MECHANISMS OF CONTEXTUAL

RISK AND PROTECTION

FROM HEAD START

TO FIRST

GRADE

By

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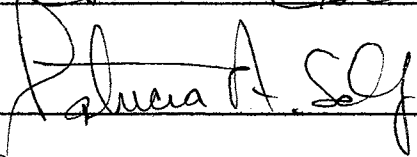
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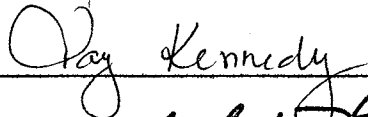
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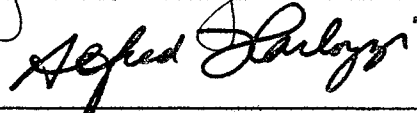
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CHAPTER 1

THE PROBLEM

Introduction

The contextual approach to human development is appropriate for looking at relations among various measures of developmental outcomes and social context (Bronfenbrenner, 1988). Although researchers differ in their theoretical interpretations of how much impact they attribute to specific contextual influences (e.g., parental interaction, socioeconomic status, stress, and family characteristics), most agree that it is the interrelation among a variety of contextual factors that contributes meaningfully to children's developmental outcomes (Burchinal, Peisner-Feinberg, et al., 2000; Egeland, Pianta, & O'Brien, 1993; Elardo, Bradley & Caldwell, 1977; Fagot & Gauvain, 1997; Hashima & Amato, 1994; Hubbs-Tait, Osofsky, Hann, & Culp, 1994; Jackson, 2000; Murry & Brody, 1999; Nitz & Ketterlinus, 1995; Pettit, Harrist, Bates, & Dodge, 1991; Reynolds, 1992; Strassberg, Dodge, Pettit, & Bates, 1994). Researchers often refer to contextual influences that have a negative impact on children's development as risk factors and contextual influences that have a positive or buffering impact on children's development as protective factors.

Head Start is a comprehensive program designed to promote child development. Head Start aims to increase school readiness of young children in low-income families (U.S. Department of Health and Human Services, 2003). Researchers have found family income to be correlated with children's development (Yeung, et al. 2002) particularly family income during early childhood (Duncan et al., 1998). Because admission criteria for Head Start

include a family income level at or below the poverty line, Head Start families are considered an at-risk population. Poverty is thought to increase children's risk for developmental and academic delays (Rolf, 1999; Smith, Brooks-Gunn, Kohen, & McCarton, 2001). Since children enrolled in Head Start programs are considered to be at-risk due to poverty, additional risk factors found within Head Start families might further contribute to children's negative outcomes. A sample of Head Start children and their families is appropriate for expanding the current literature on contextual risk and protective factors.

Contextual Influences

There are specific contextual risk and protective factors that have been identified by various researchers (Rutter 1979; Rutter 1983; Sameroff, Seifer, Baldwin, & Baldwin, 1993). For children growing up in Head Start it is important that researchers understand contextual risk/protective factors that focus on parenting practices, level of income, and family structure. The following pages will discuss these three concepts.

Parenting Practices

Parent-child interactions, parenting skills, and parenting behaviors are a significant part of the contextual environment in which all children develop. Even with the established link between parental behavior and child socioemotional or cognitive competence, investigation of the relation between parenting practices and children's outcomes over time has found mixed results. Conflicting results often lead researchers, theorists, and clinicians to ambiguous conclusions

(Hamilton, 2000; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000; Weinfield, Sroufe, & Egeland, 2000).

One consistent finding in the literature is that authoritarian parenting behaviors (i.e., coercion, power assertion) are often associated with poor cognitive and social developmental outcomes in children (Egeland, Pianta, O'Brien, 1993; Hart & Risley, 1995; Hubbs-Tait, Culp, Culp, & Miller, 2002; Galambos, Barker, & Almeida, 2003). More specifically, maternal power assertion and intrusion are negatively correlated with children's socioemotional and cognitive competence (Crockenberg & Litman, 1990; Egeland et al., 1993; Hubbs-Tait, Culp, Culp et al., 2002; Vissing, Straus, Gelles, & Harrop, 1991). It is interesting to note that some studies found moderate parental control, especially in African American children to be associated with positive development (Deater-Deckard, Bates, Dodge, & Pettit, 1996). These studies indicate that authoritarian practices can have different effects on children's outcomes. On the other hand, researchers have also found warm nurturing parenting to be associated with positive child outcomes (Hart & Risley, 1995; Maccoby & Martin, 1983; Rothbaum & Weisz, 1994).

Level of Income

Level of income is another part of children's contextual environment that has a direct and indirect influence on children's developmental outcomes. Poverty is considered by many leading experts to be a stressful life experience that can lead to a lack in parental involvement or inappropriate parental behaviors (Reynolds, 1992). Poverty is also a risk factor for a variety of negative

outcomes including child neglect and abuse (Vondra, 1990), externalizing behavior problems (Velez, Johnson, & Cohen, 1989), and educational difficulties (Felner, et al., 1995). Most children and families in Head Start programs have income levels that fall below the poverty line. Poverty is significant because it tends to create multiple stressors combined with a lack of appropriate resources. The accumulation of stressors found in families that live in poverty over time magnifies risk (Kirby & Fraser, 1997).

Poverty often impacts Head Start families by decreasing resources, limiting access to social support and health care services, and creating an environment that is non-conducive to healthy child development (Kirby & Fraser, 1997). Common problems for families living in chronic poverty include early parenthood, lack of social support, drug and alcohol abuse, high crime rates, and non-authoritative parenting styles (Speer & Esposito, 2000). As the family's economic situation worsens, parents often display less nurturance and more unpredictable patterns of discipline toward their children (Conger, et al., 1992). However, as the family's economic situation improves, children's developmental outcomes have also been found to improve (Fuller, Caspary, & Kagan, 2002).

The sample of Head Start families in this study was obtained from a rural area in Oklahoma. Research shows that mothers rearing children in rural, impoverished environments may confront additional challenges then those faced by urban mothers living in impoverished areas. Rural areas often lack support systems of adequate health care and food supply (i.e., fewer grocery stores and fewer health care facilities) for low income families (Murry & Brody, 1999), which

may contribute to negative socioemotional and cognitive development in children. Additional studies in rural poverty stricken areas are needed to understand the specific effects of poverty in these areas.

Family Structure

Mothers who lack support in raising their children compound children's contextual risks in a way that can lead to negative developmental outcomes. Multiple studies have found an association between family structure and children's outcomes (Dunifon & Kowleski-Jones, 2002). Single parenthood has been associated with lower academic achievement and higher behavioral problems in children (McLanahan & Sandefur, 1994; Smith, Brooks-Gunn, & Klebanov, 1997). However, some of these studies failed to control for other risk factors such as poverty or parenting practices (Dunifon & Kowleski-Jones, 2002). When researchers controlled for poverty and parenting styles, effects of family structure did not have as great of an impact on children's achievement (Smith et al., 1997) or behavioral outcomes (Carlson & Corcoran, 2001).

