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A LONGITUDINAL EXAMINATION OF HARSH DISCIPLINE AND EXTERNALIZING BEHAVIOR: AN ECOLOGICAL PERSPECTIVE

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A LONGITUDINAL EXAMINATION OF HARSH DISCIPLINE AND EXTERNALIZING BEHAVIOR: AN ECOLOGICAL PERSPECTIVE

By

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ABSTRACT

A LONGITUDINAL EXAMINATION OF HARSH DISCIPLINE AND EXTERNALIZING BEHAVIOR: AN ECOLOGICAL PERSPECTIVE

By

Toko Oshio

The purpose of this study was to use an ecological perspective to longitudinally investigate the relation between harsh discipline, which consists of physical and psychological discipline, and externalizing behaviors in children. In this study, harsh discipline refers to the disciplinary practices which are likely to result in physical and psychological pain or fear but not injury on the part of the child. More specifically, this study focused on models examining three sets of relations among the key variables of interest: 1) the individual change trajectory of externalizing behaviors relating to harsh discipline and child temperament, 2) the reciprocal relations between harsh discipline and children's externalizing behaviors over time, and 3) the relations among children's temperament, harsh discipline, children's externalizing behaviors, and exposure to violence in the neighborhood.

This study used the data from the Project on Human Development in Chicago Neighborhoods (PHDCN); the subsample of interest was the age 3 cohort group from Wave 1 which includes 1003 children and their primary caregivers. Of the primary caregivers in the sample, 45.5% were Latino, 16.8% were Caucasian, 34.7% were African American, 94.2% were female, and 5.8% were male. Of the focal children in the sample, 50.1% were male and 49.9% were female. For research questions and hypotheses, multivariate analyses including latent growth curve, cross-lagged model, and path analysis using structural equation modeling were employed.

The results showed that harsh discipline, including physical and psychological discipline, challenging temperamental characteristics, and exposure to violence in the neighborhood had significant relations with externalizing behavior in children over time. Consistent with prior research, physical discipline was associated with higher levels of externalizing behavior. Psychological discipline was also associated with higher levels of externalizing behavior; there was little prior research investigating the relation between psychological discipline and externalizing behavior. Moreover, exposure to violence in the neighborhood was related to increases in harsh discipline and externalizing behavior. Further analyses showed, in particular, that exposure to violence was a risk for externalizing behavior among the African American children and among males, and a higher level of activity was a risk for externalizing behavior among females.

To my parents, Midori and Yoshihisa Oshio,
for their love and support

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CHAPTER 1

INTRODUCTION

Why do we discipline children? In dictionaries, discipline refers to learning and instructing. Children do not always do what parents want. When a child misbehaves, the parent must decide what kind of discipline strategy to use. The parents use discipline to correct the behavior and to teach the child how to follow the rules that keep a child safe and help him or her learn the difference between right and wrong. The American Academy of Child and Adolescent Psychiatry (2004) states that it is important to view discipline as teaching not punishing.

However, more than ninety percent of preschool-age children in the U.S. experience physical punishment as a form of discipline. Straus and Stewart (1999) reported that the overall prevalence rate of physical punishment was 35% for infants and 94% for children ages three and four. Additionally, approximately 50% of American parents used physical punishment for children at age 12, a third at age 14, and 13% at age 17. Regardless of the effectiveness or detrimental effects on children, the use of physical punishment remains strong in the U.S.

The use of corporal punishment has been debated for decades among scholars and practitioners working with children and families, and among lawmakers not only in the U.S. but all over the world (Kazdin & Benjet, 2003). The United Nations (UN) clearly stands against all forms of violence in relation to children, and declares its position in Article 19 of the UN Convention on the Rights of Children (1990). In fact, policies and laws that ban the use of corporal punishment at home and school have been adopted in 23 countries including: Austria, Bulgaria, Chile, Croatia, Cyprus, Denmark, Finland,

Germany, Hungary, Iceland, Israel, Italy, Latvia, the Netherlands, New Zealand, Norway, Portugal, Romania, Spain, Sweden, Uruguay, Ukraine, and Venezuela (Global Initiative to End All Corporal Punishment of Children, 2007). On the other hand, the U. K. voted against banning parents from spanking their children, with the government fearing that it would be accused of intruding into family affairs. There are no laws that prohibit parents from using corporal punishment in the United States except in Minnesota where parental corporal punishment is a criminal assault (Gershoff & Bitensky, 2007).

There are many discipline strategies, such as reasoning, discussion, and positive reinforcement, which teach children how to behave rather than punishing them. There are also forms of punishment that do not require physical force, such as time-outs. Nevertheless, the practice of physical discipline is prevalent even though the findings from research regarding the effectiveness of physical discipline are limited. The findings regarding the detrimental effects of physical discipline on child development are mixed and controversial. Furthermore, most previous research has focused on physical discipline, and there is very little literature that has attempted to investigate the influence of discipline involving psychological force such as insulting and threatening.

Purpose of the Study

The purpose of this study was to use an ecological perspective to investigate longitudinally the relation between harsh discipline, which consists of physical and psychological discipline, and externalizing behaviors in children. In this study, harsh discipline refers to the disciplinary practices which are likely to result in physical and psychological pain or fear but not injury on the part of the child. Further, physical discipline refers to the use of physical force with the intention of causing a child to

experience pain for the purposes of correction or control of the child's behavior (Straus, 1994). This study examined physical discipline but not physical abuse. Physical discipline varies in severity from spanking, which is defined as striking the child on the bottom or extremities with an open hand without inflicting physical injury, to physical abuse, which consists of beating and scalding and is more likely to result in injuries. Some researchers have argued that spanking falls within the normative range of socialization practices in the U.S. (e.g., Baumrind, 1997; Baumrind, Larzelere, & Cowan, 2002). In this study, psychological discipline refers to the use of psychological force with the intention of causing a child to experience psychological pain or discomfort for the purposes of correction or control of the child's behavior, and involves psychological punishment such as yelling, threatening, and refusing to talk.

More specifically, this study focused on models examining three sets of relations among the key variables of interest: 1) the individual change trajectory of externalizing behaviors relating to harsh discipline and child temperament, 2) the reciprocal relations between harsh discipline and children's externalizing behaviors, and 3) the relations among children's temperament, harsh discipline, children's externalizing behaviors, and exposure to violence in the neighborhood.

Conceptual and Theoretical Framework

Ecological Theory

This study was based on the ecological and the Process-Person-Context-Time (PPCT) models of human development proposed by Bronfenbrenner (1979, 1998, 2001, 2005), and coercion theory developed by Patterson (1982, 2002). In the ecological model of human development, Bronfenbrenner (1979) explained that an individual develops

within a complete system which is influenced by multiple levels of surrounding environments. He described four dimensions of an individual's overall ecological system, which can be used for understanding behavior and development.

The four dimensions consist of the microsystem, mesosystem, exosystem, and macrosystem. Aspects of the microsystem and exosystem were examined in this study. A microsystem "is a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given face-to-face setting with particular physical and material features and containing other persons with distinctive characteristics of temperament, personality, and systems of belief." (Bronfenbrenner, 2005, p. 148). For example, a home's physical environment as well as activities, roles and relationships which happen at home are considered as important elements of the microsystem for children. As a child grows, he or she develops in other microsystems such as the school, neighborhood, and peer group. In this study, there are two variables in the microsystems: harsh discipline at home, and children's exposure to violence in the neighborhood. Harsh discipline is a variable in the microsystem of the home because it represents activities taking place in a child's home and can influence a child's relationship with her or his parent. Children's exposure to violence in the neighborhood is a variable in a child's microsystem of the neighborhood.

An exosystem "encompasses the linkages and processes taking place between two or more settings, at least one of which does not ordinarily contain the developing person, but in which events occur that influence processes within the immediate setting that does contain that person. (e.g., for a child, the relation between the home and the parent's workplace)." (Bronfenbrenner, 2005, p. 148). In this study, the primary caregivers'

exposure to violence in the neighborhood is a variable in a child's exosytem because the child does not necessarily actively participate in a parent's experience of violence, but the parent's experience may affect the child indirectly via parental characteristics (e.g., beliefs, distress) or parental behavior.

Bronfenbrenner (1998) emphasized the importance of dynamic, developmental relations between an active individual and his or her complex, integrated, and changing ecology in his model of human development. The relations between the developing individual and the active context constitute the basic process of human development. Bronfenbrenner (2005) posited:

> Over the life course, human development takes place through processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate external environment. To be effective, the interaction must occur on a fairy regular basis over extended periods of *time*. Such enduring forms of interaction in the immediate environment are referred to as *proximal processes*. (p. 6)

Additionally, he stated:

> The form, power, and direction of the proximal processes producing development vary systematically as a joint function of the characteristics of the *developing person* (including *genetic inheritance*); of the *environment* – both immediate and more remote – in which the processes are taking place; of the nature of the *developmental outcomes* under consideration; and of the continuities and changes

occurring in the environment over *time*, through the life course, and during the historical period in which the person has lived. (pp. 6-7)

This study attempted to examine the relations between the proximal processes of parental physical and psychological discipline and one developmental outcome -- externalizing behavior in children. As Bronfenbrenner proposed in his Process-Person-Context-Time (PPCT) Model, the effect of a proximal process (parental discipline) on an outcome (externalizing behavior) may depend on other characteristics of the child, such as temperamental characteristics, and the environment in which the process occurs, such as neighborhoods with high levels of violence or low levels of violence.

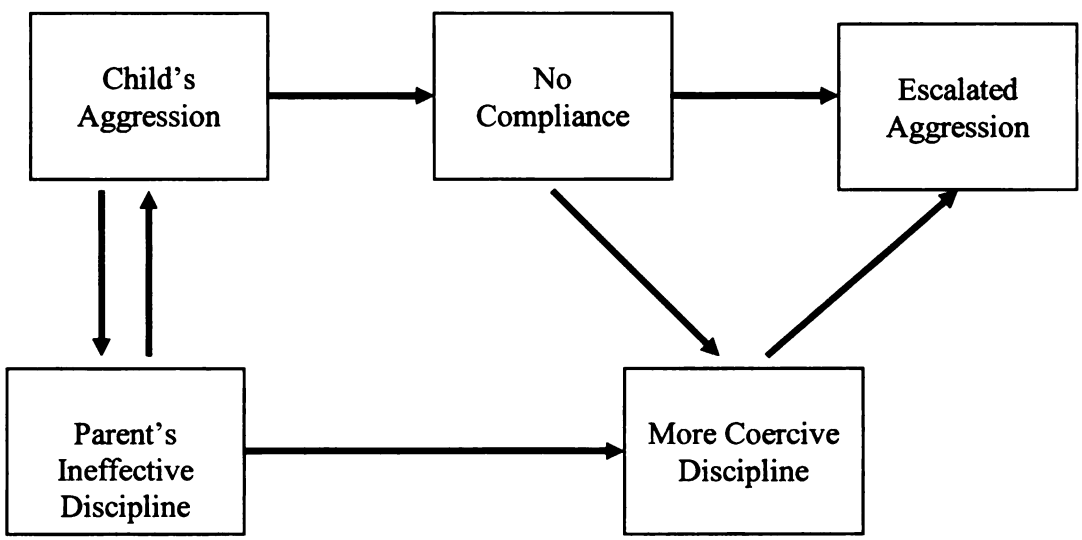
Coercion Theory

Coercion theory provides a conceptual framework for describing the processes that disrupt families and contribute to child adjustment problems, and examines the role of aversive events as determinants of antisocial behavior. It explains how parents and children mutually influence each other to behave in ways that are more likely to increase aggressive behavior problems among children and to decrease parents' control over the children's behavior problems. The term *coercion* refers to the *contingent* use of aversive behaviors in response to another person's actions, and the term *contingency* implies a connection between one event and another. It is built on the idea that behavior is, to some extent, governed by immediately impinging events, and positive reinforcement, punishment, and negative reinforcement play central roles in the coercion model (Patterson, 1982, 2002). He argues that inconsistent but frequent harsh discipline creates a coercive pattern that is reflected in all family interactions. These interactions become ineffective which according to coercion theory becomes a learned response to adverse situations. Coercive interchanges include physical violence, threatening, negative commands, critical remarks, teasing,

humiliation, and yelling. For example, it can be characterized by a parent's demands for compliance, the child's refusal to comply, the parent's use of coercive discipline, and the child's escalating problem behaviors (See Figure 1). This study attempted to examine the reciprocal relations between harsh discipline and children's externalizing behaviors.

Figure 1

Coercion Theory: An Example of a Coercive Interchange



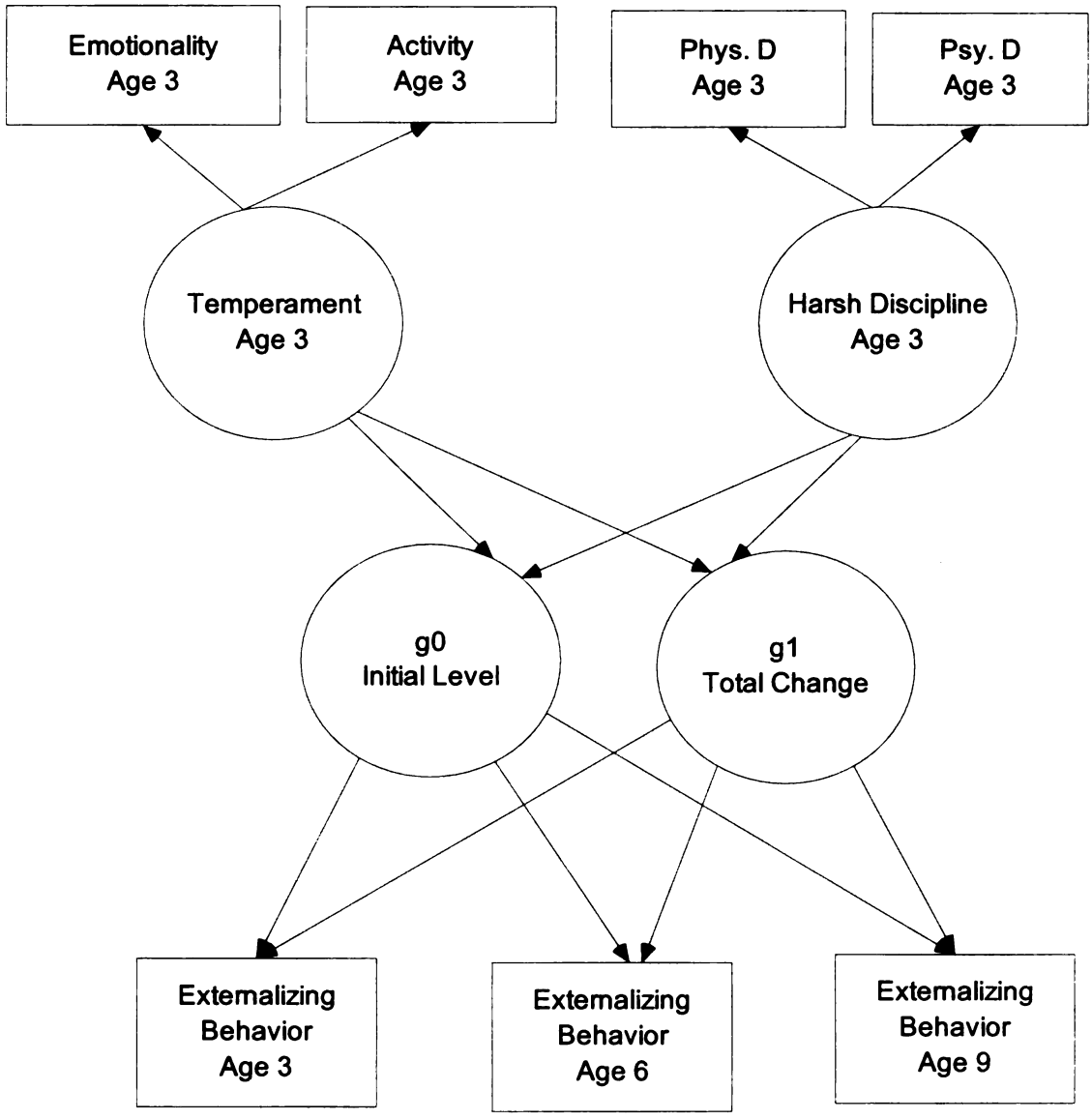
The conceptual models based on Bronfenbrenner's ecological theory and his Process-Person-Context-Time (PPCT) model of human development, coercion theory, and the findings from previous studies are illustrated in Figures 2, 3, and 4. The variables that were examined in this study are: 1) the child's externalizing behaviors, 2) harsh discipline, 3) child temperament, 4) the child's exposure to violence in the neighborhood, and 5) primary caregiver's exposure to violence in the neighborhood.

First, the individual change trajectory of externalizing behavior as it relates to harsh discipline and temperament was examined (see Figure 2). Second, the reciprocal relations over time between children's externalizing behaviors and harsh discipline were

examined (see Figure 3). Finally, the longitudinal relations among children's externalizing behaviors, temperament, harsh discipline, and exposure to violence in the neighborhood were examined (see Figure 4).

Figure 2

Conceptual Model 1: Latent Growth Curve Modeling of Children's Externalizing Behaviors in Relation to Temperament and Harsh Discipline



Note: Phy. D refers to physical discipline; Psy. D refers to psychological discipline.

