Spanking or hitting." On the original scale these items measured five dimensions, physical punishment, material/social consequences, reasoning, scolding, and reminding. In the current study these five dimensions are collapsed to define three primary types of discipline: physical, behavioral, and verbal. The parent is asked to rate how likely they are to engage in each disciplinary action in response to the scenario. Response items range from 1 to 4, with 1 being a very unlikely parental response and 4 being a very likely parental response. The score for each dimension of control is computed by averaging the responses to corresponding items across the four scenarios.

Using this particular scoring method, Longano (1990) found the following internal consistency for disciplinary

responses: physical punishment (.83), material/social consequences (.82), reasoning (.69), scolding (.89), and reminding (.83). In a sample of 5 to 10 year old children, McGrath, Zook, and Weber-Roehl (1991) found that low maternal PDI scores on the material/social consequences were related to higher levels of child prosocial behavior. Furthermore, cluster analysis of the type of control subscale of the PDI revealed constructs that closely resembled Baumrind's (1971) authoritative, authoritarian, and permissive parenting styles (Power, Kobayashi-Winata, & Kelley, 1991).

Confirmatory factor analysis resulted in omitting items from the Control Subscales while retaining all items from the Consistency subscale. From the Control subscale, both Verbal and Physical Discipline dimensions were impacted. From the Verbal subscale, two items were omitted due to cross loading and three items were omitted due to weak inter-item correlation. Only one item was omitted from the Physical Discipline subscale as a result of weak inter-item correlation. Further analyses used a seven item scale for Verbal Discipline, eight item scale for Behavioral Discipline, and seven item scale for Physical Discipline with average inter-item correlations of .34, .40, and .40 and Cronbach alphas of .78, .84, and .82 respectively. All

five items were retained for the Consistency subscale with an inter-item correlation of .45 and Cronbach alpha of .77.

Child Rearing Practices Report (CRPR). The Child Rearing Practices report was originally developed by Block (1965), as a 91 item instrument used to assess parental attitudes and behaviors regarding child rearing. In 1982, Rickel and Biasatti validated a 40 item version from the original 91 items. Responses are recorded on a six point Likert-type scale, ranging from 1, not at all like me to 6, a lot like me. This modification taps into two domains, Restrictiveness (22 items) and Nurturance (18 items), internal reliabilities are .85 and .84 respectively.

Jones, Rickel, and Smith (1980) found the CRPR subscales to differentially relate to types of social problem solving in a sample of preschool children. Namely, more restrictive child rearing practices were correlated with child social problem solving strategies involving evasive themes. Whereas, less restrictive child rearing practices were related to child social problem solving strategies involving personal appeals to negotiate with the parent. Children of mothers who used nuturing child rearing practices were less likely to rely on authority figures to resolve peer dilemmas.

In the prediction of CRPR scores from mother personality factors, Rickel, Williams and Loigman (1988) found state anxiety, trait anxiety, and depression to be a highly correlated set of factors that were negatively related to mother's nurturance (R = .43) and positively related to mother's restrictiveness (R = .31). These authors also found several demographic variables significantly correlated with mother's use of restrictive child rearing practices. Black mothers were significantly more likely to use restrictive child rearing practices (-.32), as were Catholic mothers (.30), single mothers (.22), mothers with less education (-.27), and mothers with lower income (-.25). This study used 6 of the 18 Nurturance subscale items. Responses were recorded on a four point Likert-type scale, ranging from 1, not at all like me to 4, a lot like me, for a possible score range of 6 to 24. Confirmatory factor analysis resulted in retaining all six items from the Nurturance subscale with an average inter-item correlation of .28 and Cronbach alpha of .70.

Child Temperament

Temperament is defined as a genetically predisposed set of traits that emerge within the first year and govern how an individual behaves. Temperament traits are highly stable across development (Buss & Plomin, 1984; Thomas &

Chess, 1977) but are mutable and modifiable and involve reciprocal processes (Thomas & Chess, 1977). Traits measured are: sociability, emotionality, activity, attention span/persistence, reaction to foods, and soothability.

The Colorado Childhood Temperament Inventory (CCTI).

The Colorado Childhood Temperament Inventory is a merger of items from the New York Longitudinal Study (NYLS) and Buss and Plomin's (1975) temperament theory of personality (EASI). Temperament items that were supported by factor analysis were combined to compose the six factors (Sociability, Emotionality, Activity, Attention span/persistence, Reaction to foods, and Soothability) of the CCTI (Rowe & Plomin, 1977). Emotionality and Activity are taken primarily from the EASI. Attention span/persistence and Soothability were taken primarily from the NYLS. The six scales are independent except for the relationship between Emotionality and Soothability.

The CCTI is a parental rating instrument measuring temperament for children between 1-6 years of age. There are five items for each factor. The items on the questionnaire are listed with both the behavior and the response choice on the same line to eliminate confusion. The items are scored 1 to 5 and represent the degree to

which the parent feels the behavior represents their child. The parent rates an item a 1 if their child is "not at all" like the behavior described in that item. The parent rates an item a 5 if their child is "a lot" like the behavior described in the item. Findings support that girls and boys, as well as younger and older children, have similar temperament ratings. The CCTI has considerable internal consistency as well as moderately high test-retest reliabilities for all factors except Soothability.

Confirmatory factor analysis resulted in omitting items from the Sociability, Activity, and Attention Span subscales while retaining all items from the Emotionality and Soothability subscales. From the Sociability subscale, one item was omitted due to cross loading on the Activity subscale. Two items were omitted from the Activity subscale due to cross loading on the Sociability subscale. One weak item was omitted from the Attention Span subscale. Further analyses used a four item scale for Sociability, five item scale for Emotionality, three item scale for Activity, three item scale for Attention Span and a five item scale for Soothability with average inter-item correlations of .38, .51, .44, .48, and .50 and Cronbach alphas of .71, .84, .71, .74, and .83 respectively.

Child Aggression

Child Aggression is defined as actions that involve the intention to harm or injure (Berkowitz, 1981) other living beings (Baron & Richardson, 1994). As measured by the CBCL-2/3 Aggressive Behavior subscale, aggression includes affective behavior (e.g., easily frustrated, jealous, angry moods). The CBCL-2/3 Destructive Behavior subscale, includes actions against property (Achenbach, 1992).

The Child Behavior Checklist/2-3 (CBCL/2-3). The Child Behavior Checklist/2-3 was designed for applied and research purposes. Its purpose is to provide a more differentiated assessment of toddlers' behavioral and emotional functioning than was previously available. It was designed to assess children from 2 to 3 years of age, but can be extended to 1.5 to 3.5 years of age (T. M. Achenbach, personal communication, November 17, 1997). The items on the questionnaire are listed with both the behavior and the response choice on the same line to eliminate confusion. The items are scored 0 to 2 and represent the frequency of behavior, with 0 being not true of the child's behavior, 1 being sometimes true of the child's behavior, and 2 being very true of the child's behavior. The total problem score provides the global index

of the child's problems. There are two broad bands, Internalizing and Externalizing behaviors that combine with all other items (except items 51 and 79) to create the total problem score. The Internalizing behaviors are those that the child directs inward, toward the self. Adding the scores for the subscales Anxious/Depressed and Withdrawn derives the Internalizing score. The Externalizing behaviors are those that the child directs outward, away from the self. The subscales summed for the Externalizing score are Aggression and Destructive Behavior. Sleep Problems and Somatic Problems are on neither the Internalizing or Externalizing bands.

An interviewer can fill out the instrument or it can be self administered, provided the subjects have at least a 5^{th} grade reading level. Male, female, and combined norms are computed for each subscale. Test-retest reliability is .85 and inter-parent agreement is .63. Most of the items on the questionnaire have the ability to discriminate significantly between clinic referred and non-referred children (Achenbach, 1992).

Confirmatory factor analysis suggested omitting items from the Aggressiveness and the Destructiveness subscales due to cross loading on one another. However, these two items are combined to create the externalizing score. Since

the overall externalizing score was the primary interest of this study, all items were retained on the Aggressiveness and Destructiveness subscales despite crosslaoding on each other. Individually the Aggressiveness subscale consisted of 15 items with an average inter-item correlation of .21 and Cronbach alpha of .80 and the Destructiveness subscale consisted of 11 items with an average inter-item correlation of .14 and cronbach alpha of .64. Further analyses used the externalizing score.

Vineland Adaptive Behavior Scales (VABS). The Vineland Adaptive Scale is a revision of the Vineland Social Maturity Scale (Sparrow, Balla, & Ciccheti, 1984). The VABS correlates .55 with the original Vineland. It assesses social competence of handicapped and non-handicapped children from birth to 19 years of age. The respondent must be an adult who is familiar with the activities of the subject. Because the VABS relies on report, rather than observation, familiarity of the subject is essential. To administer the report, the administrator must be trained in formal interview techniques. There are three different versions of the VABS: Survey Form, Expanded Form, and the Classroom Edition. The Survey Form, consisting of 297 items, is the form used in the current study.

Four domains of behavior are assessed: Communication, Daily Living Skills, Socialization, and Motor Development. Each of the four domains is broken into relevant subdomains. Communication is comprised of Perceptive, Expressive, and Written subdomains. Daily Living Skills is comprised of Personal, Domestic, and Community subdomains. The Socialization domain is comprised of Interpersonal Relationships, Play and Leisure Time, and Coping Skills. Motor Development is divided into Gross and Fine Motor Skills. There is also an index for Maladaptive Behavior, which was not utilized as it pertains to children of at least 5 years of age, whereas the study's sample consists of children between 2 and 4 years of age. Because the VABS items are listed in developmental order, the administrator must establish a basal score of the highest seven consecutive items scored 2, and a ceiling of the lowest seven consecutive items scored 0.

The standardization of the VABS was based on a representative sample of 3000 individuals. Norms are provided for ages 0 to 19 years and are stratified for race, sex, ethnicity, geographic region, community size, and parent education. Other studies have found a significant correlation between the Adaptive Behavior Composite of the VABS and the Global standard scores of the

Kaufman Assessment Battery for Children (K-ABC). The correlation was especially high for the Communication Domain of the VABS at .52. The VABS has also been demonstrated to be significantly correlated to the Peabody Picture Vocabulary Test-Revised (PPVT-R), with correlations ranging from .12 on the Daily Living Skills Domain to .37 on the Communication Domain.

The Adaptive Social Behavior Inventory (ASBI). The Adaptive Social behavior Inventory, developed by Hogan, Scott, and Bauer (1992), measures social competence in preterm three-year olds. The ASBI taps into children's social competence but should not be considered the inverse of behavior problems. There are a total of 30 items, each consisting of eight words or less. The items are scored 1 to 3 and represent the frequency of behavior, with 1 being rarely true of the child's behavior, 2 being sometimes true of the child's behavior, and 3 being almost always true of the child's behavior. The ASBI consists of 3 subscales: Express, Comply, and Disrupt. Express reflects initiating social behaviors and emotionally expressive qualities. Comply reflects responsive and cooperative behaviors. The sum of these two subscales yields the total prosocial behavior score. Disrupt measures slightly negative emotional tone, but this may also include some normative

behavior for many young children. Reliabilities for subscales Express, Comply, and Disrupt are .79, .79, and .71 respectively. Disrupt is less internally consistent than the other subscales due to the low number of items. However, item loadings for this factor are equivalent to those in the other two subscales.

The ASBI subscales were found to differentially relate to intelligence and behavior problems. The ASBI is correlated with the Stanford Binet IQ Score. Among the ASBI and IQ score correlations, the Express subscale held a significantly stronger correlation (.46) than did the other subscales. Compliance was inversely and more strongly (-.61) related to the CBCL-2/3 externalizing score than were the other two subscales. Mean differences are noted for sex, with boys scoring lower on the Comply subscale than girls. The scale construction began as a screening for pre-term 36 month old infants, but has since been validated for use with 3 to 5 year old, ethnically diverse children (Greenfield, Wasserstein, Gold, & Jorden, 1997).

Confirmatory factor analysis suggested omitting only one item from the Express subscale due to weak inter-item correlation. All other items on other subscales were retained. Further analyses used a twelve item subscale for Express, ten item subscale for Comply, and seven item

subscale for Disrupt with average inter-item correlations of .23, .32, and .20 and Cronbach alphas of .78, .82, and .63 respectively.

Graphical presentation of the constructs and the respective instruments used to measure them summarizes the information discussed above (see Figure 5).

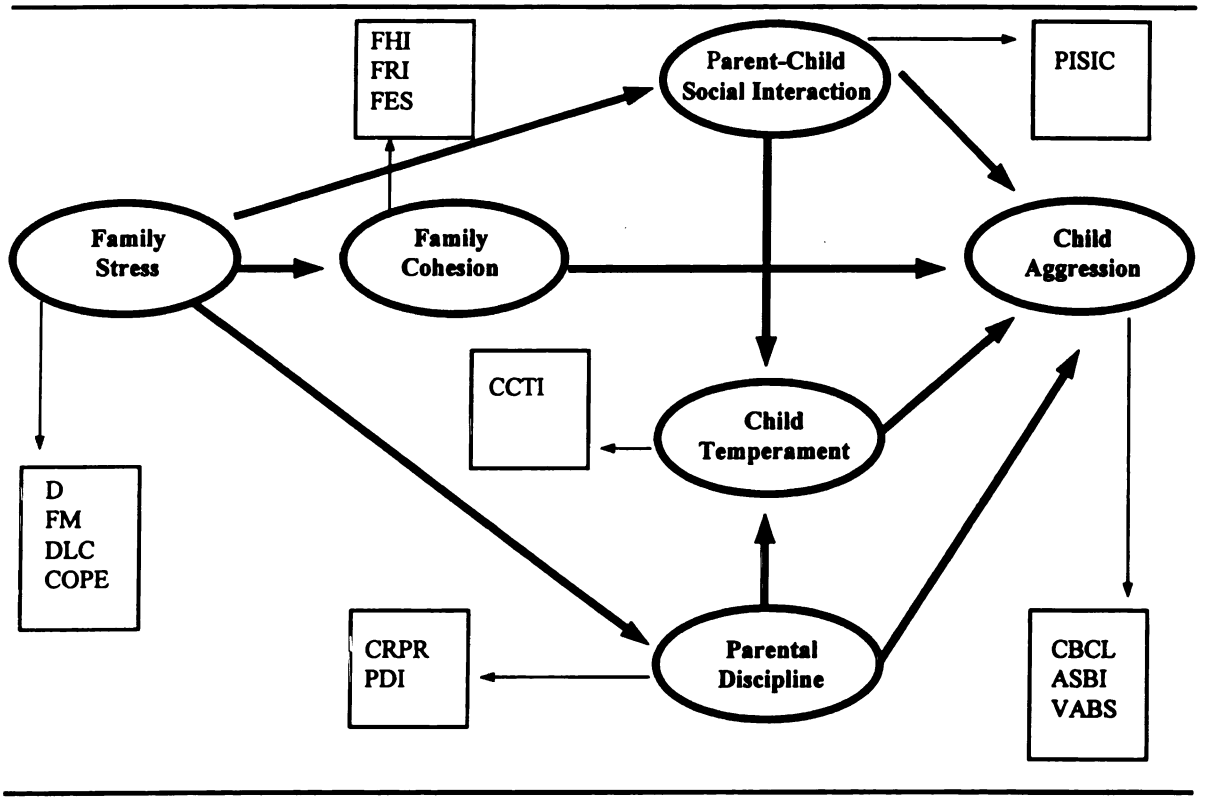


Figure 5. Measurement Model for Path Variables.

Chapter 4

Results

Collapsing Data

Initial data were collected from three different groups. The total sample consisted of families who participated in parenting workshops and counseling services provided through the Detroit Health Department Program, Detroit Family Program (DFP; clinic based experimental group); families who participated in a family outreach program, Para-professional Outreach Program (PPOP; home based experimental group); and families who did not participate in either of the above programs (control group). It was first necessary to determine if collapsing the groups into one sample would bias the data.

Discriminant analysis was conducted on the total sample to determine if the groups differed on any variables in a significant way. Results of the discriminant analysis indicated that the groups could not be significantly distinguished by any variable other than group membership [eigenvalues = .26 and .12 for functions 1 and 2 respectively; Wilk's lambda = .71 and .89, with p = .29 and p = .86 for functions 1 through 2 and 2 respectively]. Therefore, the data were collapsed into one group.

Data Estimation

Precautionary steps during and immediately following data collection were taken to ensure a complete data set. If data were found missing, follow-up phone calls were made to gather the missing data. Even with these precautions, some data points (.136%) were missing at the time of analysis. If an item was found to be missing data, it was typically only for one case and at the most three. In these instances, linear trend at a point analyses were conducted to estimate the missing points.

Descriptive Analysis

Means and standard deviations were calculated for all scaled scores used in the present study (see Table 4).

Because there is controversy surrounding the age at which aggression emerges, a t-test of the means was conducted to determine the presence or absence of sex differences in the current sample. Results indicated that the boys (M = 14.31, SD = 8.4) were significantly more aggressive than the girls (M = 12.68, SD = 7.3), $t(258) = -1.69$, $p = .046$.

Table 4. Means and Standard Deviations of Scaled Scores

Variable/Label	N	Min	Max	Mean	SD	Skew	Kurt
A01FAM7 Age of mother	260	17	45	26.47	6.01	0.964	0.680
CE1CHILR Number of children in household	260	0	11	2.61	1.60	1.684	4.637
CE1ADULT Number of adults in household	260	1	6	2.11	0.98	0.763	0.407
RA02I3AD Binary Employment	260	0	1	0.42	0.49	0.345	-1.895
A02II3DE Family's annual income	260	1	6	3.43	1.83	0.136	-1.361
DSINGLE Binary never married	260	0	1	0.58	0.49	-0.324	-1.906
ZPUBAID Binary public aid	260	0	1	0.54	0.50	-0.158	-1.983
CE4AGRES Aggressive Behavior	260	0	28	9.22	5.51	0.768	0.432
CE4DESTR Destructive Behavior	260	0	14	4.18	2.90	1.094	1.553
CE4EXT Externalizing	260	0	39	13.40	7.80	0.884	0.678
CE4OTH Other problems	260	0	27	7.02	4.90	1.080	1.527
MCE4TPS Total Problem Score	260	0	84	27.80	16.46	1.116	1.249
CE5SOCIA Sociability	260	1	5	3.91	0.88	-0.547	-0.369
CE5EMOTI Emotionality	260	1	5	2.67	1.09	0.249	-0.919

Table 4. (cont'd).

Variable/Label	N	Min	Max	Mean	SD	Skew	Kurt
CE5ACTIV Activity	260	2	5	4.72	0.55	-2.531	7.043
CE5ATTEN Attensption span-persistence	260	1	5	3.80	0.94	-0.449	-0.648
CE5SOOTH Soothability	260	1	5	3.96	0.93	-0.693	-0.380
CE6EXPRE Express	260	2	3	2.72	0.27	-1.329	1.757
CE6COMPL Comply	260	1	3	2.43	0.37	-0.466	-0.023
CE6DISRU Disrupt	260	1	3	1.66	0.38	0.522	-0.198
A07COMMS Communication Standard Score	260	54	160	106.67	16.23	-0.106	0.482
A07DLSST Daily Living Skills Standard Score	260	58	160	110.73	15.17	-0.219	0.343
A07SOCIS Socialization Standard Score	260	55	160	109.62	15.54	0.128	1.585
A07MOTSS Motor Skills Standard Score	260	57	160	110.42	16.58	-0.379	0.236
A07ABSSS Adaptive Behavior Composite Standard Score	260	57	160	112.55	16.44	-0.313	0.424
CE8JTACT Joint Activity	260	16	40	29.39	5.41	-0.324	-0.650
CE8GUIDE Guidance	260	12	40	29.00	4.68	-0.190	-0.148

Table 4. (cont'd).

Variable/Label	N	Min	Max	Mean	SD	Skew	Kurt
CE8EXCHA Exchange	260	4	58	36.78	11.83	-0.589	-0.210
CE8INTRU Intrusive	260	0	20	1.64	2.79	3.994	20.389
CE11FHRE Family Hardiness	260	1	4	3.49	0.49	-1.212	1.751
CE12VERB Verbal Discipline	260	2	4	3.86	0.27	-2.638	7.257
CE12BEHA Behavioral Discipline	260	1	4	2.43	0.75	0.353	-0.643
CE12PHYS Physical Discipline	260	1	4	1.93	0.65	0.590	0.007
CE13NURT Nurturing child rearing practices	260	3	4	3.85	0.25	-2.072	4.477
CE13CON Disciplinary Consistency	260	1	4	3.05	0.72	-0.552	-0.027
CE14FRRE Family Routines	260	18	48	38.48	5.67	-0.324	-0.101
CE15FAME Family Environment	260	1	9	8.04	1.65	-2.167	4.459
CE16TOTC Total Cope	260	1	4	2.07	0.57	0.439	-0.609
CE17DLCT Difficult Life Circumstances	260	0	8	0.96	1.42	1.857	4.021

Correlations

In order to examine the relationships between variables, Pearson product-moment coefficients were calculated for all measures used in the study (see Appendix B). For the most part, the correlation matrix supported the hypothesized relationships between variables. Family stress was positively related to problematic child behaviors and was negatively related to adaptive child behaviors. Further more, family stress was negatively related to family cohesion and positively related to parental disciplinary practices. However, family stress was not related to parent-child social interaction.

Family cohesion was negatively related to child externalizing behavior. One measure of family cohesion was positively related to adaptive child behaviors but the other two were not.

Parental disciplinary practices were related to child aggressive behavior and child temperament as hypothesized. It is interesting to note that of parental disciplinary measures, parental consistency held the strongest correlation with all measures of child temperament.

Parent-child social interaction was not correlated with child temperament, nor with negative child behaviors,

but it did show a significant positive correlation with adaptive child behaviors.

It is interesting to note that younger mothers were more likely to be single, unemployed, and dependent upon public assistance. Although these women were more likely to be single, they were more likely to reside in households with more adults than were their older counterparts. Younger women were also more likely to reside in multi-generation households.

Structural Equation Modeling

The hypothesis that the relationship between parental stress and child aggression is mediated or moderated by family cohesion and mediated by parent-child social interaction, parent disciplinary practices, and child temperament was tested by comparing three structural equation models. Model 1 tested the hypothesized direct and indirect effects of family stress on child aggression without taking family cohesion into consideration. Model 2 tested the hypothesized indirect effects of family stress on child aggression taking family cohesion into consideration. Model 3 tested the hypothesized indirect and direct effects of family stress on child aggression taking family cohesion into consideration.