Interrelationship Among Risk Factors

There is a high correlation among risk factors of inadequate parenting, single parenthood, and poverty. For example, mothers who are single parents frequently live in poverty and suffer from social isolation (Hogan & Licter, 1995; McLanahan & Sandefur, 1994). Economic strain on the family often leads to less warm and sensitive parenting interactions and more erratic parenting practices, which in turn contribute to negative child outcomes (Dunifon & Kowleski-Jones, 2002). Research has found that children who live in single-parent or stepfamilies

spend less time with a parent than children living in two parent families (Astone & McLanahan, 1991). Additional research studies have also found single parenthood to be positively associated with lower math scores in children (Dunifon & Kowaleski-Jones, 2002; McLanahan & Sandefur, 1994).

On the other hand, warm nurturing parenting practices, supportive partners, and employment outside the home have been associated with greater wellbeing among mothers (Gottlieb, 1997), which might have a direct or indirect positive effect on children's developmental outcomes. The majority of research on the association between maternal parenting behaviors and children's socioemotional or cognitive outcomes has found positive correlations between maternal warmth and/or sensitivity and children's socioemotional and cognitive competence (e.g. Belsky, Rovine, & Taylor, 1984; Crockenberg, 1981; De Wolff & van Ijzendoorn, 1997; Hart & Risley, 1995; Maccoby & Martin, 1983; Rothbaum & Weisz, 1994).

Current Study

It is important to look at risk and resilience issues in Head Start families in order to determine which contextual risk and protective factors are associated with children's cognitive and socioemotional deficits over time and which protective factors buffer the expected negative effects. This study investigates longitudinal relations among contextual risk and protective factors in relation to children's cognitive and socioemotional outcomes. The 3-year time frame of the study allows for evaluation of changes in risk and protective factors found in children's contextual environment between Head Start and first grade.

Gaps in Current Research

The majority of child development research studies have examined associations between family environments and children's outcomes at one point in time. Researchers (e.g., Baumrind, 1989; Sroufe & Jacobvitz, 1989) have suggested the importance of evaluating groups at multiple points in time in order to determine whether risk or protective factors really do influence children's outcomes. Although maternal parenting practices, poverty, and social support within families have been linked to short-term social outcomes in children (Dunifon & Kowaleski-Jones, 2002; Pianta, Nimetz, & Bennett, 1997; Pettit et al., 1991), there remains a paucity of research detailing the longitudinal relationship among risk and protective factors in families' contextual environments and children's subsequent cognitive and socioemotional outcomes (Mauro & Harris, 2000).

Research that has focused on the relation of family context to children's socioemotional and cognitive outcomes has typically included White middle- and upper-middle-class suburban or urban families (Waters, Weinfield, & Hamilton, 2000). This study will address this limitation by including Native American mothers from a low-income rural area.

Outcome measures of children's cognitive and socioemotional development from preschool to first grade are markers of children's current adjustment as well as predictors of later achievement and development (Eccles, 1999). It is important to consider a combination of outcomes to fully understand the development of children; therefore, in this study socioemotional and cognitive

outcomes will be assessed as equally important indicators of children's development (Shonkoff & Phillips, 2000).

Summary

In sum, this study aims to fill some of the gaps in the current body of research. This will be accomplished by employing a longitudinal design with a Head Start sample that examines the associations of changes in contextual risk and protective factors in relation to children's socioemotional and cognitive skills. The study begins in children's prekindergarten (Head Start) year and extends to the end of the first grade year.

CHAPTER 2

REVIEW OF LITERATURE

Mechanisms of Contextual Risk and Protection from Head Start to First Grade

Risk, Protection, and Resiliency

Risk Factors

Definitions for all concepts in this study are provided after the concept is first introduced. A risk factor is defined as anything that influences the probability of an occurrence, advancement, or continuance of a problem state (Kirby & Fraser, 1997). Risk factors can include individual biological or dispositional attributes such as prenatal asphyxia or difficult temperament and contextual effects such as exposure to stress, poverty, or violence (Barocas, Seifer, & Sameroff, 1985; Kirby & Fraser, 1997; Rutter, 1979; Sameroff, Seifer, Barocas, et al., 1985).

Contextual risk factors have proximal and distal influences on overall risk (See Figure 1). Proximal risk has an immediate impact on development because it is close in time and space to the child's environment. For example, a decreased quality of nutrition would be considered a proximal risk because it has an immediate impact on children's development. On the other hand, poverty can be considered a distal risk factor because it is further removed from the child than is the food the child consumes (Kirby & Fraser, 1997; Masten, Best, & Garmezy, 1990).

Protective Factors

Protective factors are another important part of the risk and resilience model. Protective factors are internal (e.g. temperment) and external (e.g. parental support) factors that assist children in decreasing or alleviating risk

(Kirby & Fraser, 1997). They may moderate the effects of contextual or individual vulnerabilities so that a positive outcome is possible (Masten, Best, & Garmezy, 1990). Protective factors can be dispositional characteristics such as positive temperament and cognitive competence or environmental characteristics such as a healthy family environment, positive relationship with at least one adult, and extended social support outside the home (Kirby & Fraser, 1997).

Families with multiple protective factors appear to have significantly better outcomes than families with few protective factors. Research studies have found that repeated exposure to warm, sensitive, parenting serves as a protective factor for children living in high-risk environments (Chen, Matthews, & Boyce, 2002; Repetti, Taylor & Seeman, 2002; Taylor, Repetti, & Seeman, 1997).

Figure 1 Model of Risk and Protective Factors. This model demonstrates how both distal and proximal risk and protective factors influence the individual.
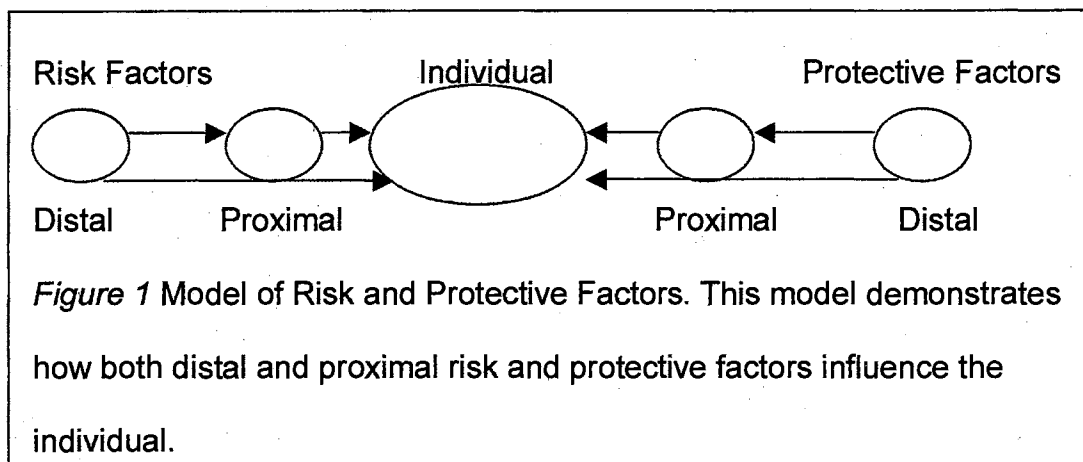
Interactive Model

According to Rutter (1979, 1983) there can be an interactive (i.e., multiplicative) effect of contextual risk and protective factors. In other words, protective factors interact with risk factors to have an effect on the socioemotional and cognitive outcomes of children. Protective factors are thought

to apply little influence when risk is low; however, when risk is high they are thought to apply a greater influence (Hubbs-Tait, Culp, Huey et al., 2002; Masten, 1987; Rutter, 1979). This can occur in three ways. Protective factors may buffer risk factors. For example, parental monitoring may moderate the extent to which a child living in a high-risk neighborhood develops behavior problems. Protective factors may also fragment the negative risk chain. For example, interventions can be aimed at promoting supportive parenting in order to interrupt a chain of negative risk for a single-parent family that includes poverty, lack of social support, and use of intrusive parenting tactics. The third type of protective factor functions to prevent the occurrence of a risk factor. For example, a child's easy temperament may prevent the occurrence of abuse or neglect by the parent (Kirby & Fraser, 1997).