Figure 3

Conceptual Model 2: Cross-lagged Model of Harsh Discipline and Children's Externalizing Behaviors

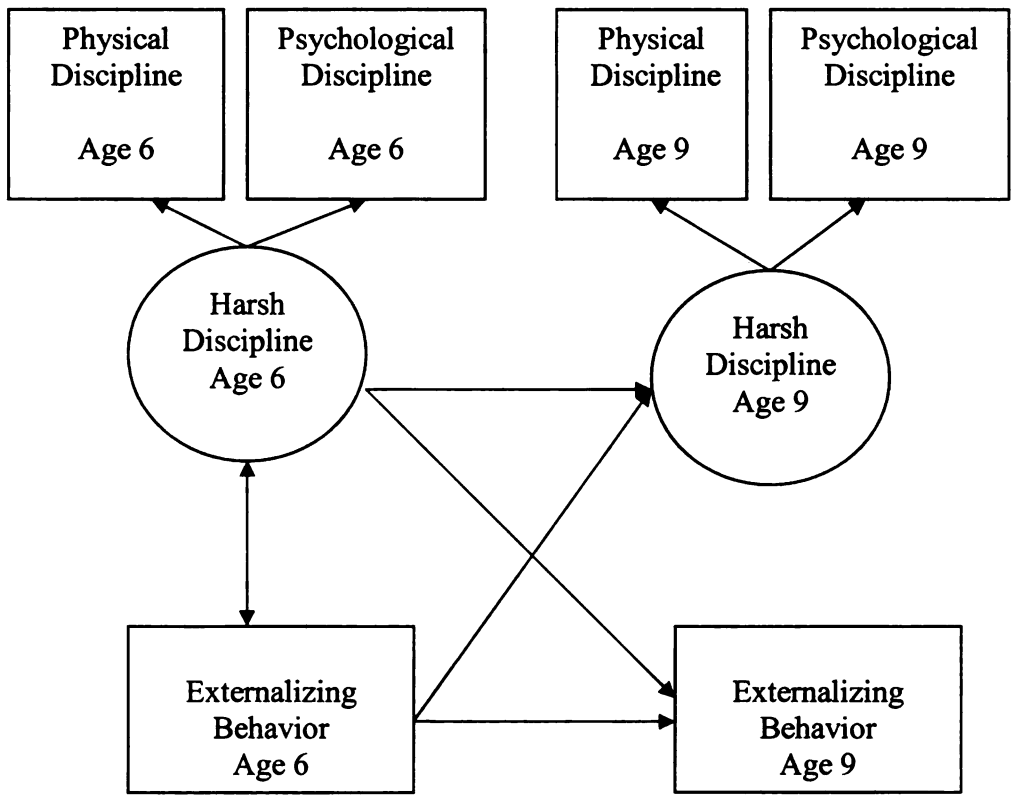
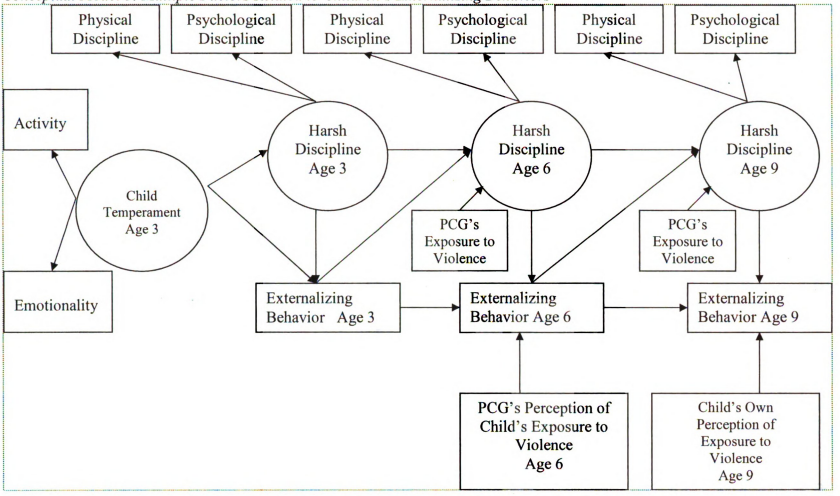


Figure 4

Conceptual Model 3: Multiple Factors Related to Children's Externalizing Behaviors



Note: PCG refers to primary caregiver.

Research Questions and Hypotheses

The main research question which encompasses other specific questions and hypotheses was: What is the longitudinal relation between harsh discipline and children's externalizing behaviors? More specifically, this study addressed the two specific research questions and the five hypotheses listed below:

Specific Research Questions

1) What is the developmental trajectory of externalizing behaviors in relation to temperament and harsh discipline? (see Figure 2)
2) How do harsh discipline and externalizing behaviors relate reciprocally and longitudinally (i.e., cross-lagged relations between the two variables over time)? (see Figure 3)

Research Hypotheses (Figure 4)

1) Challenging child temperamental characteristics at age three, as indicated by higher levels of activity and emotionality, are positively related to harsh discipline and externalizing behaviors at age three.
2) Primary caregivers' exposure to violence in the neighborhood is positively related to harsh discipline when children are six- and nine-years old.
3) Children's exposure to violence in the neighborhood is positively related to externalizing behaviors when children are three-, six-, and nine-years old.
4) Harsh discipline is positively related to externalizing behaviors when children are three-, six-, and nine-years old.
5) Externalizing behavior problems at earlier time points are positively related to harsh discipline at later time points.

Conceptual and Operational Definitions

This section provides the conceptual and operational definitions of the variables which were examined in this study.

Harsh Discipline

Conceptual: Harsh discipline refers to the disciplinary practices used by a primary caregiver, which are likely to result in physical and psychological pain or fear but not injury on the part of the child.

Operational: The latent construct of harsh discipline was measured by two observed variables: physical discipline and psychological discipline. These observed variables were assessed by the two subscales: physical assault and psychological aggression from the Conflict Tactics Scale for Parent and Child (CTSS).

Externalizing Behavior

Conceptual: Externalizing behavior refers to manifested behavior directed at others that conflicts with other people and with their expectations for the child. It consists of destructive and aggressive behaviors when a child is three years old and of aggressive and delinquent behaviors when a child is six- and nine-years old (Achenbach, 1991).

Operational: Externalizing behavior was assessed by the Child Behavior Checklist for Ages 2-3 (CBCL/2-3) and the Child Behavior Checklist for Ages 4-18 (CBCL/4-18).

Child Temperament

Conceptual: Child temperament refers to an individual's characteristic way of responding to aspects of his or her environment. In this study, it includes two dimensions: activity level and emotionality. Activity is defined as a tendency to be in physical motion,

and emotionality is defined as a tendency to become aroused easily to fear and anger and refers to an expression of negative emotions (Buss & Plomin, 1975).

Operational: The latent construct of child temperament was measured by two observed variables: activity and emotionality. These observed variables were assessed by the subscales of activity and emotionality in the Emotionality, Activity, Sociability, and Impulsivity Temperament Survey (EASI; Buss & Plomin, 1975).

Child's Exposure to Violence in the neighborhood:

Conceptual: Exposure to violence in the neighborhood refers to a caregiver's perception of the child's experience of exposure to different types of violent acts such as seeing someone shoved, kicked, or punched, seeing someone attacked with a knife, hearing a gunshot, and seeing someone shot.

Operational: Child's exposure to violence in the neighborhood was assessed by the primary caregiver's report on the Exposure to Violence (ETV) measure at ages three and six. Both the primary caregiver's and child's reports on the ETV were used to create a latent construct of the child's exposure to violence in the neighborhood when a child is nine years old.

Primary Caregiver's Exposure to Violence in the neighborhood:

Conceptual: Exposure to violence in the neighborhood refers to the primary caregiver's experience of exposure to different types of violent acts such as seeing someone shoved, kicked, or punched, seeing someone attacked with a knife, hearing a gunshot, and seeing someone shot.

Operational: Primary caregiver's exposure to violence in the neighborhood was assessed by primary caregiver's report on the Exposure to Violence (Primary caregiver version) when a child is six and nine years old.

Significance of the Research

The appropriateness of the use of physical discipline with children is one of the most debated issues in the child clinical and developmental fields. However, the findings are inconsistent and researchers interpret the findings differently; thus, additional research on the associations among physical discipline and child behaviors is clearly needed. Moreover, much attention has been paid to the effects of physical discipline, but little is known about the influence of psychological discipline on children's behaviors.

On the basis of prior research, investigators have emphasized the need for longitudinal designs to study this topic because it enables researchers to control for child behaviors at an earlier time point. Many investigators also argue that other factors in the environment should be included in the analyses in addition to the relations between physical discipline and child behaviors (e.g., Gershoff, 2002). Therefore, this study attempted to examine the influence of psychological discipline as well as physical discipline, utilized a longitudinal data set including data collected at three time points, and included other factors that may be important for understanding the relation between harsh discipline and children's externalizing behavior.

CHAPTER 2

REVIEW OF THE LITERATURE

The review of literature is divided into six main parts. The first part presents an overview of the influence of physical discipline on children. Next the correlates of physical discipline are presented. The third part summarizes research on psychological discipline. The fourth part consists of a summary of externalizing behavior, in particular its trajectories and reciprocal relations to parents' behaviors. The fifth part discusses the relations among temperament, parenting, and externalizing behavior. Finally, the sixth part presents an overview of the influence of community violence on children's externalizing behaviors.

Continuing Debate: Physical Discipline and Child Outcomes

The effectiveness of physical discipline is highly debated. Opponents of spanking argue that spanking teaches children to become aggressive from a social cognitive perspective, and a large body of research supports this. For example, a meta-analysis conducted by Gershoff (2002) provided evidence that parental corporal punishment is associated with child behaviors and experiences including higher levels of immediate compliance, aggression, delinquency, antisocial behavior, physical abuse victimization, and lower levels of moral internalization; it has also been linked to mental health issues and problematic parent-child relationships because children might be more likely to avoid parents if the children perceive their parents as sources of pain. Some studies show that parental corporal punishment has prolonged effects influencing adult behavior such as aggression, criminal and antisocial behaviors, mental health, substance abuse, and abuse of one's own child or spouse (e.g., Gershoff, 2002; Straus & Kantor, 1994).

Other studies suggest that this association is not found consistently after accounting for the effects of child factors such as gender, temperament, theory of mind, early behavior problems, and social information processes (e.g., Belsky, Heieh, & Crinic, 1998; Deater-Deckard & Dodge, 1997; Hughes, Deater-Deckard, & Cutting, 1996; Hughes & Ensor, 2006; Weiss, Dodge, Bates, & Pettit, 1992) and other factors such as income, ethnicity, stress, and beliefs about parenting (e.g., Deater-Deckard & Dodge, 1997; Gunnoe & Mariner, 1997; Lansford, Deater-Deckard, Dodge, Bates, & Pettit, 2004; Pinderhuges, Dodge, Bates, & Zelli, 2000; Polaha, Larzelere, Shapiro, & Pettit 2004). Findings that support the relations between physical discipline and child behavior problems differ in the degree to which physical discipline accounts for the variance in child behavior. For example, Paolucci and Violato (2004) reported that corporal punishment only had a small negative effect on child's behavioral and emotional development, and had almost no effect on cognitive development.

While the meta-analysis conducted by Gershoff (2002) provided evidence against physical punishment, Larzelere, Kuhn and Johnson (2004) argued that some of the studies in her analysis used clinical samples, which would bias outcomes because children whose parents seek out intervention services likely have more behavior problems than those whose parents do not use intervention services. Baumrind, Larzelere, and Cowan (2002) noted that Gershoff's (2002) analysis was flawed because 58% of her effect size estimates came from cross-sectional analyses and 65% did not discriminate between non-abusive and abusive physical discipline. In general, the literature that examines the effect of physical discipline on children's behaviors has methodological

problems, including measuring behaviors and discipline at the same time point and using a retrospective design (e.g., Larzelere, 2000; Larzelere & Kuhn, 2005).

Moreover, it appears that the study design is associated with findings. For example, longitudinal studies and studies that statistically control for early behavior problems found that the predominant use of corporal punishment was more strongly associated with negative outcomes than cross-sectional studies did (Larzelere & Kuhn 2005). There are also opposing findings, which make it difficult to be confident about the associations among physical discipline and child behaviors. In a comprehensive review based on 35 peer-reviewed studies with longitudinal designs on the relationship among customary physical punishment and child outcomes, Larzelere (2000) reported that 34% of the studies found predominantly detrimental outcomes, 34% found neutral or mixed outcomes, and 32% found predominantly beneficial outcomes.

Those who do not believe that non-abusive physical discipline is associated with negative child outcomes assert that physical discipline could be effective under some circumstances: when it is administered by emotionally supportive parents; when it is used sparingly and non-violently; and when it is used conditionally in response to defiance (e.g., Larzelere, 2000; Larzelere & Kuhn, 2005; Paolucci & Violato, 2004). Findings from a meta-analysis conducted by Larzelere and Kuhn (2005) suggest that conditional physical punishment is more effective than alternate discipline strategies at reducing non-compliance and antisocial behavior, especially when it is used to reinforce milder discipline tactics and when the physical punishment is not severe. This finding supports the results of Larzelere's (2000) study, which found that non-abusive spanking of children between the ages of two and six years is effective when it is used after other

discipline methods failed. Additionally, Larzelre (2000) pointed out that detrimental outcomes had been found for every alternative disciplinary tactic when investigated with similar analyses.

Correlates of Physical Discipline

Gender

Child characteristics such as gender and age appear to influence whether children are physically punished and the relations among physical discipline and subsequent behaviors. Some studies suggest that males tend to receive more physical punishment than females (Smith & Brooks-Gunn, 1997; Straus & Stewart, 1999). The reason for this difference may be due to different parental expectations for boys' and girls' behavior, or because boys tend to exhibit more aggression than girls (Gershoff, 2002). Hughes, Deater-Deckard, and Cutting (1999) examined the relations among young children's understanding of mind, parental emotional expression, and disciplinary style, along with gender differences in these relations. Compared with parents of males, parents of females showed less negative affect and more positive affect, but also strict discipline. Additionally, parental affect was found to be especially salient for understanding of mind in females while discipline was more salient for males.

Age

Physical discipline may have different effects on children of different ages, in part because a child's age determines his or her level of cognitive functioning, which in turn relates to his or her ability to understand punishment (Gershoff, 2002). Physical discipline is primarily used with children under five years-old (Straus & Stewart, 1999). The frequency of spanking peaks between the ages of three and four, when approximately

94% of children are spanked (Straus & Stewart, 1999). Thus, the negative effects of severe and prominent physical punishment may be greater for younger children (Larzelere & Kuhn, 2005).

Despite the risks to cognitive and emotional development associated with physical discipline of very young children, research indicates that nearly 20% of mothers believed that it was okay to spank infants who are younger than 12 months old (Socolar & Stein, 1995). According to Wissow (2001), the results of a survey conducted by the Common Wealth Fund reported that 11% of parents had spanked an infant between the ages of six and eleven months; 36% had spanked an infant between the ages of 12 and 17 months; and 59% reported spanking a toddler between the ages of 18 and 23 months.

Brenner and Fox (1998) reported that among children under the age of five years, parental discipline accounted for more than 13% of the unique variance in behavior problems, even after controlling for family demographic variables. Other studies, however, have found that conditional physical punishment appears to be more effective and less strongly associated with negative outcomes in younger children (Gershoff, 2002), and even when there is an association between physical punishment and behavior problem, only a small number of children are affected. For example, Slade and Wissow (2004) found that only 15% of non-Hispanic White children under two years-old who were spanked five times in a week-long period had behavior problems that could be considered clinically significant.

Parental Warmth

The impact of any kind of discipline on child development is dependent upon a number of factors including what parents do (physical punishment or reasoning) and how

they do it (predictable or out of anger) (Darling & Steinberg, 1993). Parents differ in the way they use physical discipline: the frequency and severity of physical discipline, their emotional arousal when they administer punishment, and whether they combine the physical punishment with other techniques (Gershoff, 2002). One parental factor that appears to moderate the relations among physical discipline and children's outcomes is parental warmth (Gershoff, 2002). Persistent harsh discipline and lack of maternal warmth were associated with a lower IQ in females (Smith & Brooks-Gunn, 1997). McLoyd and Smith (2002) found that maternal emotional support moderated the link between spanking and children's behavior problems. Though spanking was likely to increase behavior problems over time in the context of low levels of emotional support, this was not the case in the context of high levels of emotional support. Similarly, the relation between harsh parenting and children's externalizing behavior was strongest when the mother-child relationship lacked warmth, and this result was consistent whether the mother and children were genetically related (Deater-Deckard, Ivy, & Petrill, 2006).

Ethnicity

To date, examinations regarding the moderating role of cultural context on the influence of physical discipline have received much attention. Some studies suggest that different parenting styles may be more adaptive in different ethnicities (e.g., Deater-Deckard, Dodge, & Sorbring, 2005). Nonetheless, studies that examine the influence of physical discipline in different race/ethnicity samples have produced conflicting findings. Amato and Fowler (2002), using data from the National Survey of Families and Households, reported that parenting practices did not interact with parents' race, ethnicity, family structure, education, income, or gender in predicting child outcomes. Whiteside-

Mansell, Bradley, Owen, Randolph, and Cauce (2003) also found that the relations between harsh, intrusive and responsive parenting and children's behaviors were similar across African American and Caucasian groups. McLoyd and Smith (2002) found the importance of maternal emotional support in understanding the relation between physical punishment and children's behavior problems, but no differences were found among Caucasian, African American, and Hispanic families.

On the other hand, several studies found ethnic differences in the relations of physical discipline and children's externalizing behaviors. Deater-Deckard, Dodge, Bates, and Pettit (1996) showed a significant interaction between ethnicity and discipline. Four hundred sixty-six Caucasian and one hundred African American children from a broad range of socioeconomic levels were followed from kindergarten through third grade. They found that harsher discipline was associated with higher externalizing problems in the school setting, but the association was found only for Caucasian children. There was no relation between teacher and peer-rated externalizing problems and the harshness of physical discipline for African American children, and there was actually a trend whereby African American children receiving harsh physical punishment had lower levels of aggression and externalizing behaviors. Lansford, Deater-Deckard, Dodge, Bates, and Pettit (2004) followed 585 children from ages five through sixteen, and found ethnic differences in the long-term influence of physical discipline on externalizing behavior problems; the experience of physical discipline at each time point was related to higher levels of externalizing behaviors for European American adolescents but lower levels of externalizing behaviors for African American adolescents. Similarly, Polaha, Larzelere, Shapiro and Pettit (2004) reported the group difference by ethnicity in the

relation between parental use of physical discipline and children's externalizing behavior problems. The greater use of physical discipline was found to be associated with lower levels of externalizing problems, but only for teachers' reports about African American males. Furthermore, Gunnoe and Mariner (1997) examined the data from the National Survey of Families and Households utilizing structural equation modeling, and found that spanking did not predict aggressive behaviors among children ages four to eleven years. The association between physical discipline and subsequent aggression for African American children was primarily negative.

Although most studies which investigate the influence of ethnicity compare Caucasian and African American families, Cardona, Nicholson, and Fox (2000) examined group difference between Caucasian and Hispanic families. They found Hispanic mothers used a higher frequency of punishment and a lower frequency of nurturing with their very young children compared to Caucasian mothers. In addition, Hispanic mothers with higher levels of income reported higher levels of punishment and lower levels of nurturing than did Caucasian mothers and Hispanic mothers with lower levels of income.

Finally, a recent study advanced the field using a cross-cultural design trying to understand why between-country differences arise in the use of physical discipline and children's outcomes. The group of researchers in the U.S., China, India, Italy, Kenya, the Philippines, and Thailand reported that physical discipline was less strongly associated with adverse child outcomes in conditions of greater perceived normativness of physical discipline, but physical discipline was also associated with more adverse outcomes regardless of its perceived normativness. Countries with the lowest use of physical

discipline showed the strongest association between mothers' use of physical discipline and children's behavior problems, but in all countries, higher use of physical discipline was associated with more aggression and anxiety (Lansford, Chang, Dodge, Malone, Oburu, Palmĕrus, Bacchini, Pastorelli, Bombi, Zelli, Tapanya, Claudhary, Deater-Deckard, Manke, & Quinn, 2005)

Community

The influence of neighborhood contexts on parenting and child outcomes has been well documented to date. McLoyd (1990) posits that the detrimental effects of poverty on children's development are mediated through the effects of poverty on parenting, and that economic hardships and disadvantage relate to harsh parenting, which in turn influences children negatively. Her study found that single, economically disadvantaged mothers who reported higher levels of economic difficulty were more likely to hit and scold their children more frequently. Ceballo and McLoyd (2002) examined how stressful environmental conditions influence the relations between mothers' social support and parenting strategies. They found that the positive influence of social support on parenting behaviors was strained and attenuated in poorer, high-crime environments. In low-income neighborhoods, the positive relation between emotional support and mothers' nurturant parenting was decreased, and the negative relation between instrumental social support and physical punishment was stronger in more affluent neighborhoods. Similarly, no association between physical punishment and children's behavior problems was found in the communities where physical discipline was prevalent although there was a positive relation in the communities where physical discipline was seldom used (Simons, Lin, Gordon, Brody, Murry & Cogner, 2002).