Original Models

Amos 4 (Arbuckle & Wothe, 1999) was used to obtain generalized least squares estimates of the model coefficients. All three models represented a good fit to the data. Although the Chi-Square [χ^2 (df = 97, $\underline{N}$ = 260) = 129.50, $\underline{p}$ = .015] was significant for model 1, the GFI (.94) and the CFI (.84) were large and the RMSEA (.04) was small. Additionally, the data fit the rule of thumb that an acceptable fit exists if two times the degrees of freedom exceeds the χ^2[df = 97 x 2 = 194; 194 > 129.50]. Taken together, the fit indices provide evidence for an adequate fit between the model and the data.

The standardized path coefficients for model 1 are presented in Figure 6. Relationships in the model are all in the expected direction but only three paths were found significant. Family stress indirectly affected child aggressive behaviors. Increased family stress resulted in decreased use of positive parenting practices (standardized coefficient = -.71). Positive parenting practices predicted more adaptive child temperament (standardized coefficient = .75). In turn, adaptive child temperament predicted lower levels of aggressive behavior (standardized coefficient = -.47). The results indicate that parental discipline and

child temperament are potential buffers of family stress effects on child aggression.

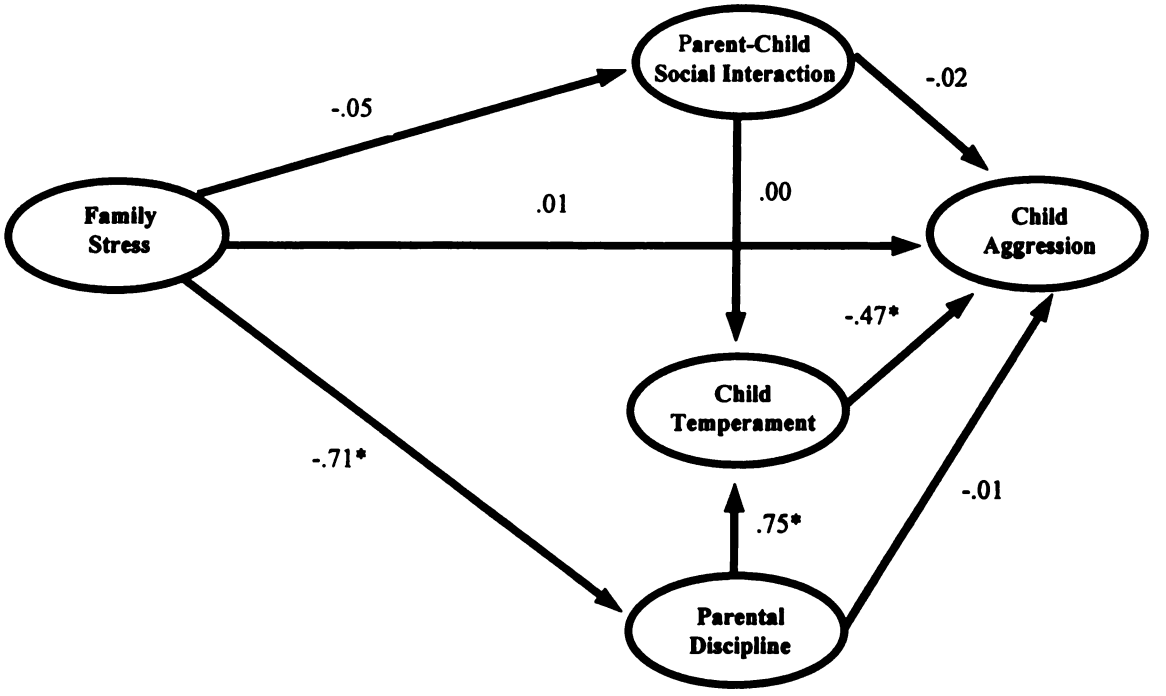


Figure 6. Standardized Path Coefficients of Model 1.

Model 2 also resulted in a significant Chi-Square [χ^2(df = 127, $\underline{N}$ = 260) = 169.76, $\underline{p}$ = .007] However, the GFI (.93) and the CFI (.83) were large and the RMSEA (.04) was small. Additionally, two times the degrees of freedom exceeded the χ^2 [df = 127 x 2 = 254; 254 > 169.76]. Therefore, model 2 also represents an adequate fit to the data.

The standardized path coefficients for model 2 are presented in Figure 7. The same three paths, as found

significant in model 1 were found significant in model 2. In addition, the path from family stress to family cohesion was significant. Family stress indirectly affected child aggressive behaviors. Increased family stress resulted in decreased use of positive parenting practices (standardized coefficient = -.88). Positive parenting practices predicted more adaptive child temperament (standardized coefficient = .71). In turn, adaptive child temperament predicted lower levels of aggressive behavior (standardized coefficient = -.47). The results indicate that parental discipline and child temperament are potential buffers of family stress effects on child aggression. Family Stress also predicted a decrease in family cohesion (standardized coefficient = -.67).

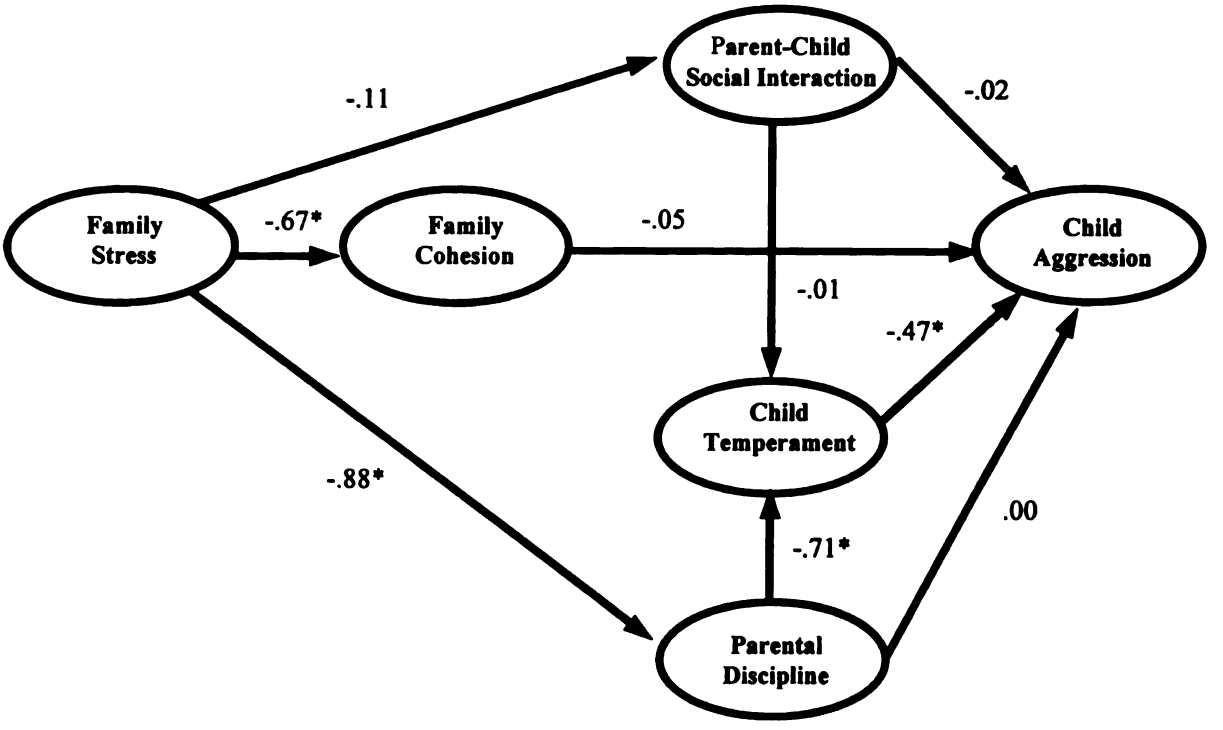


Figure 7. Standardized Path Coefficients of Model 2.

Results of model 3 were almost identical to those of model 2. A significant Chi-Square [χ^2 (df = 126, $\underline{N}$ = 260) = 169.70, $\underline{p}$ = .006] was present, yet other evidence supported acceptance of the model. Namely, a large GFI (.93) and CFI (.82); a small RMSEA (.04); and two times the degrees of freedom exceeded the χ^2 [df = 126 x 2 = 252; 252 > 169.70].

The standardized path coefficients for model 3 are presented in Figure 8. The same four paths, as found significant in model 2 were found significant in model 3. Family stress indirectly affected child aggressive behaviors. Increased family stress resulted in decreased

use of positive parenting practices (standardized coefficient = -.88). Positive parenting practices predicted more adaptive child temperament (standardized coefficient = .72). In turn, adaptive child temperament predicted lower levels of aggressive behavior (standardized coefficient = -.49). The results indicate that parental discipline and child temperament are potential buffers of family stress effects on child aggression. Family Stress also predicted a decrease in family cohesion (standardized coefficient = -.67).

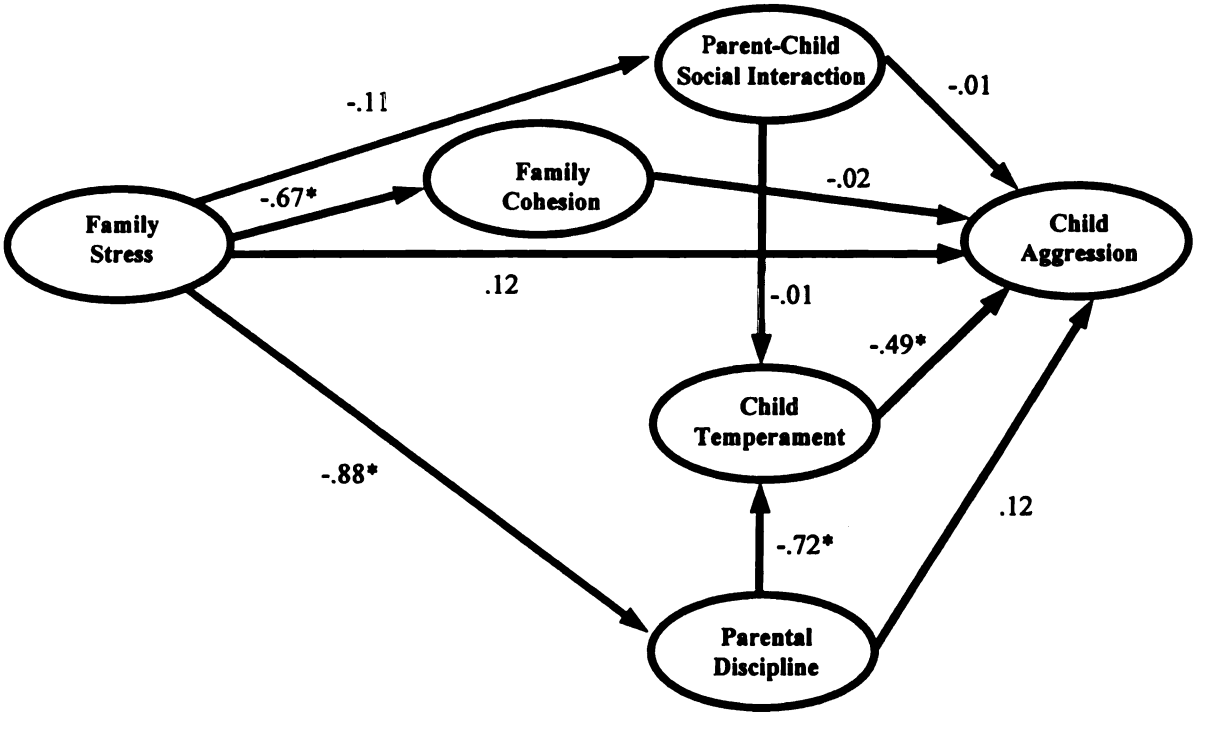


Figure 8. Standardized Path Coefficients of Model 3.

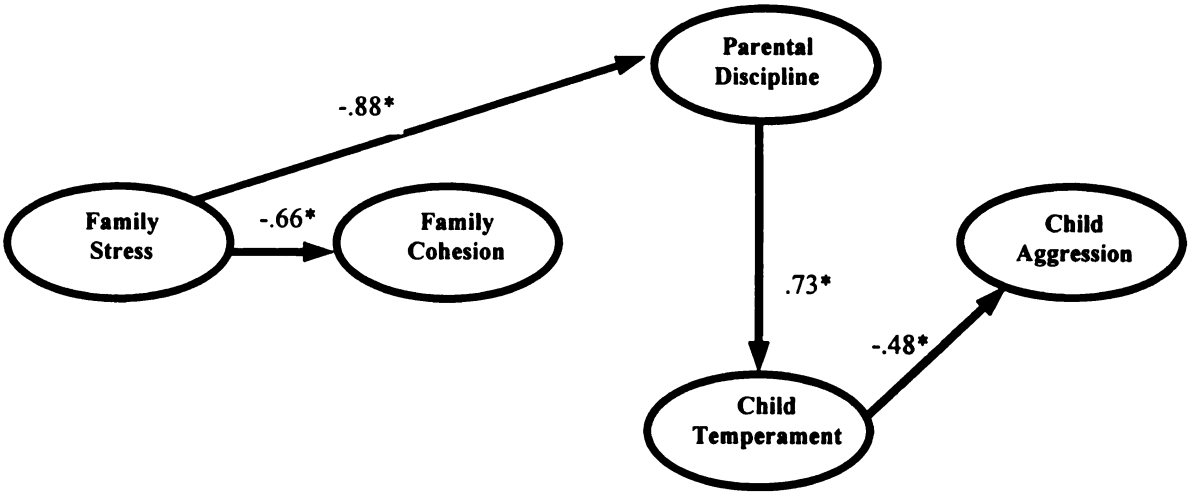
In order to determine the best fitting model, Chi-Square comparisons were conducted between the two hierarchically related models (i.e., models 2 and 3). Comparison of models 2 and 3, the two models that included the family cohesion construct, showed that both models fit the data equally well [$\Delta\chi^2(260; 1) = .065$, n.s.]. Although statistical comparisons of models 1 and 3 and models 1 and 2 are not possible, model 1 was chosen as the best fitting model. Model 1 omitted the family cohesion construct which did not directly or indirectly predict child aggression in either model 2 or 3. In addition to being the most parsimonious model, all indices of fit for model 1 were the same or better than the fit indices for models 2 and 3.

Alternate Models

The importance of family cohesion is widely reported in the child development literature. The initially hypothesized models failed to identify family cohesion as a mediator of the deleterious affects of family stress. Post hoc analyses were conducted in an attempt to understand why family cohesion did not mediate the relationship between family stress and child aggression. Alternate model 1 consisted of only the significant paths from the original model 1. This model resulted in a significant Chi-Square [χ^2 (df = 74, N = 260) = 129.68, p = .000] However, the GFI

(.93) was large and the CFI (.68) was marginally acceptable and the RMSEA (.05) was also acceptable. Additionally, two times the degrees of freedom exceeded the χ^2 [df = 74 x 2 = 148; 148 > 129.68]. Therefore, this model represents an adequate fit to the data.

The standardized path coefficients for alternate model 1 are presented in Figure 9. Relationships in the model are all in the expected direction and all were found to be statistically significant. Family stress directly effects family cohesion (standardized coefficient = -.66) and parental disciplinary practices (standardized coefficient = -.88). Positive parenting practices predicted more adaptive child temperament (standardized coefficient = .73). In turn, adaptive child temperament predicted lower levels of aggressive behavior (standardized coefficient = -.48). The results indicate that parental discipline and child temperament are potential buffers of family stress effects on child aggression. Family cohesion is not predictive of anything in this model. Given the low CFI and this model's inability to articulate the role of family cohesion in predicting child aggression, additional exploration was conducted.



*Significant path

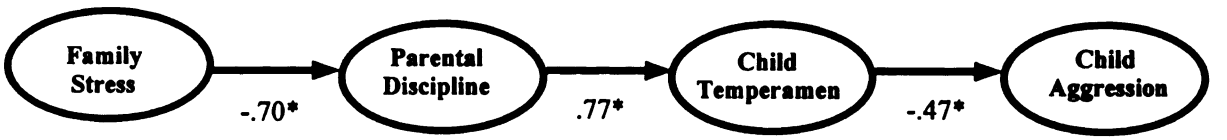
Figure 9. Standardized Path Coefficients of Alternate Model 1.

Consistent with the original hypotheses of family cohesion as a mediator or moderator, alternate models 2-4 were designed to test family cohesion as a mediator or moderator of the effects of family stress on parental discipline. Alternate model 2 tested the direct effects of family stress on parental discipline without taking family cohesion into consideration. Alternate model 3 tested the indirect effects of family stress on parental discipline taking family cohesion into consideration. Alternate model 4 tested the indirect and direct effects of family stress

on parental discipline taking family cohesion into consideration.

All three models represented an acceptable fit to the data. Although the Chi-Square [χ^2 (df = 52, $\underline{N}$ = 260) = 92.70, $\underline{p}$ = .000] was significant for alternate model 2, the GFI (.94) was large and the CFI (.68) and RMSEA (.055) were marginally acceptable. Additionally, the data fit the rule of thumb that an acceptable fit exists if two times the degrees of freedom exceeds the χ^2 [df = 52 x 2 = 104; 104 > 92.70]. Taken together, the fit indices provide evidence for an adequate fit between the model and the data.

The standardized path coefficients for alternate model 2 are presented in Figure 10. Relationships in the model are all in the expected direction and all paths were found significant. Family stress indirectly affected child aggressive behaviors. Increased family stress resulted in decreased use of positive parenting practices (standardized coefficient = -.70). Positive parenting practices predicted more adaptive child temperament (standardized coefficient = .77). In turn, adaptive child temperament predicted lower levels of aggressive behavior (standardized coefficient = -.47). The results indicate that parental discipline and child temperament are potential buffers of family stress effects on child aggression.



*Significant path

Figure 10. Standardized Path Coefficients of Alternate Model 2.

Alternate model 3 also resulted in a significant Chi-Square [χ^2 (df = 74, $\underline{N}$ = 260) = 132.16, $\underline{p}$ = .000] However, the GFI (.93) was large and the CFI (.66) and RMSEA (.055) were marginally acceptable. Additionally, two times the degrees of freedom exceeded the χ^2 [df = 74 x 2 = 148; 148 > 132.16]. Therefore, alternate model 3 also represents an adequate fit to the data.

The standardized path coefficients for alternate model 3 are presented in Figure 11; all paths were found significant. The effects of family stress on child aggression were mediated by family cohesion, parental

discipline, and child temperament. Increased family stress resulted in decreased family cohesion (standardized coefficient = -.56). Decreased family cohesion predicted a decrease in the use of positive parental disciplinary practices (standardized coefficient = .79). Use of negative parental disciplinary practices predicted less adaptive child temperament (standardized coefficient = .68). In turn, less adaptive child temperament predicted higher levels of aggressive behavior (standardized coefficient = -.49). The results indicate that family cohesion, parental discipline and child temperament are potential buffers of family stress effects on child aggression.

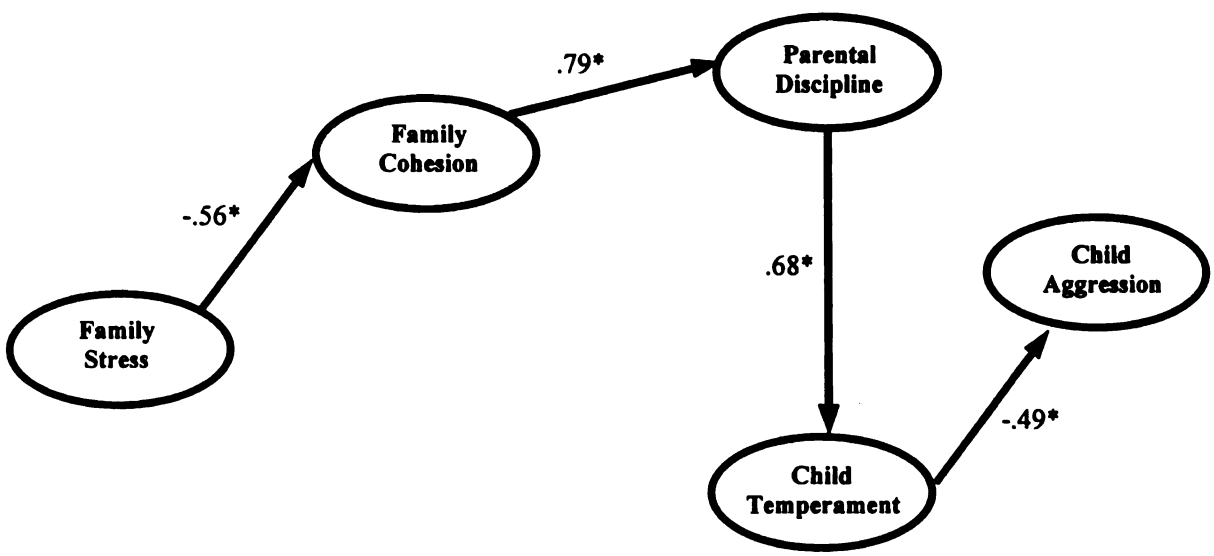


Figure 11. Standardized Path Coefficients of Alternate Model 3.

Alternate model 4 also resulted in a significant Chi-Square [χ^2 (df = 73, $\underline{N}$ = 260) = 121.92, $\underline{p}$ = .000] However, the GFI (.93) was large and the CFI (.72) and RMSEA (.051) were marginally acceptable. Additionally, two times the degrees of freedom exceeded the χ^2 [df = 73 x 2 = 146; 146 > 121.92]. Therefore, alternate model 4 also represents an adequate fit to the data.

The standardized path coefficients for alternate model 4 are presented in Figure 12; all paths were found significant. The effects of family stress on child aggression were mediated by family cohesion, parental discipline, and child temperament. Increased family stress resulted in decreased family cohesion (standardized coefficient = -.47). Decreased family cohesion predicted a decrease in the use of positive parental disciplinary practices (standardized coefficient = .46). Use of negative parental disciplinary practices predicted less adaptive child temperament (standardized coefficient = .73). In turn, less adaptive child temperament predicted higher levels of aggressive behavior (standardized coefficient = -.50). Family stress was also found to have a direct effect on parental disciplinary practices. Namely, that increased stress predicted a decrease in positive parental discipline

(standardized coefficient = -.46). The results indicate that family cohesion, parental discipline and child temperament are potential buffers of family stress effects on child aggression. Although the effects of family stress on parental discipline are mediated by family cohesion, there is still a significant direct effect of family stress on parental discipline.