Figure 2A

Risk Factor   Behavior Problems   Protective Factor Present

High Monitoring

Low

Distal   Proximal

Figure 2B

Figure 2 Interactive Model-. An interactive model consists of a combination of contextual risk and protective factors. Figure 2A shows that when a protective factor (i.e. monitoring) is absent and there are proximal and distal risk factors there is a high amount of behavior problems in children. Figure 2B shows that when a protective factors (i.e. monitoring is present and there are proximal and distal risk factors there is a low amount of behavior problems in children.

One study assessed families who were high or low in risk and protective factors in order to determine if child developmental outcomes were a function of the interaction between risk and protective factors (Lester, McGrath, Garcia-Coll, 1995). The researchers found that half of the variance between the high-risk or low-protect and low-risk high-protect groups could be explained if either the effects of protective factors were lessened by risk factors or if the effects of risk factors were decreased by protective factors (Lester et al., 1995). The results of this study suggest that interactions between risk and protective factors can predict child outcomes.

Rutter (1979) found that children with one risk factor were no more likely

to have a psychiatric disorder than those with no risk factors; however, children

with two or more concurrent risk factors were four times more likely to have a

psychiatric disorder. In this study Rutter identified 6 risk factors which included:

"(1) severe marital discord; (2) low social status; (3) overcrowding or large family

size; (4) paternal criminality; (5) maternal psychiatric disorder; and (6) admission

into the care of the local authority" (pp. 52). This finding suggests that risk factors

when combined have a cascading effect, where the result of a combination of

risk factors is greater than the simple addition of factors (Kirby & Fraser, 1997;

Rutter, 1979). Rutter is suggesting that it is not just the addition of risk factors but

also the interaction of certain risk factors that influence the outcomes.

Additive Models

Although Rutter (1987) suggested that protective factors obtain meaning

through adversity, other researchers have described protective factors as the

positive pole of risk factors (Sameroff, Seifer, & Bartko, 1997; Stouthamer-Loeber

et al., 1993). The idea of risk factors being polar opposites of protective factors

was evaluated by a team of researchers who created a list of protective factors

from an original list of risk factors. For example, if negative family environment

was considered a risk factor, the researchers made positive family environment a

protective factor. After compiling the list, the researchers added the protective

factors and assessed them in relation to the established outcomes. The results of

the analyses indicated that protective factors were polar opposites of risk factors.

For example, families who had several protective factors were considerably

better off than those who had fewer protective factors. They also found that the

greater the number of protective factors, the better the overall outcome (Sameroff

et al., 1997). Families who had several risk factors were considerably worse off

than those who had fewer risk factors and the greater number of risk factors, the

worse the overall outcomes (Sameroff et al., 1997). Researchers who use

additive models examine main effects in order to discover whether there the

outcomes are significant. These findings support the idea of risk factors being

polar opposite of protective factors.

Figure 3 Additive Model. This model implies that if the individual has

a low number of risk factors and a high number of protective factors,

positive outcomes are attained. In other words, being low risk for

negative parenting practices produces that same positive outcomes as

being highly protected through positive parenting practices.

Risk Factors   Low Competence   Protective Factors

Distal   Proximal   Proximal   Distal

Key: High Amount ⟶

Low Amount ⤏

Figure 4 Additive Model-Low Competence. When there is a high amount of proximal and distal risk factors and a low amount of distal protective factors and no proximal protective factors, low competence is achieved.

Risk Factors   High Competence   Protective Factors

Distal   Proximal   Proximal   Distal

Key: High Amount⟶

Low Amount ⤏

Figure 5 Additive Model High Competence. When there is a high amount of proximal and distal protective factors and a low amount of distal risk factors high competence is achieved.

Cumulative Effects

Many studies have concluded that it is the accumulation of risk factors (i.e., through addition or interaction) over time that best determines the outcome (Sameroff et al., 1987). Past approaches to studying the ecology of human development have not been able to capture the dynamic nature of the sociohistorical context in which humans develop (Evans, 2003). Due to this deficiency Rutter (1993, 1983, 1979) suggested another method to the study of complex systems of human development. This method evaluates cumulative risk over time and includes risk factors that occur together (Masten, Best, & Garmezy, 1990). Rutter (1979) highlighted the cumulative effect of risk factors. For example, he classified cumulative risk for each environmental and/or personal construct using a statistical quantitative measure (e.g., upper percentile, one standard deviation below the mean). This approach could be incorporated into either the additive or interaction model of risk and protective factors.

Several studies have looked at cumulative risk. One study found that mothers whose only risk factor was being diagnosed as schizophrenic had children who performed competently. However, mothers who had several risk factors (e.g., schizophrenia, low education and social support, and poverty) had children who performed poorly on competence testing (Sameroff, et al., 1997). Specifically the authors reported that 7% of children with two or fewer risk factors were behaviorally incompetent whereas 40% of children with eight or more risk factors were behaviorally incompetent (Sameroff et al., 1997).

Results of another study provide further evidence for the idea of cumulative risk using an additive model. Researchers found that as the number of risk factors increase, children's social and cognitive performance decreases. In this study researchers looked at mother-child interactions during a teaching task. They found that the highest risk scores were linked to fewer positive interactions, more negative interaction, and less communication and interaction with the child during a teaching situation. The results indicated that a greater number of negative risk factors were associated with the child's inability to be successful in the teaching and negotiation situation. Individual risk factors such as the child's lower attention span along with contextual risk factors such as a low socioeconomic status and large number of children in the home has also contributed to negative outcomes in children. Specifically the authors concluded that those mothers who were living in poverty, diagnosed with a mental disorder, had at least four or more children, and lacked the benefit of social support from another adult in the home had children who had lower IQ's than those who did not have the stated risk factors (Barocas et al., 1991). In the same vein, studies have found a positive relationship between increases in risk factors and increases in children's psychological distress (Evans, 2003), learned helplessness (Evans, 2001), and compromised physical health (Power & Matthews, 1998).

Researchers also have investigated the relationship between cumulative risk by looking at protective factors in high-risk families and positive child outcomes. The results of these studies demonstrate that protective factors

accumulate in a similar fashion to risk factors. For example, when there are multiple protective factors in high-risk families, the multiple factors serve as a more powerful shield against negative child outcomes than only one protective factor (Dunst & Trivette, 1994; Zhao, Brooks-Gunn, McLanahn, 2000).

Threshold Effect and Qualitative Change

Qualitative change is a change in kind or type. This type of change is found in developmental emergence (Baumrind, 1989; Lerner, 1976), where something new emerges that is different from what occurred before (Toomela, 2003). Thresholds can differentiate between groups when they are 1 to 2 standard deviations apart. Individual risk variables can be used to measure thresholds to predict child outcomes. Individual risk/protective variables such as maternal education or parenting practices can be used to uncover whether the interaction or addition of variables represents change in children's socioemotional and/or cognitive outcomes. When examining individual risk variables in a Head Start sample, the researcher can identify which contextual risk or protective factors contribute independently or jointly and whether certain factors are more influential than others in predicting cognitive and socioemotional outcomes in children.