Psychological Discipline

Most literature regarding psychological discipline comes from the area of psychological / emotional maltreatment or abuse because most prior studies in the area of parenting and socialization have focused on physical discipline not psychological discipline. The findings from research examining the influence of psychological maltreatment on children suggest the relations between psychological maltreatment and children's outcomes including: insecure attachment, aggression, delinquency, oppositional behaviors, low self-esteem, internalizing problems, and poor academic achievement (e.g., Morimoto & Sharma. 2004). Furthermore, it appears that the use of psychological maltreatment is prevalent.

Using a longitudinal study which followed 267 children from high risk families, Egeland, Sroufe, and Erickson (1983) examined the influence of different patterns of maltreatment on children's outcomes. They found that at age 42 months, the children whose mothers were verbally abusive showed the highest levels of anger and were the most avoidant of their mothers. Webb, Heisler, Call, Chickering, and Colburn (2007) studied the relations among shame and guilt, symptoms of depression, and psychological maltreatment. They found that psychological maltreatment was positively correlated with depression and shame. Moore and Pepler (2006) also examined the relation between different forms of maternal verbal aggression and children's adjustment. Mothers from violent and non-violent families were compared on their use of verbal aggression, and it was found that the mothers from both groups used threats and insults with comparable frequency. In addition, they found that insults were predictive of children's adjustment,

and the children from violent homes were more poorly adjusted than those from nonviolent homes.

Vissing, Straus, Gelles, and Harrop (1991) examined the data from a nationally representative sample of 3,346 American parents with a child under 18 living at home, and found that 63% of parents reported one or more instances of verbal aggression, such as swearing and insulting the child. Children who experienced frequent verbal aggression from parents exhibited higher levels of physical aggression, delinquency, and interpersonal problems, based on a parent's report, than other children. In addition, children who experienced both verbal aggression and severe physical violence exhibited the highest rates of aggression, delinquency, and interpersonal problems.

One of the difficulties that many studies regarding psychological maltreatment face is that most studies confounded psychological aggression with other types of maltreatment (Vissing, Straus, Gelles, & Harrop, 1991). Moreover, there seems to be a problem defining and assessing psychological abuse. In part, this is because most children occasionally experience some of these acts (Claussen & Crittenden, 1991). Nevertheless, more studies have attempted to overcome these obstacles. Claussen and Crittenden (1991) examined if psychological maltreatment would be present in almost all cases of physical maltreatment. They found that psychological maltreatment could occur alone, and that psychological maltreatment and children's outcomes were related negatively. Solomon and Serres (1999) made an effort to distinguish the influence of verbal violence from the influence of physical punishment, and investigated whether parental verbal violence had a negative influence on children's self-esteem and academic achievements. The results showed that parental verbal violence alone, as separate and

distinct from physical punishment, contributed to lowering children's self-esteem and school achievements. Ney, Fung, and Wickett (1994) studied the impact of various kinds of abuse and neglect on the children's perceptions of themselves and their future. They found that a combination of physical neglect, physical abuse, and verbal abuse had the greatest negative impact on children. An early age of onset for verbal abuse and emotional neglect was significantly associated with greater severity and frequency of mistreatment.

Further, recent studies have attempted to examine the correlates or processes of psychological maltreatment. For example, Morimoto and Sharma (2004) examined the long-term influence of parental verbal aggression as it related to possible protective factors. An association existed between verbal aggression and negative outcomes; however, family cohesion was found to be a better predictor of psychological adjustment than verbal aggression alone. In addition, a history of verbal aggression was more likely to be related to negative outcomes in females, although overall psychological adjustment and available protective factors were found to be similar for males and females. Caughy and Franzini (2005) studied variations in attitudes regarding discipline by race/ethnicity and by characteristics of the residential neighborhoods. They found that the endorsement of psychological discipline, such as yelling and threatening, was related to neighborhood conditions, but the use of physical discipline was not.

Externalizing Behavior: Trajectories and Reciprocal Relations

Externalizing behavior has been the topic of a great amount of research in child development. The study of aggression and antisocial behaviors encompasses a variety of theoretical perspectives and methodologies. In this section, the literature regarding

trajectories of externalizing behavior and its reciprocal relations to parents' behaviors is presented.

Trajectories

The findings from prior studies emphasize the importance of examining children's early behaviors because early externalizing behavior is likely to play a crucial role in determining pathways of persistent conduct problems. Environmental factors, such as parenting and peers, also appear to play a role in shaping the trajectories. The literature review conducted by Campbell, Shaw, and Gilliom (2000) discusses the stability of early externalizing behavior and the diverse pathways that young children, who have early-emerging problems, might follow. Based on a number of studies, it was suggested that the small subgroup of males with multiple risk factors, including high levels of early hyperactivity and aggression, and high levels of negative parenting and family stress, are most likely to indicate evidence of continuing behavior problems at school entry. They argue that many young children show behaviors similar to symptoms of Attention Deficit / Hyperactivity Disorder (ADHD) (e.g., over activity, restlessness, difficulty in waiting turns), and Oppositional Defiant Disorder (ODD) (e.g., noncompliant); however, most children who show these behaviors, either in isolated form or for a short time in toddlerhood or as preschoolers, would not meet the criteria for any of these disorders by school entry. Nonetheless, some children, who show some of these behaviors at higher levels in early childhood and have risk factors in the family, will continue to have problems in middle childhood and beyond.

For example, Shaw, Gilliom, Ingoldsby, and Nagin (2003) followed 284 male children from low-income families to model developmental trajectories of conduct

problems from ages two to eight. Based on the data from those children, they identified four developmental trajectories: a persistent problem trajectory, a high-level desister trajectory (higher level of aggression than moderate-level desister trajectory), a moderate-level desister trajectory, and a persistent low problem trajectory (chronically low level of aggression), and found that the children who were more fearless and whose mothers reported higher levels of depressive symptoms during toddlerhood were more likely to be in the persistent problem or high-level desister groups than in the moderate-level desister or persistent low problem groups. The children who remained in the persistent problem group had higher levels of fearlessness and received rejecting parenting when they were two years old. Those who showed initially higher levels of behavior problems but later desisted did not have high levels of fearlessness or receive rejecting parenting.

Other studies provide evidence of two typologies: childhood-onset antisocial behaviors and adolescent-onset antisocial behaviors suggesting that conduct problems have different etiologies and outcomes for the two types across the adult life course (e.g., Caspi & Moffitt, 1995). The literature suggests that life-course conduct problems originate early in life when the difficult behaviors of young children are exacerbated by risk factors in the environments such as harsh discipline and maternal depression. On the other hand, adolescent-limited conduct problems are considered as common, relatively temporary, and normative because these youth's prior development is healthy, and most young people who become adolescence-limited delinquents are able to divert from crime when they become more mature.

Denham, Workman, Cole, Weissbrod, Kendziora, and Zahn-Waxler (2000) examined whether parental emotions and behaviors contributed to continuity and change

in preschool children's externalizing behaviors. They found that externalizing behavior problems showed strong continuity two and four years later. Proactive parenting such as supportive presence, clear instruction, and limit setting predicted fewer behavior problems over time after controlling for initial behavior problems. On the other hand, parental anger predicted continuation of problems over time. It was found that parenting behaviors were most influential for children whose initial problems were in the clinical range.

However, most earlier studies examined only males because males are more likely to have higher levels of externalizing problems. Yet, gender differences began to be included in examining the trajectories of conduct problems. Moffitt and Caspi (2001) compared childhood risk factors of males and females who exhibit childhood-onset and adolescent-onset antisocial behaviors using a longitudinal data set collected in Dunedin, New Zealand. They found that childhood-onset delinquents had childhoods with inadequate parenting, neurocognitive problems, difficult temperament, and behavior problems while adolescent-onset delinquents at ages 13 and 18 years old did not have these difficulties. The gender comparison revealed a male-to-female ratio of 10:1 for childhood-onset delinquency, but only 1:1.5 for adolescent-onset-delinquency. The females in the group of childhood-onset delinquents had childhoods with high risks, similar to males, but adolescent-onset females did not have these difficulties.

Reciprocal Relation

The examination of reciprocal relations between a child and parent is not new in developmental psychology. A control system model, which contends that both parent and child have hierarchically organized repertories from which behavior is elicited in a

predictable way by the behavior of the other was proposed about three decades ago (Bell, 1971). To date, there are several theories which involve reciprocal relation and studies which examine this relation empirically.

Shaw, Bell and Gilliom (2000) examined mothers and their infants from low-income families, and found that from ages one to eight, child and parenting variables contributed additively and interactively to an escalation in children's conduct problems, distant and rejecting parenting, and coercive parent-child relationships. In addition, parental and sibling conflicts were likely to increase child and parenting risk factors in an additive and interactive manner by reinforcing children's patterns of disruptive behaviors and conflictual relations with adults and peers.

Patterson (1982) developed coercion theory which describes the conflictual patterns of interaction exhibited by children and their families. In coercion theory, parent and child behave in a way that is aversive to the other to control the other's behaviors. As the child becomes increasingly disruptive, the parent escalates the use of force, and these cycles eventually lead to the child's behavior problems. Further, a dynamic systems model was proposed based on coercion theory, and discusses the importance of time and change of this reciprocal relation (Granic & Patterson, 2006). Some recent studies have provided support for these models as statistical methodologies advanced. For example, Snyder, Cramer, Afrank, and Patterson (2005) conducted a longitudinal study including 134 males and 132 females and their families during kindergarten and first grade. Four hours of parent– child interaction were coded to obtain parent discipline practices, and structured interviews were used to assess maternal attributions about children's behaviors. The findings show that maternal ratings of children's conduct problems at kindergarten

entry reliably predicted the mothers' subsequent hostile attributions concerning children's misbehaviors and the use of ineffective discipline strategies. Ineffective maternal discipline and the interaction of ineffective discipline and hostile attribution predicted an increase in children's conduct problems at home during kindergarten and first grade. They found that changes in teacher-reported and observed children's conduct problems at school during kindergarten and first grade were predicted by the growth in conduct problems at home and by the interaction between ineffective discipline and hostile attributions.

Smith, Calkins, Keane, Anastopoulps, and Shelton (2004) examined the stability and continuity of early-identified behavior problems and the factors associated with stability. Mothers' reports of children's externalizing behaviors and laboratory observations of children's noncompliance were found to be stable from ages two to four. Although the mothers' reports of children's externalizing behaviors decreased over time, children's noncompliance in the laboratory did not. Moreover, maternal controlling behavior was related to increases in behavior problems when children exhibited higher levels of prior noncompliance and maternal control, and children's noncompliance was predictive of increases in maternal controlling behavior over time.

Temperament

It has been a long time since temperament first began to be considered as an important factor for our understanding of children's behaviors. Thomas and Chess (1977) noted that approximately 10% of children in their study were considered *difficult children* who tended to show negative withdrawal responses to new stimulus, less adaptability to change, and intense mood expression which were frequently negative. They also reported

that there were some children who occasionally exhibited behavior problems despite the presence of positive parenting, based on the findings from the New York Longitudinal Study. They explained that children's temperament and their rearing environment can match, creating *goodness of fit*, or repel, creating *poorness of fit,* which may influence children's behaviors negatively (Thomas & Chess, 1977). Prior to this, many theorists believed that parents were fully responsible for the children's behavior problems. Since then, however, a great amount of research on temperament has been conducted using both community and clinical samples. Temperament has been discussed in many parenting books. These books try to help those parents who have difficult children to deal with their child's challenging behaviors by offering a variety of strategies and practical solutions (e.g., Dobson, 2007; Kurcinka, 1998). Simultaneously, many studies have attempted to examine exactly how temperament relates to behavior problems.

Many scholars believe that children's temperament influence parenting and socialization processes, which in turn, influence child development (e.g., Belsky, 1984). They are more likely to focus on the relations among difficult temperament, environmental factors, and externalizing behavior, in particular the moderating or mediating role of family and environmental factors. Some are more likely to view negative emotionality or difficult temperament as an in-born or constitutional feature of the child, and consider it as one of the origins of conduct problems (e.g., Caspi, Henry, McGee, & Moffitt, 1995; Rothbart & Bates, 1998) suggesting temperament is basically a subclinical manifestation of psychopathology (Nigg, 2006).

Temperament, Environmental Factors, and Externalizing Behavior

Belsky (1984) proposed a model on the determinants of parenting identifying three main determinants of parental behaviors: the personality and personal resources of the parent, characteristics of the child, and contextual sources of stress and support. In his model, child's temperament is an important factor as a characteristic of the child. For example, Clark, Kochanska, and Ready (2000) examined the relations among mother's personality, its interaction with infant's negative emotionality, and parenting behavior, using a longitudinal, multimethod investigation. The mothers were asked to complete personality self-reports, and infants' negative emotionality was observed in both laboratory and home settings when the infants were eight to ten months old. When the infants were 13 to 15 months old, two aspects of parenting -- power assertion, and maternal responsiveness -- were observed. They found that maternal personality alone and also in interaction with child emotionality were predictive of later maternal power assertion.

Belsky, Hsieh, and Crnic (1998) investigated how infant negative emotionality and parenting during the toddler years were related to children's externalizing behaviors and inhibited behaviors when the children were three years old in the sample of 125 first-born Caucasian males. They found no relations between infants' negative emotionality and externalizing behaviors or inhibition when infants' negative emotionality was measured by observations, rather than parents' report. Also, parenting was found to be a significant predictor of externalizing behaviors and inhibition in the case of children who had higher levels of negative emotionality as infants. The findings from this study suggest that infant temperament moderates the effect of parenting; the infants who have higher levels of negative emotionality are more likely to be susceptible to rearing

influence. Subsequently, they proposed the differential susceptibility hypothesis arguing that infants with high level of negative emotionality or with difficult temperament are most developmentally responsive to parenting with respect to the development of behavior problems.

To test the differential susceptibility hypothesis, Bradley and Corwyn (2008) used the data from the NICHD Study of Early Child Care and examined the interactions among three aspects of parenting (harshness, sensitivity, productive activity) and temperament as they related to teachers' reports of externalizing behaviors in first grade. The results indicated stronger relations between maternal sensitivity and behavior problems as well as relations between opportunities for productivity and behavior problems for children with difficult temperament. Morris, Silk, Steinberg, Sessa, Aveneboli, and Essex (2002) investigated whether the detrimental effect of negative parenting was heightened among children with difficult temperament. They found that maternal hostility was associated with externalizing problems among children with high level of irritable distress, and that maternal hostility was associated with externalizing behaviors among children with poor effortful control.

Direct Link between Temperament and Externalizing Behavior

Others have attempted to examine more direct relations between children's difficult temperament and externalizing behavior problems. Nigg (2006) discusses the link between temperament and psychopathology by reviewing the findings from previous studies. In his review, he notes that low fear response, and either high incentive approach or high anger reactivity are related to Conduct Disorder, and that extremely low effortful

control and strong approach are related to Attention Deficit / Hyperactivity Disorder (ADHD).

Caspi, Henry, McGee, Moffitt, and Silvia (1995) found temperamental dimensions at ages three and five years old were related to behaviors problems at ages nine, eleven, thirteen, and fifteen years old. Lack of control was more strongly related to later externalizing behavior problems. Martel and Nigg (2006) investigated the relations of mother-rated temperament traits, including reactive control, effortful control, and negative emotionality, with domains of parent and teacher-rated ADHD and antisocial behavior in a sample of children with ADHD and controls ages seven to thirteen. They found relations between low reactive control and hyperactive-impulsive symptoms and between negative emotionality and oppositional behaviors after removing overlapping items.

Neighborhood Influence and Externalizing Behaviors

There is evidence that children who live in urban areas are exposed to high rates of community violence, and the deleterious influence of exposure to community violence on child development is well documented (e.g., Osofsky, Wewers, Hann, & Fick, 1993; Richters & Martinez, 1993). Eighty percent of youth from economically disadvantaged inner-city neighborhoods in Chicago reported some exposure to community violence during their lifetime, and 65% in the past year. In addition, these youth were exposed to many different kinds of violence; more than half (54%) of the males reported that they had seen someone beaten up, and approximately 20% reported that they had seen someone shot or killed (Gorman-Smith & Tolan, 1998).

However, not all children exposed to community violence become aggressive or delinquent. Some recent studies have attempted to examine the relations among exposure to community violence, family environment, and children's behaviors, although the evidence is limited. Gorman-Smith and Tolan (1998) investigated the relations among exposure to violence, family relationship characteristics and parenting practices, and aggression and depression in children using the data from the Chicago Youth Development Study (CYDS). They found that the level of exposure to violence in the community was not predicted by family relationships and parenting characteristics, but the exposure to community violence in the past year was related to higher levels of aggressive behaviors and depression among children over a one-year period, even after controlling for previous aggression and depression. Moreover, the relations of community violence to both aggression and depression were moderated by family structure, including levels of organization and support within the family, suggesting that family structure could be a protective factor for the children who are exposed to violence.

The subsequent data from the CYDS were used to investigate the risk of exposure to community violence, its relation to violence perpetration, and the role of family functioning among a sample of 263 African American and Latino males in inner-city neighborhoods (Gorman-Smith, Henry, & Tolan, 2004). It was found that the youth from struggling families that used poor parenting practices and had lower levels of emotional cohesion were more likely to be exposed to community violence, and exposure to violence was related to later violence perpetration among adolescents. The youth who were exposed to high levels of community violence, but living in families functioning well across multiple dimensions of parenting and family relationship characteristics, were

less likely to perpetrate violence than similarly exposed youth from less well-functioning families.

Most investigations regarding exposure to community violence examine adolescents, but there are a few studies which examined younger children. The study conducted in Washington DC by Richters and Martinez (1993) indicated that 72% of early elementary school children from low-income neighborhoods had witnessed some type of community violence. Miller, Wasserman, Neugebauer, Gorman-Smith, and Kamboukos (1999) investigated the longitudinal relations among children's self-report of witnessing community violence, family environment, and parents' report of children's antisocial behavior in a sample of six to ten years old urban males. The participants reported high rates of lifetime exposure to community violence, and their witnessing community violence was significantly positively related to changes over 15 months in children's antisocial behaviors, even after controlling for the family environment including parent-child conflict, involvement, and monitoring. In families with low conflict, higher levels of witnessed violence predicted an increase in antisocial behaviors over time. In families with relatively high levels of parent-child conflict, high-witnessed violence had no additional influence on antisocial behaviors. A study conducted by Fitzgerald, McKelvey, Schiffman, and Montanez (2006) involved a national sample of preschoolers and their fathers from low-income families. They examined the relations between neighborhood violence and fathers' antisocial behaviors, and found that the children who were exposed to higher levels of neighborhood violence and father's antisocial behaviors were more likely to have poorer emotion regulation.