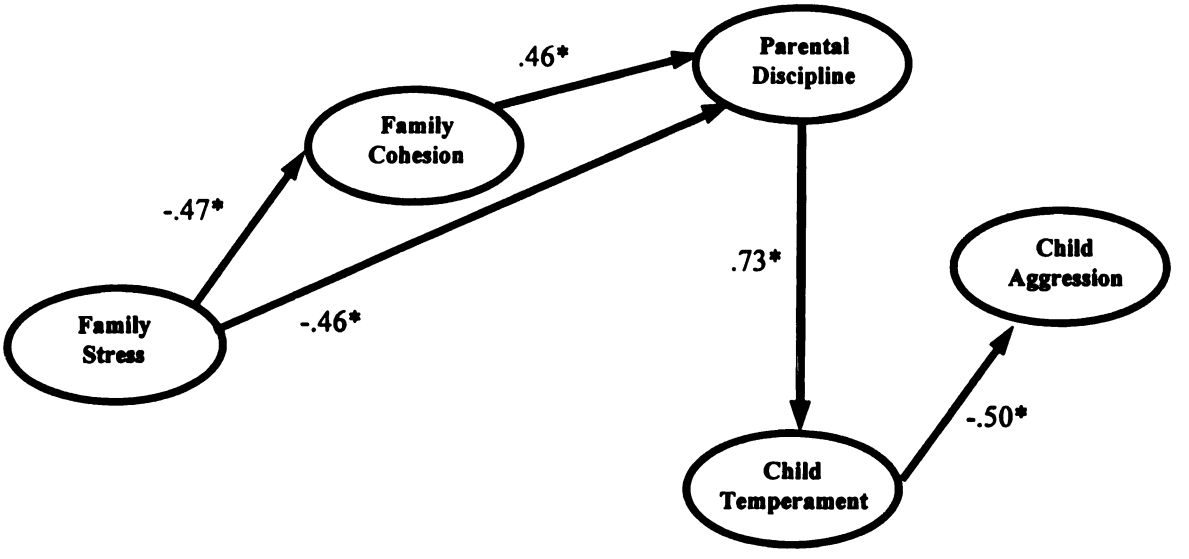


Figure 12. Standardized Path Coefficients of Alternate Model 4.

In order to determine which of the three models best fit the data, Chi-Square comparisons were conducted between the two hierarchically related models (i.e., alternate models 3 and 4). Comparison of models 3 and 4, the two

models that included the family cohesion construct, demonstrated a significantly better fit between alternate model 4 and the data [$\Delta\chi^2(260; 1) = 10.24$, $p < .005$].

Although statistical comparisons of $\Delta\chi^2$ is not possible for alternate models 2 and 4, all fit indices supported model 4 as the best fit to the data.

To further expand upon alternate model 4, alternate models 5-7 were designed to test the effects of child temperament on family stress. The three models were designed like alternate models 2-4, with the addition of a path from child temperament to family stress. Alternate model 5 tested the direct effects of family stress on parental discipline without taking family cohesion into consideration. Alternate model 6 tested the indirect effects of family stress on parental discipline taking family cohesion into consideration. Alternate model 7 tested the indirect and direct effects of family stress on parental discipline taking family cohesion into consideration. All three models included a test of the direct effect of child temperament on family stress.

All three models represented an acceptable fit to the data. Although the Chi-Square [χ^2 (df = 51, N = 260) = 89.31, p = .000] was significant for alternate model 5, the

GFI (.94) was large and the CFI (.70) and RMSEA (.05) were marginally acceptable. Additionally, the data fit the rule of thumb that an acceptable fit exists if two times the degrees of freedom exceeds the χ^2 [df = 51 x 2 = 102; 102 > 89.31]. Taken together, the fit indices provide evidence for an adequate fit between the model and the data.

Alternate model 6 also resulted in a significant Chi-Square [χ^2 (df = 73, $\underline{N}$ = 260) = 120.46, $\underline{p}$ = .000] However, the GFI (.93) was large and the CFI (.73) and RMSEA (.05) were marginally acceptable. Additionally, two times the degrees of freedom exceeded the χ^2 [df = 73 x 2 = 146; 146 > 120.46]. Therefore, alternate model 6 also represents an adequate fit to the data.

Although alternate model 7 resulted in a significant Chi-Square [χ^2 (df = 72, $\underline{N}$ = 260) = 117.64, $\underline{p}$ = .001], the GFI (.94) was large and the CFI (.74) and RMSEA (.049) were acceptable. Additionally, two times the degrees of freedom exceeded the χ^2 [df = 72 x 2 = 144; 144 > 117.64]. Therefore, alternate model 7 represents an adequate fit to the data.

In order to determine which of the three models best fit the data, Chi-Square comparisons were conducted between the two hierarchically related models (i.e., alternate

models 6 and 7). Comparison of models 6 and 7, the two models that included the family cohesion construct, demonstrated a significantly better fit between alternate model 7 and the data [$\Delta\chi^2$ (260; 1) = 2.82, $p < .010$].

Although statistical comparisons of $\Delta\chi^2$ is not possible for alternate models 5 and 7, all fit indices supported model 7 as the best fit to the data. Therefore, this series of models, like alternate models 2-4 demonstrated that family cohesion does play a significant role in mediating the effects of family stress on child aggression. Additionally, this series of models demonstrated that child temperament directly impacts family stress. The standardized path coefficients for alternate model 7 are presented in Figure 13. All paths were found significant except the direct effect of family stress on child discipline.

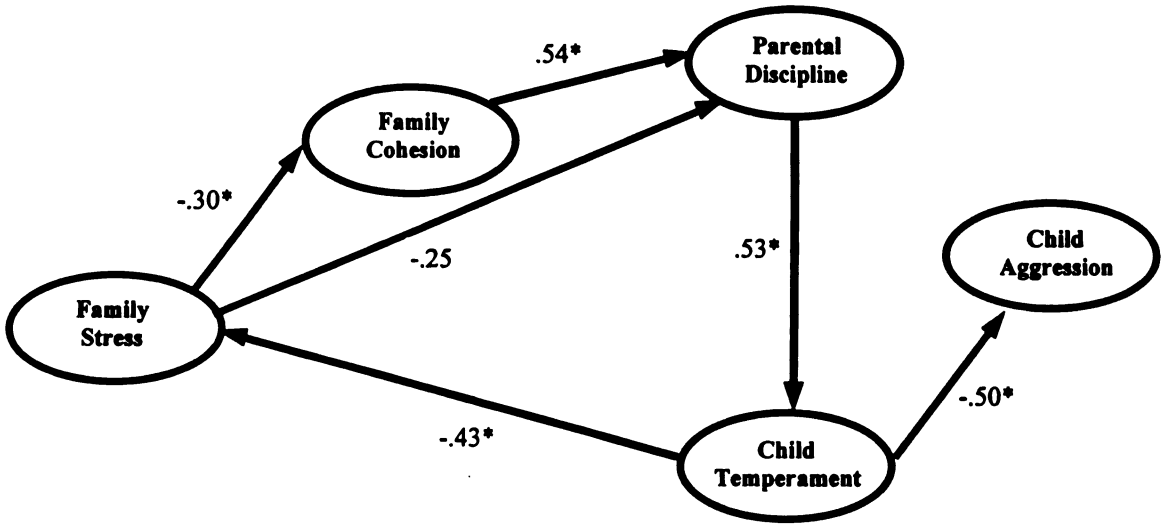


Figure 13. Standardized Path Coefficients of Alternate Model 7

Chi-square comparison of the two best alternate models (i.e., alternate models 4 and 7), demonstrated a significantly better fit between alternate model 7 and the data [$\Delta\chi^2(260; 1) = 4.28$, $p < .005$]. In other words, adding the path from child temperament to family stress significantly improved the model's fit.

There is an interesting debate in the extant literature about the nature of the relationship between parental discipline and child temperament. Many researchers have concluded that the relationship is most likely bi-directional (Gottlieb, 1991; Lerner & Lerner, 1987;

Schneirla, 1959). In an attempt to assess the bi-directionality of effects between child temperament and parental disciplinary practices, a path was added from temperament to discipline.

Like previous models, alternate model 8 resulted in a significant Chi-Square [χ^2 (df = 71, $\underline{N}$ = 260) = 116.44, $\underline{p}$ = .001], the GFI (.94) was large and the CFI (.74) and RMSEA (.05) were acceptable. Additionally, two times the degrees of freedom exceeded the χ^2 [df = 71 x 2 = 142; 142 > 116.44]. Therefore, alternate model 8 represents an adequate fit to the data.

The standardized path coefficients for alternate model 8 are presented in Figure 14. The direct path from family stress to parental disciplinary practices was non-significant in this model. The effects of family stress on child aggression were mediated by family cohesion and child temperament. Increased family stress resulted in decreased family cohesion (standardized coefficient = -.32). Decreased family cohesion predicted a decrease in the use of positive parental disciplinary practices (standardized coefficient = .52). Use of negative parental disciplinary practices predicted less adaptive child temperament (standardized coefficient = .39). However, this path was

not significant in the current model. Also non-significant was the path from child temperament to parental discipline (standardized coefficient = .23). Less adaptive child temperament predicted higher levels of aggressive behavior (standardized coefficient = -.49) and higher levels of family stress (standardized coefficient = -.49).

The results indicate that family cohesion, parental discipline and child temperament are potential buffers of family stress effects on child aggression. Child temperament is predictive of both child aggression and family stress. The relationship between parental discipline and child temperament appears to be bi-directional but with stronger effects from parental discipline to child temperament.

Chi-square comparison of alternate model 7 and alternate model 8 indicated that both models fit the data equally well [$\Delta\chi^2(260;\ 1) = 1.21$, n.s.]. However, model 8 does provide some insight into the bi-directional relationship between parental disciplinary practices and child temperament.

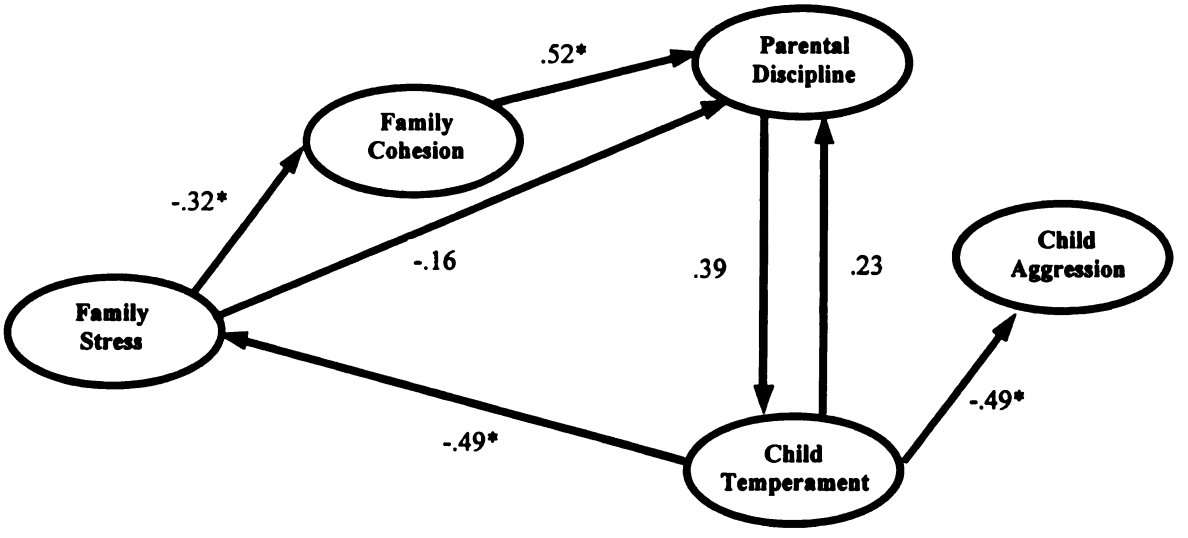


Figure 14. Standardized Path Coefficients of Alternate Model 8.

In summary, the alternate models preserved the statistically significant relationships from the original model. Specifically that Family stress indirectly affected child aggressive behaviors. Increased family stress resulted in decreased use of positive parenting practices. Positive parenting practices predicted more adaptive child temperament. In turn, adaptive child temperament predicted lower levels of aggressive behavior. The results indicate that parental discipline and child temperament are potential buffers of family stress effects on child aggression. Family Stress also predicted a decrease in family cohesion. In addition to preserving the

relationships from the original model, the alternate model demonstrated the role of family cohesion as a mediator of the relationship between family stress and parental discipline. Furthermore, the alternate model identified child temperament as a moderator of the relationship between family stress and parental discipline. Finally, the alternate model demonstrates a bi-directional relationship between parental discipline and child temperament.

Chapter 5

Discussion

Evidence from several studies, including many longitudinal studies, converges to demonstrate that early aggressive behavior is indicative of later aggressive, delinquent, or antisocial behavior (Farrington, 1979; Huesmann et al., 1984; McCord, 1983; Pulkkinen, 1983; Roff, 1992; Stattin & Magnusson, 1989; Tremblay et al., 1992). For instance, predictive of delinquency are high levels of family adversity and punishment and low levels of monitoring or supervision as perceived by the youth (Haapasalo & Trembly, 1994; Laub & Sampson, 1988; McCord, 1983). According to Garmezy (1985), harmonious family interaction is likely to serve as a protective factor against negative outcomes in the face of stress. However, a disharmonious family, alone, is not sufficient to predict aggressive behavior or any other negative childhood outcome (Huesmann, Eron, Lefkowitz, & Walder, 1984; Werner & Smith, 1982).

The primary goal of this investigation was to construct a developmental model to identify the probability of aggressive behavior given a particular set of individual, family, and social conditions. Therefore, this study considered variables that potentially mediate family

stress effects on the development of aggressive child behaviors.

Summary and Discussion of Results

Relationships in the models were all in the expected direction with four paths yielding significant results. Family stress directly predicted family cohesion. Family stress also indirectly affected child aggressive behaviors. Namely, that increased levels of family stress resulted in decreased use of positive parenting practices. Less positive parenting practices predicted less adaptive child temperament. In turn, less adaptive child temperament predicted higher levels of aggressive behavior.

Family Stress

Family stress predicted family cohesion as expected. Campbell (1990) found that higher stressed families were less likely to be cohesive and more likely to use ineffective parenting techniques. Parents plagued by stressors and difficult life circumstances, find it more challenging to provide a supportive environment for their children (McLoyd, 1989).

Family Cohesion

Contrary to findings in the extant literature, family cohesion did not predict aggressive child behavior. Many researchers have found a relationship between family

cohesion and aggressive child behavior problems (Barber & Buehler, 1996; Kliewer & Kung, 1998; Maccoby & Martin, 1983; Mason, Cauce, Gonzales, Hiraga, & Grove, 1994; Pillay, 1998; Roosa et al., 1996; Tolan, Gorman-Smith, Huesmann, & Zelli, 1997). However, the exact mechanism by which family cohesion serves as a buffer is relatively unclear. Because the relationship between family cohesion and child aggression has been a robust finding in other studies, alternate models were created during analyses of these data to determine if family cohesion was mediating other important variables that demonstrated direct or indirect effects on child aggression.

These analyses indicated that family cohesion acted as a mediator of family stress effects on parental disciplinary practices. This is consistent with the findings of Tolan, Gorman-Smith, Huesmann, and Zelli (1997), who found family cohesion to be associated with parental discipline and monitoring styles. In a study of 194, grade school boys living in a high risk neighborhood, Coughlin and Vuchinich (1996) revealed a strong correlation between parent-child relations, measured similarly to typically used family cohesion instruments, and parental disciplinary practices. In perfect agreement with the findings of this study, Belsky (1984) found it likely that

the impact of stress on the child is through its detrimental effect on family cohesion and parenting style. These studies and the results of the current study suggest that the mechanism by which family cohesion acts to impact child behavior may be embedded in its impact on parental disciplinary practices.

Parental Disciplinary Practices

Parental disciplinary practices were indirectly related to child aggression. Other research has reported a relationship between parenting practices and child behavior problems. For example, several studies revealed that ineffective parental discipline in combination with poor parental monitoring is predictive of early childhood conduct problems (Eddy & Fagot, 1991, April; Patterson et al., 1989). Specific findings are that erratic, harsh, physical or inconsistent punishment; poor supervision; parental rejection, indifference, or hostility are all related to childhood and adolescent aggression (Eron et al., 1991; Kazdin, 1987b; Loeber, 1988; McCord, 1990; Patterson et al., 1991; Wisdom, 1989).

This study further clarified the mechanism by which parental disciplinary practices affect child behavior; specifically, through its impact on child temperament. This finding is supported by Maccoby and Martin (1983) who found

that children of parents who used inept parenting styles were less likely to arrive at the stage of successful self-regualtion.

Parent-Child Social Interaction

With respect to the effects of parent-child social interaction, Maccoby (1980) has argued that a number of parent variables are important in reducing the likelihood of child behavior problems. This multifaceted interaction of parent variables includes parental warmth, response contingency, facilitation of self discovery, and sensitivity of control (Baird et al., 1992; Baumrind, 1971; Crandell et al., 1997; Dowdney, 1985; Gardner, 1987; Parpal & Maccoby, 1985a; Pettit & Bates, 1989).

Unfortunately, the current study did not demonstrate the typically reported importance of parent-child social interaction and child behavior. These paths were not found significant in the structural equation model. These findings seem suspect in comparison to the multitude of studies that have reported a significant relationship between parent-child social interaction and child behavior problems. Many of the expected correlational relationships between parent-child social interaction variables and child outcome variables were not found in the current data either. This discrepancy is most likely due to difficulty

in coding the measure of parent-child social interaction used in this study. The difficulty may have arisen from a failure to identify the essential patterns and combinations of exchanges deemed most important to behavioral outcomes. Other researchers have found that it is not the mere frequency of particular parenting behaviors that provide meaning, but the patterns and combinations of behaviors that occur. These dyadic profiles provide insight into the nature and quality of parent-child social interactions (Ainsworth, Blehar, Waters, & Wall, 1978; Baird et al., 1992; Chess, Thomas, & Birch, 1959; Mahoney, Fors, & Wood, 1990).

Although great effort was taken to identify and use a detailed play observation technique, it seems that this attempt was unsuccessful. In view of all facts, it appears that parent-child social interaction was not accurately assessed in this study.

Sex Differences

Consistent with more traditional research, this study found boys to be more aggressive than girls as measured by the Child Behavior Checklist/2-3. Maccoby and Jacklin (1980) contend that sex differences in aggression do not typically emerge until children are school-aged. This study has revealed sex difference in aggression as young as 1-1/2

to 4-1/2 years of age. Several researchers find that sex differences are partially explained by the operational definition of aggression and the setting of the study. Dishion, Patterson, and Kavanagh (1992) discuss the importance of the context in which the child's behavior is being measured. For instance, using the Child Behavior Checklist (Achenbach, 1992), they found girls to show levels of problem behavior equal to that of their male counterparts within the context of the family. However, within the context of the school setting the level of problem behavior of girls was only half that of the boys. Given the fact that the children in this study do not yet attend school, it is most likely that the primary caregiver's responses were based on behavior in the home. According to the current study, at 1-1/2 to 4-1/2 years of age it seems that boys are more aggressive than girls, even in the context of the home environment.

Other evidence suggests that levels of aggressive behavior are similar across sex but differ in content or type of aggression. According to Bjorkqvist, Lagerspetz, and Kaukiainen (1992), males are more likely to participate in physical aggression whereas females are more likely to aggress in less direct ways. That is, males are more likely to hit, kick, or punch others and girls are more likely to

ignore, talk negatively about, or reject others. Also supporting this view is the work of Crick and Grotpeter (1995), who have classified aggression into overt aggression (more typical of boys) and relational aggression (more typical of girls). The current study does not address this issue as some of these behaviors are beyond the developmental level of the subjects in this sample. Furthermore, detailed analyses of sex differences in aggression were not explored. At a future time, such analyses could be conducted with this data to explore potential differences in types of aggressive behavior exhibited in this sample across sexes.

Child Temperament

Child temperament is the only variable in the current study to have a significant direct effect on child aggressive behavior. This relationship has been demonstrated by several other studies and has been found to be quite stable. In Jansen, Fitzgerald, Ham, and Zucker (1995), 3 to 5 year old boys with difficult temperament were more likely to score in the clinical range of total behavior problems than were the boys with more adaptive temperament styles. Similarly, Pettit and Bates (1989) found early difficult temperament in infants to predict both internalizing and externalizing problems through 5

years of age. Difficult temperament style provides particularly powerful prediction of later adjustment problems across settings. For example, data from the New York Longitudinal Study revealed that individual early childhood differences in temperament traits including irregularity, nonadaptability, intensity, and negative mood were related to externalizing problems in late childhood (Chess & Thomas, 1987).

Childhood aggression is typically studied as a precursor to adolescent delinquency (Roff, 1992). Evidence from several studies, including many longitudinal studies, converges to demonstrate that early aggressive behavior is indicative of later aggressive, delinquent, or antisocial behavior (Farrington, 1979; Huesmann et al., 1984; McCord, 1983; Stattin & Magnusson, 1989). For instance, Stattin and Magnusson (1989) claim that aggression in boys aged 10-13 years is highly related to criminal behavior up to age 26.

Given evidence from the current study and other investigations, it is obvious that child temperament plays a critical role in the development of child problem behaviors. Furthermore, the results of other studies indicate that this relationship remains relatively stable across time.

Bi-directional Relationship Between Child Temperament and Parent Disciplinary Practices

Alternate model 8 revealed an interesting bi-directional relationship between child temperament and parental disciplinary practices. Several other researchers have examined the nature of this relationship. The question is, does inept parenting create difficult child temperament or does difficult child temperament frustrate a parent to the point that they become inept at parenting?

Studies of parent-infant relationships have not found infant temperament to impact the quality of caregiver responsiveness (Daniels, Plomin, & Greenhalgh, 1984). Sroufe contends that the quality of attachment security is not impacted by child temperament. Because caregivers are likely to make necessary adaptations to their child's temperament, he calls for an emphasis on these processes instead (as cited in Bates, 1987). It therefore seems that early in a child's life, parents are willing to make the necessary adjustments to remain responsive to the needs of their infant. Perhaps, this explains the general lack of differences observed in parent behavior across the care of infants of various temperament styles.