The concept of threshold effects refers to the idea that exposure to individual or multiple risk factors may result in a child's reaching a threshold that creates a cascade of negative events. The mechanism of change is referred to as the control parameter (Thelen & Smith, 1998). The control parameter acts by kicking the system (e.g., the child) into a cascade of negative events, which leads

to a shift change (e.g., socioemotional or cognitive outcomes). Shift changes represent a threshold effect but the control parameter may be qualitative (e.g., type of risk factor) or quantitative (e.g., critical number of risk factors events). For qualitative change it is the type of risk or protective factors that serves as a control parameter that initiates the cascade of events (Thelen & Smith, 1998). In this case the outcome of development that results from the threshold effect is qualitatively different as opposed to quantitatively different.

Fuhrman and Holmbeck (1995) looked at the relation between emotional autonomy and adolescent adjustment to see if any contextual factors moderated the relation. They found that for parent-adolescent relationships that were warm and accepting, positive adolescent adjustment was more likely when adolescents had a low level of autonomy. However, when parent-adolescent relationships were stressful and rejecting positive adolescent adjustment was more likely in adolescents who had a high level of autonomy. In this case a high level of autonomy represented a protective factor. Thus, the differences between being in a warm and accepting family compared to a stressful and rejecting family were qualitatively different for adolescents depending on their level of autonomy. For adolescents who had warm and accepting relationships with their parents, a high level of autonomy did not significantly contribute to the adolescents' overall adjustment. In this case a high level of autonomy was neither a protective nor risk factor. However, for adolescents who had stressful and rejecting relationships with their parents, a high level of autonomy represented a shift change that contributed to the adolescents' overall adjustment. In other words

certain factors may serve as protective factors in some situations while in other situations they could not be protective.

The concept of threshold effect would suggest that certain family variables (e.g., maternal warmth, parental control, parent-adolescent conflict) included in the Fuhrman and Holmbeck (1995) study when combined reached a threshold putting in motion a cascade of ensuing events. This cascade of events divided the sample into populations that were different. For one population stressful and rejecting parent-adolescent relationships combined with high levels of adolescent autonomy (i.e. shift change) contributed to positive adjustment in adolescents. However, for the other population warm and accepting parent-adolescent relationships combined with low levels of adolescent autonomy contributed to positive adjustment in adolescents. This study suggests that adolescent autonomy operates differently depending on the context of parent-adolescent relationships in which it occurs.

Researchers in another study (Woodward, Lenzenweger, Kagan, Snidman, & Arcus, 2000) identified 4-month-old infants who demonstrated greater arching, crying, and reactive leg movements during a stimulus activity compared to the control group. This group was referred to as the taxon group because they had the behavioral characteristics of the category "high reactive". Researchers found the behavioral reactivity of the taxon group differed from the control group where 10% of the infants in the taxon group continued to exhibit behavioral inhibition at 4.5 years of age. This study provides additional support for threshold effects where exposure to the same stimulus resulted in high

reactivity with the high reactive group (because of a lower stimulus threshold) but low reactivity in the low reactive group.

Quantitative Change

Quantitative change is a change in amount, degree, or frequency (Lerner, 1976) that involves increasing or decreasing skills and/or behaviors. This represents a change that unfolds over time that can be operationally defined and measured. The risk index approach to analyzing risk and protective factors can be used to measure quantitative change. With this approach the number of risk factors is the predictor. Risk factors are categorized and computed in order to assess quantitative change (Burchinal, Roberts, Hooper, Zeisel, 2000). The advantage of using the risk index approach is that the researcher can assess quantitative change where the predictor is simply the number of risk or protective factors present in the child's environment (Burchinal et al., 2000).

The concept of quantitative change is often supported with the cumulative effect of risk or protective factors. In other words, increasing the number of risk factors such as power assertion, stressful home environment, and poverty over time contributes to quantitative change where the adding on of additional risk factors is associated with negative developmental change in the child.

When looking at contextual risk and protective factors it seems that a combination of methods that assess both quantitative and qualitative change provides the best avenue for predicting child outcomes. For example, in this study a combination of contextual risk or protection variables would allow the researcher to evaluate children whose risk factors increase by 0, 1, or 2 risk

factors (Rutter, 1979) from Head Start to first grade. This would allow the researcher to see if the relation between risk factors and children's developmental outcomes differs when adding one particular type of factor such as change of co-parenting partner compared to children who add all other types of risk factors with total number of increased risk factors (e.g., 2) held constant. In other words, this approach can answer the question whether the type of risk or protective factor or number of risk or protective factors is most important.

Resilience

Resilience is an overall positive outcome that results from a combination of risk and protective factors. Resilience is characterized by competent cognitive, socioemotional, or physical outcomes despite exposure to risk factors (Evans, 2003). Researchers have found resilience promoting factors in childhood. Some of these resilience promoting factors include positive temperament, positive relationship with at least one adult, intelligence, and authoritative parenting (Garmezy, 1993; Rutter, 1993; Seifer, Sameroof, Baldwin, & Baldwin, 1992; Werner & Smith, 1982; Werner, 1993).

Resilience is inferred on the foundation of significant interaction between risk and protective factors where protective factors are associated with positive adaptation (Rutter, 1987). Rutter suggested that it was not enough to simply identify protective factors to assure resilience. He reiterated the importance of looking for protective mechanisms, which lead to resilience. In other words, he suggested that researchers look at complex processes within children's environments such as parenting practices, educational levels, income levels, and

levels of parental hostility (Baldwin, Baldwin, & Cole, 1990) in order to understand resilience.

Masten, Best, and Garmezy (1990) reviewed research on resilience in order to obtain a greater understanding of how it affected normal development. They found that children who were exposed to chronic adversity yet still had characteristics of resiliency were those who received stable consistent care from someone or who had a positive relationship with one adult, were able to problem solve and learn without difficulties, and had a sense of self-efficacy. In this study researchers will assess the domains of socioemotional and cognitive competence in children in order to identify resilience characteristics.

Conclusion

Additive and interactive effects are valuable ways to identify possible influences of contextual risk and protective factors on the dynamic nature of human development. It is important to extend this body of research to include multimethodological indices of development by including a longitudinal design, combination of risk and protective factors, and looking at various child outcomes (e.g. cognitive, socioemotional) along with various environmental contexts (e.g. parenting style, income level, maternal level of education) in order to characterize child outcomes in a Head Start sample.

In the present study, change over time will be used to evaluate contextual risk and protective factors in order to discover whether changes in amount (quantitative) or identity (qualitative) of risk/protective factors is a better predictor of children's cognitive and socioemotional development. The interaction between

risk and protective factors will be assessed in a sample of Head Start families in order to understand how these factors intensify or ameliorate effects on cognitive and socioemotional outcomes.

Review of Literature on Factors in the Current Study

Risk/Protective Factors

Contextual risk and protective factors selected for this study were guided by the literature on family risk. The risk and protective factors identified represent both proximal and distal processes of the children's contextual environment. Table 1 lists the risk and protective factors employed in the current study. The proximal or distal nature of each is indicated on the table.