Summary

It is evident that there is still considerable debate regarding the effects of physical discipline on children. As a result of recent studies, it is now known that there are several factors that influence the relation between harsh discipline and children's externalizing behaviors, and the findings from these studies are based on diverse samples and measures, which might also contribute to conflicting results. While there are many studies regarding physical discipline, little is known about the influence of psychological discipline on children's behaviors. Some studies have shown that children are likely to experience both types of discipline. Thus, it is important to simultaneously examine each influence on children's externalizing behaviors.

Moreover, previous studies have repeatedly emphasized the need for longitudinal designs because they enable researchers to examine the relations of interest while controlling for child behaviors at an earlier time point. Another methodological problem in some previous studies is lack of agreement regarding how to measure physical discipline; some scholars have warned that it is crucial to distinguish non-abusive physical discipline, which does not result in injuries, from severe physical discipline, which could be considered physical abuse. Thus, the current study used a longitudinal data set including data collected at three time points. In addition, the measure of physical discipline was clearly distinguished from abusive discipline because the subscale of severe assault / physical maltreatment was not included.

Other studies have shown that in addition to physical discipline, exposure to violence in community and children's temperamental characteristics influence externalizing behaviors, including their trajectories and change. Also, the prior studies have provided evidence that primary caregiver's exposure to violence in community

influence parenting at home, which in turn influences child development. However, these factors have been examined separately. Thus, it is necessary to examine these factors simultaneously in order to view children from an ecological perspective and expand our understanding of externalizing behaviors.

In summary, this study attempted to fill gaps identified in the literature by simultaneously examining the influence of psychological discipline and physical discipline on externalizing behavior, while following the recommendations of other investigators regarding research design in this area – that is, using a longitudinal design to examine the relations among variables over time, and limiting the measure of physical discipline to acts that are not typically considered abusive. Moreover, this study included other factors that may be important for understanding the relation between harsh discipline and children's externalizing behavior, such as children's exposure to violence in the community and children's temperament.

CHAPTER 3

METHODS

Research Design

This study used restricted data from the Project on Human Development in Chicago Neighborhoods (PHDCN). The PHDCN is an interdisciplinary study of how families, schools, and neighborhoods influence child and adolescent development. It was designed to advance our understanding of the developmental pathways of both positive and negative behaviors. The PHDCN includes a variety of factors in the environment that relate to these behaviors

The project's design consisted of two major components. The first was an intensive study of Chicago's neighborhoods, particularly the social, economic, organizational, political, and cultural structures and the dynamic changes that take place in the structures over time. The second component, the Longitudinal Cohort Study, was a series of coordinated longitudinal studies that followed over 6,000 randomly selected children, adolescents, and young adults to examine the changing circumstances of their lives and the personal characteristics that might lead them toward or away from a variety of behavior problems. In this current study, the data from the Longitudinal Cohort Study data set was used with permission from the National Archive of Criminal Justice Data (NACJD).

The Longitudinal Cohort Study used a stratified probability sample method. The project collapsed eight hundred forty seven census tracts in the city of Chicago into 343 neighborhood clusters based on seven groupings of racial/ethnic composition and three levels of socioeconomic status. Eighty of 343 neighborhood clusters were sampled from

the 21 strata (seven racial/ethnic groups by three socioeconomic levels) in order to represent the 21 cells as equally as possible to eliminate the confounding between race/ethnicity and socioeconomic status. Block groups were selected at random within each of the sample neighborhoods. A complete listing of dwelling units was collected for all sampled block groups. Pregnant women, children, and young adults in seven age cohorts (birth, 3, 6, 9, 12, 15, and 18 years) were identified through in-person screening of approximately 40,000 dwelling units in the 80 neighborhood clusters. The screening response rate was 80 percent. A total of 8,347 participants were identified through the screening. Of the eligible study participants, 6,228 were interviewed in the Wave 1 data collection; 5,338 were interviewed in the Wave 2 data collection, and 4,850 were interviewed in the Wave 3 data collection (PHDCN, 2007).

Data Collection

Data collection for Wave 1 was completed between 1994 and 1997, and for Wave 2 was completed between 1997 and 2000. The data collection for Wave 3 began in 2000 and ended in 2002.

For all age cohorts except 0 and 18, primary caregivers as well as the focal child were assessed. The primary caregiver was the person found to spend the most time taking care of the child. The primary caregiver interviews and child interviews were administered separately. The primary method of data collection was face-to-face interviewing, although participants who refused to complete the personal interview were administered a phone interview. An abbreviated telephone interview was conducted for the primary caregivers in the cohorts 0-15 and cohort 18 study participants in Wave 3 who lived outside the nine-county metropolitan area to which research assistants were

able to travel for interviews. The participants who refused to complete the two-hour in-person interview were administered the phone interview.

The participants were paid between $5 and $20 per interview depending on the age and wave of data collection. Other incentives such as free passes to museums, the aquarium, and monthly drawing for prizes, were also included.

There were participants in Wave 1 who spoke a language other than English. Hence, the complete protocol was translated into Spanish in Wave 3. For those who did not speak English in Waves 1 and 2 and English or Spanish in Wave 3, an abbreviated version of the primary caregiver's protocol was administered, and the research assistant arranged for someone in the household to translate on the spot (PHDCN, 2007).

Participants

The Longitudinal Cohort Study includes seven age cohorts: birth, 3, 6, 9, 12, 15, and 18 years. This study used the data from Waves 1, 2, and 3 of the age 3 cohort group which includes 1001 children and their primary caregivers.

Of the primary caregivers in the sample, 45.5% were Hispanic, 16.8% were Caucasian, 34.7% were African American, 94.2% were female, and 5.8% were male in Wave 1. Fifteen percent of primary caregivers completed less than a high school education, 26.8% had some high school education, 15.1% had completed high school, and 32.9% had more than a high school education. Approximately 10% of primary caregivers had a bachelor's degree or beyond. When the Wave 1 data were collected, the primary caregivers ages ranged from 15 to 68 years (M = 30.6 years, SD = 7.6). Of the focal children in the sample, 50.1% were male and 49.9% were female. The yearly income per capita ranged from $454.55 to $32,500.00 ($M$ = 5743.64, SD = 5105.08). For

the sample, the median per capita income was $3,750.00. The mean yearly income per capita was: $4,575.85 (*SD* = $3,815.48) for Hispanics, $4,851.47(*SD* = $4,817.35) for African Americans, and $10,470 (*SD* = $5,904.69) for Caucasians. The average per capita income for this sample was well below the average for the greater Chicago area ($25,728.00), including the Chicago suburbs, in 1994 when Wave 1 data were collected (Bureau of Economic Analysis, 2008). However, as noted above, neighborhoods were selected to obtain a sample that was ethnically diverse and included a range of incomes within each ethnic group so that the effects of income and ethnicity could be examined separately. In Wave 2, more than half of the primary caregivers (56.2%) were married, 23.9% were single, 6.2% were separated, and 4.3% were divorced.

Missing Data

Although the original sample size of the age 3 cohort group was 1001, the sample size for each analysis differed. The demographic information described above was based on the full sample size of 1001 children and their primary caregivers. For preliminary analyses, only Hispanic, African American, and Caucasian children and primary caregivers were included and the participants in other ethnic groups were excluded in order to examine group differences among the three major ethnic groups in the sample. Thus, the sample size for the preliminary analyses was 972.

For specific research questions and hypotheses, a maximum likelihood estimator was used to test each model. A maximum likelihood estimator requires complete data set without missing data. Therefore, listwise deletion was used to create the complete data set for each analysis, and the sample size varied for analyses addressing each research question: 1) for research question 1, the sample size was 737; and 2) for research question

2, it was 227. Also, the sample size for the research hypotheses varied: 1) for the full model, there were 431 cases; 2) for the multiple sample analysis by gender, there were 466 cases; 3) for the multiple sample analysis by ethnicity, there were 457 cases; and 4) for the multiple sample analysis by income level, there were 504 cases. Because more than 10% of the data were missing, a full information maximum likelihood estimator was not used.

Furthermore, the attrition rate was examined. Of the sample: 1) 66.5% participated in Waves 1 through 3; 2) 12.2% participated in Waves 1 and 2 only; 3) 12.1% participated in only Wave 1; and 4) 7.9% participated in Waves 1 and 3. One-way analysis of variance (ANOVA) was used to examine the per capita income of these four groups; however, there was no significant group difference between the groups on per capital income. Crosstabs was used to examine the association between attrition pattern and ethnicity, and a significant association $\chi 2$ (6, $N = 936$) = 21.23, $p < .05$ was found suggesting that the attrition pattern was significantly related to ethnicity. Of the sample: 1) 68.1% of Hispanics, 66.8% of African Americans, and 69.9% of Caucasians participated in Waves 1 through 3; 2) 13.0% of Hispanics, 11.4% of African Americans, and 13.5% of Caucasians participated in Waves 1 and 2 only; 3) 13.9% of Hispanics, 9.3% of African Americans, and 12.3% of Caucasians participated in only Wave 1; and 4) 5.0% of Hispanics, 12.6% of African Americans, and 4.3% of Caucasians participated in Waves 1 and 3.

Measurements

Harsh Discipline: The latent construct of harsh discipline was measured by using two observed variables: physical discipline and psychological discipline. These observed

variables were assessed by the Conflict Tactics Scale for Parent and Child (CTSS). The primary caregivers completed the CTSS when a child was 3-, 6-, and 9-years old. The CTSS is a derivative from the original Conflict Tactics Scale (CTS) developed by Straus in 1979. The CTSS was designed to measure psychological and physical maltreatment and neglect of children by their primary caregiver as well as nonviolent modes of discipline. It was also designed to measure the extent to which a primary caregiver carried out specific acts of physical and psychological aggression, regardless of whether the child was injured. The CTSS includes four subscales: Nonviolent Discipline, Psychological Aggression, Physical Assault, and Severe Assault. In this study, the observed variable of physical discipline was assessed with the Physical Assault subscale, and psychological discipline was assessed with the Psychological Aggression subscale. Although detailed information for the CTSS is not available, Straus (1979) reported that the coefficients of reliability for psychological aggression ranged from .77 to .88, and for physical assault ranged from .62 to .88 in the CTS.

There are thirty four items in the CTSS. For each item, primary caregivers were asked how many times they had used the behavior during the past year when their child did something wrong or made them upset or angry. There are three items for the Physical Assault scale in Waves 1 and 2, and these are: Threw something at him or her; Pushed, grabbed, or shoved him or her; and Slapped or spanked him or her. In Wave 3, the revised CTS was used. There are five items for the Physical Assault scale, and these are: Spanked him/her on the bottom with your bare hand; Slapped him or her on the hand, arm, or leg; Hit him or her on the bottom with something hard; Shook him or her; and Pinched him or her. In Waves 1 and 2, there are seven items for the Psychological

Aggression scale: Insulted or swore at him or her; Sulked or refused to talk about an issue; Stomped out of the room or house or yard; Cried; Did or said something to spite him or her; Threatened to hit or throw something at him or her; and Threw or smashed or hit or kicked something. In Wave 3, there are five items: Swore or cursed at him or her; Shouted, yelled, or screamed at him or her; Called him or her dumb or lazy or some other name like that; Threatened to spank or hit him or her but did not actually do it; Said you could send him or her away or kick him or her out of the house.

In Waves 1 and 3, responses ranged from category 0 (*never*) to 6 (*more than 20 times*). The CTSS is scored by adding the midpoints for the response categories chosen by the primary caregiver. The mid points are the same as the response category numbers for categories 0, 1, and 2. For category 3 (*3 - 5 times*) the midpoint is 4, for category 4 (*6 – 10 times*) it is 8, for category 5 (*11 – 20 times*) it is 15, and for category 6 (*more than 20 times*) it is suggested to use 25 as the midpoint. Higher total scores indicate higher levels of harshness for each type of discipline. In Wave 2, responses were dichotomous Yes (*1*) or No (*0*).

These variables needed to be adjusted in order to use them in this study consistently because there were differences in the number of items and type (ordinal for Waves 1 and 3 and dichotomous for Wave 2). The physical discipline measure at Wave 1 used the mean score of four items, and Cronbach'a alpha was .51. The physical discipline measure at Wave 3 used the mean score of five items, and Cronbach's alpha was .66. The psychological discipline measure at Wave 1 used the mean score of seven items, and Cronbach's alpha was .54. The item "Said you would send him or her away or kick him or her out of the house" was excluded when computing the physical discipline measure at

Wave 3 because it seemed to represent psychological abuse rather than psychological discipline, and Cronbach's alpha was lowered if this item was included. Thus, the psychological discipline measure at Wave 3 used the mean score of four items, and the reliability coefficient was. 69.

For the physical discipline measure at Wave 2 and psychological discipline measure at Wave 2, the item scores (*0* or *1*) were summed and divided by number of items in order to obtain a mean score. It was necessary to use the same scales across time points for the cross-lagged model analysis used to address research question 2. Therefore, physical discipline2 and psychological discipline2 at Wave 3 were created by transforming the ordinal scale to a dichotomous scale, and the same procedure was used for computing a total score.

In summary, the physical discipline and psychological discipline measures from Wave 1 were used to address research question 1 described in Figure 2 on p. 8. The physical discipline and psychological discipline measures from Waves 2 and 3 that used dichotomous response scales were used to address research question 2 described in Figure 3 on p. 9. The physical and psychological discipline measures from all three Waves were used to examine each specific hypothesis depicted in Figure 4 (See Table 1).

Table 1

Harsh Discipline Measures Used for Each Analysis

	Physical Discipline	Psychological Discipline
Research Question 1	Physical Discipline (Wave 1)	Psychological Discipline (Wave 1)
Research Question 2	Physical Discipline (Wave 2)	Psychological Discipline (Wave 2)
	Physical Discipline 2(Wave 3)	Psychological Discipline2 (Wave 3)
Hypotheses	Physical Discipline (Wave 1)	Psychological Discipline (Wave 1)
	Physical Discipline (Wave 2)	Psychological Discipline (Wave 2)
	Physical Discipline (Wave 3)	Psychological Discipline (Wave 3)

Externalizing Behavior: Externalizing behavior was assessed by the primary caregiver's report on the broad-band score of externalizing behavior of the Achenbach System of Empirically Based Assessment (ASEBA) Child Behavior Checklist for Ages 2-3 (CBCL/2-3) and the Child Behavior Checklist for Ages 4-18 (CBCL/4-18). CBCL/2-3, which was used in Wave 1, consists of approximately 100 items which measure six narrow-band (or syndrome) subscales: Social Withdrawal, Depressed, Sleep Problems, Somatic Problems, Aggressive, and Destructive. The combined Aggressive and Destructive scales comprise the externalizing broad-band score.

The PHDCN used 68 items from the CBCL/4-18 in Waves 2 and 3, which measure eight narrow-band subscales: Social Withdrawal, Anxious/Depressed, Somatic Complaints, Social Problems, Attention Problems, Delinquent Behavior, Thought Problems, and Aggressive Behavior. The externalizing behavior score is derived from the Delinquent and Aggressive subscales (Achenbach, 1991).

The primary caregivers were asked to report on a 3-point scale how true these behaviors are for their children (0 = *not true*, 1 = *somewhat or sometimes true*, and 2 = *very often true*). Sample items include: Gets in many fights; Hits others; Physically attacks people; Doesn't seem to feel guilty after misbehaving; Quickly shifts from one activity to another; Can't sit still, restless, or hyperactive. A higher score indicates that a child displays higher levels of externalizing behaviors. The data from the PHDCN do not include t-scores for the externalizing behaviors in Waves 2 and 3. Additionally, the number of items in Wave 1 is different from Waves 2 and 3. However, raw score were used in this study. Achenbach (1991) reported that researchers could use raw scores from both the preschool and school-age instruments for correlational, regression, and structural equation modeling analyses because correlational statistics were not affected by possible differences in the magnitude of the earlier vs. later scores.

Achenbach (1991) reported that the means of Cronbach's alpha, the coefficient of one-week test-retest reliability, and the coefficient of inter-parent agreement were. 96, .95, and .76 respectively across all scales for the CBCL/4-18. The means of Cronbach's alpha and the coefficient of one-week test-retest reliability were .96 and .91 respectively across all scales for the CBCL/2-3. In this study, Cronbach's alpha for externalizing behavior

assessed at each of the three time points (Wave 1 – Wave 3) were .90, .86, and .87 respectively.

Child Temperament: The latent construct of child temperament was measured by using two observed variables: Activity and Emotionality. These were assessed by the Emotionality, Activity, Sociability, and Impulsivity Temperament Survey (EASI) developed by Buss and Plomin (1975). It was completed by primary caregivers to assess a child's temperamental dispositions. Activity refers to the total amount of energy expended by a person. It is measured by the mean score of 5 items: Is off and running on waking up; Prefers quiet, inactive games (reverse coded); Is always on the go; Is very energetic; and Usually moves slowly (reverse coded). Emotionality refers to the individual's intensity of reaction to a given set of circumstances. It is measured by the mean score of 5 items: Cries easily; Tends to be somewhat emotional; Often fusses and cries; Gets upset easily; and Reacts intensely when upset. Responses ranged from 1 (*uncharacteristic*) to 5 (*characteristic*), and the scores of each scale ranged from 1 to 5 with higher scores suggesting that the particular trait was more characteristic of the child being observed. Buss and Plomin (1975) reported that test-retest reliabilities ranged from .75 to .91 across scales, with an average of .82. In this study, Cronbach's alpha for emotionality and activity were .77 and .47 respectively.

Based on the findings from the existing literature, sociability is less likely to relate to children's externalizing behavior than other aspects of temperament. The construct of impulsivity is related closely to the Destructive subscale in the CBCL which was used to measure externalizing behavior; thus there may be some overlap in content among the

items from the two measures. Therefore, the Sociability and Impulsivity subscales were not be used in this study.

Child's Exposure to Violence in the Neighborhood: My Child's Exposure to Violence measure was completed by the primary caregivers to assess the child's exposure to different types of violent acts in Wave 2. My Exposure to Violence (Subject), or ETVS, is a child's self-report instrument, and it was administered in Wave 3 to obtain information regarding the child's exposure to violent events in the past year.

Child's exposure to violence in the neighborhood in Wave 2 was assessed by the mean score of 24 items in the My Child's Exposure to Violence scale. Sample items are: How many times has your child seen someone shoved/kicked/punched in the past year; How many times has your child seen someone attacked with a weapon, like a knife or bat in the past year; How many time has your child heard a gun shot in the past year; and How many times has your child seen someone shot in the past year. These items were rated on a 4-point scale (1 = *once*, 2 = 2 *or 3 times*, 3 = *4 to 10 times,* and 4 = *more than 10 times*). Prior to answering each item, the primary caregivers were asked if each event had happened to their child in the past year. For example, "Has your child been attacked with a weapon, like a knife or bat in the past year?" The caregiver answered yes or no to each item, and if the response was yes, indicated how often the child experienced this type of violence on a 5-point scale: 0 = *never*, 1 = *once*, 2 = 2 *or 3 times*, 3 = *4 to 10 times,* and 4 = *more than 10 times*. Child's exposure to violence (primary caregiver's report) in Wave 2 was measured by computing the mean score of 24 combined items; higher scores mean that a child was exposed to higher levels of violence based on the primary caregiver's perceptions.