Despite the sparse evidence to support temperament's impact on infant/caregiver relationships, by two years of

age the influences of temperament become more detectable. Perhaps by this time the parent views the child as more capable of making adjustments to demands. Lee and Bates (1985) found that mothers of difficult sons were less controlling and directive than were mothers of easy sons. Instead of proactive methods of regulation, these mothers resorted to reactive methods. That is, increased use of short and negative verbal exchanges and physical restraint were found to accompany difficult child temperament. In Lee and Bates' study, circular reactions were observed. In other words, the child's behavior problems escalated in response to maternal control and maternal control became more reactive in response to increased behavior problems.

Findings in the current study suggest that there is a reciprocal relationship between child temperament and parent disciplinary practices. Difficult child temperament elicits less positive parenting practices and less positive parenting practices lead to less adaptive child temperament. However, results from alternate model 8, in this study, indicate that the latter is a stronger relationship.

Strengths and Limitations of the Study

Limitations of the Study

A primary limitation of the current study is that the design is not longitudinal. A longitudinal design, beginning in early infancy, would allow a clearer picture of the development and maintenance of aggressive behavior. A longitudinal design could help to clarify causality in complex relationships, such as the bi-directional relationship found between parent disciplinary practices and child temperament. Furthermore, it would be interesting to compare important family constructs across the developmental stages of the child. Perhaps, variables wax and wane in importance depending upon the developmental task specific to the age of the child.

Although with the given sample it would be extremely difficult to utilize a multiple respondent design, the potential benefit may be worth the effort. The primary caregiver was the single respondent in this study. The difficulty in obtaining multiple respondents for this particular sample arose for several reasons. Namely, a large portion of the primary caregivers were single and the children typically had limited exposure to the other parent. Because the children were largely pre-verbal, self response was not an option. The play observation was used

as a way to obtain a more direct and less biased measure of parent-child social interaction style. Because the children were not of school age, the option of teacher response was not available. Many of the subjects were not employed and those who were typically did not use one daycare provider. It is possible that a future study with a similar sample could rely on a grandparent response or response of a close family friend.

In terms of generalizability, it would be necessary to conduct this study on samples with different sample characteristics. The results of this study are generalizable to Black and Hispanic, low social economic status children aged 1-1/2 to 4-1/2 years of age. It would be interesting to compare these results to those of a sample with the same ethnic background but varying social economic status children or to white middle class children.

Another limitation in the current study that may have influenced the results obtained is the measure of parent-child social interaction. It may be that a 15-minute video tapped play session is just not enough time to effectively tap such complex behavior. It is likely that parents were uncomfortable and unnatural in their video tapped play session. It could be that the coding was not as reliable as indicated by our test of reliability. As mentioned earlier,

problems may have arisen as a lack of ability to capture the important patterns of exchanges. In any event, as measured and coded, this variable did not display expected correlational relationships with child outcome variables and there were no significant paths involving this construct in the structural equation model. In view of the fact that other studies have demonstrated the importance of parent-child social interaction in the development of child behavior problems, findings in this study regarding parent-child social interaction should be viewed as suspect.

In sum, there are several ways that the current study may be improved upon for future investigations, however, the results obtained in the present study are meaningful and useful in many respects.

Strengths of the Study

The primary strength of the current study is the uniqueness of the sample. Of the 260 adult subjects, 210 (80.8%) were black; 37 (14.2%) were Hispanic or Latino; 11 (4.2%) were white; one was Asian-Pacific; and one individual classified her ethnic background as other. Subjects were predominately single mothers of low social economic status. Most previous research has been conducted on white middle-class children. The sample of this study, marks a strong contribution to the extant literature.

Children were 1-1/2 to 4-1/2 years of age. This allowed for investigation of problem behaviors at the emergent level. Unless longitudinal in design, results of studies involving adolescence are blurred by a multitude of unrecorded events. In this much of this is overcome by the young age of the children.

Another strength of this study is the number of variables tapped. A battery of instruments was carefully chosen to assess the following variables: child temperament, child problem behavior, parent-child social interaction, parent disciplinary practices, family stress, parent coping, family cohesion, and family demographics. Many studies do not have the resources to conduct such a comprehensive assessment. In addition to the scope of variables examined, this study utilized both questionnaire response and direct observation, thereby providing a rich data set from which to conduct analyses.

Suggestions for Future Research

Future research should focus on a longitudinal design beginning in infancy. From this study, it is obvious that family stress, poor parent disciplinary practices, and difficult child temperament create a strong trajectory toward childhood aggression as early as 1-1/2 years of age. A longitudinal study, beginning in infancy could

potentially uncover the causality of this trajectory. Furthermore, a longitudinal study would help establish the stability of the precursors to aggressive child behavior. Temperament traits are mutable and modifiable but have a tendency to remain relatively stable across time (Lerner & Lerner, 1987). Child aggression has been shown to be highly stable (Baron & Richardson, 1994; Conger & Miller, 1966; Robins, 1966; West & Farrington, 1973). Although there is typically a decrease in the number of aggressive acts over time, aggressive children tend to retain their relative ranking within their peer group (Loeber & Hay, 1997). Knowledge about stability of family stress, family cohesion and parental disciplinary practices could provide a more complete understanding of the relationships in the model.

As discovered in the alternate model, family cohesion did serve to buffer the effects of family stress on parent disciplinary practices. Future hypotheses should include family cohesion as a potential mediator of the effects of family stress. Further examination of the exact meaning and role of family cohesion is strongly suggested.

Also of import to future research is the development and use of instruments to assess aggressive behavior in infancy and early childhood. Careful attention must be

focused on instrument selection in order to tap developmentally appropriate behaviors.

Aggressiveness and related problem behaviors comprise an alarming 30-50% of all child and adolescent clinic referrals (Gilbert, 1957; Herbert, 1978). The link between aggression and negative outcomes warrants sufficient concern to further explore its origins and maintenance. These issues must be better understood in order to create and implement effective methods of prevention and intervention.

Conclusions

The primary goal of this investigation was to construct a developmental model to identify the relationship between family stress and child aggression as mediated by family cohesion, child temperament, parent-child social interaction, parent disciplinary practices, parent coping, family hardiness, and family demographics.

Although there are limitations to this study, the ethnic background of the subjects and findings of a significant trajectory to child aggressive behaviors are important contributions to the literature.

Correlational evidence supported all relationships specified in the hypothesized model. Through structural equation modeling it was discovered that family stress

indirectly affected child aggressive behaviors. Namely, that increased levels of family stress resulted in decreased use of positive parenting practices. Less positive parenting practices predicted less adaptive child temperament. In turn, less adaptive child temperament predicted higher levels of aggressive behavior.

The results indicate that parental discipline and child temperament are potential buffers of family stress effects on child aggression. From this study, it is obvious that family stress, poor parent disciplinary practices, and difficult child temperament create a strong trajectory toward childhood aggression as early as 1-1/2 years of age.

The alternate model demonstrated that family cohesion mediates the deleterious effects of family stress on child behavior and also revealed a bi-directional relationship between parent disciplinary practices and child temperament. Taken together, these findings support the basic tenets of Developmental Systems Theory. Heavily supported by present findings is the notion that meaningful relationships can only be uncovered through the inclusion of multi-level variables and reciprocal processes. Individual, family, and contextual factors must be taken into account in order to obtain an accurate picture of

human dynamics (Bronfenbrenner, 1979; Gottlieb, 1991; Schneirla, 1959; Wachs, 1992).

APPENDICES

APPENDIX A

Human Subjects Approval Letter

MICHIGAN STATE
UNIVERSITY

October 14, 1996

TO: Bertram Stoffelmayr
Dept Of Psychiatry
418 East Fee Hall

RE:

IRB#:	96-572
TITLE:	DETROIT SKILLMAN CHILD EVALUATION STUDY
REVISION REQUESTED:	N/A
CATEGORY:	2-I
APPROVAL DATE:	10/11/96

The University Committee on Research Involving Human Subjects'(UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright

David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Urminda Firlan

OFFICE OF
RESEARCH
AND
GRADUATE
STUDIES

University Committee on
Research Involving
Human Subjects
(UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX 517/432-1171

APPENDIX B

Correlation Matrix of Scaled Scores

Table 5. Correlation Matrix of Scaled Scores.

Cnt.	Variable	Label		1	2	3	4	5	6	7	8	9
1	A01FAM7	Age of Mother	Corr	1.00	.25	-.21	-.03	.05	-.26	-.13	.02	.01
			Sig.	.	.00	.00	.61	.40	.00	.03	.70	.88
2	CE1CHILR	Number of Children in Household	Corr	.25	1.00	.14	-.26	.03	-.15	.08	.01	.05
			Sig.	.00	.	.03	.00	.68	.02	.21	.85	.41
3	CE1ADULT	Number of Adults in Household	Corr	-.21	.14	1.00	-.14	.31	-.10	-.13	.10	.10
			Sig.	.00	.03	.	.02	.00	.12	.04	.10	.12
4	RA02I3AD	Binary Employment	Corr	-.03	-.26	-.14	1.00	.16	.05	-.24	.04	.00
			Sig.	.61	.00	.02	.	.01	.38	.00	.56	1.00
5	A02II3DE	Family Annual Income	Corr	.05	.03	.31	.16	1.00	-.35	-.40	-.16	-.25
			Sig.	.40	.68	.00	.01	.	.00	.00	.01	.00
6	DSINGLE	Binary Never Married	Corr	-.26	-.15	-.10	.05	-.35	1.00	.29	.06	.09
			Sig.	.00	.02	.12	.38	.00	.	.00	.32	.15
7	ZPUBAID	Binary Public Aid	Corr	-.13	.08	-.13	-.24	-.40	.29	1.00	.08	.10
			Sig.	.03	.21	.04	.00	.00	.00	.	.17	.11
8	CE4AGRES	Aggressive Behavior	Corr	.02	.01	.10	.04	-.16	.06	.08	1.00	.69
			Sig.	.70	.85	.10	.56	.01	.32	.17	.	.00
9	CE4DESTR	Destructive Behavior	Corr	.01	.05	.10	.00	-.25	.09	.10	.69	1.00
			Sig.	.88	.41	.12	1.00	.00	.15	.11	.00	.
10	CE4EXT	Externalizing	Corr	.02	.03	.11	.03	-.21	.08	.10	.96	.86
			Sig.	.74	.66	.08	.68	.00	.22	.12	.00	.00
11	CE4OTH	Other Problems	Corr	.08	.02	.14	.04	-.20	.06	-.01	.63	.67
			Sig.	.22	.69	.02	.48	.00	.33	.82	.00	.00
12	MCE4TPS	Total Problem Score	Corr	.08	.05	.11	.02	-.26	.07	.05	.86	.81
			Sig.	.20	.45	.09	.70	.00	.25	.45	.00	.00
13	CE5SOCIA	Sociability	Corr	-.07	-.06	-.04	-.01	.08	-.03	-.04	-.09	-.14
			Sig.	.24	.33	.49	.90	.22	.60	.52	.17	.02

Table 5. (cont'd).

Cnt.	Variable	Label		1	2	3	4	5	6	7	8	9
14	CE5EMOTI	Emotionality	Corr	.04	.02	-.03	-.02	-.13	.12	.20	.37	.24
			Sig.	.54	.72	.68	.75	.03	.06	.00	.00	.00
15	CE5ACTIV	Activity	Corr	-.09	-.14	.08	.00	.14	.08	.09	.06	.02
			Sig.	.14	.03	.23	.95	.02	.22	.17	.30	.71
16	CE5ATTEN	Attention Span-Persistence	Corr	.00	-.10	-.06	.04	.05	.05	-.02	-.17	-.18
			Sig.	.99	.11	.37	.54	.43	.42	.69	.01	.00
17	CE5SOOTH	Soothability	Corr	-.03	-.04	.12	-.05	.13	-.08	-.12	-.17	-.18
			Sig.	.69	.54	.05	.41	.03	.23	.05	.01	.00
18	CE6EXPRE	Express	Corr	.00	-.04	-.04	.05	.14	.03	.01	-.14	-.16
			Sig.	.95	.48	.53	.47	.03	.67	.87	.02	.01
19	CE6COMPL	Comply	Corr	.00	-.03	-.05	-.08	.13	-.02	-.01	-.46	-.43
			Sig.	.95	.68	.42	.22	.04	.79	.88	.00	.00
20	CE6DISRU	Disrupt	Corr	.03	.04	.17	-.02	-.05	-.06	-.09	.41	.27
			Sig.	.63	.48	.01	.75	.42	.32	.13	.00	.00
21	A07COMMS	Communication Standard Score	Corr	-.06	-.07	-.14	-.07	-.03	.14	.10	-.07	-.20
			Sig.	.30	.24	.03	.27	.59	.02	.10	.26	.00
22	A07DLSST	Daily Living Skills Standard Score	Corr	-.05	-.02	-.12	.00	-.08	.10	.05	-.10	-.13
			Sig.	.44	.77	.05	.94	.22	.09	.45	.10	.03
23	A07SOCIS	Socialization Standard Score	Corr	-.14	-.17	-.02	.02	.02	.07	-.01	-.09	-.10
			Sig.	.03	.01	.80	.73	.81	.26	.90	.17	.10
24	A07MOTSS	Motor Skills Standard Score	Corr	-.06	.00	-.01	-.03	.19	-.02	.02	-.11	-.22
			Sig.	.32	.95	.91	.61	.00	.76	.78	.09	.00
25	A07ABSSS	Adaptive Behavior Composite Standard Score	Corr	-.09	-.08	-.10	-.03	.03	.09	.06	-.12	-.21
			Sig.	.13	.20	.13	.63	.58	.14	.33	.05	.00
26	CE8JTACT	Joint Activity	Corr	-.11	-.08	-.05	.10	-.07	-.08	-.05	-.03	-.08
			Sig.	.08	.22	.39	.12	.30	.19	.46	.66	.23
27	CE8GUIDE	Guidance	Corr	-.04	-.05	.00	.16	-.01	-.07	-.08	.04	-.03
			Sig.	.55	.40	.97	.01	.90	.24	.22	.55	.63

Table 5. (cont'd).

Cnt.	Variable	Label		1	2	3	4	5	6	7	8	9
28	CE8EXCHA	Exchange	Corr	-.12	-.08	-.09	.12	-.09	.06	.03	.01	-.04
			Sig.	.06	.19	.13	.06	.17	.36	.63	.82	.57
29	CE8INTRU	Intrusive	Corr	.03	-.10	-.06	.07	-.01	-.09	-.11	.08	.09
			Sig.	.62	.13	.31	.28	.91	.16	.09	.22	.17
30	CE11FHRE	Family Hardiness	Corr	-.01	-.16	-.14	.12	.08	-.09	-.18	-.23	-.25
			Sig.	.86	.01	.03	.05	.17	.16	.00	.00	.00
31	CE12VERB	Verbal Discipline	Corr	-.01	-.09	-.01	.03	.13	-.08	-.09	-.13	-.11
			Sig.	.84	.13	.89	.64	.04	.18	.16	.04	.09
32	CE12BEHA	Behavioral Discipline	Corr	-.07	.03	-.09	-.09	-.28	.11	.13	.13	.18
			Sig.	.26	.67	.14	.17	.00	.08	.03	.04	.00
33	CE12PHYS	Physical Discipline	Corr	-.06	.07	.00	-.03	.02	.06	.18	.14	.09
			Sig.	.33	.26	.94	.68	.79	.33	.00	.02	.16
34	CE13NURT	Nurturing Child Rearing Practices	Corr	-.10	-.09	-.07	.00	.10	.05	-.06	-.18	-.20
			Sig.	.12	.15	.27	.94	.10	.40	.38	.00	.00
35	CE13CON	Disciplinary Consistency	Corr	.02	-.12	.03	.05	.14	-.17	-.24	-.19	-.19
			Sig.	.80	.05	.58	.42	.02	.01	.00	.00	.00
36	CE14FRRE	Family Routines Items	Corr	-.02	-.20	-.07	-.06	-.07	-.07	-.12	-.12	-.10
			Sig.	.72	.00	.27	.33	.29	.25	.04	.05	.10
37	CE15FAME	Sum of Family Environment	Corr	-.01	-.15	-.18	.10	.06	-.19	-.21	-.14	-.18
			Sig.	.82	.02	.00	.09	.35	.00	.00	.03	.00
38	CE16TOTC	Total Cope	Corr	.02	.00	-.11	.09	-.33	.23	.14	.15	.23
			Sig.	.74	.96	.07	.13	.00	.00	.03	.01	.00
39	CE17DLCT	Total Difficult Life Circumstances	Corr	.13	.12	-.10	.04	-.09	-.04	.11	.08	.17
			Sig.	.04	.05	.11	.53	.14	.50	.07	.21	.01

Table 5. (cont'd).

Cnt.	Variable	Label		10	11	12	13	14	15	16	17	18
1	A01FAM7	Age of Mother	Corr	.02	.08	.08	-.07	.04	-.09	.00	-.03	.00
			Sig.	.74	.22	.20	.24	.54	.14	.99	.69	.95
2	CE1CHILR	Number of Children in Household	Corr	.03	.02	.05	-.06	.02	-.14	-.10	-.04	-.04
			Sig.	.66	.69	.45	.33	.72	.03	.11	.54	.48
3	CE1ADULT	Number of Adults in Household	Corr	.11	.14	.11	-.04	-.03	.08	-.06	.12	-.04
			Sig.	.08	.02	.09	.49	.68	.23	.37	.05	.53
4	RA02I3AD	Binary Employment	Corr	.03	.04	.02	-.01	-.02	.00	.04	-.05	.05
			Sig.	.68	.48	.70	.90	.75	.95	.54	.41	.47
5	A02II3DE	Family Annual Income	Corr	-.21	-.20	-.26	.08	-.13	.14	.05	.13	.14
			Sig.	.00	.00	.00	.22	.03	.02	.43	.03	.03
6	DSINGLE	Binary Never Married	Corr	.08	.06	.07	-.03	.12	.08	.05	-.08	.03
			Sig.	.22	.33	.25	.60	.06	.22	.42	.23	.67
7	ZPUBAID	Binary Public Aid	Corr	.10	-.01	.05	-.04	.20	.09	-.02	-.12	.01
			Sig.	.12	.82	.45	.52	.00	.17	.69	.05	.87
8	CE4AGRES	Aggressive Behavior	Corr	.96	.63	.86	-.09	.37	.06	-.17	-.17	-.14
			Sig.	.00	.00	.00	.17	.00	.30	.01	.01	.02
9	CE4DESTR	Destructive Behavior	Corr	.86	.67	.81	-.14	.24	.02	-.18	-.18	-.16
			Sig.	.00	.00	.00	.02	.00	.71	.00	.00	.01
10	CE4EXT	Externalizing	Corr	1.00	.69	.91	-.11	.35	.05	-.18	-.19	-.16
			Sig.	.	.00	.00	.07	.00	.39	.00	.00	.01
11	CE4OTH	Other Problems	Corr	.69	1.00	.88	-.15	.28	-.11	-.18	-.10	-.25
			Sig.	.00	.	.00	.02	.00	.09	.00	.12	.00
12	MCE4TPS	Total Problem Score	Corr	.91	.88	1.00	-.19	.35	-.10	-.23	-.18	-.28
			Sig.	.00	.00	.	.00	.00	.10	.00	.00	.00
13	CE5SOCIA	Sociability	Corr	-.11	-.15	-.19	1.00	-.13	.24	.25	.22	.36
			Sig.	.07	.02	.00	.	.04	.00	.00	.00	.00

Table 5. (cont'd).

Cnt.	Variable	Label		10	11	12	13	14	15	16	17	18
14	CE5EMOTI	Emotionality	Corr	.35	.28	.35	-.13	1.00	-.02	-.29	-.35	-.22
			Sig.	.00	.00	.00	.04	.	.81	.00	.00	.00
15	CE5ACTIV	Activity	Corr	.05	-.11	-.10	.24	-.02	1.00	.20	.14	.29
			Sig.	.39	.09	.10	.00	.81	.	.00	.03	.00
16	CE5ATTEN	Attention Span-Persistence	Corr	-.18	-.18	-.23	.25	-.29	.20	1.00	.34	.39
			Sig.	.00	.00	.00	.00	.00	.00	.	.00	.00
17	CE5SOOTH	Soothability	Corr	-.19	-.10	-.18	.22	-.35	.14	.34	1.00	.38
			Sig.	.00	.12	.00	.00	.00	.03	.00	.	.00
18	CE6EXPRE	Express	Corr	-.16	-.25	-.28	.36	-.22	.29	.39	.38	1.00
			Sig.	.01	.00	.00	.00	.00	.00	.00	.00	.
19	CE6COMPL	Comply	Corr	-.48	-.41	-.51	.29	-.45	.12	.37	.49	.70
			Sig.	.00	.00	.00	.00	.00	.06	.00	.00	.00
20	CE6DISRU	Disrupt	Corr	.39	.30	.37	-.12	.17	-.02	-.09	.08	.01
			Sig.	.00	.00	.00	.06	.00	.70	.13	.19	.81
21	A07COMMS	Communication Standard Score	Corr	-.12	-.17	-.16	.14	-.03	.08	.28	.00	.34
			Sig.	.05	.01	.01	.03	.68	.19	.00	1.00	.00
22	A07DLSST	Daily Living Skills Standard Score	Corr	-.12	-.10	-.15	.15	-.13	.08	.26	.13	.35
			Sig.	.05	.10	.02	.02	.03	.20	.00	.04	.00
23	A07SOCIS	Socialization Standard Score	Corr	-.10	-.08	-.13	.23	-.09	.18	.28	.21	.36
			Sig.	.11	.22	.04	.00	.16	.00	.00	.00	.00
24	A07MOTSS	Motor Skills Standard Score	Corr	-.16	-.13	-.21	.20	-.17	.29	.25	.31	.37
			Sig.	.01	.04	.00	.00	.00	.00	.00	.00	.00
25	A07ABSSS	Adaptive Behavior Composite Standard Score	Corr	-.16	-.16	-.21	.23	-.14	.21	.35	.21	.46
			Sig.	.01	.01	.00	.00	.02	.00	.00	.00	.00
26	CE8JTACT	Joint Activity	Corr	-.05	-.04	-.04	.09	-.02	-.01	.00	.03	.08
			Sig.	.45	.47	.52	.14	.80	.83	.95	.65	.19
27	CE8GUIDE	Guidance	Corr	.02	-.02	.02	-.06	.02	-.09	-.03	-.08	.00
			Sig.	.80	.78	.72	.33	.71	.15	.67	.21	.95

Table 5. (cont'd).