Table 1

Risk and Protective Factors

Risk Concept/Construct	Proximal or Distal in Context
Poverty	Distal
Power Assertion	Proximal
Hostility	Proximal
Single Parent	Distal
Negative Parenting Attitudes	Distal
Aggressive Maternal Personality	Distal
Protection Concept/Construct	Proximal or Distal in Context
Warmth	Proximal
Monitoring	Proximal
Reasoning	Proximal
Presence of Co-Parent	Distal
Education	Distal

Mothers Parenting Practices

The first component of risk selected for this study was negative parenting practices. These negative parenting practices include power assertion, intrusion, and hostility. Maternal usage of coercive control or power assertion is a parenting practice that has been associated with detrimental child outcomes. Mothers who use coercion attempt to influence their child through power assertion, harsh

repetitive directions, or physical manipulation (Rothbaum & Weisz, 1994; Shaffer & Crook, 1980). Mothers' negative control tactics, including insulting, threatening, and yelling at their children, are often linked to externalizing behavior problems in children (Bryant & Crockenberg, 1980; Crockenberg & Litman, 1990; Hubbs-Tait, Culp, Culp, Steel, & Fore, 1998; Rothbaum & Weisz, 1994; Vissing et al., 1991). In fact one researcher found that maternal negative control was positively associated with behavior problems in children between 3.5 and 6 years of age (Spieker et al., 1999).

Maternal power assertion has also been associated with victimization of other children (Hinde & Tamplin, 1983; Hoffman, 1960; Ladd, Kochenderfer Ladd, 1998). Pettit et al. (1991) discovered that maternal-child coercion predicted high levels of teacher-rated aggression toward peers.

Researchers have also found a negative association between maternal power assertion and cognitive competence in children (Egeland, et al., 1993; Olson, Bates, Kaskje, 1992). One study found mothers who attempted to obtain control over their children through guilt and anxiety-producing language inhibited boys' level of self-esteem related to school success (Warash & Markstrom, 2001). Results of a longitudinal study indicated that intrusive maternal-child interaction in infancy was highly related to negative child academic, social, and emotional outcomes during the child's first years of school (Egeland, et al., 1993).

Although some researchers have found no relation between controlled spanking and negative child outcomes (Lefkowitz, Eron, & Walder, 1977), most

research corroborates the idea that power assertion in the form of harsh spanking is negatively associated with children's socioemotional competence (Michaels, Pianta, & Reeve, 1993; Weiss, Dodge, Bates et al., 1992). Children who experienced physical control tactics—(including slaps, spankings, and beatings)-- and verbal control tactics—(including yelling, threatening, and insulting)-- experienced a higher amount of adjustment problems and physical aggression, delinquency, and interpersonal problems compared to children who did not experience these events (Michels, Pianta, & Reeve, 1993; Vissing et al., 1991).

Poverty

The second component of risk examined in the current study was poverty. The purpose of Head Start is to compensate the effects of poverty; therefore, low-income was included as a risk factor in this study. It is well documented in the literature that parental income is positively associated with children's socioemotional and cognitive outcomes (Zhan & Sherraden, 2003). In fact, Zhan and Sherraden (2003) found that parental income was directly related to the likelihood of children's high school graduation.

Effects of poverty often have a negative impact on children's achievement. Researchers have found that poverty can have adverse effects on children's development even at a young age. According to Smith, Brooks-Gunn, and Klebanov (1997) poverty negatively affected 2 year-old children, as evidenced by low scores on an intelligence test. Some research studies have indicated that poverty seems to have the greatest influence during the preschool years

(Duncan, Yeung, Brooks-Gunn, & Smith, 1998). Researchers recommend examining family income longitudinally because the effects of poverty are so adverse and widespread (McLoyd, 1998). Many researchers also recommend using family income as a direct measure of economic status (Blau, 1999; McLoyd, 1998; Korenman, Miller, & Sjaastad, 1995).

Another suggestion found in the literature was to look at change over time. Researchers have found that children who persistently lived 200% below the poverty line scored lower (6 to 9 points) on cognitive and language exams than children who lived in families who were never poor (Smith, Brooks-Gunn, & Klebanov, 1997). Researchers have found poverty to be significantly negatively correlated with cognitive competence (Duncan, Books-Gunn, & Klebanov, 1994; Petterson & Albers, 2001). In fact, Petterson and Albers (2001) found that poverty highly impacted the cognitive scores of girls who were between 28 and 50 months of age. These researchers looked at the effects of poverty over time and found that girls who lived in persistent poverty had lower cognitive scores than those who did not live in persistent poverty. Girls who lived above the poverty line scored significantly higher on cognitive measures than those living below the poverty line (Petterson & Albers, 2001).

Economic loss has been included in many studies as a risk factor (Dearing, McCartney, & Taylor, 2001; Smith et al., 1997); on the other hand, economic gain has been included as a protective factor (Dearing, McCartney, & Taylor, 2001). This suggests that high versus low income levels could be polar opposites. For example, when the family's income level falls below poverty level

that represents a risk factor; however, when the family's income level reaches above poverty level that represents a protective factor.

Marital Status

The third component of risk chosen for this study was marital status. Children in the United States are increasingly living in diverse families (Dunifon & Kowaleski-Jones, 2002; McLanahan & Casper, 1995). Across various ethnic and socioeconomic groups there has been an increase in single parent families (McLanahan & Casper, 1995). Studies that have looked at the effects of single parenthood on children's developmental outcomes have found mixed results. Many studies reviewed in the literature have found a positive association between single parenthood, lower academic achievement, and higher behavioral problems in children (Amato & Booth, 1997; McLanahan & Sandefur, 1994). Sandberg and Hofferth (2001) found that children in single parent families headed by mothers spend approximately 21 hours per week with their mothers, compared to children in married parent families who spend approximately 31 hours per week with their mothers. Other researchers have found an association between single parenthood and low math scores and decreased child well-being in European American children (Dunifon & Kowaleski-Jones, 2002; McLanahan & Sandefur, 1994). An additional finding was that children who grow up in single parent families headed by females are five times more likely to be poor than children of two-parent households (U.S. Bureau of the Census, 2001; Furstenberg, 1990). In addition, single-parented children have also been found to have more problem behaviors (Hetherington & Clingempeel, 1992), academic

difficulties (Boyd & Parish, 1985), and inadequate self-concepts (Raschke & Raschke, 1979).

When taking a closer look at the association between single parenthood and negative child outcomes, other researchers have not found consistent associations between single parenthood and negative outcomes in children. Specifically, when the researchers controlled for poverty (Smith et al., 1997), socioeconomic status, maternal employment, and occupation (Bilbarz & Raftery, 1999), the effect of single parenthood was greatly reduced.

Proximal family process variables, such as the parenting practices discussed above, are not only theoretically more important than distal family structure variables but also empirically more closely related to child outcomes (Demo & Acock, 1996; Acock & Demo, 1994). Nonetheless, it is important that researchers do not overlook the importance of studying marital status. Marital status is a significant risk factor for child adjustment difficulties because it is linked to proximal family processes known to augment children's chances for adverse development (Simons & Johnson, 1996).