The mean score of 23 combined items in the My Exposure to Violence (child's self report) was used to assess the level of child's exposure to violence in the neighborhood in Wave 3. Sample items in the My Exposure to Violence measure include: How many times have you seen someone shot at (not hurt) in the past year; How many times have you found out that someone you knew got shot in the past year; How many times have you been **hit, slapped, punched, or beaten up in the past year**; and How many times have you seen someone get attacked with a weapon. The same procedure discussed above was used to create the mean score.

These PHDCN versions of the Exposure to Violence scale were adapted from the most widely used measure of exposure to violence, the Survey of Children's Exposure to Community Violence. Thus, there is no specific information regarding the psychometric properties of the PHDCN versions. However, Richters and Saltzman (1990) reported that the original version of the Survey of Children's Exposure to Community Violence obtained an internal consistency estimate of .84. In this study, Cronbach's alpha for the child's exposure to violence (primary caregiver's report) in Wave 2 was .84, and the alpha for the child's exposure to violence (self report) in Wave 3 was .77.

Primary Caregiver's Exposure to Violence in the Neighborhood: The primary caregiver completed the My Exposure to Violence to measure the primary caregiver's experience of exposure to different types of violent acts during the past year in Waves 2 and 3. The same procedure discussed above was used for 24 combined items. Cronbach's alpha for the primary caregiver's exposure to violence in Waves 2 and 3 were .84 and .83 respectively.

CHAPTER 4

RESULTS

The result section is divided into six parts. The first part presents the procedures used to analyze the data. The second part presents the findings from preliminary analyses. Next, the findings for research question 1 are presented, followed by the findings for research question 2. The fifth part presents the findings from the tests of specific research hypotheses. The last part summarizes the findings.

Data Analysis Overview

As preliminary analyses, descriptive statistics, correlations, T-Tests, and ANOVA were computed using SPSS. T-tests and one-way ANOVA were conducted to examine group differences by child's gender, ethnicity, and income level for all continuous variables. For specific research questions and hypotheses, multivariate analyses including latent growth curve, cross-lagged model, and path analysis using structural equation modeling were employed using MPlus.

When the initial models were inadmissible due to negative variance and / or mis-specification, these solutions were used: 1) observed variables were used instead of latent constructs (research question 1 and 2); 2) some paths were removed in order to gain degrees of freedom and the fit of the model was re-examined (research question 2); and 3) some variables were removed from the model due to negative variance (research hypotheses). These decisions were made based on the theories, the findings from existing literature, and the results from preliminary analyses.

Preliminary Analyses

T-Tests and one-way analysis of variance (ANOVA) was conducted to obtain descriptive statistics and examine group differences by child's gender, ethnicity, and income level for the measures of emotionality and activity at Wave 1, children's externalizing behaviors, physical discipline, and psychological discipline at Waves 1, 2, and 3, and children's exposure to violence and primary caregiver's exposure to violence at Waves 2 and 3. Second, the correlations among all of the continuous variables were computed to examine the relations among them.

Descriptive Statistics and Group Differences

First, the skewness and kurtosis were examined by obtaining descriptive statistics for each continuous variable. The results assured that each of them had a normal distribution which was a necessary condition for computing T-Tests and ANOVA. The results of the T-Tests and ANOVA are presented in Tables 1, 2, and 3. For ethnicity, the post-hoc tests were conducted to investigate specifically where the significant differences existed among groups when there were significant group differences. Specifically, Tukey HSD was used for the variables which were assumed to have equal variances among the groups, and Tamhane's T2 was used for the variables which were not assumed to have equal variances among the groups.

There were significant group differences by child's gender for several variables. These variables include: externalizing behaviors at Wave 1 ($T(1, 986) = 2.25; p <. 05$), Wave 2 ($T(1, 798) = 2.77; p <. 05$), and Wave 3 ($T(1, 754) = 3.16; p <. 05$); physical discipline ($T(1, 979) = 2.68; p <. 05$) and psychological discipline at Wave 1 ($T(1, 975) = 2.42; p <. 05$); physical disicpline2 at Wave 3 ($T(1, 660) = 2.19; p <. 05$); and children's exposure to violence (self-report) ($T(1, 710) = 2.19; p <. 05$) at Wave 3. The male

children scored significantly higher on the measures of externalizing behaviors than the female children at all three time points. The male children experienced significantly higher levels of physical and psychological discipline at age three and physical discipline at age nine compared to the female children. In addition, the males indicated that they were exposed to significantly higher levels of violence than the females at age nine (See Table 2).

Table 2
T-Test: Mean Scores by Gender

Variable	Male *M (SD)*	Female *M (SD)*	*T*
Temperament			
Emotionality	3.18 (1.12)	3.20 (1.14)	.31
Activity	4.31 (.65)	4.27 (.72)	.88
Children's Externalizing Behaviors			
CBCL Externalizing (Wave 1)	16.13 (9.48)	14.81 (9.02)	2.25*
CBCL Externalizing (Wave 2)	9.21 (6.22)	8.03 (5.89)	2.77*
CBCL Externalizing (Wave 3)	8.10 (6.39)	6.74 (5.41)	3.16*
Harsh Discipline			
Physical Discipline (Wave 1) [1]	3.26 (4.18)	2.59 (3.70)	2.68*
Physical Discipline (Wave 2)[2]	.17 (.24)	.16 (.23)	.86
Physical Discipline (Wave 3) [1]	1.88 (2.84)	1.62 (2.74)	1.18
Physical Discipline2 (Wave 3) [2]	.33 (.27)	.29 (.26)	2.19*
Psychological Discipline (Wave 1) [1]	2.01 (3.06)	1.58 (2.49)	2.42*
Psychological Discipline (Wave 2) [2]	.12 (.18)	.13 (.20)	.51
Psychological Discipline (Wave 3) [1]	5.01 (4.76)	4.48 (4.71)	1.50
Psychological Discipline2 (Wave 3) [2]	.50 (.28)	.46 (.26)	1.85
Exposure to Violence in the Neighborhood			
Child's Exposure to Violence (PCG Report) (Wave 2)	.22 (.27)	.22 (.26)	.00
Child's Exposure to Violence (Self Report) (Wave 3)	.25 (.21)	.22 (.21)	4.78*
Primary Caregiver's Exposure to Violence (Wave 2)	.22 (.27)	.22 (.26)	.00
Primary Caregiver's Exposure to Violence (Wave 3)	.17 (.23)	.16 (.22)	.16

Note: PCG refers to primary caregiver; [1] ranges 1-6; [2] ranges 0-1; *p < .05; **p < .01.

Moreover, significant group differences by ethnicity were found for several variables. These include: emotionality (F (2, 932) = 5.32; p <. 05) and activity level (F (2, 932) = 3.78; p <. 05) at Wave 1; externalizing behaviors at Wave 1 (F (2, 933) = 3.50; p <. 05) and Wave 3 (F (2, 710) = 8.03; p <. 001); physical discipline at Wave 1 (F (2, 926) = 11.25; p <. 001), Wave 2 (F (2, 792) = 9.68; p <. 001) and Wave 3 (F (2, 620) = 8.49; p <. 001); psychological discipline at Wave 1 (F (2, 922) = 4.44; p <. 05), Wave 2 (F (2, 783) = 3.23; p <. 05), and Wave 3 (F (2, 668) = 20.28; p <. 001); physical disicpline2 (F (2, 621) = 15.63; p <. 001) and psychological disicpline2 (F (2, 670) = 30.33; p <. 001) at Wave 3; the children's exposure to violence (primary caregiver's report) at Wave 2 (F (2, 750) = 57.12; p <. 001); the children's exposure to violence (self-report) at Wave 3 (F (2, 672) = 58.68; p <. 001); and the primary caregivers' exposure to violence at Wave 2 (F (2, 752) = 57.67; p <. 001) and Wave 3 (F (2, 656) = 50.48; p <. 001).

The children in the African American group showed significantly higher levels of emotionality than the children in the Hispanic and Caucasian groups, and the children in the Hispanic group showed significantly higher levels of activity than the children in the African American group. The Hispanic children showed significantly higher levels of externalizing behavior than the Caucasian children at age three, and the African American children showed significantly higher levels of externalizing behavior than the Hispanic and Caucasian children at age nine.

The African American children experienced significantly higher levels of physical and psychological discipline than the Hispanic children at age three. When they were six years old, the African American and Caucasian children experienced significantly higher levels of physical discipline than the Hispanic children, and the Caucasian children

experienced significantly higher levels of psychological discipline than the Hispanic children. The African American children experienced significantly higher levels of physical discipline and physical discipline2 than the children in other groups when they were six and nine years old. The African American and Caucasian children experienced significantly higher levels of psychological discipline than the Hispanic children at age six. For the psycholgocial2 measure, the African American children experienced significantly higher levels of psychological discipline than the Caucasian children who experienced significantly higher levels than the Hispanic children at age nine. Moreover, the African American children and their primary caregivers indicated that they were exposed to significantly higher levels of violence than other groups when they were six and nine years old (See Table 3).

Table 3

One Way Analysis of Variance (ANOVA): Mean Scores by Ethnicity

Variable	Hispanic *M (SD)*	African American *M (SD)*	Caucasian *M (SD)*	*F*
Temperament				
Emotionality	3.13 (1.17)^{A}	3.36 (1.12)^{B}	3.06 (.95)^{A}	5.32*
Activity	4.35 (.65)^{A}	4.22 (.71)^{B}	4.32 (.69)^{AB}	3.78*
Children's Externalizing Behaviors				
CBCL Externalizing (Wave 1)	15.94 (9.54)^{A}	15.83 (9.18)^{AB}	13.79 (8.49)^{B}	3.50*
CBCL Externalizing (Wave 2)	8.53 (6.56)	9.16 (5.73)	8.07 (5.65)	1.60
CBCL Externalizing (Wave 3)	7.02 (5.68)^{A}	8.51 (6.73)^{B}	6.16 (4.50)^{A}	8.03**
Harsh Discipline				
Physical Discipline (Wave 1) [1]	2.36 (3.52)^{A}	3.70 (4.44)^{B}	2.88 (3.59)^{AB}	11.25**
Physical Discipline (Wave 2)[2]	.12 (.23)^{A}	.19 (.25)^{B}	.21 (.22)^{B}	9.68**
Physical Discipline (Wave 3) [1]	1.38 (2.52)^{A}	2.33 (3.30)^{B}	1.37 (2.12)^{A}	8.49**
Physical Discipline2 (Wave 3) [2]	.28 (.27)^{A}	.38 (.28)^{B}	.23 (.19)^{A}	15.63**
Psychological Discipline (Wave 1) [1]	1.58 (2.50)^{A}	2.16 (3.32)^{B}	1.62 (2.21)^{AB}	4.44*
Psychological Discipline (Wave 2) [2]	.11 (.18)^{A}	.12 (.18)^{AB}	.15 (.23)^{B}	3.23*
Psychological Discipline (Wave 3) [1]	3.55 (4.36)^{A}	6.04 (5.11)^{B}	5.18 (4.41)^{B}	20.28**
Psychological Discipline2 (Wave 3) [2]	40 (.28)^{A}	.57 (.25)^{B}	.48 (.22)^{C}	30.33**
Exposure to Violence in the Neighborhood				
Child's Exposure to Violence (PCG Report) (Wave 2)	.15 (.21)^{A}	.34 (.31)^{B}	.12 (.17)^{A}	57.12**
Child's Exposure to Violence (Self Report) (Wave 3)	.17 (.17)^{A}	.34 (.22)^{B}	.18 (.18)^{A}	58.68**
Primary Caregiver's Exposure to Violence (Wave 2)	.15 (.21)^{A}	.34 (.31)^{B}	.12 (.17)^{A}	57.67**
Primary Caregiver's Exposure to Violence (Wave 3)	.10 (.17)^{A}	.26 (.27)^{B}	.08 (.13)^{A}	50.48**

Note: Means that do not share the same superscript are significantly different; PCG refers to primary caregiver; [1] ranges 1-6; [2] ranges 0-1; *p < .05; **p < .01.

Furthermore, significant group differences by income level were found for these variables: emotionality (T (1, 900) = 2.48; p <. 05); externalizing behaviors at Wave 1 (T (1, 925) = 3.29; p <. 05), Wave 2 (T (1, 738) = 2.60; p <. 05), and Wave 3 (T (1, 701) = 3.69; p <. 001); psychological discipline at Wave 1 (T (1, 920) = 2.36; p <. 05); psychological disicipline2 at Wave 3(T (1, 662) = 2.61; p <. 05); children's exposure to violence (primary caregiver's report) at Wave 2 (T (1, 736) = 5.54; p <. 001), children's exposure to violence (self-report) at Wave 3 (T (1, 659) = 3.29; p <. 05), and primary caregivers' exposure to violence at Wave 2 (T (1, 738) = 5.51; p <. 001) and Wave 3 (T(1, 643) = 3.50; p <. 001).

The children in the lower income group (below the median) showed significantly higher levels of emotionality at age three and externalizing behaviors at all three time points than the children in higher income group (above the median). The children in the higher income group experienced significantly higher levels of physical discipline than the children in lower income group at age six. In contrast, the children in the lower income group experienced significantly higher levels of psychological discipline than the children in the higher income group at age three. However, the children in the higher income group experienced significantly higher levels of psychological discipline2 than the children in the lower income group at age nine. The children and their primary caregivers in the lower income group indicated that they were exposed to significantly higher levels of violence than the children and primary caregivers in the higher income group (See Table 4).

Table 4
T-Test: Mean Scores by Income

Variable	Below Median *M (SD)*	Above Median *M (SD)*	*T*
Temperament			
Emotionality	3.29 (1.13)	3.10 (1.12)	2.48*
Activity	4.26 (.73)	4.33 (.65)	1.47
Children's Externalizing Behaviors			
CBCL Externalizing (Wave 1)	16.70 (9.81)	14.68 (8.68)	3.29*
CBCL Externalizing (Wave 2)	9.41 (6.77)	8.21 (5.51)	2.60*
CBCL Externalizing (Wave 3)	8.35 (6.59)	6.65 (5.32)	3.69**
Harsh Discipline			
Physical Discipline (Wave 1) [1]	2.95 (4.19)	2.95 (3.81)	.28
Physical Discipline (Wave 2)[2]	.14 (.23)	.19 (.24)	2.61*
Physical Discipline (Wave 3) [1]	1.72 (2.76)	1.81 (2.84)	.41
Physical Discipline2 (Wave 3) [2]	.30 (.27)	.31 (.25)	.58
Psychological Discipline (Wave 1) [1]	2.09 (3.23)	1.63 (2.46)	2.36*
Psychological Discipline (Wave 2) [2]	.11 (.18)	.14 (.19)	1.94
Psychological Discipline (Wave 3) [1]	4.30 (4.73)	5.00 (4.65)	1.89
Psychological Discipline2 (Wave 3) [2]	.45 (.29)	.51 (.24)	2.46*
Exposure to Violence in the Neighborhood			
Child's Exposure to Violence (PCG Report) (Wave 2)	.28 (.31)	.17 (.22)	5.54**
Child's Exposure to Violence (Self Report) (Wave 3)	.26 (.23)	.21 (.18)	3.29*
Primary Caregiver's Exposure to Violence (Wave 2)	.28 (.31)	.17 (.22)	5.51**
Primary Caregiver's Exposure to Violence (Wave 3)	.20 (.27)	.13 (.18)	3.50**

Note: PCG refers to primary caregiver; [1] ranges 1-6; [2] ranges 0-1; *p < .05; **p < .01.

Overall, there were several group differences on all of the continuous variables. These findings suggested the need for multiple-sample analysis for the specific research hypotheses in order to examine the possible moderating effects of child's gender, ethnicity, and income level on the relations described in Figure 4 on p. 10.

Correlations

Pearson correlations were computed to examine the relations among all continuous variables in order to determine if all variables were related in the expected directions. Overall, the variables were significantly correlated in the expected directions. The variables of children's externalizing behaviors at Waves 1, 2, and 3 were positively and significantly correlated with most predictor variables. However, the correlation between activity and children's externalizing behaviors at Wave 3 was not significant. The correlation between children's exposure to violence (primary caregiver's report) and primary caregivers' exposure to violence at Wave 2 was 1.00. This is likely due to the fact that the mothers completed the same measures for themselves and their children (See Table 5).

Table 5

Pearson Correlations among Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. CBCL Ext. (W1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. CBCL Ext. (W2)	.57**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. CBCL Ext. (W3)	.45**	.58**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Emotionality (W1)	.55**	.32**	.28**	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Activity (W1)	.20**	.08**	.04	.04	-	-	-	-	-	-	-	-	-	-	-	-
6. Phy. D (W1)	.33**	.27**	.20**	.21**	.13**	-	-	-	-	-	-	-	-	-	-	-
7. Phy. D (W2)	.18**	.29**	.18**	.16**	.06	.27**	-	-	-	-	-	-	-	-	-	-
8. Phy. D (W3)	.12**	.16**	.22**	.11**	.05	.29**	.33**	-	-	-	-	-	-	-	-	-
9. Phy. D2 (W3)	.18**	.18**	.29**	.13**	.06	.23**	.38**	.60**	-	-	-	-	-	-	-	-
10. Psy. D (W1)	.40**	.26**	.23**	.23**	.11**	.61**	.22**	.16**	.22**	-	-	-	-	-	-	-
11. Psy. D (W2)	.26**	.34**	.26**	.19**	.04	.28**	.52**	.25**	.32**	.22**	-	-	-	-	-	-
12. Psy. D (W3)	.19**	.24**	.35**	.18**	.12**	.33**	.37**	.58**	.48**	.27**	.33**	-	-	-	-	-
13. Psy. D2 (W3)	.15**	.20**	.32**	.11**	.06	.24**	.35**	.35**	.56**	.27**	.36**	.62**	-	-	-	-
14. Child Exposure to Violence (PCG Report W2)	.19**	.26**	.24**	.13**	.04	.17**	.13**	.23**	.18**	.21**	.21**	.25**	.24**	-	-	-
15. Child Exposure to Violence (Self Report W3)	.11**	.13**	.29**	.11**	-.01	.06	.06	.16**	.18**	.09*	.09*	.16**	.21**	.27**	-	-
16. PCG's Exposure to Violence (W2)	.20**	.26**	.24**	.13**	.04	.18**	.13**	.22**	.18**	.22**	.21**	.25**	.24**	1.00**	.28**	-
17. PCG's Exposure to Violence (W3)	.12**	.17**	.23**	.12**	-.00	.14**	.09*	.21**	.22**	.11**	.12**	.28**	.33**	.63**	.27**	.62**

Note: $N = 972$; CBCL Ext. refers to externalizing behavior; Phy. D refers to physical discipline; Psy. D refers to psychological discipline; PCG refers to primary caregiver;

** $p < .01$ (one-tailed) * $p < .05$ (one-tailed).

Research Question 1

Initial Model

A latent growth curve model was employed to address research question 1: What is the developmental trajectory of externalizing behaviors in relation to temperament and harsh discipline? For this analysis, a latent construct of temperament was measured by emotionality and activity which are observed variables, and another latent construct of harsh discipline was measured by physical and psychological discipline at Wave 1. Next, the initial model described in Figure 2 on p. 8 was tested to examine how temperament and harsh discipline relate to the initial level and overall individual change in children's externalizing behaviors over time.