Cnt.	Variable	Label		10	11	12	13	14	15	16	17	18
28	CE8EXCHA	Exchange	Corr	.00	-.03	-.02	.11	.03	.02	.08	.01	.19
			Sig.	.96	.67	.80	.07	.60	.72	.22	.90	.00
29	CE8INTRU	Intrusive	Corr	.09	.01	.06	.00	-.06	.03	.02	.10	.11
			Sig.	.17	.86	.32	.97	.33	.58	.71	.12	.06
30	CE11FHRE	Family Hardiness	Corr	-.26	-.23	-.25	.08	-.21	-.05	.12	.01	.20
			Sig.	.00	.00	.00	.22	.00	.47	.05	.86	.00
31	CE12VERB	Verbal Discipline	Corr	-.13	-.15	-.18	.18	-.10	.08	.17	.13	.24
			Sig.	.04	.02	.00	.00	.12	.22	.01	.03	.00
32	CE12BEHA	Behavioral Discipline	Corr	.16	.12	.15	-.02	.06	.06	.06	.07	.06
			Sig.	.01	.05	.02	.80	.33	.36	.37	.27	.36
33	CE12PHYS	Physical Discipline	Corr	.13	.03	.07	-.03	.36	.05	-.10	-.16	-.07
			Sig.	.03	.61	.23	.59	.00	.40	.10	.01	.25
34	CE13NURT	Nurturing Child Rearing Practices	Corr	-.21	-.26	-.25	.11	-.16	.15	.11	.04	.23
			Sig.	.00	.00	.00	.09	.01	.01	.07	.53	.00
35	CE13CON	Disciplinary Consistency	Corr	-.20	-.08	-.14	.16	-.23	.04	.18	.20	.20
			Sig.	.00	.22	.02	.01	.00	.53	.00	.00	.00
36	CE14FRRE	Family Routines Items	Corr	-.13	-.10	-.11	.18	-.31	.08	.24	.31	.29
			Sig.	.04	.11	.08	.00	.00	.18	.00	.00	.00
37	CE15FAME	Sum of Family Environment	Corr	-.16	-.12	-.13	.09	-.20	.09	.13	.16	.11
			Sig.	.01	.05	.04	.15	.00	.14	.04	.01	.09
38	CE16TOTC	Total Cope	Corr	.19	.16	.21	-.12	.21	-.08	-.16	-.23	-.18
			Sig.	.00	.01	.00	.05	.00	.19	.01	.00	.00
39	CE17DLCT	Total Difficult Life Circumstances	Corr	.12	.16	.14	-.02	.23	.01	-.12	-.36	-.22
			Sig.	.06	.01	.02	.75	.00	.84	.06	.00	.00

Table 5. (cont'd).

Cnt.	Variable	Label		19	20	21	22	23	24	25	26	27
1	A01FAM7	Age of Mother	Corr	.00	.03	-.06	-.05	-.14	-.06	-.09	-.11	-.04
			Sig.	.95	.63	.30	.44	.03	.32	.13	.08	.55
2	CE1CHILR	Number of Children in Household	Corr	-.03	.04	-.07	-.02	-.17	.00	-.08	-.08	-.05
			Sig.	.68	.48	.24	.77	.01	.95	.20	.22	.40
3	CE1ADULT	Number of Adults in Household	Corr	-.05	.17	-.14	-.12	-.02	-.01	-.10	-.05	.00
			Sig.	.42	.01	.03	.05	.80	.91	.13	.39	.97
4	RA02I3AD	Binary Employment	Corr	-.08	-.02	-.07	.00	.02	-.03	-.03	.10	.16
			Sig.	.22	.75	.27	.94	.73	.61	.63	.12	.01
5	A02II3DE	Family Annual Income	Corr	.13	-.05	-.03	-.08	.02	.19	.03	-.07	-.01
			Sig.	.04	.42	.59	.22	.81	.00	.58	.30	.90
6	DSINGLE	Binary Never Married	Corr	-.02	-.06	.14	.10	.07	-.02	.09	-.08	-.07
			Sig.	.79	.32	.02	.09	.26	.76	.14	.19	.24
7	ZPUBAID	Binary Public Aid	Corr	-.01	-.09	.10	.05	-.01	.02	.06	-.05	-.08
			Sig.	.88	.13	.10	.45	.90	.78	.33	.46	.22
8	CE4AGRES	Aggressive Behavior	Corr	-.46	.41	-.07	-.10	-.09	-.11	-.12	-.03	.04
			Sig.	.00	.00	.26	.10	.17	.09	.05	.66	.55
9	CE4DESTR	Destructive Behavior	Corr	-.43	.27	-.20	-.13	-.10	-.22	-.21	-.08	-.03
			Sig.	.00	.00	.00	.03	.10	.00	.00	.23	.63
10	CE4EXT	Externalizing	Corr	-.48	.39	-.12	-.12	-.10	-.16	-.16	-.05	.02
			Sig.	.00	.00	.05	.05	.11	.01	.01	.45	.80
11	CE4OTH	Other Problems	Corr	-.41	.30	-.17	-.10	-.08	-.13	-.16	-.04	-.02
			Sig.	.00	.00	.01	.10	.22	.04	.01	.47	.78
12	MCE4TPS	Total Problem Score	Corr	-.51	.37	-.16	-.15	-.13	-.21	-.21	-.04	.02
			Sig.	.00	.00	.01	.02	.04	.00	.00	.52	.72
13	CE5SOCIA	Sociability	Corr	.29	-.12	.14	.15	.23	.20	.23	.09	-.06
			Sig.	.00	.06	.03	.02	.00	.00	.00	.14	.33

Table 5. (cont'd).

Cnt.	Variable	Label		19	20	21	22	23	24	25	26	27
14	CE5EMOTI	Emotionality	Corr	-.45	.17	-.03	-.13	-.09	-.17	-.14	-.02	.02
			Sig.	.00	.00	.68	.03	.16	.00	.02	.80	.71
15	CE5ACTIV	Activity	Corr	.12	-.02	.08	.08	.18	.29	.21	-.01	-.09
			Sig.	.06	.70	.19	.20	.00	.00	.00	.83	.15
16	CE5ATTEN	Attention Span-Persistence	Corr	.37	-.09	.28	.26	.28	.25	.35	.00	-.03
			Sig.	.00	.13	.00	.00	.00	.00	.00	.95	.67
17	CE5SOOTH	Soothability	Corr	.49	.08	.00	.13	.21	.31	.21	.03	-.08
			Sig.	.00	.19	1.00	.04	.00	.00	.00	.65	.21
18	CE6EXPRE	Express	Corr	.70	.01	.34	.35	.36	.37	.46	.08	.00
			Sig.	.00	.81	.00	.00	.00	.00	.00	.19	.95
19	CE6COMPL	Comply	Corr	1.00	-.16	.27	.33	.30	.40	.42	.10	-.05
			Sig.	.	.01	.00	.00	.00	.00	.00	.09	.39
20	CE6DISRU	Disrupt	Corr	-.16	1.00	-.10	-.05	-.02	.03	-.04	.00	-.01
			Sig.	.01	.	.10	.38	.74	.62	.48	.94	.89
21	A07COMMS	Communication Standard Score	Corr	.27	-.10	1.00	.57	.39	.41	.75	.04	-.07
			Sig.	.00	.10	.	.00	.00	.00	.00	.53	.29
22	A07DLSST	Daily Living Skills Standard Score	Corr	.33	-.05	.57	1.00	.55	.50	.82	.06	-.05
			Sig.	.00	.38	.00	.	.00	.00	.00	.31	.41
23	A07SOCIS	Socialization Standard Score	Corr	.30	-.02	.39	.55	1.00	.49	.77	.00	-.14
			Sig.	.00	.74	.00	.00	.	.00	.00	.94	.02
24	A07MOTSS	Motor Skills Standard Score	Corr	.40	.03	.41	.50	.49	1.00	.77	.06	-.17
			Sig.	.00	.62	.00	.00	.00	.	.00	.31	.01
25	A07ABSSS	Adaptive Behavior Composite Standard Score	Corr	.42	-.04	.75	.82	.77	.77	1.00	.05	-.14
			Sig.	.00	.48	.00	.00	.00	.00	.	.40	.02
26	CE8JTACT	Joint Activity	Corr	.10	.00	.04	.06	.00	.06	.05	1.00	.44
			Sig.	.09	.94	.53	.31	.94	.31	.40	.	.00
27	CE8GUIDE	Guidance	Corr	-.05	-.01	-.07	-.05	-.14	-.17	-.14	.44	1.00
			Sig.	.39	.89	.29	.41	.02	.01	.02	.00	.

Table 5. (cont'd).

Cnt.	Variable	Label		19	20	21	22	23	24	25	26	27
28	CE8EXCHA	Exchange	Corr	.13	-.07	.19	.11	.03	.05	.13	.73	.37
			Sig.	.03	.25	.00	.07	.69	.46	.04	.00	.00
29	CE8INTRU	Intrusive	Corr	.07	.08	.04	.07	.03	.06	.07	.09	.07
			Sig.	.26	.22	.49	.24	.63	.37	.24	.15	.24
30	CE11FHRE	Family Hardiness	Corr	.17	-.07	.06	.03	.01	.01	.04	.12	.07
			Sig.	.01	.26	.32	.64	.84	.85	.51	.05	.28
31	CE12VERB	Verbal Discipline	Corr	.23	.07	.04	.05	.13	.18	.14	.01	-.07
			Sig.	.00	.30	.48	.40	.03	.00	.03	.87	.23
32	CE12BEHA	Behavioral Discipline	Corr	.00	.12	.03	.16	.14	.02	.11	-.02	-.06
			Sig.	.95	.06	.66	.01	.02	.79	.07	.70	.37
33	CE12PHYS	Physical Discipline	Corr	-.27	-.03	.14	.06	-.07	-.02	.04	-.08	-.08
			Sig.	.00	.67	.02	.35	.26	.79	.57	.19	.21
34	CE13NURT	Nurturing Child Rearing Practices	Corr	.25	-.17	.10	.01	.04	.11	.09	.05	.02
			Sig.	.00	.01	.10	.86	.49	.09	.14	.43	.77
35	CE13CON	Disciplinary Consistency	Corr	.27	-.03	.00	.07	.20	.06	.10	.11	-.01
			Sig.	.00	.62	.95	.29	.00	.31	.10	.07	.83
36	CE14FRRE	Family Routines Items	Corr	.37	.10	.12	.09	.17	.21	.20	.09	.03
			Sig.	.00	.11	.05	.16	.00	.00	.00	.17	.58
37	CE15FAME	Sum of Family Environment	Corr	.13	-.02	.03	.02	.14	.10	.10	.09	.07
			Sig.	.04	.71	.59	.79	.03	.11	.11	.15	.29
38	CE16TOTC	Total Cope	Corr	-.29	-.03	.08	.03	-.10	-.31	-.10	.01	.15
			Sig.	.00	.66	.23	.58	.11	.00	.11	.90	.01
39	CE17DLCT	Total Difficult Life Circumstances	Corr	-.32	-.08	-.03	-.06	-.19	-.19	-.14	.00	-.05
			Sig.	.00	.19	.63	.35	.00	.00	.02	.96	.46

Table 5. (cont'd).

Cnt.	Variable	Label		28	29	30	31	32	33	34	35	36
1	A01FAM7	Age of Mother	Corr	-.12	.03	-.01	-.01	-.07	-.06	-.10	.02	-.02
			Sig.	.06	.62	.86	.84	.26	.33	.12	.80	.72
2	CE1CHILR	Number of Children in Household	Corr	-.08	-.10	-.16	-.09	.03	.07	-.09	-.12	-.20
			Sig.	.19	.13	.01	.13	.67	.26	.15	.05	.00
3	CE1ADULT	Number of Adults in Household	Corr	-.09	-.06	-.14	-.01	-.09	.00	-.07	.03	-.07
			Sig.	.13	.31	.03	.89	.14	.94	.27	.58	.27
4	RA02I3AD	Binary Employment	Corr	.12	.07	.12	.03	-.09	-.03	.00	.05	-.06
			Sig.	.06	.28	.05	.64	.17	.68	.94	.42	.33
5	A02II3DE	Family Annual Income	Corr	-.09	-.01	.08	.13	-.28	.02	.10	.14	-.07
			Sig.	.17	.91	.17	.04	.00	.79	.10	.02	.29
6	DSINGLE	Binary Never Married	Corr	.06	-.09	-.09	-.08	.11	.06	.05	-.17	-.07
			Sig.	.36	.16	.16	.18	.08	.33	.40	.01	.25
7	ZPUBAID	Binary Public Aid	Corr	.03	-.11	-.18	-.09	.13	.18	-.06	-.24	-.12
			Sig.	.63	.09	.00	.16	.03	.00	.38	.00	.04
8	CE4AGRES	Aggressive Behavior	Corr	.01	.08	-.23	-.13	.13	.14	-.18	-.19	-.12
			Sig.	.82	.22	.00	.04	.04	.02	.00	.00	.05
9	CE4DESTR	Destructive Behavior	Corr	-.04	.09	-.25	-.11	.18	.09	-.20	-.19	-.10
			Sig.	.57	.17	.00	.09	.00	.16	.00	.00	.10
10	CE4EXT	Externalizing	Corr	.00	.09	-.26	-.13	.16	.13	-.21	-.20	-.13
			Sig.	.96	.17	.00	.04	.01	.03	.00	.00	.04
11	CE4OTH	Other Problems	Corr	-.03	.01	-.23	-.15	.12	.03	-.26	-.08	-.10
			Sig.	.67	.86	.00	.02	.05	.61	.00	.22	.11
12	MCE4TPS	Total Problem Score	Corr	-.02	.06	-.25	-.18	.15	.07	-.25	-.14	-.11
			Sig.	.80	.32	.00	.00	.02	.23	.00	.02	.08
13	CE5SOCIA	Sociability	Corr	.11	.00	.08	.18	-.02	-.03	.11	.16	.18
			Sig.	.07	.97	.22	.00	.80	.59	.09	.01	.00

Table 5. (cont'd).

Cnt.	Variable	Label		28	29	30	31	32	33	34	35	36
14	CE5EMOTI	Emotionality	Corr	.03	-.06	-.21	-.10	.06	.36	-.16	-.23	-.31
			Sig.	.60	.33	.00	.12	.33	.00	.01	.00	.00
15	CE5ACTIV	Activity	Corr	.02	.03	-.05	.08	.06	.05	.15	.04	.08
			Sig.	.72	.58	.47	.22	.36	.40	.01	.53	.18
16	CE5ATTEN	Attention Span-Persistence	Corr	.08	.02	.12	.17	.06	-.10	.11	.18	.24
			Sig.	.22	.71	.05	.01	.37	.10	.07	.00	.00
17	CE5SOOTH	Soothability	Corr	.01	.10	.01	.13	.07	-.16	.04	.20	.31
			Sig.	.90	.12	.86	.03	.27	.01	.53	.00	.00
18	CE6EXPRE	Express	Corr	.19	.11	.20	.24	.06	-.07	.23	.20	.29
			Sig.	.00	.06	.00	.00	.36	.25	.00	.00	.00
19	CE6COMPL	Comply	Corr	.13	.07	.17	.23	.00	-.27	.25	.27	.37
			Sig.	.03	.26	.01	.00	.95	.00	.00	.00	.00
20	CE6DISRU	Disrupt	Corr	-.07	.08	-.07	.07	.12	-.03	-.17	-.03	.10
			Sig.	.25	.22	.26	.30	.06	.67	.01	.62	.11
21	A07COMMS	Communication Standard Score	Corr	.19	.04	.06	.04	.03	.14	.10	.00	.12
			Sig.	.00	.49	.32	.48	.66	.02	.10	.95	.05
22	A07DLSST	Daily Living Skills Standard Score	Corr	.11	.07	.03	.05	.16	.06	.01	.07	.09
			Sig.	.07	.24	.64	.40	.01	.35	.86	.29	.16
23	A07SOCIS	Socialization Standard Score	Corr	.03	.03	.01	.13	.14	-.07	.04	.20	.17
			Sig.	.69	.63	.84	.03	.02	.26	.49	.00	.00
24	A07MOTSS	Motor Skills Standard Score	Corr	.05	.06	.01	.18	.02	-.02	.11	.06	.21
			Sig.	.46	.37	.85	.00	.79	.79	.09	.31	.00
25	A07ABSSS	Adaptive Behavior Composite Standard Score	Corr	.13	.07	.04	.14	.11	.04	.09	.10	.20
			Sig.	.04	.24	.51	.03	.07	.57	.14	.10	.00
26	CE8JTACT	Joint Activity	Corr	.73	.09	.12	.01	-.02	-.08	.05	.11	.09
			Sig.	.00	.15	.05	.87	.70	.19	.43	.07	.17
27	CE8GUIDE	Guidance	Corr	.37	.07	.07	-.07	-.06	-.08	.02	-.01	.03
			Sig.	.00	.24	.28	.23	.37	.21	.77	.83	.58

Table 5. (cont'd).

Cnt.	Variable	Label		28	29	30	31	32	33	34	35	36
28	CE8EXCHA	Exchange	Corr	1.00	.05	.07	.00	.09	-.03	.07	.01	.03
			Sig.	.	.40	.26	.96	.17	.60	.29	.82	.58
29	CE8INTRU	Intrusive	Corr	.05	1.00	.00	-.03	.04	-.09	.05	.00	.08
			Sig.	.40	.	1.00	.60	.55	.15	.45	.95	.21
30	CE11FHRE	Family Hardiness	Corr	.07	.00	1.00	.14	-.01	-.27	.33	.26	.30
			Sig.	.26	1.00	.	.03	.83	.00	.00	.00	.00
31	CE12VERB	Verbal Discipline	Corr	.00	-.03	.14	1.00	.15	-.09	.10	.15	.19
			Sig.	.96	.60	.03	.	.01	.14	.11	.02	.00
32	CE12BEHA	Behavioral Discipline	Corr	.09	.04	-.01	.15	1.00	.14	-.07	-.01	.15
			Sig.	.17	.55	.83	.01	.	.03	.24	.85	.02
33	CE12PHYS	Physical Discipline	Corr	-.03	-.09	-.27	-.09	.14	1.00	-.21	-.27	-.38
			Sig.	.60	.15	.00	.14	.03	.	.00	.00	.00
34	CE13NURT	Nurturing Child Rearing Practices	Corr	.07	.05	.33	.10	-.07	-.21	1.00	.16	.24
			Sig.	.29	.45	.00	.11	.24	.00	.	.01	.00
35	CE13CON	Disciplinary Consistency	Corr	.01	.00	.26	.15	-.01	-.27	.16	1.00	.32
			Sig.	.82	.95	.00	.02	.85	.00	.01	.	.00
36	CE14FRRE	Family Routines Items	Corr	.03	.08	.30	.19	.15	-.38	.24	.32	1.00
			Sig.	.58	.21	.00	.00	.02	.00	.00	.00	.
37	CE15FAME	Sum of Family Environment	Corr	.10	.06	.53	.21	.03	-.18	.26	.29	.38
			Sig.	.12	.31	.00	.00	.66	.00	.00	.00	.00
38	CE16TOTC	Total Cope	Corr	.04	.02	-.08	-.12	.21	.06	.00	-.28	-.14
			Sig.	.50	.71	.21	.05	.00	.32	.95	.00	.02
39	CE17DLCT	Total Difficult Life Circumstances	Corr	-.04	.00	-.11	.00	.06	.26	-.11	-.19	-.31
			Sig.	.51	1.00	.07	.99	.30	.00	.08	.00	.00

Table 5. (cont'd).

Cnt.	Variable	Label		37	38	39
1	A01FAM7	Age of Mother	Corr	-.01	.02	.13
			Sig.	.82	.74	.04
2	CE1CHILR	Number of Children in Household	Corr	-.15	.00	.12
			Sig.	.02	.96	.05
3	CE1ADULT	Number of Adults in Household	Corr	-.18	-.11	-.10
			Sig.	.00	.07	.11
4	RA02I3AD	Binary Employment	Corr	.10	.09	.04
			Sig.	.09	.13	.53
5	A02II3DE	Family Annual Income	Corr	.06	-.33	-.09
			Sig.	.35	.00	.14
6	DSINGLE	Binary Never Married	Corr	-.19	.23	-.04
			Sig.	.00	.00	.50
7	ZPUBAID	Binary Public Aid	Corr	-.21	.14	.11
			Sig.	.00	.03	.07
8	CE4AGRES	Aggressive Behavior	Corr	-.14	.15	.08
			Sig.	.03	.01	.21
9	CE4DESTR	Destructive Behavior	Corr	-.18	.23	.17
			Sig.	.00	.00	.01
10	CE4EXT	Externalizing	Corr	-.16	.19	.12
			Sig.	.01	.00	.06
11	CE4OTH	Other Problems	Corr	-.12	.16	.16
			Sig.	.05	.01	.01
12	MCE4TPS	Total Problem Score	Corr	-.13	.21	.14
			Sig.	.04	.00	.02
13	CE5SOCIA	Sociability	Corr	.09	-.12	-.02
			Sig.	.15	.05	.75

Table 5. (cont'd).

Cnt.	Variable	Label		37	38	39
14	CE5EMOTI	Emotionality	Corr	-.20	.21	.23
			Sig.	.00	.00	.00
15	CE5ACTIV	Activity	Corr	.09	-.08	.01
			Sig.	.14	.19	.84
16	CE5ATTEN	Attention Span-Persistence	Corr	.13	-.16	-.12
			Sig.	.04	.01	.06
17	CE5SOOTH	Soothability	Corr	.16	-.23	-.36
			Sig.	.01	.00	.00
18	CE6EXPRE	Express	Corr	.11	-.18	-.22
			Sig.	.09	.00	.00
19	CE6COMPL	Comply	Corr	.13	-.29	-.32
			Sig.	.04	.00	.00
20	CE6DISRU	Disrupt	Corr	-.02	-.03	-.08
			Sig.	.71	.66	.19
21	A07COMMS	Communication Standard Score	Corr	.03	.08	-.03
			Sig.	.59	.23	.63
22	A07DLSST	Daily Living Skills Standard Score	Corr	.02	.03	-.06
			Sig.	.79	.58	.35
23	A07SOCIS	Socialization Standard Score	Corr	.14	-.10	-.19
			Sig.	.03	.11	.00
24	A07MOTSS	Motor Skills Standard Score	Corr	.10	-.31	-.19
			Sig.	.11	.00	.00
25	A07ABSSS	Adaptive Behavior Composite Standard Score	Corr	.10	-.10	-.14
			Sig.	.11	.11	.02
26	CE8JTACT	Joint Activity	Corr	.09	.01	.00
			Sig.	.15	.90	.96
27	CE8GUIDE	Guidance	Corr	.07	.15	-.05
			Sig.	.29	.01	.46

Table 5. (cont'd).