Negative Parenting Attitudes

Parents' attitudes (e.g., those with a rigid and controlling parental perspective) toward children have an impact on child behavior (Barocas, et al., 1991). Researchers used attitudes for one measure of cumulative risk and one indicator of risk was defined as mothers who scored in the top 25% on the rigid parental perspectives scale (Barocas et al., 1991). Sameroff et al (1987) also conducted a study using the Negative Parenting Attitudes scale. The results of

this study showed that 25% of mothers with the most rigid parenting attitudes compared with 75% of mothers with the least rigid attitudes had children with significantly lower IQ scores.

Mothers' Aggressive Tendencies

Researchers have found that aggressive parenting is directly linked to aggressive behavior in children (Stormshak, et al., 2000). Other researchers have found correlations between mothers' aggressive tendencies and children's acting out behaviors in both the home and school settings (Strassberg et al., 1994). Aggression can consist of physical and verbal aggression that involves harming or hurting others (Buss & Perry, 1992). A handful of studies have looked at aggressive behavior across generations. Huesmann et al (1984) found parental aggression toward children in the first generation of families directly predicted aggressive parenting in the next generation (over 20 years later). Another set of researchers found a direct association between observed aggressive parenting in generation one and observed aggressive parenting in generation two 7 years later (Conger et al., 2003; Hops, et al., 2003). Other researchers have found indirect correlations through marital conflict and parenting between behavior problems in one generation and aggression in the next generation (Caspi & Elder, 1988). Although many studies support significant associations between parental aggression toward children and children's subsequent aggression researchers such as Cairns et al. (1998) found no generational effects between parental aggression, and subsequent aggression.

Intercorrelation of Risk Factors

There appears to be an intercorrelation among single parenthood, poverty, maternal aggression, hostility, negative parenting attitudes, and authoritarian parenting. Longitudinal research studies have found that when mothers left the state of poverty they also left authoritarian parenting in exchange for authoritative parenting. However, those mothers who remained in poverty also remained authoritarian in their parenting approach (Smith, Brooks-Gunn, Kohen, & McCarton, 2001). Being a single parent along with having the tendency to be aggressive can further inhibit children from attaining healthy development. Thus, the current study will examine relations among risk factors within and across time points.

Protective Factors

Parenting Practices

The first component of protective factors chosen for this study is positive parenting practices. Parenting practices included in this study are warmth, monitoring, and reasoning. Many researchers have found sensitive parenting practices to be positively associated with children's socioemotional and cognitive outcomes (Culp, Hubbs-Tait, Culp, & Starost, 2000; Hart & Risley, 1995; Mize & Pettit, 1997).

Warmth

Warmth has been represented in the literature in many forms including acceptance, physical affection, nurturance, support, and encouragement (Locke & Prinz, 2002). Overwhelming research supports the idea that maternal warmth

is positively associated with children's socioemotional outcomes (Hart & Risley, 1995; Maccoby & Martin, 1983; Rothbaum & Weisz, 1994; Stormshak, Bierman, McMahon, & Lengua, 2000; Webster-Stratton & Hammond, 1998; Zhou, Eisenberg, Losoya, et al., 2002). In a sample of 4-year-old Head Start children researchers found physical warmth and praise from mothers to be positively associated with social competence in children (Webster-Stratton & Hammond, 1998).

Researchers have also found a positive association between maternal warmth and children's peer competence (Mize & Pettit, 1997). In this study mothers used a warm and responsive coaching style in several tasks. Responsive style and coaching about peer relationships was associated with teacher ratings of children's peer competence. On the other hand, a lack of maternal warmth in combination with other factors has been positively associated with externalizing problems and peer aggression (Dodge, Pettit, & Bates, 1994; McFadyen-Ketchum, Bates, Dodge, & Pettit, 1996; Stormshak et al., 2000;).

Maternal warmth is also positively associated with children's cognitive competence (Culp et al., 2000; Hart & Risley, 1995; Hubbs-Tait et al., 2002). Mothers' statements that maintained their children's interest and gave them choices were found to be associated with children's receptive language and cognitive competence at 2 and 3.5 years of age (Landry, et al., 2000). Other investigators have found a mother's comforting practices such as hugging her crying child to be significantly associated with children's verbal abilities (Hubbs-Tait, Culp, Culp, et al., 2002).

Monitoring

Maternal monitoring includes supervising children's activities. Maternal monitoring has been found to be positively associated with children's socioemotional outcomes (Amato & Fowler, 2002; Pettit, Laird, Dodge, Bates, & Criss, 2001). A proactive parenting style at age 5 was associated with parental monitoring in adolescence (Pettit et al., 2001). Monitoring in adolescence was also found to be associated with fewer behavioral problems (Pettit et al., 2001). Other research studies indicate that early monitoring at 5 years of age might help children refrain from negative behavioral problems in adolescence (Amato & Fowler, 2002). On the other hand, a low level of parental monitoring has been negatively associated with children's socioemotional competence (Sagrestano, et al., 2003). These researchers found that decreases in parental monitoring were associated with increases in conflict and symptoms of depression in children (Sagrestano et al., 2003).

Parental monitoring is another element that is positively associated with children's cognitive competence (Coley & Hoffman, 1996). In this study, researchers looked at a sample of third and fourth grade children. Results from the study indicated that a low level of parental monitoring was associated with low achievement in single-parent families (Coley & Hoffman, 1996). However, this is only one study.

Reasoning

Maternal motivational tactics or the use of pragmatic and fair reasoning is another parenting practice that is thought to lead to positive child outcomes. In a

study by Rothbaum and Weisz (1994) mothers used motivational strategies that focused on the positive rather than the negative aspects of the situation. These enhancing strategies were negatively related to externalizing child behaviors in young children. Another researcher found that maternal reasoning was associated with peer-group behavior in preschool children (Roopnarine, 1987). The results of the study indicated that the more often mothers' used reasoning with their children, the less likely the children were to engage in negative behavior toward peers (Roopnarine, 1987). In conclusion, mothers who displayed a high amount of reasoning and used authoritative patterns of parenting consisting of warmth, affection, and support toward children tended to have children with fewer cognitive and socioemotional problems (Dekovic & Gerris, 1992; Rodrigo, Janssens, Ceballos, 2001).

One study examined 110 Head Start children and their caregivers from low-income rural backgrounds in order to see how emotional support in the form of hugging, positive feedback, low hostility, and comforting during children's prekindergarten year related to later verbal and nonverbal outcomes. The results indicated that parental emotional support was significantly associated with children's perceptual and verbal scores (Hubbs-Tait, Culp, Culp, et al., 2002).

Coparenting

Research studies indicate that children living with cohabiting partners often have increased incidents of behavior problems and school difficulty compared to children living with married biological parents (Brown, 2001). Marriage, whether to the child's biological or stepfather, has been found to be

positively associated with teenagers' attachment to a father figure which leads to improved developmental outcomes such as lower teenage pregnancy and higher educational achievement (Furstenberg & Harris, 1993). In fact, social support research has indicated that the presence of a coparent in the household might lead to improved outcomes in children (Dunifon & Kowaleski-Jones, 2002). Specifically, researchers found that coparental support perceived by the mother was indirectly associated with child outcomes through the child's self-regulatory mechanisms (Brody & Flor, 1996). However, Simons and Johnson (1996) discovered that it was not the presence of the coparent in the home but the level of social support that person generated that lead to better mother rather than child outcomes.