A maximum likelihood estimator was used to test the initial model, and a level-and-shape (LS) model analysis was employed to test a latent basis model of externalizing behaviors over time by examining the initial status at the beginning of the investigation (Wave 1), which is referred to as a level factor, and the overall change at the end of the investigation (Wave 3), which is referred to as a shape factor. The LS model requires that all of the unstandardized loadings from the level factor (initial level) be fixed at 1 because the level factor is analogous to the intercept in a regression model. In addition, the loading from the shape factor (overall change) to externalizing behaviors at Wave 1 was fixed at 0, and the loading to externalizing behaviors at Wave 3 was fixed at 1 in order to specify a linear trend.

The results of the initial model yielded the following fit indices: $\chi 2$ (11, N = 737) = 105.899, $p < .001$; $\chi 2 / df = 9.63$; CFI = .867; TLI = 746; and RMSEA = .108. These

findings indicated a poor fit of the initial model. Thus, the model was modified to improve the fit.

Modified Model

Due to the poor fit of the initial model, the variables of emotionality, activity, physical discipline, and psychological discipline were used as observed predictors rather than constructing latent variables of temperament and harsh discipline. The modified model is described in Figure 5. The results indicated: $\chi 2$ (6, N = 737) = 5.3, $p < .001$; $\chi 2$ / df = 5.30; CFI = .956; TLI = 889; and RMSEA =. 076 with the 90% confidence interval .052 - .103. The $\chi 2$ statistics, TLI, and RMSEA did not support a good fit; however, the CFI suggested an acceptable fit.

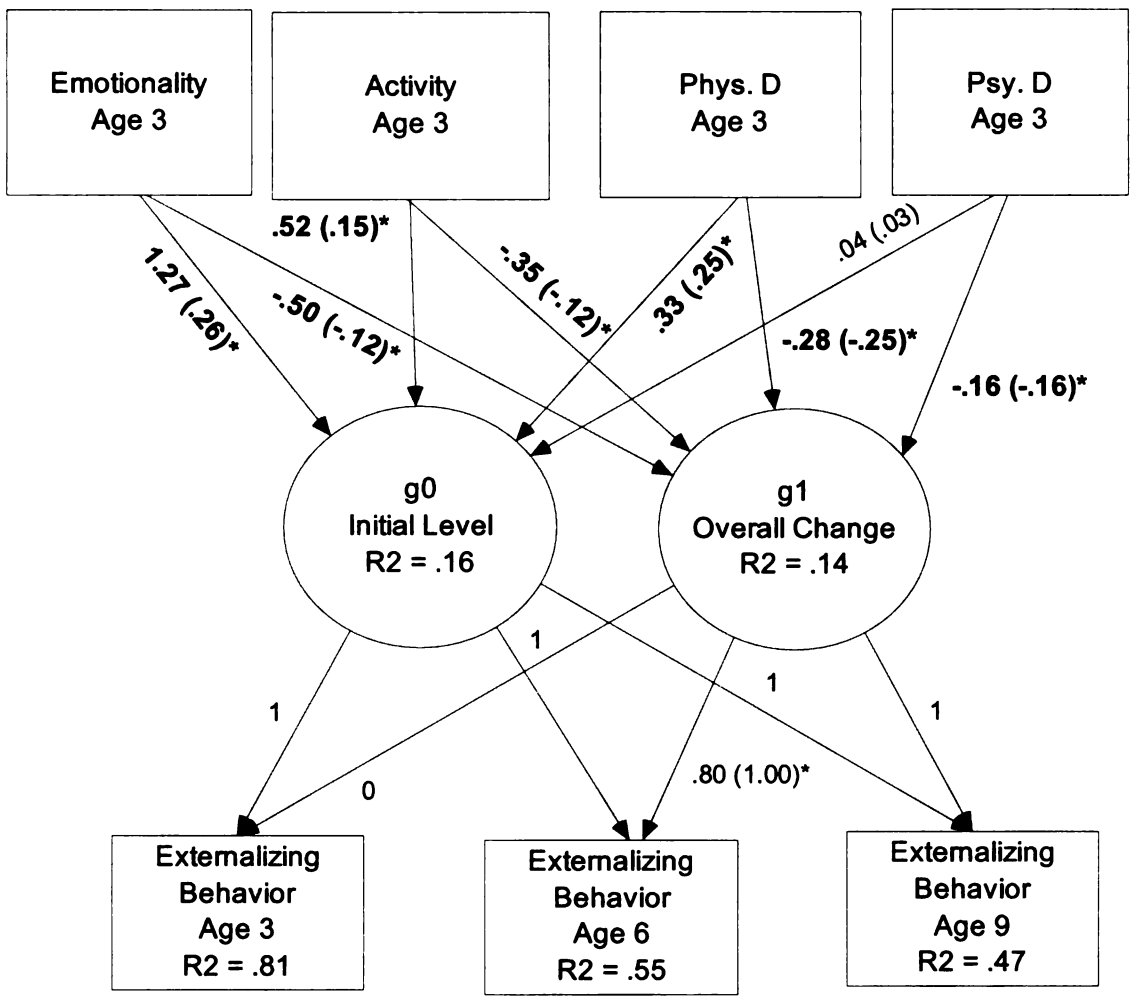
The estimate of covariance between the level and shape factors was -45.62 ($p < .05$). The path coefficients from emotionality, activity, and physical discipline to the level factor were positive and significant. On the other hand, the path coefficients from emotionality, activity, and physical and psychological discipline to overall change were negative and significant. R^2 for the level factor was 16, and R^2 for the shape factor was .14.

These findings suggest that the children with higher levels of externalizing behaviors at age three showed a sharper decline in externalizing behaviors over time than children with lower initial levels of externalizing behavior. More specifically, the children who had higher scores on emotionality and activity, and experienced more physical discipline showed higher initial levels of externalizing behaviors at age three. However, the children who had higher scores on emotionality and activity and experienced more physical and psychological discipline at age three showed greater

decreases in externalizing behaviors over time than other children. The emotionality, activity, and physical and psychological discipline measures explained 16% of the variance of the initial level of externalizing behaviors at age three, and these predictor variables accounted for 14% of the variance in the decrease in rate of externalizing behaviors over time. In particular, emotionality and physical discipline showed stronger relations.

Figure 5

Model 1 Latent Growth Curve Model – Modified Model (N = 737)



Note: Phy. D refers to physical discipline; Psy. D refers to psychological discipline; * $p < .05$.

Research Question 2

Initial Model

A cross-lagged model was built to address research question 2: How do harsh discipline and externalizing behaviors relate reciprocally and longitudinally? To address this question, a latent construct of harsh discipline at Wave 2 was measured by two observed variables: physical and psychological discipline. Similarly, a latent construct of harsh discipline at Wave 3 was measured by two observed variables: physical and psychological discipline2. The initial model described in Figure 3 on p. 10 was tested to examine if the latent constructs of harsh discipline at Waves 2 and 3 are related to the levels of children's externalizing behaviors at Waves 2 and 3 reciprocally and longitudinally.

A maximum likelihood estimator was used to test the initial model; however, the initial model was inadmissible due to negative variances involving the observed variables of physical and psychological discipline and externalizing behaviors at Wave 3. This might be due to the measurement errors of these variables. Thus, the variables of physical and psychological discipline were used as observed variables instead in two separate models illustrated in Figures 6 and 8 on pp. 69-70.

Modified Model: Physical Discipline

The saturated (just identified) model of physical discipline was tested using a maximum likelihood estimator. It was found that path coefficients from physical discipline and externalizing behaviors at Wave 2 to physical discipline at Wave 3 were not significant. Thus, the auto regression path from physical discipline at Wave 2 to Wave 3 was removed, which enabled the model to gain one degree of freedom, and the fit

of the modified model was examined. The modified model of physical discipline is described in Figure 7.

The results indicated: $\chi 2$ (1, N = 227) = .587, $p > .05$; $\chi 2 / df = .587$; CFI = 1.000; TLI = 1.051; and RMSEA = .000, and these findings suggested a good fit of the modified model of physical discipline. The path coefficients from externalizing behaviors and physical discipline at Wave 2 to externalizing behaviors at Wave 3 were found to be significant indicating that prior externalizing behaviors and physical discipline were significantly predictive of externalizing behaviors at Wave 3. R^2 for the externalizing behaviors at Wave 3 was .17.

These findings suggested that the children who displayed higher levels of externalizing behaviors and experienced more physical discipline at age six were likely to show higher levels of externalizing behaviors at age nine, and 17% of the variance of externalizing behaviors at age nine was explained by physical discipline and externalizing behaviors at age six. There was no reciprocal relation because the relation between externalizing behaviors at age six and physical discipline at age nine was not significant. Although physical discipline and externalizing behaviors at age six were significantly related to each other, this relation was not found at age nine (See Figure 7).

Figure 6

Model 2 Physical Discipline – Saturated Model (N = 227)

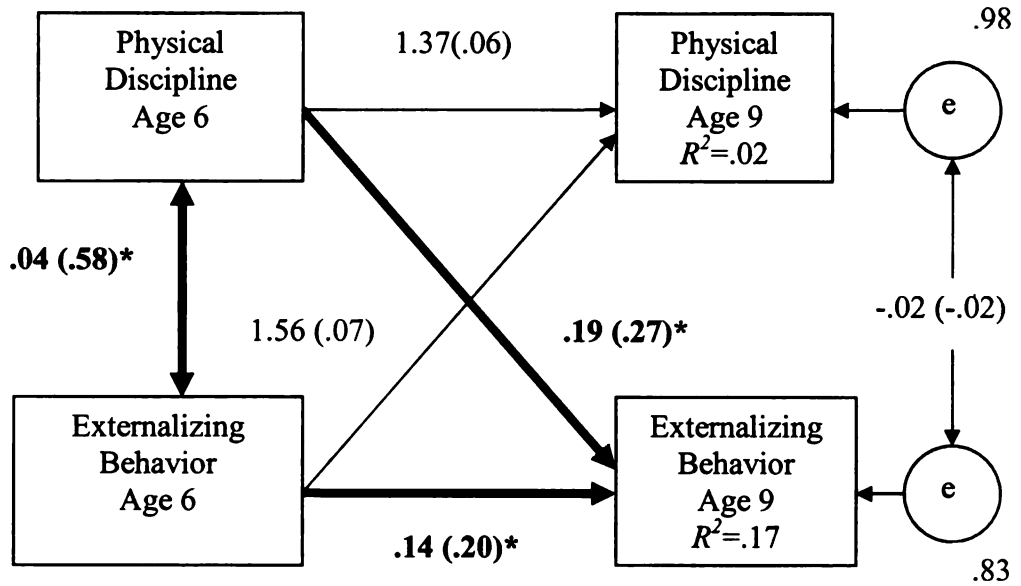
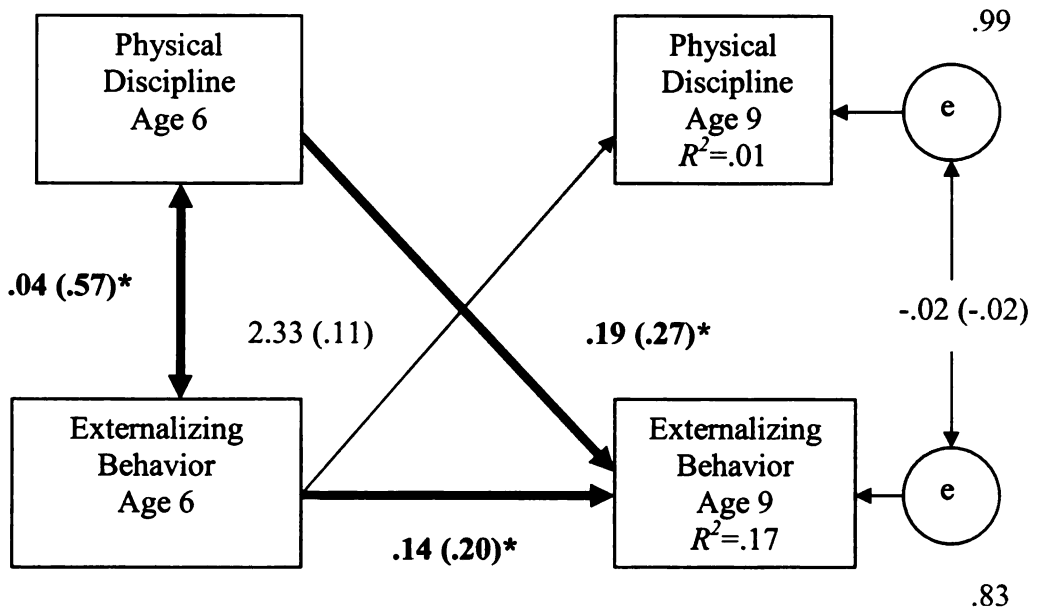


Figure 7

Model 2 Physical Discipline – Modified Model (N = 227)

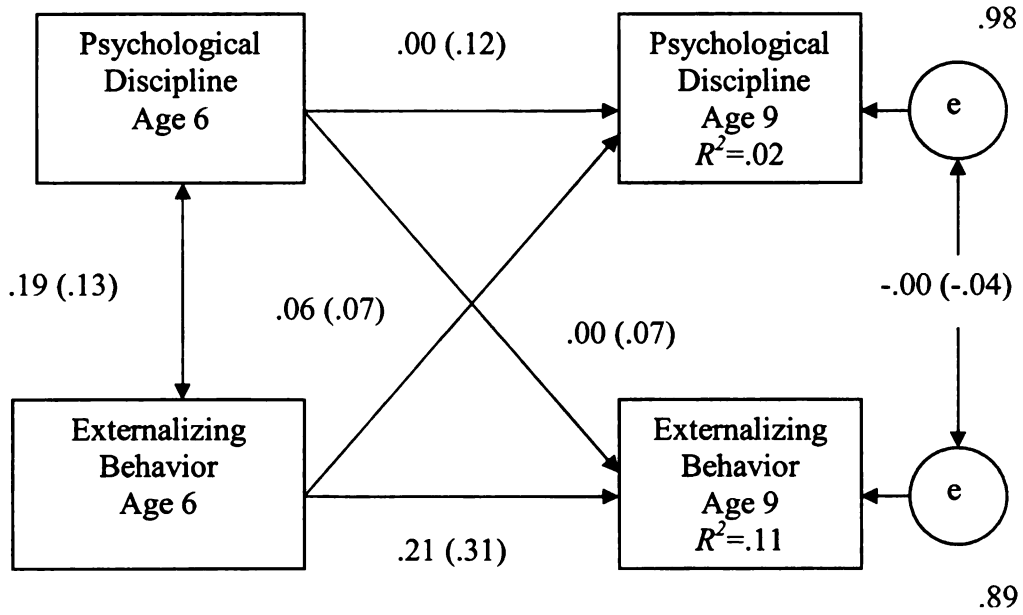


Modified Model: Psychological Discipline

The same procedure used for physical discipline was employed for psychological discipline. The saturated model of psychological discipline, illustrated in Figure 8, was tested using a maximum likelihood estimator. The auto regression path between the externalizing behaviors at Waves 2 and 3 was found to be significant; however, the auto regression path between the psychological discipline variables at Waves 2 and 3 was not significant. Hence, the path between the psychological discipline variables at Waves 2 and 3 was removed, which enabled the model to gain one degree of freedom, and the model fit was re-examined. The results found the following fit indices: $\chi 2$ (1, N = 213) = 3.228, $p > .05$; $\chi 2 / df = 3.228$; CFI = .909; TLI = .544; and RMSEA = .102, and suggested a poor fit of the model although the $\chi 2$ was not significant. Because of the poor fit of the model, the path coefficients were not reported.

Figure 8

Model 2 Psychological Discipline – Saturated Model (N = 213)



Research Hypotheses

Initial Model

Path analysis using structural equation modeling was employed to test all five hypotheses described in Figure 9. As a first step, the initial model was tested using a maximum likelihood estimator. The results indicated a good fit of the model: $\chi 2$ (74, N = 431) = 108.78, $p < .05$; $\chi 2 / df = 1.47$; CFI = .976; TLI = 968; and RMSEA = .033 with the 90% confidence interval .018 - .046. Although the $\chi 2$ is significant, the lower $\chi 2/df$ ratio (< 3) is evidence of a reasonable fit (Kline, 2005). In addition, the $\chi 2$ statistics is likely to be influenced by sample size and the value of *T* from the large sample is less likely to be reliable (Raykov & Marcoulides, 2006). Therefore, other fit indices were examined, and CFI, TLI, and RMSEA suggested a good fit of this model. This means that these observed estimates in the model from this sample are less likely to vary from the expected estimates in the population. Most path coefficients were found to be significant and in the expected directions. However, the path from externalizing behaviors at Wave 2 to harsh discipline at Wave 3 was found to be significant and negative. Additionally, the path from harsh discipline to externalizing behaviors at Wave 1 was not found to be significant.

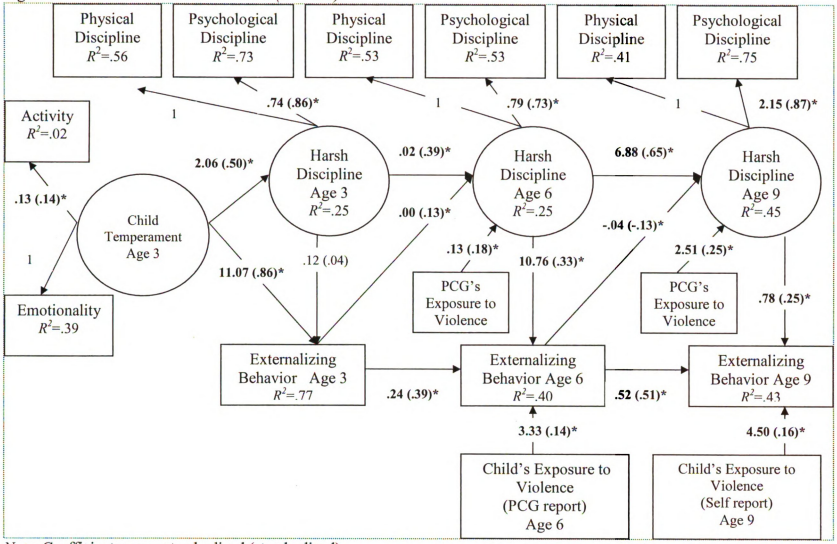
According to the findings, the null hypotheses of hypotheses 1, 2, and 3 were rejected. The children with challenging temperamental characteristics at age three, as indicated by higher levels of activity and emotionality, were likely to experience more harsh discipline and show higher levels of externalizing behaviors at age three. The primary caregivers who were exposed to higher levels of violence in the neighborhood were more likely to use harsh discipline when their children were six and nine years old.