Cnt.	Variable	Label		37	38	39
28	CE8EXCHA	Exchange	Corr	.10	.04	-.04
			Sig.	.12	.50	.51
29	CE8INTRU	Intrusive	Corr	.06	.02	.00
			Sig.	.31	.71	1.00
30	CE11FHRE	Family Hardiness	Corr	.53	-.08	-.11
			Sig.	.00	.21	.07
31	CE12VERB	Verbal Discipline	Corr	.21	-.12	.00
			Sig.	.00	.05	.99
32	CE12BEHA	Behavioral Discipline	Corr	.03	.21	.06
			Sig.	.66	.00	.30
33	CE12PHYS	Physical Discipline	Corr	-.18	.06	.26
			Sig.	.00	.32	.00
34	CE13NURT	Nurturing Child Rearing Practices	Corr	.26	.00	-.11
			Sig.	.00	.95	.08
35	CE13CON	Disciplinary Consistency	Corr	.29	-.28	-.19
			Sig.	.00	.00	.00
36	CE14FRRE	Family Routines Items	Corr	.38	-.14	-.31
			Sig.	.00	.02	.00
37	CE15FAME	Sum of Family Environment	Corr	1.00	-.14	-.25
			Sig.	.	.02	.00
38	CE16TOTC	Total Cope	Corr	-.14	1.00	.34
			Sig.	.02	.	.00
39	CE17DLCT	Total Difficult Life Circumstances	Corr	-.25	.34	1.00
			Sig.	.00	.00	.

APPENDIX C

Scaled Score Item Descriptives

Table 6. Scaled Score Item Descriptives

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
Case Identification								
MSUID	Identification number	260	1008	3453				
GROUP	Group	260	1	3				
Demographics and Other Descriptive Variables								
SURLANG	Survey language	260	1	2	1.09	0.29	2.833	6.074
A01FAM1	Number of residents	260	2	17	4.78	2.01	1.617	6.135
A01FAM2	Number of family members	260	2	10	4.08	1.53	1.045	1.463
A01FAM3	Number of generations	260	2	4	2.36	0.51	0.957	-0.316
A01FAM4	Number of adult females	260	1	4	1.50	0.73	1.473	1.766
A01FAM5	Number of adult males	260	0	3	0.62	0.69	0.965	0.807
A01FAM6	Number of parental adults	260	1	2	1.35	0.48	0.629	-1.614
A01FAM7	Age of mother	260	17	45	26.47	6.01	0.964	0.680
A01CHD9A	Respondent's preschool children (male)	260	0	4	0.74	0.73	0.815	0.917
A01CHD9B	Respondent's preschool children (female)	260	0	3	0.75	0.68	0.591	0.190
A01CHD9C	Respondent's school-age children (male)	260	0	5	0.34	0.65	2.548	10.212
A01CHD9D	Respondent's school-age children (female)	260	0	4	0.32	0.73	2.599	7.066
A01CHD9E	Respondent's teenage children (male)	260	0	2	0.06	0.25	4.541	21.879
A01CHD9F	Respondent's teenage children (female)	260	0	2	0.08	0.31	4.319	19.637
A01CHD9G	Other preschool children cared for (male)	260	0	2	0.07	0.30	5.029	26.150

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
A01CHD9H	Other preschool children cared for (female)	260	0	3	0.08	0.35	5.818	39.308
A01CHD9I	Other school-age children cared for (male)	260	0	2	0.05	0.27	5.538	32.324
A01CHD9J	Other school-age children cared for (female)	260	0	2	0.05	0.24	5.013	27.093
A01CHD9K	Other teenage children cared for (male)	260	0	2	0.03	0.19	6.969	53.607
A01CHD9L	Other teenage children cared for (female)	260	0	2	0.05	0.25	5.521	32.893
CE1CHILR	Number of children in household	260	0	11	2.61	1.60	1.684	4.637
CE1ADULT	Number of adults in household	260	1	6	2.11	0.98	0.763	0.407
CE1KIDRA	Ratio of children to adults	260	0	7	1.49	1.10	1.584	3.397
CE1KIDRO	Ratio of children to adults	259	0	7	1.50	1.10	1.574	3.367
CE1SEXRA	Ratio of men to women	260	0	3	0.50	0.62	1.511	2.983
A02I01DE	Sex of respondent	260	0	1	0.04	0.19	4.828	21.474
A02I02DE	How much school have you completed?	260	1	7	3.12	1.16	0.989	1.241
RA02I02D	Binary less than high school	260	0	1	0.35	0.48	0.646	-1.591
A02I3ADE	Are you employed?	260	1	2	1.58	0.49	-0.345	-1.895
RA02I3AD	Binary employment	260	0	1	0.42	0.49	0.345	-1.895
A02I3CDE	How many hours work per week?	260	0	70	14.62	18.25	0.650	-1.193
A02I04DE	What is ethnic/racial background?	260	1	6	2.01	0.78	2.734	9.927

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
RA02I04D	Binary black	260	0	1	0.81	0.39	-1.571	0.470
A02I05DE	What is your child's ethnic racial background?	260	1	6	1.99	0.78	3.052	12.531
A02I06DE	Language used in your home?	260	1	3	1.11	0.33	3.150	9.867
A02II1A	Current marital status?	260	1	6	2.13	1.17	1.858	3.538
A02II2A	Are you a member of a church, mosque, temple, or synagogue?	260	1	2	1.41	0.49	0.371	-1.872
A02II2B	How often do you go there to pray or worship?	260	1	9	5.05	3.28	0.206	-1.697
A02II3DE	Family's total yearly income?	260	1	6	3.43	1.83	0.136	-1.361
A02II4DE	Do you receive any sort of public aid such as ADC or food stamps?	260	1	2	1.46	0.50	0.158	-1.983
A02II5DE	Do you have Medicaid or Medicare health insurance?	260	1	2	1.27	0.44	1.060	-0.874
A02II6DE	Do you have private health insurance such Blue Cross?	260	1	2	1.49	0.50	0.022	-2.011
A02II3AD	Adjusted annual family income	260	2500	30000	15211	9942	0.278	-1.264
DSINGLE	Binary never married	260	0	1	0.58	0.49	-0.324	-1.906
ZPUBAID	Binary public aid	260	0	1	0.54	0.50	-0.158	-1.983
	Child Behavior Checklist							
*A0401CB	Aches or pains (without medical cause)	260	0	2	0.08	0.35	4.423	19.495
*A0402CB	Acts too young for age	258	0	2	0.15	0.43	2.936	8.214
*A0403CB	Afraid to try new things	260	0	2	0.22	0.45	1.830	2.482

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
*A0404CB	Avoids looking others in the eye	260	0	2	0.15	0.42	2.816	7.581
A0405DB	Can't concentrate, can't pay attention for long	260	0	2	0.26	0.54	1.988	2.997
*A0406CB	Can't sit still or restless	260	0	2	1.08	0.85	-0.147	-1.598
*A0407CB	Can't stand having things out of place	260	0	2	0.30	0.57	1.794	2.180
*A0408CB	Can't stand waiting; wants everything now	260	0	2	1.10	0.84	-0.183	-1.560
A0409DB	Chews on things that aren't edible	260	0	2	0.52	0.73	1.033	-0.385
*A0410CB	Clings to adults or too dependent	260	0	2	0.70	0.81	0.610	-1.219
*A0411CB	Constantly seeks help	260	0	2	0.50	0.71	1.057	-0.259
*A0412CB	Constipated, dosen't move bowels	259	0	2	0.11	0.42	3.832	13.705
*A0413CB	Cries a lot	260	0	2	0.64	0.76	0.715	-0.926
A0414DB	Cruel to animals	260	0	2	0.17	0.47	2.823	7.238
A0415AG	Defiant	260	0	2	0.43	0.61	1.106	0.174
A0416AG	Demands must be met immediately	260	0	2	0.78	0.83	0.438	-1.418
A0417DB	Destroys his her own things	260	0	2	0.32	0.60	1.754	1.889
A0418DB	Destroys things belonging to his her family or other children	260	0	2	0.30	0.61	1.904	2.326
*A0419CB	Diarrhea or loose bowels when not sick	260	0	2	0.05	0.23	5.300	30.469

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
A0420AG	Disobedient	260	0	2	0.71	0.66	0.405	-0.759
*A0421CB	Disturbed by any change in routine	260	0	2	0.27	0.52	1.823	2.465
*A0422CB	Doesn't want to sleep alone	260	0	2	0.48	0.75	1.196	-0.159
*A0423CB	Doesn't answer when people talk to him her	260	0	2	0.26	0.54	1.956	2.915
*A0424CB	Doesn't eat well	260	0	2	0.20	0.51	2.591	5.729
*A0425CB	Doesn't get along with other children	260	0	2	0.16	0.45	2.944	8.048
*A0426CB	Doesn't know how to have fun, acts like a little adult	260	0	2	0.13	0.43	3.476	11.427
*A0427CB	Doesn't seem to feel guilty after misbehaving	260	0	2	0.30	0.57	1.743	2.004
*A0428CB	Doesn't want to go out of home	260	0	2	0.08	0.32	4.501	20.976
A0429AG	Easily frustrated	260	0	2	0.72	0.74	0.503	-1.035
A0430AG	Easily jealous	260	0	2	1.02	0.82	-0.036	-1.501
A0431DB	Eats or drinks things that are not food- not including sweets	260	0	2	0.09	0.37	4.234	17.565
*A0432CB	Fears certain animals, situations, or places	260	0	2	0.38	0.65	1.455	0.829
*A0433CB	Feelings are easily hurt	260	0	2	1.08	0.78	-0.142	-1.338
*A0434CB	Gets hurt a lot, accident prone	260	0	2	0.38	0.64	1.460	0.873
A0435AG	Gets in many fights	260	0	2	0.31	0.61	1.808	1.994
A0436DB	Gets into everything	260	0	2	1.31	0.79	-0.609	-1.155

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
*A0437CB	Gets too upset when seperated from parents	260	0	2	0.47	0.70	1.167	-0.013
*A0438CB	Has trouble getting to sleep	260	0	2	0.21	0.52	2.429	4.934
*A0439CB	Headaches (without medical cause)	260	0	1	0.02	0.12	7.921	61.209
A0440AG	Hits others	260	0	2	0.50	0.72	1.099	-0.230
*A0441CB	Holds his her breath	260	0	2	0.05	0.29	5.718	33.485
A0442DB	Hurts animals or people without meaning to	260	0	2	0.06	0.27	4.778	24.493
*A0443CB	Looks unhappy without good reason	260	0	2	0.08	0.33	4.205	18.284
A0444AG	Angry moods	260	0	2	0.59	0.75	0.826	-0.745
*A0445CB	Nausea, feels sick (without medical cause)	260	0	2	0.02	0.16	9.477	98.010
*A0446CB	Nervous movements or twitching	260	0	2	0.02	0.16	9.477	98.010
*A0447CB	Nervous, high strung, or tense	260	0	2	0.04	0.22	5.624	34.520
*A0448CB	Nightmares	260	0	2	0.20	0.46	2.333	4.842
*A0449CB	Overeating	260	0	2	0.12	0.41	3.675	13.011
*A0450CB	Overtired	260	0	2	0.10	0.35	3.954	15.855
*A0451CB	Overweight	260	0	2	0.05	0.27	5.821	35.601
*A0452CB	Painful bowel movements	260	0	2	0.04	0.21	6.000	39.487
*A0453CB	Physically attacks people	260	0	2	0.09	0.31	3.666	13.906
*A0454CB	Picks nose, skin or other parts of body	260	0	2	0.37	0.67	1.542	0.976

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
*A0455CB	Plays with own sex parts too much	260	0	2	0.22	0.54	2.459	4.865
*A0456CB	Poorly coordinated or clumsy	259	0	2	0.16	0.46	2.980	8.139
*A0457CB	Problems with eyes without medical cause	258	0	1	0.02	0.12	7.889	60.709
A0458AG	Punishment doesn't change his her behavior	260	0	2	0.33	0.61	1.641	1.525
A0459DB	Quickly shifts from one activity to another	260	0	2	1.04	0.81	-0.070	-1.469
*A0460CB	Rashes or other skin problems (without medical cause)	259	0	2	0.10	0.37	3.822	14.547
*A0461CB	Refuses to eat	260	0	2	0.18	0.45	2.515	5.790
*A0462CB	Refuses to play active games	260	0	2	0.09	0.32	3.549	12.946
A0463DB	Repeatedly rocks head or body	260	0	2	0.08	0.35	4.770	22.146
*A0464CB	Resists going to bed at night	258	0	2	0.43	0.62	1.133	0.210
*A0465CB	Resists toilet training	260	0	2	0.38	0.69	1.562	0.882
A0466AG	Screams a lot	260	0	2	0.66	0.80	0.688	-1.103
*A0467CB	Seems unresponsive to affection	260	0	2	0.09	0.37	4.357	18.579
*A0468CB	Self-conscious or embarrassed	260	0	2	0.23	0.51	2.215	4.068
A0469AG	Selfish or won't share	260	0	2	0.58	0.67	0.749	-0.557
*A0470CB	Shows little affection toward people	260	0	2	0.15	0.44	3.126	9.156
*A0471CB	Shows little interest in things around him her	260	0	2	0.15	0.48	3.191	9.025
*A0472CB	Shows too little fear of getting hurt	260	0	2	0.36	0.68	1.616	1.120

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (Cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
*A0473CB	Shy or timid	260	0	2	0.57	0.67	0.748	-0.540
*A0474CB	Sleeps less than most children during the day and or night	251	0	2	0.08	0.32	4.086	17.477
A0475DB	Smears or plays with bowel movements	260	0	2	0.04	0.23	6.590	46.636
*A0476CB	Speech problems	260	0	2	0.11	0.40	3.859	14.358
*A0477CB	Stares into space or seems preoccupied	260	0	2	0.10	0.35	3.611	13.328
*A0478CB	Stomach aches or pains (without medical cause)	259	0	2	0.03	0.18	7.601	63.751
*A0479CB	Stores up things he she doesn't need	259	0	2	0.10	0.36	3.727	14.037
*A0480CB	Strange behavior	259	0	2	0.05	0.23	5.289	30.336
*A0481CB	Stubborn, sullen, or irritable	260	0	2	0.88	0.78	0.213	-1.343
A0482AG	Sudden changes in moods or feelings	260	0	2	0.37	0.62	1.435	0.922
*A0483CB	Sulks a lot	260	0	2	0.43	0.64	1.218	0.332
*A0484CB	Talks or cries out in sleep	260	0	2	0.30	0.58	1.813	2.171
A0485AG	Temper tantrums or hot temper	260	0	2	0.75	0.79	0.477	-1.253
*A0486CB	Too concerned with neatness or cleanliness	260	0	2	0.13	0.39	3.050	9.153
*A0487CB	Too fearful or anxious	260	0	2	0.15	0.43	3.076	8.969
*A0488CB	Uncooperative	260	0	2	0.38	0.60	1.352	0.778
*A0489CB	Underactive, slow moving or lacks energy	259	0	2	0.02	0.15	10.878	127.199

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
*A0490CB	Unhappy, sad, or depressed	260	0	1	0.04	0.19	4.828	21.474
A0491AG	Unusually loud	260	0	2	0.57	0.77	0.926	-0.698
*A0492CB	Upset by new people or situations	260	0	2	0.14	0.41	3.072	9.193
*A0493CB	Vomiting, throwing up (without medical cause)	260	0	2	0.02	0.16	9.477	98.010
*A0494CB	Wakes up often at night	260	0	2	0.17	0.44	2.614	6.332
*A0495CB	Wanders away from home	260	0	2	0.04	0.22	5.624	34.520
*A0496CB	Wants a lot of attention	260	0	2	0.97	0.89	0.068	-1.749
A0497AG	Whining	260	0	2	0.90	0.76	0.162	-1.238
*A0498CB	Withdrawn, doesn't get involved with others	260	0	2	0.06	0.28	5.060	27.046
*A0499CB	Worrying	260	0	2	0.04	0.25	6.484	43.768
*A04100CB	Any other problems that are not listed above?	258	0	2	0.03	0.25	7.406	54.146
*CE4ANXIE	CBC Anxious/Depressed	260	0	16	4.42	3.13	1.035	1.129
*CE4WITHD	CBC Withdrawn	260	0	20.462	2.97	3.20	1.977	5.241
*CE4SLEEP	CBC Sleep Problems	260	0	13	1.89	2.19	1.728	3.830
*CE4SOMAT	CBC Somatic Problems	260	0	11	1.60	2.00	1.592	2.776
CE4AGRES	CBC Agressive Behavior	260	0	28	9.22	5.51	0.768	0.432
CE4DESTR	CBC Destructive Behavior	260	0	14	4.18	2.90	1.094	1.553
*CE4INT	CBC Internalizing	260	0	33.462	7.39	5.78	1.596	3.305
CE4EXT	CBC Externalizing	260	0	39	13.40	7.80	0.884	0.678
*CE4OTH	CBC Other problems	260	0	27	7.02	4.90	1.080	1.527
*MCE4TPS	Total Problem Score	260	0	84	27.80	16.46	1.116	1.249

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
	The Colorado Temperament Inventory							
A0501SO	Child makes friends easily	260	1	5	4.45	0.90	-1.789	3.024
A0502SO	Child is very friendly with strangers	260	1	5	3.70	1.41	-0.708	-0.843
A0503SO	Child is very sociable	260	1	5	4.23	1.06	-1.257	0.745
RA0504SO	Child takes a long time to warm up to strangers	260	1	5	2.75	1.38	0.191	-1.206
**RA0505SO	Child tends to be shy	260	1	5	3.39	1.23	-0.307	-0.829
A0506EM	Child gets upset easily	260	1	5	2.80	1.45	0.139	-1.361
A0507EM	Child tends to be somewhat emotional	260	1	5	2.70	1.36	0.091	-1.308
A0508EM	Child reacts intensly when upset	260	1	5	3.00	1.44	-0.100	-1.360
A0509EM	Child cries easily	260	1	5	2.54	1.42	0.416	-1.204
A0510EM	Child often fusses and cries	260	1	5	2.29	1.35	0.706	-0.750
A0511AT	Child is very energetic	260	2	5	4.82	0.53	-3.203	9.946
A0512AT	Child is always on the go	260	1	5	4.82	0.60	-3.959	17.321
**RA0513AT	Child prefers quiet, inactive games to more active ones	260	1	5	3.39	1.23	-0.307	-0.829
A0514AT	Child is off and running as soon as he she wakes up in the morning	260	1	5	4.53	0.94	-2.118	3.769
RA0515AT	When child moves about, he she usually moves slowly	260	1	5	4.51	1.05	-2.225	4.049
**A0516AS	Child plays with a single toy for long periods of time	260	1	5	2.95	1.37	-0.025	-1.136

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
A0517AS	Child persists at a task until successful	260	1	5	3.98	1.05	-0.925	0.208
**RA0518AS	Child goes from toy to toy quickly	260	1	5	2.25	1.21	0.626	-0.617
RA0519AS	Child gives up easily when difficulties are encountered	260	1	5	3.65	1.21	-0.613	-0.617
RA0520AS	With a difficult toy, child gives up quite easily	260	1	5	3.77	1.20	-0.698	-0.522
A0521SA	Whenever child starts crying, he she can be easily distracted	260	1	5	3.98	1.25	-1.007	-0.181
A0522SA	When upset by an unexpected situation, child quickly calms down	260	1	5	3.70	1.29	-0.671	-0.725
A0523SA	Child stops fussing whenever someone talks to or picks him/her up	260	1	5	4.20	1.08	-1.399	1.261
A0524SA	If talked to, child stops crying	260	1	5	4.18	1.05	-1.366	1.174
A0525SA	Child tolerates frustration well	260	1	5	3.71	1.33	-0.626	-0.924
CE5SOCIA	CTI Sociability	260	1	5	3.91	0.88	-0.547	-0.369
CE5EMOTI	CTI Emotionality	260	1	5	2.67	1.09	0.249	-0.919
CE5ACTIV	CTI Activity	260	1.667	5	4.72	0.55	-2.531	7.043
CE5ATTEN	CTI Attensption span-persistence	260	1	5	3.80	0.94	-0.449	-0.648

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
CE5SOOTH	CTI Soothability	260	1.2	5	3.96	0.93	-0.693	-0.380
	The Adaptive Social Behavior Inventory							
A0601EX	The child: understands others' feelings	260	1	3	2.78	0.47	-1.991	3.241
A0602CO	The child: is helpful to other children	260	1	3	2.70	0.55	-1.681	1.889
A0603CO	The child: Is obedient and compliant	260	1	3	2.37	0.55	-0.109	-0.851
A0604DR	The child: pouts, stamps foot, shrugs shoulders, or frowns when given an idea for a game to play	260	1	3	1.52	0.73	1.039	-0.353
A0605CO	The child: follows rules in games	260	1	3	2.20	0.64	-0.210	-0.647
A0606DR	The child: gets upset when mother doesn't pay enough attention	260	1	3	2.22	0.73	-0.375	-1.065
A0607EX	The child: is symphathetic toward other children's distress, tries to comfort others when they are upset	260	1	3	2.57	0.57	-0.904	-0.175
A0608CO	The child: waits his her turn in games or other activities	260	1	3	1.99	0.66	0.008	-0.710
A0609EX	The child: is open and direct about what he she wants	260	1	3	2.80	0.43	-2.090	3.658

***Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.**

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
A0610CO	The child: cooperates with parents requests	260	1	3	2.51	0.57	-0.652	-0.565
A0611EX	The child: can easily get other children to pay attention to him her	260	1	3	2.53	0.60	-0.866	-0.235
A0612CO	The child: says nice or friendly things to others	260	1	3	2.50	0.71	-1.049	-0.251
A0613EX	The child: will join a group of children playing	260	1	3	2.79	0.45	-2.063	3.561
A0614SB	The child: in social activities, tends to just watch others	260	1	3	1.57	0.74	0.872	-0.653
RA0614EX	The child: in social activities, tends to just watch others	260	1	3	2.43	0.74	-0.872	-0.653
A0615CO	The child: follows household or family rules	260	1	3	2.56	0.57	-0.876	-0.235
A0616EX	The child: says please/thank you	260	1	3	2.60	0.64	-1.355	0.630
A0617EX	The child: asks or wants to go play with other children	260	1	3	2.76	0.53	-2.144	3.644
A0618CO	The child: is calm and easy-going	260	1	3	2.59	0.57	-0.997	-0.002
A0619EX	The child: plays games and talks with other children	260	1	3	2.78	0.45	-1.900	2.783
A0620CO	The child: shares toys or possessions	260	1	3	2.47	0.57	-0.460	-0.784