Two-parent families report having a greater amount of parental control than single-parent families (Thomson, McLanahan, Curtin, 1992). Hill and O'Neill (1994) found that children from "always married" families scored higher on the Picture Vocabulary Inventory than those from "never married families." However when income level was controlled this was no longer significant. Other researchers have found decreased high school graduation rates for teenagers not living in intact families after controlling for income level (Sandefur, McLanahan, & Wojtkiewiez, 1992). Finally, Duncan, Brooks-Gunn, and Klebanov (1994) found a link between households with single parent mothers and lower IQ in children 5 years of age.

Educational Level

It is important to include family variables such as educational level in order to correlate maternal level of education with other factors such as level of income to give a more reliable depiction of contextual risk (Dearing, McCartney & Taylor, 2001). Maternal education has been found to be strong predictor of building child resiliency characteristics (Sameroff, Seifer, Baldwin, & Baldwin, 1993). Mother's level of education is a distal factor because it provides the background for daily mother-child interaction. Effects of maternal education may include an influence on the children's values and beliefs toward education (Hortacsu, 1995). Petterson and Albers (2001) found that mother's who dropped out of high school had children who scored lower across all types of developmental measures. When these researchers compared children of high school dropouts to children of high school graduates they found that there was a .46 SD difference in cognitive outcomes for girls and .40 standard deviation difference in cognitive outcomes for boys. Petterson and Albers (2001) concluded that both girls and boys whose mother was a high school dropout scored substantially lower on cognitive and motor development measures. Hortacsu (1995) found that mother's level of education was positively associated with child academic achievement. In addition to this study, researchers assessed men and women in Kauai and found parental educational to be highly correlated with parental competence (Werner & Johnson, 1999).

Intercorrelation of Protective Factors

Positive parenting practices are highly correlated with mother's educational level. Researchers found that mothers who are sensitive parents often have higher levels of education (NICHD, 1999). It is interesting to note that educational level could serve as both a risk and protective factor. For example, when mother's educational level is high school or above this could be a protective factor; however, when mother's educational level is below high school this could be a risk factor. This example provides further support for the polar opposites effect of risk and protective factors. As one protective factor such as mothers' level of education increases, risk factors such as parental power assertion decrease. However as mothers' level of education decreases, risk factors such as parental power assertion increase.

Changes in Context Over Time

An important concept in the study of child development is continuity. This study; is a longitudinal study therefore, the concept of continuity is important. Continuity is the sustainment of something over time (Baumrind, 1989). Continuity across developmental trajectories can be assessed by evaluating the level of function at multiple points in the child's development (Sroufe & Jacobivitz, 1989). Many research studies have been conducted in order to assess continuity of development.

Preschool and first grade are two periods in the lifespan that are often observed for patterns of behavior. While many preschool children have demonstrated continuous behavior problems over 1 to 3 years (Campbell,

Breaux, Ewing, & Szumowski, 1984, 1986), other preschoolers display temporary behavior problems (Baumrind, 1989).

One study investigated the relation between quality of mother-infant attachment and subsequent behavioral problems in preschoolers. A sample of 267 children and their mothers was assessed for quality of attachment at 12 and 18 months of age. When the children were 4.5 to 5 years of age they were assessed for behavior in preschool. The investigators identified three groups of behavior problem children consisting of children who acted out, were withdrawn, and had attention problems. The fourth group was identified as competent since the children did not exhibit behavior problems (Erickson, Sroufe, & Egeland, 1985).

A follow-up study was conducted to establish the degree of continuity of adjustment between preschool and the elementary school years (Egeland, et al., 1990). There were 267 children in the original study who were identified as belonging to the acting out, withdrawn, attention problem, or competent group. When these children turned 64 months old and at the conclusion of the first, second, and third grade home visits were completed. The results of the follow-up study indicated that the children who were identified as belonging to a behavior problem group in preschool were likely to experience more behavior problems in school. On the other hand, children who were placed into the competent group in preschool were likely to function at a competent level in school.

Researchers found that maternal characteristics, life circumstances, and quality of home environment accounted for discontinuity of development across

preschool to elementary school. To elaborate, the researchers identified 6

children in the behavior problem group that exhibited discontinuity in the

hypothesized outcomes. This behavior problem exception group showed a

smoother transition from preschool to early school than the other children who

belonged to the behavior problem groups. The exception was due to significantly

lower maternal stress scores in the first grade. Maternal depression also

differentiated between the preschool behavior problem continuity and exception

groups. Thus, in this sample, discontinuity in development was attributed to

changing maternal depression, life events, and home environment (Egeland et

al., 1990).

These studies suggest that the changing context of children's

development can negatively or positively influence children's developmental

trajectory. Many developmental theorists emphasize that experiences in early

infancy and early childhood are more profound than experiences occurring later

in life (e.g., Bowlby, 1989). However, change models are important approaches

to use when looking at the relation of risk and protective factors to child

outcomes. Change models allow researchers to see if a change in a risk factor

such as income level is associated with a change in child outcome such as

cognitive status (Duncan, Brooks-Gunn, & Klebanov, 1994). Change models also

have the advantage of greatly reducing bias because measures are assessed at

least at two points in time (Duncan, Yeung, Brooks-Gunn, & Smith, 1998).

Summary

In sum, the current study was undertaken to test the following research questions.

Quantitative Contextual Change Questions

1) Are changes in the total number of risk and/or protective variables a better predictor of cognitive or socioemotional outcomes in children than changes in any particular variable (e.g., increase in number of risk factors explains more variance in cognitive outcomes than increasing negative attitudes alone or increase in number of risk factors explains more variance in cognitive outcomes than increase in power assertive parenting alone)?

2) In this sample is the number of critical risk and protective factors the same (e.g. 2 or more versus 0 or 1) as identified by Rutter (1979)? That is, are there clear differences among children whose numbers of risk factors increase by two or more, increase by one only, or remain stable at 0 or 1? If not what is the critical number in this sample (e.g., 3 or more identified by Peterson & Hawley, 1998)?

3) Is there an inverse relation between risk and protective factors? If so do protective variables offset risk variables?

Qualitative Contextual Change Questions

1) Changing which risk or protective variables is most closely associated with cognitive competence in children?

2) Changing which risk or protective variables is most closely associated with socioemotional competence in children?

3) For children with the same increase or decrease in number of risk factors is there a difference in cognitive/socioemotional competence as a function of the identity of one of the particular risk factors?

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

Research Design and Methodology

Research and Sampling Design

The current research study employed a nonexperimental, longitudinal

correlational design. Longitudinal correlational designs provide the opportunity to

compare variations in one factor with variations in another factor over an

extended time period. These variations are found with correlation coefficients.

This design was chosen because it provides a practical way to assess the

possible longitudinal relations between contextual risk/protective factors and child

socioemotional and cognitive outcomes (Kerlinger & Lee, 2000). This is

presented in Table 2.

Table 2

Criteria for Risk and Protective Factors at both Time Points

Predictors	Outcome Measures	
Contextual Risk Factors		
Time 1 and Time 2	Time 1	Time 2
Poverty Status -at the poverty line $1,319 per month 1996-1997 or $1,381 per month 1998-1999.	Cognitive Measures *PPVT*.	*PPVT*
Marital Status- answered not married on demographic form.	Socioemotional Measures *PBQ*	*PBQ*
Power assertion- scored in the top 25% on the CPPD power assertion subscale.	*Howes*	*TCPR* *TRF*
Hostility- scored in the top 25% on the CPPD hostility subscale.		