In addition, the children who were exposed to higher levels of violence in the neighborhood were likely to show higher levels of externalizing behaviors when they were six and nine years old.

The null hypotheses of hypotheses 4 and 5 were partially rejected. The children who experienced higher levels of harsh discipline, as indicated by higher levels of physical and psychological discipline, were likely to show higher levels of externalizing behaviors when they were six and nine years old. However, at age three, the harsh discipline that the children experienced did not predict the level of externalizing behaviors that they showed. Although the children who showed higher levels of externalizing behaviors at age three were likely to experience more harsh discipline at age six, the children who showed higher levels of externalizing behaviors at age six were less likely to experience harsh discipline at age nine.

The results of the preliminary analyses showed that there were significant group differences by child's gender, ethnicity, and income level. Hence, in the following section, multiple-sample analyses were employed to investigate the possible moderating effects of ethnicity, child's gender, and income level on these relations.

Figure 9 *Model 3 Initial Full Model (N = 431)*



Note: Coefficients are unstandardized (standardized).

Multiple-Sample Analysis: Moderating Effect of Gender

A multiple-sample analysis was used to examine group difference by child's gender in the relations among the variables. As a first step in the multiple-sample analysis, all of the paths and factor loadings were constrained forcing males and females to have the same path coefficients and factor loadings. Because the constrained initial model was inadmissible due to negative variances and / or mis-specification of the model, the variables of primary caregivers' exposure to violence at Waves 2 and 3 were removed creating the modified model. The results of the constrained modified model indicated: $\chi 2$ (134, male n = 229, female n = 237) = 218.244, $p < .001$; $\chi 2 / df = 1.63$; CFI = .946; TLI = 938; and RMSEA = .052 with the 90% confidence interval .039 - .064. As a second step, all of the path coefficients and factor loadings were freed. The results of the free modified model indicated: $\chi 2$ (116, male n = 229, female n = 237) = 189.95, $p < .001$; $\chi 2 / df = 1.64$; CFI = .953; TLI = 937; and RMSEA = .052 with the 90% confidence interval .038 - .065.

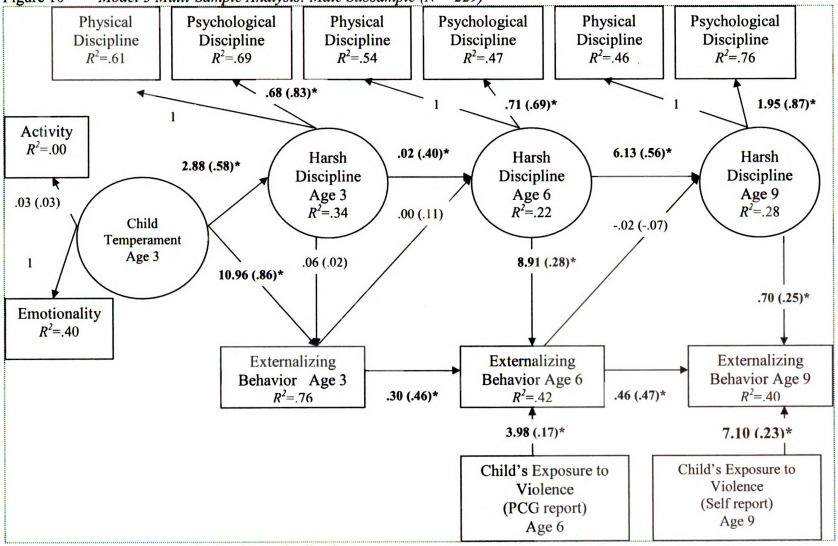
The difference in fit between the constrained and free modified models was tested using $\chi 2$ statistics. The results showed: $\chi 2$ (218.244 – 189.95) = 28.29; df (134 - 116) = 18; p =. 06. This indicated that the improvement in fit was approaching significance. The path coefficients for the male subsample are presented in Figure 10 and the ones for the female subsample are presented in Figure 11. In the female subsample, the loading to activity from temperament was found to be significant but it was not significant in the male subsample. The path coefficient from children's exposure to violence (self report) to externalizing behaviors at Wave 3 was found to be significant in the male subsample but not in the female subsample. These results indicated that the moderating effect of gender

was found in two relations: the factor loading of activity from temperament, and the predictive relation of children's exposure to violence (self report) to the level of externalizing behaviors at Wave 3.

The female children with challenging temperamental characteristics at age three, as indicated by higher levels of activity and emotionality, were likely to experience more harsh discipline and display higher levels of externalizing behaviors at age three. Similarly, the male children with challenging temperamental characteristics at age three were likely to experience more harsh discipline and display higher levels of externalizing behaviors at age three; however, challenging temperamental characteristics was not indicated by higher levels of activity in the male subsample.

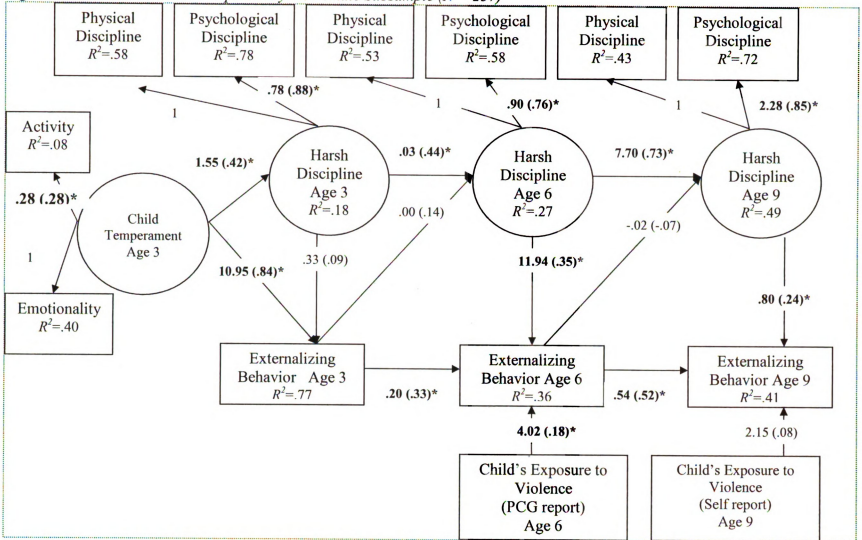
The children who were exposed to higher levels of violence in the neighborhood were likely to show higher levels of externalizing behaviors at age six in both subsamples. Similarly, the children who were exposed to higher levels of violence were likely to show higher levels of externalizing behaviors at age nine in the male subsample but not in the female subsample. In both subsamples, the children who experienced higher levels of harsh discipline, as indicated by higher levels of physical and psychological discipline, were likely to show higher levels of externalizing behaviors when they were six and nine years old.

Figure 10 *Model 3 Multi-Sample Analysis: Male Subsample (N = 229)*



Note: Coefficients are unstandardized (standardized).

Figure 11 *Model 3 Multi-Sample Analysis: Female Subsample (N = 237)*



Note: Coefficients are unstandardized (standardized).

Multiple-Sample Analysis: Moderating Effect of Ethnicity

The same procedure used for the examination of gender difference was employed for the examination of group difference by ethnicity. First, the variables of primary caregivers' exposure to violence at Waves 2 and 3 were removed from the initial model so that this model was consistent with the model that was used to examine gender differences. All of the paths and factor loadings were constrained forcing all groups to have the same path coefficients and factor loadings. The results indicated: $\chi 2$ (186, Hispanic n = 220, African American n = 157, Caucasian n = 80) = 357.583, $p < .001$; $\chi 2$ / df = 1.92; CFI = .894; TLI = 868; and RMSEA = .078 with the 90% confidence interval .066 - .090, and suggested a poor fit of the model. Second, the path coefficients were freed. Constraints on the factor loadings remained because the model was inadmissible when all of the factor loadings and path coefficients were freed. It might be due to measurement errors and / or mis-specification of the model. Therefore, this analysis examined the difference between the constrained and partial invariant modified models. The results showed: $\chi 2$ (184, Hispanic n = 220, African American n = 157, Caucasian n = 80) = 321.15, $p < .001$; $\chi 2$ / df = 1.75; CFI = .915; TLI = 894; and RMSEA = .070 with the 90% confidence interval .057 - .083.

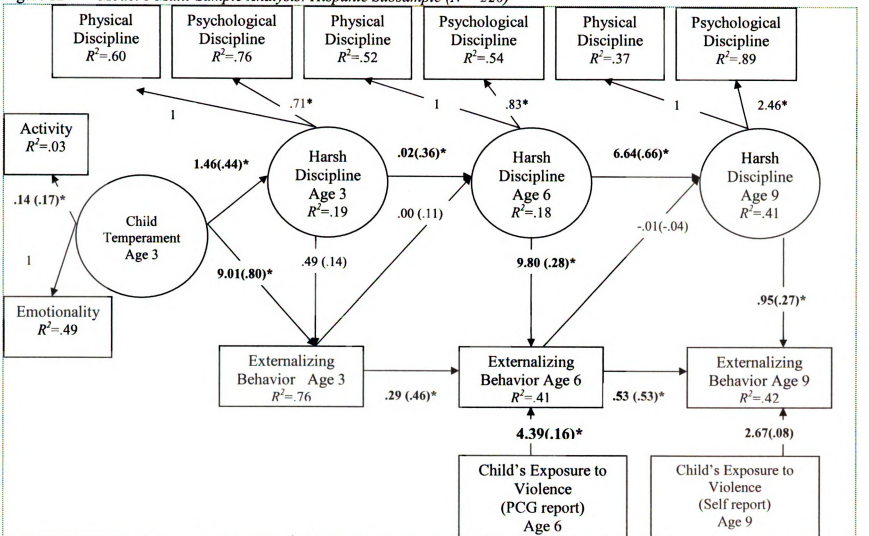
The difference in fit was tested using $\chi 2$ statistics. The results showed: $\chi 2$ (357.583 – 321.15) = 36.43; df (186 - 184) = 2; $p < .001$, and indicated that the improvement in fit was statistically significant suggesting that there were significant group differences by ethnicity in this model. The path coefficients for the Hispanic, African American, and Caucasian groups are reported in Figures 12, 13, and 14 respectively. In the African American group, the path coefficients from children's

exposure to violence (primary caregiver's report) to externalizing behaviors at Wave 2 and from children's exposure to violence (self report) to externalizing behaviors at Wave 3 were found to be significant. In the Hispanic group, the path coefficient from children's exposure to violence (primary caregiver's report) to externalizing behaviors at Wave 2 was found to be significant but it was not significant at Wave 3. In the Caucasian group, neither of these path coefficients was found to be significant. Furthermore, in the Caucasian group, the path coefficient from externalizing behaviors at Wave 2 to harsh discipline at Wave 3 was significant but it was not significant in the Hispanic and African American groups. These results indicated that moderating effects of ethnicity were found for three relations: the predictive relations of children's exposure to violence to the levels of externalizing behaviors at Waves 2 and 3; and the predictive relation of externalizing behaviors at Wave 2 to harsh discipline at Wave 3.

The African American children who were exposed to higher levels of violence in the neighborhood were likely to show higher levels of externalizing behaviors when they were six and nine years old. Similarly, the Hispanic children who were exposed to higher levels of violence in the neighborhood were likely to show higher levels of externalizing behaviors at age six but they were not at age nine. For the Caucasian children, the levels of violence in the neighborhood that they were exposed to did not relate to their levels of externalizing behaviors. Moreover, the Caucasian children who showed higher levels of externalizing behaviors at age six were likely to experience more harsh discipline at age nine, but the Hispanic and African American children were not. For all groups, the children with challenging temperamental characteristics at age three, as indicated by higher levels of activity and emotionality, were likely to experience more harsh discipline

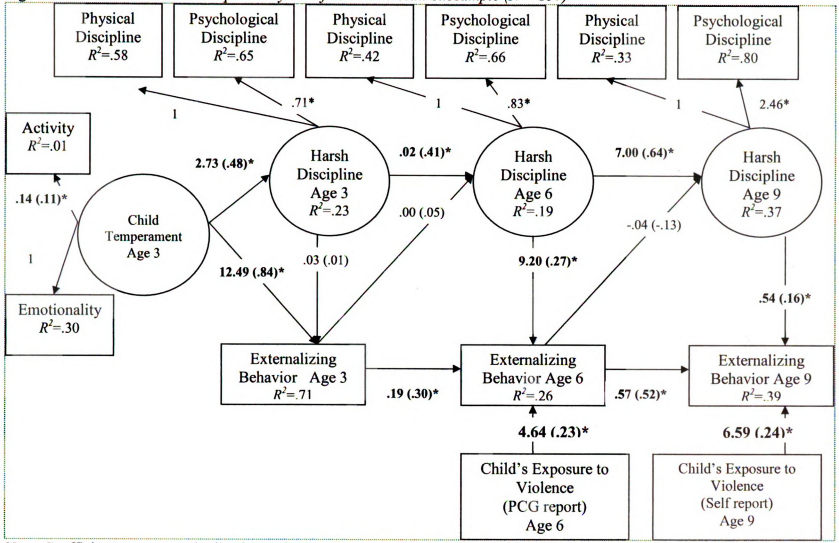
and display higher levels of externalizing behaviors at age three. The children who experienced higher levels of harsh discipline, as indicated by higher levels of physical and psychological discipline, were likely to display higher levels of externalizing behaviors when they were six and nine years old.

Figure 12 *Model 3 Multi-Sample Analysis: Hispanic Subsample (N = 220)*



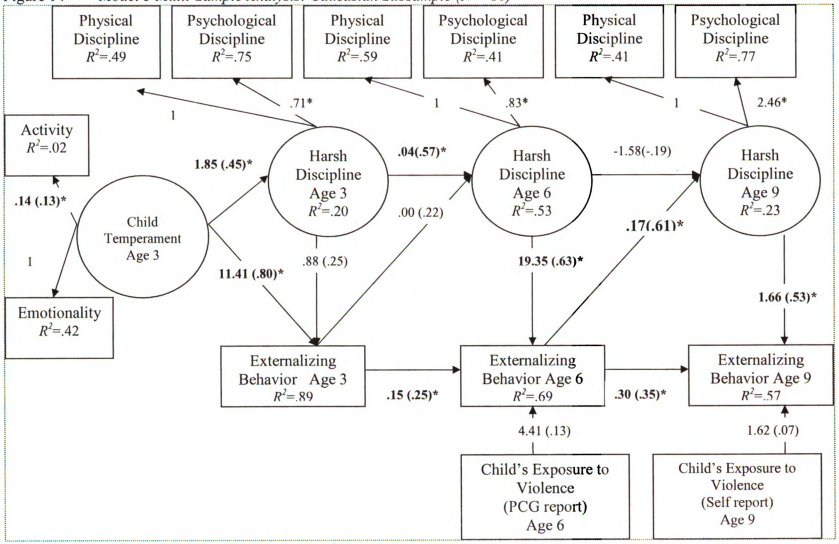
Note: Coefficients are unstandardized (standardized).

Figure 13 *Model 3 Multi-Sample Analysis: African American Subsample (N = 157)*



Note: Coefficients are unstandardized (standardized).

Figure 14 *Model 3 Multi-Sample Analysis: Caucasian Subsample (N = 80)*



Note: Coefficients are unstandardized (standardized).

Multiple-Sample Analysis: Moderating Effect of Income

A multiple-sample analysis was attempted to examine group difference by income level. Although the constrained model was admissible and showed a good fit, the free models were inadmissible due to negative variances in several variables. This may be due to measurement errors and / or mis-specification of the model. Thus, the multiple-sample analysis was not conducted and no results regarding group difference by income level are reported.

Summary

The purpose of this study was to investigate longitudinally the relation between harsh discipline and externalizing behaviors in children. Several interesting findings emerged from the analyses addressing research question 1, research question 2, and the specific research hypotheses. First, research question 1 is concerned with how the temperamental characteristics and experiences of physical and psychological discipline relate to the initial level and the change over time in externalizing behaviors. The children showed a decrease in externalizing behavior over time from ages three to nine, and the rate of decrease was predicted by children's temperamental characteristics and the physical and psychological discipline that they experienced at age three. More specifically, the children who had higher scores on emotionality and activity and experienced more physical discipline were likely to show higher levels of externalizing behaviors at age three. However, the children who had higher scores on emotionality and activity and experienced more physical and psychological discipline at age three showed a sharper decline in externalizing behaviors at subsequent assessments than their peers with lower scores on the temperament and discipline measures at age three. Second,

research question 2 examined the relations among externalizing behaviors and physical discipline at ages six and nine. The children who showed higher levels of externalizing behaviors and experienced more physical discipline at age six were likely to show higher levels of externalizing behaviors at age nine.

Third, specific research hypotheses were tested in order to investigate longitudinally the relations among children's temperamental characteristics and externalizing behaviors, physical and psychological discipline, and children's and their primary caregivers' exposure to violence in the neighborhood. The children with challenging temperamental characteristics were likely to experience more harsh discipline and showed higher levels of externalizing behaviors at age three. Furthermore, the children who experienced higher levels of harsh discipline were likely to show higher levels of externalizing behaviors, which related to the level of harsh discipline experienced at later time points. More specifically, the children who showed higher levels of externalizing behaviors at age three were likely to experience more harsh discipline at age six; however, the children who showed higher levels of externalizing behaviors at age six were less likely to experience harsh discipline at age nine. Additionally, the primary caregivers who were exposed to higher levels of violence in the neighborhood were more likely to use harsh discipline, and the children who were exposed to higher levels of violence in the neighborhood were likely to show higher levels of externalizing behaviors.

Further analyses revealed groups differences by gender and ethnicity in these relations. The activity level that the children exhibited was related to higher levels of externalizing behaviors and harsh discipline for the female children, but these relations were not found for the male children. The level of exposure to violence in the

neighborhood at age six was related to higher levels of externalizing behaviors for the Hispanic and African American children, but this relation was not found for the Caucasian children. At age nine, the level of exposure to violence in the neighborhood was related to higher levels of externalizing behaviors for the African American children, but this relation was not found for the Hispanic and Caucasian children. Also, this relation was found for the male children, but it was not for the female children. The Caucasian children who showed higher levels of externalizing behaviors at age six were likely to experience more harsh discipline at age nine, but this relation was not found among the Hispanic and African American children. Regardless of gender or ethnicity, the children who experienced higher levels of harsh discipline were likely to show higher levels of externalizing behaviors at ages six and nine

CHAPTER 5

DISCUSSION AND CONCLUSION

The discussion section has four parts. The first part presents a discussion of the findings. The second part discusses the limitations of the study. The third section suggests directions for future research. The fourth section discusses the implications. Finally, the conclusions are presented.