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
A0610CO	The child: cooperates with parents requests	260	1	3	2.51	0.57	-0.652	-0.565
A0611EX	The child: can easily get other children to pay attention to him her	260	1	3	2.53	0.60	-0.866	-0.235
A0612CO	The child: says nice or friendly things to others	260	1	3	2.50	0.71	-1.049	-0.251
A0613EX	The child: will join a group of children playing	260	1	3	2.79	0.45	-2.063	3.561
A0614SB	The child: in social activities, tends to just watch others	260	1	3	1.57	0.74	0.872	-0.653
RA0614EX	The child: in social activities, tends to just watch others	260	1	3	2.43	0.74	-0.872	-0.653
A0615CO	The child: follows household or family rules	260	1	3	2.56	0.57	-0.876	-0.235
A0616EX	The child: says please/thank you	260	1	3	2.60	0.64	-1.355	0.630
A0617EX	The child: asks or wants to go play with other children	260	1	3	2.76	0.53	-2.144	3.644
A0618CO	The child: is calm and easy-going	260	1	3	2.59	0.57	-0.997	-0.002
A0619EX	The child: plays games and talks with other children	260	1	3	2.78	0.45	-1.900	2.783
A0620CO	The child: shares toys or possessions	260	1	3	2.47	0.57	-0.460	-0.784

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
	The Vineland Adaptive Behavior Scales							
*A07VBATC	Vineland batch ID	260	1	14	7.17	3.88	0.035	-1.186
*A07VINTD	Vineland interview date	260						
*A07BCHIL	Vineland child birth date	260						
*A07SCHIL	Vineland child sex	260	0	1	0.44	0.50	0.234	-1.961
*A07COMMR	Communication raw score	260	25	109	58.28	17.20	-0.029	-1.106
*A07COMMS	Communication standard score	260	54	160	106.67	16.23	-0.106	0.482
*A07DLSRS	Daily living skills raw score	260	26	111	59.49	21.29	0.470	-0.754
*A07DLSST	Daily living skills standard score	260	58	160	110.73	15.17	-0.219	0.343
*A07SOCIR	Socialization raw score	260	26	85	56.88	11.70	0.203	-0.705
*A07SOCIS	Socialization standard score	260	55	160	109.62	15.54	0.128	1.585
*A07MOTRS	Motor skills raw score	260	26	72	49.72	11.21	0.275	-0.802
*A07MOTSS	Motor skills standard score	260	57	160	110.42	16.58	-0.379	0.236
*A07CHIYR	Chronological years	260	1	4	2.15	0.91	0.357	-0.707
*A07CHIMO	Chronological months	260	0	11	5.59	3.88	-0.072	-1.452
*A07COMPR	Communication percentile rank	260	0	100	62.42	29.31	-0.522	-1.000
*A07DLSP	Daily living skills percentile	260	0	100	69.68	26.55	-0.782	-0.498
*A07SOCP	Socialization percentile rank	260	1	100	67.72	26.27	-0.885	-0.164
*A07MSPR	Motor skills percentile rank	260	1	100	69.21	28.69	-0.920	-0.352
*A07ABSP	Adaptive beh composite percentile rank	260	0	100	71.85	27.50	-0.969	-0.206
*A07COMYR	Communication age equiv years	260	1	7	2.53	1.29	0.326	-0.766
*A07DLSY	Daily living skills age equiv years	260	1	6	2.64	1.23	0.626	-0.285

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
*A07SOCY	Socialization age equiv years	260	0	6	2.68	1.15	0.434	-0.565
*A07MSYE	Motor skills age equiv years	260	1	5	2.58	1.17	0.754	-0.285
*A07ABSY	Adaptive beh composite age equiv years	260	1	5	2.66	1.12	0.531	-0.525
*A07COMMO	Communication age equiv months	260	0	11	5.64	3.28	-0.010	-1.157
*A07DLSM	Daily living skills age equiv months	260	0	11	5.74	3.57	-0.033	-1.340
*A07SOCM	Socialization age equiv months	260	0	11	5.19	3.54	0.189	-1.290
*A07MSMO	Motor skills age equiv months	260	0	54	6.42	4.65	4.004	40.793
*A07ABSMO	Adaptive beh composite age equiv months	260	0	11	5.20	3.58	0.103	-1.255
*A07SUMST	Sum of standard scores	260	250	640	437.48	49.74	-0.254	1.625
*A07ABSSS	Adaptive behavior composite standard score	260	57	160	112.55	16.44	-0.313	0.424
*A07CHRON	Chron age of child MONTHS	260	17	53	31.35	9.66	0.552	-0.930
*A07COMAE	Communication age equiv MONTHS	260	14	95	36.01	14.67	0.439	-0.421
*A07DLSAE	DLS age equiv MONTHS	260	18	75	37.43	14.09	0.733	-0.367
*A07SOCAE	Socialization age equiv MONTHS	260	11	72	37.36	13.38	0.507	-0.721
*A07MSAE	Motor skills age equiv MONTHS	260	16	78	37.43	14.45	0.983	0.058
*A07ABSAE	Adaptive behavior composite age equiv MONTHS	260	18	67	37.14	12.89	0.604	-0.776

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
The Parent-Infant Social Interaction Code (video taped play interaction)								
A08VID01	Coder	254	1	6	3.38	1.74	-0.117	-1.321
A08VID02	Tape number	254	1	32	15.26	9.54	0.287	-1.212
A08VID03	Interview number	254	1	14	5.68	3.06	0.122	-0.990
A08VID04	Coding date	230						
A8VIDLAN	Video language	254	1	2	1.11	0.32	2.441	3.989
A8VIDRC	Response Contingency	260	1	20	15.00	4.20	-0.917	0.256
A8VIDDIR	Directiveness	260	4	20	15.85	3.47	-0.973	0.643
A8VIDINT	Intrusiveness	260	0	20	1.64	2.79	3.994	20.389
A8VIDFAC	Facilitation	260	0	20	13.14	4.87	-0.593	-0.419
A8VIDINI	Initiation	260	0	20	12.20	5.54	-0.409	-0.900
A8VIDPAR	Participation	260	16	20	19.82	0.62	-4.296	20.330
**A8VIDSCI	Signal Clarity	260	0	20	5.93	4.22	0.619	0.012
A8VIDICA	Intentional Communicative Acts	260	0	20	9.57	5.18	-0.208	-0.837
A8VIDTC	Theme Continuity	260	0	20	9.57	5.18	-0.208	-0.837
CE8JTACT	Joint Activity	260	16	40	29.39	5.41	-0.324	-0.650
CE8GUIDE	Guidance	260	12	40	29.00	4.68	-0.190	-0.148
CE8EXCHA	Exchange	260	4	58	36.78	11.83	-0.589	-0.210
CE8INTRU	Intrusive	260	0	20	1.64	2.79	3.994	20.389
Family Hardiness								
B1101FH	How true is this the family has a sense of being strong even when facing big problems	260	1	4	3.53	0.62	-1.288	1.897

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
B1103FH	How true is this we don't always agree but can count on each other in times of need	260	1	4	3.57	0.62	-1.323	1.560
**RB1104FH	How true is this we cannot survive another problem	260	1	4	3.68	0.70	-2.433	5.529
B1105FH	How true is this things will work out for the better if we work together	260	1	4	3.75	0.52	-2.340	6.369
B1106FH	How true is this we strive together and help each other no matter what	260	1	4	3.60	0.67	-1.745	2.770
B1107FH	How true is this we listen to each other's problems, hurts, and fears	260	1	4	3.33	0.81	-1.031	0.285
B1108FH	How true is this we work together to solve problems	260	1	4	3.55	0.66	-1.402	1.647
RB1109FH	How true is this most of the unhappy things that happen are due to bad luck	260	1	4	3.26	0.99	-1.176	0.220
RB1110FH	How true is this we realize that our lives are controlled by accidents and luck	260	1	4	3.29	0.96	-1.158	0.188
CE11FHRE	Summed Family Hardiness Score	260	1.375	4	3.49	0.49	-1.212	1.751

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
	Parenting Dimensions Inventory							
**B12A01VD	The child has disobeyed. Would you Let the situation go?	260	1	4	1.43	0.68	1.516	1.747
B12A02BD	The child has disobeyed. Would you Take something away, or add an additional chore?	260	1	4	1.97	1.14	0.766	-0.916
B12A03BD	The child has disobeyed. Would you Send the child to room or isolate himher in some way?	260	1	4	1.63	1.01	1.381	0.469
**B12A04PD	The child has disobeyed. Would you Spank or hit the child?	260	1	4	1.34	0.73	2.301	4.778
**B12A05VD	The child has disobeyed. Would you Talk to child about your reasons?	260	1	4	3.34	0.93	-1.158	0.134
B12A06PD	The child has disobeyed. Would you Scream or yell at the child?	260	1	4	1.64	0.78	1.262	1.421
B12A07VD	The child has disobeyed. Would you Remind the child of the rule or repeat the direction?	260	1	4	3.80	0.54	-2.969	8.747

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
**B12B08VD	The child becomes sassy during disclipline. Would you Let the situation go?	260	1	3	1.04	0.25	6.484	43.768
B12B09BD	The child becomes sassy during disclipline Would you take something away or add an extra chore?	260	1	4	2.53	1.15	0.086	-1.450
B12B10BD	The child becomes sassy during disclipline. Would you send the child to room or isolate himher?	260	1	4	2.33	1.15	0.287	-1.348
B12B11PD	The child becomes sassy during disclipline. Would you spank or hit the child?	260	1	4	1.91	0.98	0.839	-0.350
B12B12VD	The child becomes sassy during disclipline. Would you talk to the child about reasons?	260	1	4	3.75	0.59	-2.568	6.601
B12B13PD	The child becomes sassy during disclipline. Would you scream or yell at the child?	260	1	4	1.79	0.89	0.951	0.065
B12B14VD	The child becomes sassy during disclipline. Would you remind the child of rule or repeat the direction?	260	1	4	3.85	0.47	-3.688	14.791

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
**B12C15VD	The child is caught lying. Would you let the situation go?	260	1	3	1.02	0.20	9.067	85.195
B12C16BD	The child is caught lying. Would you take something away or add an extra chore?	260	1	4	2.65	1.07	-0.054	-1.292
B12C17BD	The child is caught lying. Would you send the child to room or isolate in some way?	260	1	4	2.37	1.11	0.221	-1.297
B12C18PD	The child is caught lying. Would you spank or hit the child?	260	1	4	1.69	0.88	1.204	0.680
B12C19VD	The child is caught lying. Would you talk to che child about reasons?	260	1	4	3.87	0.40	-3.666	15.914
B12C20PD	The child is caught lying. Would you scream or yell at the child?	260	1	4	1.64	0.75	1.093	0.966
B12C21VD	The child is caught lying. Would you remind the child of the rule or repeat the direction?	260	2	4	3.92	0.32	-4.030	16.994
**B12D22VD	The child purposefully hits another with a heavy toy. Would you let the situation go?	260	1	3	1.01	0.14	12.940	175.311

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
B12D23BD	The child purposefully hits another with a heavy toy. Would you take something away or add an extra chore?	260	1	4	3.04	1.02	-0.730	-0.662
B12D24BD	The child purposefully hits another with a heavy toy. Would you send the child to room or isolate himher?	260	1	4	2.88	1.05	-0.443	-1.045
B12D25PD	The child purposefully hits another with a heavy toy. Would you spank or hit the child?	260	1	4	2.53	1.16	0.005	-1.458
B12D26VD	The child purposefully hits another with a heavy toy. Would you talk to the child about reasons?	260	1	4	3.92	0.33	-5.267	32.896
B12D27PD	The child purposefully hits another with a heavy toy. Would you scream or yell at the child?	260	1	4	2.32	1.09	0.173	-1.287
B12D28VD	The child purposefully hits another with a heavy toy. Would you remind the child of rule or repeat the direction?	260	2	4	3.93	0.26	-4.163	18.053
CE12VERB	DC Verbal Discipline	260	2.429	4	3.86	0.27	-2.638	7.257
CE12BEHA	DC Behavioral Discipline	260	1	4	2.43	0.75	0.353	-0.643

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
CE12PHYS	DC Physical Discipline	260	1	4	1.93	0.65	0.590	0.007
	Child Rearing Practices Report							
B1301CPN	You and the child have special and close moments together	260	2	4	3.81	0.46	-2.418	5.289
B1302CPN	You encourage your child to talk about his/her troubles	260	2	4	3.80	0.45	-2.132	3.912
B1303CPN	You make sure the child knows that you appreciate his/her efforts	260	2	4	3.89	0.35	-3.354	11.445
B1304CPN	You hug and kiss your child	260	2	4	3.92	0.30	-3.924	16.139
B1305CPN	You encourage your child to be curious, to explore and question things	260	2	4	3.79	0.45	-1.936	2.943
B1306CPN	You feel that a child should be given comfort and understanding when he/she is scared or upset	260	1	4	3.89	0.39	-4.200	19.987
RB1307CC	Sometimes you can't deal with your child's misbehavior right away, so you just let it go	260	1	4	3.05	0.95	-0.645	-0.586
RB1308CC	Sometimes you just don't have the energy to make your child behave	260	1	4	2.87	1.00	-0.430	-0.907
RB1309CC	Your child can often talk you into letting him/her off easier than you want	260	1	4	3.15	0.92	-0.957	0.138

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
RB1310CC	Your child can get you to change your mind after you have said no to him/her	260	1	4	3.15	0.89	-0.862	-0.006
**B1311CC	Once you decide to deal with your child's misbehavior, you follow through on it	260	1	4	3.43	0.65	-0.968	0.950
CE13CON	Consistency in child rearing practices	260	1	4	3.05	0.72	-0.552	-0.027
CE13NURT	Nurturing child rearing practices	260	2.667	4	3.85	0.25	-2.072	4.477
	Family Routines Inventory							
B1401FR	Adults and children in this household play together	260	1	4	3.62	0.70	-1.664	1.688
**B1402FR	Children do the same things in the morning as soon as they wake up	260	1	4	3.72	0.63	-2.449	5.746
B1403FR	Adults in this household have some time just for talking with the children	260	1	4	3.77	0.56	-2.743	7.835
B1404FR	Children go to bed at the same time at night	260	1	4	3.17	0.86	-0.802	-0.082
B1405FR	Adults and children do something together outside the home	260	1	4	2.49	1.00	0.304	-1.050

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
B1406FR	Adults read or tell stories to the children	260	1	4	2.65	1.07	-0.013	-1.305
B1407FR	Children have special things they do or ask for at bedtime	260	1	4	3.39	0.97	-1.408	0.656
B1408FR	Each adult helps in taking care of the children	260	1	4	3.90	0.47	-4.974	25.307
**B1409FR	At least some of the family eats breakfast together in the morning	260	1	4	3.42	0.92	-1.425	0.837
B1410FR	Family eats about the same time in the evenings	260	1	4	3.25	0.88	-0.883	-0.255
B1411FR	Family has a quiet time	260	1	4	2.52	1.24	0.045	-1.616
B1412FR	The whole family eats dinner together	260	1	4	3.20	0.93	-0.916	-0.170
B1413FR	Family members tell each other when they come in or leave the home	260	1	4	3.78	0.69	-3.283	9.671
B1414FR	The family has certain 'family time' when they do things together at home	260	1	4	2.75	1.06	-0.065	-1.366
**B1415FR	Family regularly visits with relatives	260	1	4	2.44	1.00	0.206	-1.024
**B1416FR	Family goes to some special places together	260	1	4	1.94	0.85	0.677	-0.113
**B1417FR	Adults in this household have a certain hobby/sport they do together regularly	260	1	4	1.77	0.97	1.006	-0.175

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
**B1418FR	Each child has some time during the day for playing alone	260	1	4	2.94	1.29	-0.607	-1.407
CE14FRRE	Sum of Family Routines Items	260	18	48	38.48	5.67	-0.324	-0.101
	Family Environment Scale							
B1501FE	Family members help and support one another	260	0	1	0.94	0.24	-3.670	11.560
RB1502FE	We often seem to be wasting time at home	260	0	1	0.87	0.34	-2.154	2.658
B1503FE	We put a lot of energy into what we do at home	260	0	1	0.88	0.32	-2.422	3.895
B1504FE	There is a feeling of togetherness in our family	260	0	1	0.93	0.25	-3.414	9.728
RB1505FE	We rarely volunteer when something has to be done at home	260	0	1	0.78	0.41	-1.393	-0.061
B1506FE	Family members back each other up	260	0	1	0.93	0.26	-3.300	8.957
RB1507FE	There is very little group spirit in our family	260	0	1	0.84	0.37	-1.889	1.582
B1508FE	We really get along well with each other	260	0	1	0.95	0.22	-4.153	15.370

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
B1509FE	There is plenty of time and attention for everyone in our family	260	0	1	0.92	0.28	-3.002	7.069
CE15FAME	Sum of Family Environment Items	260	1	9	8.04	1.65	-2.167	4.459
	The Cope Inventory							
**B1601UE	Let your feelings out by crying or yelling?	260	1	4	2.48	1.13	0.064	-1.391
B1602UE	Think about the situation in a more positive way?	260	1	4	2.09	1.10	0.544	-1.078
B1603UE	Accept that this happened and that it can't be changed?	260	1	4	1.97	1.05	0.795	-0.588
B1604UE	Find something funny about the situation?	260	1	4	1.49	0.81	1.757	2.445
**B1605UE	Give up trying to reach your goals in the situation?	260	1	4	1.22	0.54	2.815	8.831
B1606UE	Hold back or restrain yourself until the time was right to do something?	260	1	4	2.28	1.14	0.296	-1.324
B1607UE	Make a plan about the best way to deal with the situation?	260	1	4	2.36	1.05	0.260	-1.128
B1608UE	Put aside other activities so you could deal with the situation?	260	1	4	1.95	1.00	0.800	-0.463

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
B1609UE	Take action to get rid of the problems in the situation?	260	1	4	2.21	1.15	0.414	-1.280
B1610UE	Seek spiritual comfort by praying or meditating?	260	1	4	2.53	1.12	-0.043	-1.352
B1611UE	Take your mind off the situation by doing other things?	260	1	4	2.15	1.01	0.431	-0.915
B1612UE	Tell someone your feelings about the situation to get some support?	260	1	4	2.70	1.07	-0.175	-1.236
B1613UE	Get some advice fromsomeone about what to do?	260	1	4	2.55	1.07	0.002	-1.249
B1614UE	Be alone for a period of time?	260	1	4	1.79	0.96	0.961	-0.172
**B1615UE	Help yourself feel better by using drugs?	260	1	3	1.02	0.16	9.477	98.010
**B1616UE	Express your emotions by trying to destroy something or hurt someone?	260	1	3	1.08	0.31	4.171	18.254
B1617UE	Think about the situation as a chance to learn or grow as a person?	260	1	4	2.38	1.02	0.282	-1.034
B1618UE	Decide to learn to live with the situation?	260	1	4	1.83	0.97	0.936	-0.222
B1619UE	Make jokes about the situation?	260	1	4	1.36	0.66	2.020	4.000

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
**B1620UE	Stop your attempts to deal with the situation?	260	1	4	1.30	0.59	2.020	4.006
**B1621UE	Avoid making matters worse by acting too soon?	260	1	4	2.04	1.07	0.605	-0.947
B1622UE	Think hard to come up with a strategy for the situation?	260	1	4	2.24	1.01	0.326	-0.971
B1623UE	Focus on the situation and let other things slide?	260	1	4	1.57	0.77	1.326	1.357
B1624UE	Take direct action to get around the situation?	260	1	4	1.76	0.95	1.047	0.018
B1625UE	Seek God's help or put your trust in a higher power?	260	1	4	2.61	1.15	-0.115	-1.430
B1626UE	Think about other things so you could forget about the situation?	260	1	4	1.78	0.83	0.872	0.111
**B1627UE	Get some understanding or sympathy from someone?	260	1	4	2.09	0.94	0.569	-0.529
B1628UE	Talk to someone who could do something to help you?	260	1	4	2.42	1.00	0.097	-1.048
B1629UE	Get away from everything and everyone so you could deal with this alone?	260	1	4	1.51	0.84	1.562	1.492
**B1630UE	Think about the situation less by drinking alcohol or taking drugs?	260	1	3	1.02	0.17	8.426	78.101

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
CE16TOTC	Total Cope	260	1	3.6364	2.07	0.57	0.439	-0.609
	Difficult Life Circumstances							
B1701LC	Are you having regular arguments or conflicts with the present spousepartner?	260	0	1	0.15	0.36	1.930	1.738
**B1702LC	Are you having some sort of problem with any former spouse partner?	260	0	1	0.11	0.31	2.546	4.516
**B1703LC	Is your partner in jail?	260	0	1	0.03	0.17	5.466	28.092
B1704LC	Is your partner away from home more than half the time because of a job or other reason?	260	0	1	0.18	0.38	1.703	0.907
B1705LC	Do you have long-term debts other than a house mortgage (two years or more)?	260	0	1	0.14	0.35	2.060	2.259
B1706LC	Do you have problems with your credit rating (ie being hassled by bill collectors)?	260	0	1	0.24	0.43	1.235	-0.480
**B1707LC	Have you been looking for a job and have not been able to find one?	260	0	1	0.28	0.45	0.981	-1.045
**B1708LC	Does work interfere with family life?	260	0	1	0.04	0.20	4.574	19.068

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
**B1709LC	Does the partner's work intefere with family life?	260	0	1	0.01	0.11	9.201	83.295
**B1710LC	Do you have trouble with your landlord?	260	0	1	0.08	0.27	3.095	7.638
**B1711LC	Do you have trouble finding a place to live that is suitable and affordable?	260	0	1	0.28	0.45	0.981	-1.045
**B1712LC	Do you have a problem with alcohol or drugs?	260	0	1	0.01	0.09	11.335	127.469
**B1713LC	Does your partner have a problem with alcohol or drugs?	260	0	1	0.05	0.22	4.153	15.370
B1714LC	Does anyone else in the household have a problem with alcohol or drugs?	260	0	1	0.02	0.15	6.390	39.128
**B1715LC	Have you been the victim of a crime in the past year?	260	0	1	0.10	0.30	2.682	5.234
B1716LC	Has your current partner ever physically abused you?	260	0	1	0.03	0.17	5.466	28.092
B1717LC	Has your current partner ever emotionally or verbally abused you?	260	0	1	0.08	0.28	3.002	7.069
B1718LC	Is any other person abusing you sexually, physically, or emotionally?	260	0	1	0.01	0.09	11.335	127.469
**B1719LC	Have you been hospitalized in the past year for any reason?	260	0	1	0.07	0.25	3.414	9.728

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

Table 6. (cont'd).