Discussion

The purpose of this study was to use an ecological perspective to investigate longitudinally the relation between harsh discipline, which consists of physical and psychological discipline, and externalizing behaviors in children. There are four points which need to be discussed. First, the findings show that psychological discipline had a significant relation with children's externalizing behaviors. Second, the relation between harsh discipline and externalizing behaviors was found for the children at ages six and nine; however, the expected reciprocal relation between them was not found. Third, this study suggests the importance of including possible correlates which relate to harsh discipline and children's externalizing behaviors. More specifically, the children who were exposed to more violence in the neighborhood were likely to show higher levels of externalizing behaviors, and the primary caregivers who were exposed to more violence in the neighborhood were likely to use more harsh discipline. Fourth, this study showed the moderating effect of ethnicity on the relation between exposure to violence in the neighborhood and externalizing behaviors, and the moderating effect of gender on the relations among temperament, harsh discipline, and externalizing behavior.

Psychological Discipline

Overall, the children showed a decrease in their levels of externalizing behaviors while the levels of physical discipline that the children experienced decreased and the levels of psychological discipline increased over time. When the children were three-years-old, physical discipline had a significant relation with the levels of externalizing behaviors, but psychological discipline was unrelated to externalizing behavior. However, in the longitudinal analysis, psychological discipline had strong and significant relations with the levels of externalizing behaviors at ages six and nine. Thus, physical discipline appeared to have a stronger relation with externalizing behaviors when the children were younger, and psychological discipline appeared to have a stronger relation when the children were older.

Possible explanations for these differences by age include children's levels of cognition (Gershoff, 2002) and language. For example, the children might not be able to understand what the primary caregivers imply by threatening and yelling at them or calling names when they are three years old. However, the pain they receive from spanking is a more concrete experience requiring little cognitive or language processing. The older children may be able to cope with the temporary pain from physical discipline, yet they can be affected more by psychologically harsh words and the emotional climate created by their primary caregivers. Needless to say, it is necessary to replicate the findings of this study and to investigate these possible explanations regarding age differences. Most importantly, this study established that there is a link between psychological discipline and externalizing behavior much like prior research established a link between physical discipline and externalizing behavior.

Harsh Discipline, Externalizing Behaviors, and Age

Regardless of gender or ethnicity, the children who experienced more harsh discipline, including physical and psychological discipline, were more likely to display externalizing behaviors at ages six and nine. The children with challenging temperamental characteristics were likely to receive more harsh discipline and display higher levels of externalizing behaviors, but the harsh discipline they received did not have a relation with their externalizing behaviors at age three.

The relation changed as the children grew older in this study. According to Straus and Stewart (1999), the overall prevalence of physical punishment rate was 94% for children ages three and four and the rates decreased as the children became older. Because they are less likely to experience harsh discipline at ages six and nine, it might be that the relation between harsh discipline and externalizing behaviors becomes more significant if they experience it beyond the preschool years. For older children, harsh discipline might be perceived as a non-normative experience. When children feel that the harsh discipline they receive is unfair or that the discipline they receive is excessive relative to what other children their age and culture experience, harsh discipline can be a risk factor for behavior problems. How older children experience harsh discipline may also depend on other parental behaviors (e.g., warmth) and how children interpret parental discipline. Children who receive harsh discipline may be less likely to show problem behavior if they perceive their parents are disciplining them out of concern for their welfare; although the children may take issue with the method, if they understand the reasons for their parents' methods and perceive the discipline as motivated by the parents' desire to provide guidance, the harsh discipline may not be associated with problematic outcomes in children. This explanation has been used to explain positive

outcomes in Chinese American children who have relatively strict parents (Chao, 1994). However if the harsh discipline is interpreted as an angry parent's way of making the child atone for his transgressions, the children may engage in similar aggressive behavior with peers when peers do something to make the child angry (Snyder, Cramer, Afrank, & Patterson, 2005). Older children are better than younger children at judging the intentions of another person, and this ability to judge the intent of an action may influence how children are affected by harsh discipline over time (Crick, & Dodge, 1994; Gershoff, 2002). Further research is needed to understand children's thinking about the discipline they receive and how their interpretations of parental discipline change with age. Nonetheless, these findings provide support for Bronfenbrenner's Process-Person-Context-Time (PPCT) model because the effect of hash discipline, the proximal process variable in this study, on children's externalizing behaviors, depended on characteristics of the person (age) and the context (neighborhood violence) over time.

It is also important to examine the role culture plays in children's interpretation of discipline. Although there is the perception that American parents use physical discipline more than parents in other countries (with European countries often being used for comparison), in some parts of the world, American parents may be viewed as relatively lenient by comparison. For example, the Sudanese refugees, known in the media as the *Lost Boys of Sudan,* were surprised that American teachers were not allowed to cane disrespectful and disruptive students and generally viewed corporal punishment as important for positive character development (T. Luster, personal communication, August 12, 2008). In the Sudanese cultural context, children are likely to interpret

parental use of corporal punishment differently than many American children because of cultural consensus about the merits of physical punishment.

The possible reciprocal relation between harsh discipline and externalizing behavior was also examined in this study. Patterson (1982, 2002) argued that inconsistent but frequent harsh discipline creates a coercive reciprocal pattern in family interactions. However, the expected reciprocal relation was not found in this study. It might be that the way harsh discipline was measured in this study was not able to capture the reciprocal interactions precisely. In order to test coercion theory, it may be necessary to measure multiple points of immediate interactions between a child and primary caregiver using observation techniques of microgenesis.

Exposure to Violence in the Neighborhood

The findings for research question 2 indicated that there also must be other variables that explain individual differences in externalizing behaviors. Although the children who experienced higher levels of harsh discipline and showed more externalizing behaviors at age six were more likely to show externalizing behaviors at age nine, these two variables explained only 17% of the variance in externalizing behaviors. Subsequently, the longitudinal model found that the children who were exposed to more violence in the neighborhood were more likely to show externalizing behaviors and the primary caregivers who were exposed to more violence in the neighborhood were more likely to use harsh discipline.

These findings are consistent with some earlier studies. When primary caregivers are exposed to violence in the neighborhood, they are likely to be more reactive or responsive to the neighborhood violence and become more authoritarian. In other words, they are less likely to tolerate children's disobedience because violence in the

neighborhood could endanger children's safety; thus, they are more likely to use harsh discipline (McLoyd, 1990). Another possible explanation involves elevated stress due to exposure to violence in the neighborhood. Violence in the neighborhood may create higher levels of parental emotional distress, such as anxiety and depression, which in turn, are likely to affect parenting behaviors (e.g., Belsky, 1984; McLoyd, 1990). Furthermore, several studies provide support for the conclusion that children who are exposed to higher rates of community violence are more likely to show behavior problems due to the deleterious influence of exposure to violence (e.g., Osofsky, Wewers, Hann, & Fick, 1993; Richters & Martinez, 1993).

These findings highlight the importance of an ecological perspective in examining the relation between harsh discipline and externalizing behaviors; the context in which parents and children are interacting may influence their transactions. The children usually have more microsystems as they grow older and spend more time outside of the home (Bronfenbrenner, 2005). Therefore, it is necessary to consider factors beyond the family environment that may significantly influence development. Moreover, as Bronfenbrenner argued, proximal processes in the home may also be influenced by contextual factors such as the level of violence in the neighborhood.

In this study, when the relations among harsh discipline and externalizing behaviors were examined at ages six and nine, only 17% of the variance in externalizing behaviors was explained by these variables at age nine. However, 43% of the variance in externalizing behaviors was explained by harsh discipline, their prior externalizing behaviors, and children's exposure to violence. Harsh discipline and exposure to violence in the neighborhood, key aspects of children's experiences in two different microsystems,

were related to externalizing behaviors. In addition, parental exposure to violence, an aspect of the children's exsosystem, was significantly predictive of the primary caregivers' practice of harsh discipline, which in turn, related to children's externalizing behaviors. In other words, the effect of harsh discipline, a proximal process, on a child's outcome, was influenced by the environment in which the process occurs. Therefore, these findings are consistent with Bronfenbrenner's model of human development and his PPCT model.

Moderator Variable -- Ethnicity

This study examined the possible moderating effect of ethnicity in the relations among temperament, harsh discipline, externalizing behavior, and exposure to violence in the neighborhood. The level of exposure to violence was related to higher levels of externalizing behaviors for the African American children at age nine, but this relation was not found for the Hispanic and Caucasian children. The African American children and their primary caregivers indicated that they were exposed to significantly higher levels of violence than other groups.

It might be that exposure to violence in the neighborhood is confounded with the influence of income because people with lower incomes may have few alternatives to living in areas with higher rates of violence. In this study, the mean yearly per capita income for African Americans ($4,851.47) was less than half of Caucasians ($10,470). However, the mean per capita income for Hispanics ($4,575.85) was lower than the mean for African Americans. Per capita family income was modestly correlated with the primary caregivers' exposure to violence ($r = -.17, p < .05$) and the children's exposure to violence ($r = -.15, p < .05$) when the children were nine years old; families with high

levels of income tended to be exposed to less violence. Gorman-Smith, Henry, and Tolan (1998) found that the relation between neighborhood violence and aggression was moderated by family structure, referring to the level of organization in the home and the support family members provide for each other. Their findings suggested the relations among income, neighborhood violence, and externalizing behavior depend on family processes that occur in these high-risk contexts.

This study found the African American children were more vulnerable to the effects of neighborhood violence than the Caucasian and Hispanic children. Researchers reported that in Illinois, African-American children were five times as likely as Caucasian children to live in poverty and Hispanic children were three times as likely to live in poverty in 1995. Moreover, African-American children were more than eight times as likely and Hispanic children three times as likely as Caucasian children to die as a result of violence in 1998 (Goerge, Lee, Bilaver, Dilts, Harden, Moore, Perry, Peters, Ray, Reidy, Weir, & Wurr, 2001). However, why African Americans were more likely to be exposed to violence in the neighborhood and why African American children appeared to be more vulnerable to the violence they witnessed remain unclear. Further research is needed to disentangle the relations among ethnicity, income, neighborhood violence, and family characteristics.

Some earlier studies support the notion that the physical discipline is associated with more externalizing behaviors among Caucasian children but not among African American children because physical discipline is a more normative socialization practice among African Americans (e.g., Deater-Deckard, Dodge, Bates, & Pettit, 1996; Gunnoe & Mariner, 1997). Moreover, African Americans are more likely to endorse the use of

spanking as an appropriate method of discipline (e.g., Deater-Deckard, Dodge, & Sorbring, 2002; Deater-Deckard, Lansford, Dodge, Pettit, & Bates, 2003). In this study, the moderating effect of ethnicity was not found. The relation between harsh discipline and externalizing behaviors was found for all ethnic groups. However, the effect was strongest for the Caucasian group, and smallest for the African American group. Additionally, exposure to violence in the neighborhood showed a stronger relation to children's externalizing behaviors than harsh discipline among African American children.

This finding does not necessarily contradict earlier findings regarding ethnic group difference in the relation between harsh discipline and externalizing behaviors entirely. Rather, this study emphasizes the importance of considering both group differences and individual differences within groups. McLoyd, Kaplan, Hardaway, and Wood (2007) examined whether maternal endorsement of physical discipline moderated the relation between spanking frequency and child depressive symptoms among African American families. They found that the relation between spanking frequency and child-reported depressive symptoms was stronger for the children of the mothers who did not endorse physical discipline than for the children of the endorsing mothers. It indicates that there is within-group variation in African American mother's attitudes toward physical discipline. While there are group differences by ethnicity, there are also individual differences within the group. It may be an oversimplification if we examine the moderating effect of ethnicity without considering how attitudinal differences within the group also affect the relation between parental discipline and externalizing behavior. Therefore, it is important for future studies to investigate both cultural-level influences

and individual-level influences on the relation between harsh discipline and externalizing behaviors.

Moderator Variable -- Gender

The activity level that the children exhibited was related to higher levels of externalizing behaviors and harsh discipline for the female children; yet, these relations were not found for the male children. Previous literature found that males tend to be more active than females, and that gender differences in activity level increase with age (e.g., Campbell & Eaton, 1999; Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006). Campbell and Eaton (1999) argued that the early gender difference in activity level is biologically based; however, socialization processes, such as gender-differentiated expectations and experiences, in conjunction with further biological development, expand the gender difference. Therefore, higher levels of activity might be a risk for females because females may be expected to show lower levels of activity; it might evoke more harsh discipline from primary caregivers and make them rate their female children's behaviors higher on externalizing behaviors when females are more active. While the higher activity level was a direct risk for females at age three, it might have been an indirect risk for males at age nine. The level of exposure to violence was related to higher levels of externalizing behaviors for the males but this relation was not found for the females at age nine. It may be that very active males were more likely to be exposed to violence in the neighborhood because of their characteristics. However, this study did not examine activity level at age nine, and further research is necessary to test this explanation.

Limitations

There are some limitations of this study. First, harsh discipline was measured by the primary caregivers. Thus, there was no way to verify that what they reported reflects what they actually did; in fact, it would be difficult to measure exactly what happened in the families with most approaches available to researchers. However, Bennett, Sullivan, and Lewis (2006) examined the relations between maternal report of discipline practices using the Conflict Tactics Scale and observations of mother-child interactions; they found that parental report, using the Conflict Tactics Scale, may be useful in assessing parental discipline because the observations of parental behaviors were consistent with the responses on the Conflict Tactics Scale. Yet, as they suggested, socially desirable responses still can be a problem.

Second, most measures used in this study were based on the reports made by the primary caregivers. Thus, a concern is shared variance method. It would be better to use multiple measures and multiple sources of information; however, this is one of the limitations of secondary data analysis. Other sources of information were not available in the data set for the variables of interest. Another limitation was a low level of internal consistency for the measure of activity. Cronbach's alpha for activity was .48, and thus caution is warranted in interpreting the results regarding activity. Lastly, no causal relations can be determined from this study because the findings from the latent growth curve, cross-lagged, and path analysis of structural equation models usually do not allow for causal inferences. Therefore, the findings must be interpreted with appropriate caution.

Implications

There are two implications that can be drawn from this study. However, these recommendations need to be interpreted with caution because this study used a

correlational design and no causal relations could be determined. First implication can be made at a social policy level. Currently, there are twenty three countries which have adopted policies and laws that ban the use of corporal punishment at home and school. In the U.S., this debate continues among the public, within academia, and among policy makers. Gershoff and Bitensky (2007) proposed programs and policies to reduce the use of corporal punishment by both parents and school personnel in the U.S. after reviewing research findings and explaining the changes that have happened in Sweden since corporal punishment was banned in 1977. In Sweden, the use of corporal punishment, parents' endorsement of corporal punishment, and children's injuries from assaults declined markedly after the ban (Durrant, 1999). Furthermore, Gracia and Herrero (2008) found lower acceptance of physical punishment of children among people in the European Union when they lived in a country where corporal punishment had been banned. Also, they found that lower acceptance of physical punishment was related to a lower number of child maltreatment deaths. However, there is no guarantee that the same changes would happen in the U.S. because the U.S. is culturally different and more diverse than Sweden and most other countries in Europe. Therefore, educating the public through a national campaign on effective discipline strategies, which is one of the suggestions made by Gershoff and Bitensky, might be a more acceptable approach to policy makers across the political spectrum than criminalizing harsh discipline. Although the research findings regarding the effects of harsh discipline are inconsistent, all things considered, the negative effects appear to outweigh the benefits of corporal punishment. Reducing the use of harsh discipline may decrease the potential negative effects on children and the risks for child abuse.

The same message need to be included in parenting education or intervention programs at the community level by promoting the benefits of using other discipline techniques, such as reasoning, discussion, and positive reinforcement, which teach children how to behave rather than punishing them. There are also forms of punishment that do not require physical force, such as time-outs and taking away privileges. In order to succeed in promoting this idea in parenting or intervention programs, instructors or clinicians need to be aware of cultural differences and consider other contextual factors which might explain why some parents use harsh discipline. Acknowledging the cultural and individual difference and teaching alternative techniques may work better than condemning the use of harsh discipline. Parent educators also need to work with parents to use other strategies effectively; otherwise parents may doubt the efficacy of these alternative strategies and revert to practices, such as spanking, that seemed to lead to children's compliance at least in the short term.

Directions for Further Research

This study examined the construct of harsh discipline which was measured by physical and psychological discipline. It would be interesting if we could include positive or non-harsh aspects of discipline creating the construct of discipline rather than harsh discipline. This addition makes it possible to explore what types of discipline have detrimental effect on development, while determining if positive or non-harsh discipline buffers the negative effects of harsh discipline. Although the revised Conflict Tactics Scale has a subscale of non-harsh discipline, there seems to be a need for more items to measure positive aspects of discipline. It would be beneficial to further develop a

measure which assesses a variety of discipline strategies as well as measures parental warmth and concern, which may also buffer the effects of coercive disciplinary tactics.

The exposure to violence in the neighborhood was found to have a significant relation to the levels of externalizing behaviors. It is important to include other contextual factors, which might relate to harsh discipline and externalizing behaviors, using an ecological perspective. One of these contextual factors could be peer relations. For example, it would be useful to investigate if having peers with higher levels of externalizing behaviors is related to an increase in children's externalizing behaviors over time.

Thus far, we have a great amount of information regarding the effect of physical discipline on children's development; however, evidence regarding the effects of psychological discipline is very limited. It is hoped that there will be more studies examining psychological discipline so that our understanding of the effects of psychological discipline would eventually be comparable to the knowledge that we have regarding physical discipline. Although it has been debated, most investigators make a distinction between physical discipline and physical abuse. However, the line between psychological discipline and emotional abuse is still unclear. With some agreements about this distinction, it seems likely that more investigations would be conducted.

This study found that psychological discipline is related to externalizing behavior much like physical discipline is related to externalizing behavior. This raises other questions such as: How do each of them relate to other behavior problems in children, such as anxiety? Which would have a more detrimental effect given a certain situation, if indeed there is a causal relation? The answer may vary depending on children's

characteristics – such as, temperamental characteristics, age, or level of cognition – or the children's context. Additional research is required to advance our understanding of moderating variables that affect the extent to which harsh discipline is related to children's behavior problems. Hence, many questions still remain.

Conclusion

The findings from this study indicate that harsh discipline including physical and psychological discipline, challenging temperamental characteristics, and exposure to violence in the neighborhood have significant relations with externalizing behavior in children over time. While this study replicated the finding that physical discipline is associated with higher levels of externalizing behavior, it also showed that psychological discipline is associated with higher levels of externalizing behavior. Challenging temperamental characteristics were associated with an increase in harsh discipline and higher levels of externalizing behaviors. Moreover, exposure to violence in the neighborhood was related to increases in harsh discipline and externalizing behavior. Further analyses showed, in particular, that exposure to violence was a risk for the African American children, and higher level of activity was a risk for females. In sum, this study highlights the importance of an ecological perspective to examine the effects of parental discipline on children's externalizing behavior by providing support for Bronfenbrenner's (2005) proposition that the effects of a proximal processes on a child's development depend on child's characteristics, such as age, and environmental characteristics, such as neighborhoods with high levels of violence.

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