Variable	Label	N	Min	Max	Mean	SD	Skew	Kurt
**B1720LC	Are you without a phone at your present home?	260	0	1	0.09	0.29	2.833	6.074
B1721LC	Is one of your children experiencing learning or school problems that require consultation?	260	0	1	0.06	0.24	3.670	11.560
B1722LC	Has one of your children been having serious emotional or behavioral problems at home?	260	0	1	0.04	0.20	4.574	19.068
CE17DLCT	Total Difficult Life Circumstances	260	0	8	0.96	1.42	1.857	4.021

*Item not used for scales in structural equation models. **Item dropped following confirmatory factor analysis.

APPENDIX D

Covariance Matrix

Table 7. Covariance Matrix of Scaled Scores.

		1	2	3	4	5	6	7	8
		ce4ext	ce8jtact	ce8excha	ce8intru	ce8guide	ce15fame	ce11fhre	ce13con
1	ce4ext	60.625							
2	ce8jtact	-1.978	29.138						
3	ce8excha	-.307	46.333	139.396					
4	ce8intru	1.864	1.356	1.731	7.739				
5	ce8guide	.563	10.990	20.618	.941	21.781			
6	ce15fame	-2.092	.800	1.893	.287	.500	2.699		
7	ce11fhre	-.973	.323	.400	.000	.153	.426	.236	
8	ce13con	-1.130	.442	.120	-.008	-.046	.345	.090	.512
9	ce13nurt	-.404	.067	.195	.033	.022	.110	.040	.029
10	ce12phys	.677	-.285	-.247	-.163	-.238	-.190	-.086	-.125
11	ce12verb	-.278	.015	.011	-.025	-.095	.093	.018	.029
12	ce5sooth	-1.348	.142	.085	.252	-.339	.250	.005	.134
13	ce5atten	-1.340	-.018	.848	.059	-.117	.198	.055	.119
14	ce5activ	.230	-.039	.142	.053	-.228	.082	-.012	.015
15	ce5emoti	2.996	-.093	.420	-.184	.118	-.361	-.111	-.183
16	ce5socia	-.777	.433	1.153	-.006	-.249	.129	.032	.099
17	ce16totc	.866	.024	.287	.037	.405	-.134	-.022	-.115
18	ce17dlct	1.304	-.024	-.693	.001	-.304	-.575	-.077	-.194

Table 7. (cont'd).

	9	10	11	12	13	14	15	16	17	18
	ce13nurt	ce12phys	ce12verb	ce5sooth	ce5atten	ce5activ	ce5emoti	ce5socia	ce16totc	ce17dlct
1										
2										
3										
4										
5										
6										
7										
8										
9	.064									
10	-.035	.420								
11	.007	-.016	.075							
12	.009	-.094	.034	.869						
13	.027	-.062	.043	.294	.879					
14	.021	.019	.011	.070	.103	.300				
15	-.043	.252	-.029	-.358	-.292	-.009	1.188			
16	.023	-.019	.042	.175	.208	.114	-.125	.765		
17	.001	.023	-.020	-.125	-.088	-.026	.133	-.062	.327	
18	-.039	.238	.000	-.473	-.153	.010	.356	-.025	.274	2.006

APPENDIX E

Summary of Structural Equation Modeling Output

Amos

by James L. Arbuckle

Version 4

1507 E. 53rd Street - #452

Chicago, IL 60615 USA

773-667-8635

Fax: 773-955-6252

http://www.smallwaters.com

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Title:

Summary Amos Output for Models 1 through alternate Model 8

Table 8. Summary of Amos Output Model 1.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	39	129.500	97	0.015	1.335
Saturated model	136	0.000	0		
Independence model	16	324.458	120	0.000	2.704
Zero model	0	2072.000	136	0.000	15.235

Model	RMR	GFI	AGFI	PGFI
Default model	0.993	0.938	0.912	0.669
Saturated model	0.000	1.000		
Independence model	9.792	0.843	0.823	0.744
Zero model	14.149	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.601	0.506	0.857	0.803	0.841
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.808	0.486	0.680
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Table 8. Summary of Amos Output Model 1.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	39	129.500	97	0.015	1.335
Saturated model	136	0.000	0		
Independence model	16	324.458	120	0.000	2.704
Zero model	0	2072.000	136	0.000	15.235

Model	RMR	GFI	AGFI	PGFI
Default model	0.993	0.938	0.912	0.669
Saturated model	0.000	1.000		
Independence model	9.792	0.843	0.823	0.744
Zero model	14.149	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.601	0.506	0.857	0.803	0.841
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.808	0.486	0.680
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	32.500	6.873	66.208
Saturated model	0.000	0.000	0.000
Independence model	204.458	154.746	261.833

Model	FMIN	F0	LO 90	HI 90
Default model	0.500	0.125	0.027	0.256
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.253	0.789	0.597	1.011

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.036	0.017	0.051	0.932
Independence model	0.081	0.071	0.092	0.000

Model	AIC	BCC	BIC	CAIC
Default model	207.500	212.979	454.497	385.366
Saturated model	272.000	291.107	1133.325	892.253
Independence model	356.458	358.706	457.791	429.429
Zero model	2072.000	2072.000	2072.000	2072.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.801	0.702	0.931	0.822
Saturated model	1.050	1.050	1.050	1.124
Independence model	1.376	1.184	1.598	1.385
Zero model	8.000	7.445	8.583	8.000

Model	HOELTER .05	HOELTER .01
Default model	242	265
Independence model	117	127
Zero model	21	23

Execution time summary:

Minimization:	0.220
Miscellaneous:	1.810
Bootstrap:	0.000
Total:	2.030

Table 9. Summary of Amos Output Model 2.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	44	169.760	127	0.007	1.337
Saturated model	171	0.000	0		
Independence model	18	399.678	153	0.000	2.612
Zero model	0	2331.000	171	0.000	13.632

Model	RMR	GFI	AGFI	PGFI
Default model	0.989	0.927	0.902	0.689
Saturated model	0.000	1.000		
Independence model	8.781	0.829	0.808	0.741
Zero model	12.623	0.000	0.000	0.000

DELTA1	RHO1	DELTA2	RHO2

Model	NFI	RFI	IFI	TLI	CFI
Default model	0.575	0.488	0.843	0.791	0.827
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.830	0.478	0.686
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	42.760	12.837	80.765
Saturated model	0.000	0.000	0.000
Independence model	246.678	191.332	309.696

Model	FMIN	F0	LO 90	HI 90
Default model	0.655	0.165	0.050	0.312
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.543	0.952	0.739	1.196

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.036	0.020	0.050	0.956
Independence model	0.079	0.069	0.088	0.000

Model	AIC	BCC	BIC	CAIC
Default model	257.760	264.726	541.606	458.430
Saturated model	342.000	369.075	1445.130	1121.877
Independence model	435.678	438.528	551.797	517.771
Zero model	2331.000	2331.000	2331.000	2331.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.995	0.880	1.142	1.022
Saturated model	1.320	1.320	1.320	1.425
Independence model	1.682	1.468	1.925	1.693
Zero model	9.000	8.412	9.616	9.000

Model	HOELTER .05	HOELTER .01
Default model	236	255
Independence model	119	128
Zero model	23	25

Execution time summary:

Minimization:	0.330
Miscellaneous:	2.080
Bootstrap:	0.000
Total:	2.410

Table 10. Summary of Amos Output Model 3.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	45	169.695	126	0.006	1.347
Saturated model	171	0.000	0		
Independence model	18	399.678	153	0.000	2.612
Zero model	0	2331.000	171	0.000	13.632

Model	RMR	GFI	AGFI	PGFI
Default model	0.991	0.927	0.901	0.683
Saturated model	0.000	1.000		
Independence model	8.781	0.829	0.808	0.741
Zero model	12.623	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.575	0.484	0.840	0.785	0.823
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.824	0.474	0.678
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	43.695	13.700	81.766
Saturated model	0.000	0.000	0.000
Independence model	246.678	191.332	309.696

Model	FMIN	F0	LO 90	HI 90
Default model	0.655	0.169	0.053	0.316
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.543	0.952	0.739	1.196

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.037	0.020	0.050	0.949
Independence model	0.079	0.069	0.088	0.000

Model	AIC	BCC	BIC	CAIC
Default model	259.695	266.820	549.993	464.926
Saturated model	342.000	369.075	1445.130	1121.877
Independence model	435.678	438.528	551.797	517.771
Zero model	2331.000	2331.000	2331.000	2331.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	1.003	0.887	1.150	1.030
Saturated model	1.320	1.320	1.320	1.425
Independence model	1.682	1.468	1.925	1.693
Zero model	9.000	8.412	9.616	9.000

Model	HOELTER .05	HOELTER .01
Default model	234	254
Independence model	119	128
Zero model	23	25

Execution time summary:

Minimization:	1.090
Miscellaneous:	2.310
Bootstrap:	0.000
Total:	3.400

Table 11. Summary of Amos Output Alternate Model 1.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	31	129.676	74	0.000	1.752
Saturated model	105	0.000	0		
Independence model	14	263.774	91	0.000	2.899
Zero model	0	1813.000	105	0.000	17.267

Model	RMR	GFI	AGFI	PGFI
Default model	0.731	0.928	0.899	0.654
Saturated model	0.000	1.000		
Independence model	1.849	0.855	0.832	0.741
Zero model	5.949	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.508	0.395	0.707	0.604	0.678
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.813	0.413	0.551
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	55.676	27.869	91.340
Saturated model	0.000	0.000	0.000
Independence model	172.774	127.942	225.248

Model	FMIN	F0	LO 90	HI 90
Default model	0.501	0.215	0.108	0.353
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.018	0.667	0.494	0.870

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.054	0.038	0.069	0.323
Independence model	0.086	0.074	0.098	0.000

Model	AIC	BCC	BIC	CAIC
Default model	191.676	195.488	383.868	333.057
Saturated model	210.000	222.910	860.973	688.872
Independence model	291.774	293.496	378.571	355.624
Zero model	1813.000	1813.000	1813.000	1813.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.740	0.633	0.878	0.755
Saturated model	0.811	0.811	0.811	0.861
Independence model	1.127	0.953	1.329	1.133
Zero model	7.000	6.481	7.547	7.000

Model	HOELTER .05	HOELTER .01
Default model	190	211
Independence model	113	124
Zero model	19	21

Execution time summary:

Minimization:	0.330
Miscellaneous:	2.250
Bootstrap:	0.000
Total:	2.580

Table 12. Summary of Amos Output Alternate Model 2.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	26	92.699	52	0.000	1.783
Saturated model	78	0.000	0		
Independence model	12	192.458	66	0.000	2.916
Zero model	0	1554.000	78	0.000	19.923

Model	RMR	GFI	AGFI	PGFI
Default model	0.738	0.940	0.911	0.627
Saturated model	0.000	1.000		
Independence model	2.037	0.876	0.854	0.741
Zero model	6.890	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.518	0.389	0.710	0.592	0.678
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.788	0.408	0.534
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	40.699	17.676	71.567
Saturated model	0.000	0.000	0.000
Independence model	126.458	88.678	171.877

Model	FMIN	F0	LO 90	HI 90
Default model	0.358	0.157	0.068	0.276
Saturated model	0.000	0.000	0.000	0.000
Independence model	0.743	0.488	0.342	0.664

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.055	0.036	0.073	0.309
Independence model	0.086	0.072	0.100	0.000

Model	AIC	BCC	BIC	CAIC
Default model	144.699	147.447	301.885	263.277
Saturated model	156.000	164.244	627.556	511.733
Independence model	216.458	217.726	289.005	271.186
Zero model	1554.000	1554.000	1554.000	1554.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.559	0.470	0.678	0.569
Saturated model	0.602	0.602	0.602	0.634
Independence model	0.836	0.690	1.011	0.841
Zero model	6.000	5.520	6.509	6.000

Model	HOELTER .05	HOELTER .01
Default model	196	220
Independence model	116	129
Zero model	17	19

Execution time summary:

Minimization:	0.160
Miscellaneous:	1.650
Bootstrap:	0.000
Total:	1.810

Table 13. Summary of Amos Output Alternate Model 3.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	31	132.158	74	0.000	1.786
Saturated model	105	0.000	0		
Independence model	14	263.774	91	0.000	2.899
Zero model	0	1813.000	105	0.000	17.267

Model	RMR	GFI	AGFI	PGFI
Default model	0.719	0.927	0.897	0.653
Saturated model	0.000	1.000		
Independence model	1.849	0.855	0.832	0.741
Zero model	5.949	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.499	0.384	0.694	0.586	0.663
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.813	0.406	0.539
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	58.158	29.924	94.237
Saturated model	0.000	0.000	0.000
Independence model	172.774	127.942	225.248

Model	FMIN	F0	LO 90	HI 90
Default model	0.510	0.225	0.116	0.364
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.018	0.667	0.494	0.870

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.055	0.040	0.070	0.278
Independence model	0.086	0.074	0.098	0.000

Model	AIC	BCC	BIC	CAIC
Default model	194.158	197.969	386.350	335.539
Saturated model	210.000	222.910	860.973	688.872
Independence model	291.774	293.496	378.571	355.624
Zero model	1813.000	1813.000	1813.000	1813.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.750	0.641	0.889	0.764
Saturated model	0.811	0.811	0.811	0.861
Independence model	1.127	0.953	1.329	1.133
Zero model	7.000	6.481	7.547	7.000

Model	HOELTER .05	HOELTER .01
Default model	187	207
Independence model	113	124
Zero model	19	21

Execution time summary:

Minimization:	0.220
Miscellaneous:	1.750
Bootstrap:	0.000
Total:	1.970

Table 14. Summary of Amos Output Alternate Model 4.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	32	121.921	73	0.000	1.670
Saturated model	105	0.000	0		
Independence model	14	263.774	91	0.000	2.899
Zero model	0	1813.000	105	0.000	17.267

Model	RMR	GFI	AGFI	PGFI
Default model	0.647	0.933	0.903	0.648
Saturated model	0.000	1.000		
Independence model	1.849	0.855	0.832	0.741
Zero model	5.949	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.538	0.424	0.744	0.647	0.717
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.802	0.431	0.575
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	48.921	22.393	83.337
Saturated model	0.000	0.000	0.000
Independence model	172.774	127.942	225.248

Model	FMIN	F0	LO 90	HI 90
Default model	0.471	0.189	0.086	0.322
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.018	0.667	0.494	0.870

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.051	0.034	0.066	0.446
Independence model	0.086	0.074	0.098	0.000

Model	AIC	BCC	BIC	CAIC
Default model	185.921	189.855	384.312	331.863
Saturated model	210.000	222.910	860.973	688.872
Independence model	291.774	293.496	378.571	355.624
Zero model	1813.000	1813.000	1813.000	1813.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.718	0.615	0.851	0.733
Saturated model	0.811	0.811	0.811	0.861
Independence model	1.127	0.953	1.329	1.133
Zero model	7.000	6.481	7.547	7.000

Model	HOELTER .05	HOELTER .01
Default model	200	221
Independence model	113	124
Zero model	19	21

Execution time summary:

Minimization:	0.220
Miscellaneous:	2.090
Bootstrap:	0.000
Total:	2.310

Table 15. Summary of Amos Output Alternate Model 5.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	27	89.312	51	0.001	1.751
Saturated model	78	0.000	0		
Independence model	12	192.458	66	0.000	2.916
Zero model	0	1554.000	78	0.000	19.923

Model	RMR	GFI	AGFI	PGFI
Default model	0.786	0.943	0.912	0.616
Saturated model	0.000	1.000		
Independence model	2.037	0.876	0.854	0.741
Zero model	6.890	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.536	0.399	0.729	0.608	0.697
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.773	0.414	0.539
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	38.312	15.880	68.598
Saturated model	0.000	0.000	0.000
Independence model	126.458	88.678	171.877

Model	FMIN	F0	LO 90	HI 90
Default model	0.345	0.148	0.061	0.265
Saturated model	0.000	0.000	0.000	0.000
Independence model	0.743	0.488	0.342	0.664

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.054	0.035	0.072	0.347
Independence model	0.086	0.072	0.100	0.000

Model	AIC	BCC	BIC	CAIC
Default model	143.312	146.165	306.543	266.450
Saturated model	156.000	164.244	627.556	511.733
Independence model	216.458	217.726	289.005	271.186
Zero model	1554.000	1554.000	1554.000	1554.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.553	0.467	0.670	0.564
Saturated model	0.602	0.602	0.602	0.634
Independence model	0.836	0.690	1.011	0.841
Zero model	6.000	5.520	6.509	6.000

Model	HOELTER .05	HOELTER .01
Default model	200	225
Independence model	116	129
Zero model	17	19

Execution time summary:

Minimization:	0.160
Miscellaneous:	1.600
Bootstrap:	0.000
Total:	1.760

Table 16. Summary of Amos Output Alternate Model 6.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	32	120.458	73	0.000	1.650
Saturated model	105	0.000	0		
Independence model	14	263.774	91	0.000	2.899
Zero model	0	1813.000	105	0.000	17.267

Model	RMR	GFI	AGFI	PGFI
Default model	0.609	0.934	0.904	0.649
Saturated model	0.000	1.000		
Independence model	1.849	0.855	0.832	0.741
Zero model	5.949	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.543	0.431	0.751	0.658	0.725
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.802	0.436	0.582
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	47.458	21.196	81.618
Saturated model	0.000	0.000	0.000
Independence model	172.774	127.942	225.248

Model	FMIN	F0	LO 90	HI 90
Default model	0.465	0.183	0.082	0.315
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.018	0.667	0.494	0.870

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.050	0.033	0.066	0.477
Independence model	0.086	0.074	0.098	0.000

Model	AIC	BCC	BIC	CAIC
Default model	184.458	188.393	382.850	330.400
Saturated model	210.000	222.910	860.973	688.872
Independence model	291.774	293.496	378.571	355.624
Zero model	1813.000	1813.000	1813.000	1813.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.712	0.611	0.844	0.727
Saturated model	0.811	0.811	0.811	0.861
Independence model	1.127	0.953	1.329	1.133
Zero model	7.000	6.481	7.547	7.000

Model	HOELTER .05	HOELTER .01
Default model	202	224
Independence model	113	124
Zero model	19	21

Execution time summary:

Minimization:	0.160
Miscellaneous:	1.810
Bootstrap:	0.000
Total:	1.970

Table 17. Summary of Amos Output Alternate Model 7.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	33	117.642	72	0.001	1.634
Saturated model	105	0.000	0		
Independence model	14	263.774	91	0.000	2.899
Zero model	0	1813.000	105	0.000	17.267

Model	RMR	GFI	AGFI	PGFI
Default model	0.652	0.935	0.905	0.641
Saturated model	0.000	1.000		
Independence model	1.849	0.855	0.832	0.741
Zero model	5.949	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.554	0.436	0.762	0.666	0.736
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.791	0.438	0.582
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	45.642	19.801	79.387
Saturated model	0.000	0.000	0.000
Independence model	172.774	127.942	225.248

Model	FMIN	F0	LO 90	HI 90
Default model	0.454	0.176	0.076	0.307
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.018	0.667	0.494	0.870

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.049	0.033	0.065	0.503
Independence model	0.086	0.074	0.098	0.000

Model	AIC	BCC	BIC	CAIC
Default model	183.642	187.700	388.234	334.145
Saturated model	210.000	222.910	860.973	688.872
Independence model	291.774	293.496	378.571	355.624
Zero model	1813.000	1813.000	1813.000	1813.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.709	0.609	0.839	0.725
Saturated model	0.811	0.811	0.811	0.861
Independence model	1.127	0.953	1.329	1.133
Zero model	7.000	6.481	7.547	7.000

Model	HOELTER .05	HOELTER .01
Default model	205	227
Independence model	113	124
Zero model	19	21

Execution time summary:

Minimization:	0.210
Miscellaneous:	1.930
Bootstrap:	0.000
Total:	2.140

Table 18. Summary of Amos Output Alternate Model 8.

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	34	116.435	71	0.001	1.640
Saturated model	105	0.000	0		
Independence model	14	263.774	91	0.000	2.899
Zero model	0	1813.000	105	0.000	17.267

Model	RMR	GFI	AGFI	PGFI
Default model	0.694	0.936	0.905	0.633
Saturated model	0.000	1.000		
Independence model	1.849	0.855	0.832	0.741
Zero model	5.949	0.000	0.000	0.000

Model	DELTA1 NFI	RHO1 RFI	DELTA2 IFI	RHO2 TLI	CFI
Default model	0.559	0.434	0.764	0.663	0.737
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Default model	0.780	0.436	0.575
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
Default model	45.435	19.721	79.050
Saturated model	0.000	0.000	0.000
Independence model	172.774	127.942	225.248

Model	FMIN	F0	LO 90	HI 90
Default model	0.450	0.175	0.076	0.305
Saturated model	0.000	0.000	0.000	0.000
Independence model	1.018	0.667	0.494	0.870

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.050	0.033	0.066	0.493
Independence model	0.086	0.074	0.098	0.000

Model	AIC	BCC	BIC	CAIC
Default model	184.435	188.616	395.226	339.499
Saturated model	210.000	222.910	860.973	688.872
Independence model	291.774	293.496	378.571	355.624
Zero model	1813.000	1813.000	1813.000	1813.000

Model	ECVI	LO 90	HI 90	MECVI
Default model	0.712	0.613	0.842	0.728
Saturated model	0.811	0.811	0.811	0.861
Independence model	1.127	0.953	1.329	1.133
Zero model	7.000	6.481	7.547	7.000

Model	HOELTER .05	HOELTER .01
Default model	204	227
Independence model	113	124
Zero model	19	21

Execution time summary:

Minimization: 0.220

Miscellaneous: 2.030

Bootstrap: 0.000

Total: 2.250

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