Negative Parenting Attitudes- scored in the top 25% on the APPI.

Aggressive Personality- scored in the top 25% on the AQ.

Predictors	Outcome Measures	
Contextual Protective Factors		
Time 1 and Time 2	Time 1	Time 2
Warmth- scored in the top 25% on the CPPD warmth subscale.	Cognitive Measures	
	PPVT	*PPVT*
Monitoring- scored in the top 25% on the CPPD monitoring subscale.		
Reasoning- scored in the top 25% on the CPPD reasoning subscale.	Socioemotional Measures	
	PBQ	*PBQ*
	Howes	*TCPR*
Presence of co-parent- identified a co-parent on CPPD.		*TRF*
Education- answered high school or above on demographic form.		

PPVT= Peabody Pictorial Vocabulary Test, Howes= Howes' Rating Scales of Competence with Peers, TCPR= Teacher Checklist of Peer Relationships; TRF= Teacher Report Form, CPPD= Computer Presented Parenting Dilemias.

The design was a nonexperimental longitudinal correlational design where contextual factors over time were analyzed in comparison to children's socioemotional and cognitive outcomes. There were multiple measures and informants (e.g., children, teachers, mothers) included in this study.

The sample consisted of a purposeful convenience sample. The convenience sampling technique was chosen due to the limited number of Head

Start mothers in the general population available to participate in the study. The sampling method was naturalistic, occurring in the child's preschool and school settings (Kerlinger & Lee, 2000).

Study Sample

The sample was obtained from the original sample of 167 mothers and children enrolled in eight Head Start programs. Due to attrition the sample in the current study consisted of 78 mothers and their Head Start children. The children attended eight Head Start programs in north central Oklahoma.

In the study, data were collected at two time points. Time 1 data were collected in the fall and spring semesters of the children's pre-kindergarten year. Time 2 data were collected in the fall and spring semesters of the children's first grade year. All measures assessed risk and protective factors specified in the research questions.

Risk and Protective Factors

This study includes risk and protective factors that potentially may have a proximal or distal impact on the child. The three proximal risk factors included in this study are mothers' hostility, power assertion, and negative parenting attitudes. The three distal risk factors included in this study are poverty, single-parent status, and mothers' aggressive personality. There is one distal protective factor included in this study which is mothers' level of education (e.g., high school or above) and four proximal protective factors included in this study which are mothers' warmth, monitoring, reasoning, and presence of a co-parent. This information and operationalizations of variables are presented in Table 3.

Table 3

Risk and Protective Factors Constructs and Measurement Variables

Risk Concept/Construct	Variable Measured
Poverty (D)	Low Income
Power Assertion (P)	CPPD power assertion to non-compliance.
Hostility (P)	CPPD hostility to distress.
Marital Status (D)	Married verses non-married.
Negative Parenting Attitudes (D)	Negative parenting attitudes scale.
Aggressive Personality (D)	Aggression questionnaire.

Protection Concept/Construct	Protective Variable(s)
Warmth (P)	CPPD praise of child's efforts and hug in response to distress.
Monitoring (P)	CPPD monitoring of peer interactions.
Reasoning (P)	CPPD reasoning about non-compliance.
Presence of co-parent (D)	Identified co-parent on CPPD.
Education (D)	High school graduate or above.

P= proximal factors
D= distal factors
CPPD= computer presented parenting dilemmas.

The investigator decided to classify the subjects into risk or protection categories based on the percentages of being in the upper 25% or lower 75% of the sample (Luthar, 1993). For example, subjects were categorized as high risk if they scored in the top 25% on specific risk measures such as negative parenting

attitudes. However, subjects were categorized as low risk or high protect if they scored in the bottom 75% on specific risk measures such as negative parenting attitudes. The only exception to this rule were: poverty, marital status, and education. This is presented in Table 4.

Table 4

Summary of Risk and Protective Factors

Risk Factors	Low Risk	High Risk
Poverty	Below poverty level	Above poverty level
Power Assertion	75% least	25% most
Hostility	75% least	25% most
Marital Status	Married	Not married
Negative Parenting Attitudes	75% least	25% most
Aggression Personality	75% least	25% most

Protective Factors	High Protection	Low Protection
Warmth	75% most	25% least
Monitoring	75% most	25% least
Reasoning	75% most	25% least
Co-Parent	Presence	No presence
Education	High school or above	Below high school

Resilience

Researchers have suggested that resiliency research assess specific domains of resilience instead of lumping together various outcomes to indicate resilience (Luthar, 1993). In this study to ensure resilience has research utility, the researcher specified domains of cognitive and socioemotional development when examining resilience. This indicates that resilience is an outcome (Kaplan, 1999).

In this study resilience will be defined as those children who are competent on the PPVT and the TRF. Resiliency in the cognitive domain will be determined by those children who have high PPVT scores (i.e. scores>100). On the other hand, those children will low PPVT scores (i.e. scores<88.8) will be considered cognitively incompetent (Head Start Faces, 2001). Resiliency in the socioemotional domain will be determined by those children with low TRF externalizing and internalizing scores (i.e. scores $\leq$ the mean + 1 standard deviation). Those children with high externalizing or internalizing TRF scores (i.e. scores $\geq$ mean + 1 SD) will be considered incompetent.

Instruments

Maternal Parenting Practice Measures

Computer-Presented Parenting Dilemmas

The Computer-Presented Parenting Dilemmas (CPPD) was an instrument used in this study. The CPPD was revised from Holden and Ritchie's Computer-Presented Social Situations (CPSS) inventory (1991). Holden and Ritchie measured relations between martial discord, parental behavior, and child

behavior in 37 battered women and 37 control group mothers and their 2-to-8-year-old children. The CPSS presented a typical day in the life of a family in 27 vignettes that addressed frequently occurring family situations or child-rearing problems. The first vignette centered on the child arising in the morning and asked questions about who usually attends to the child. The next vignette centered on the child not wanting to wear clothes selected by the parent. Questions then focused on how often a certain problem occurred and how the parent responded to the problem.

The CPPD was revised from the CPSS in order to help researchers and clinicians understand how parents respond to their children in four types of situations (Hubbs-Tait et al., 1998). The instrument consists of 15 stories with multiple responses divided into four themes: child misbehavior; child distress; peer interaction; and family violence. An a priori list of subscales included physical power assertion, verbal power assertion, power assertion to hitting, reason/explain, hostility to distress, hugging, and comfort (to distress), ignoring, and bribing. The computer stories begin by having the mother type in her name, the name of her current partner (if she has one), and her child's name. The computer program then inserts the child's name into each vignette and the mother's partner's name into the vignettes as the name of the other adult who interacts with the mother and child. If there is no other adult, the mother may leave blank any or all responses to stories pertaining to the mother's partner. Also included as an unnamed participant in three vignettes is "your child's friend."

Three dilemmas assess parental responses to child noncompliance, three assess responses to child distress, and three assess parental monitoring of a child's play with peers. The first noncompliance dilemma includes the child refusing to eat breakfast. The mother is asked how she would respond to this behavior by her child. Responses include ignore, spank, put in time out, yell, bribe with a treat, explain, tell the child that he/she will have to wait until lunch, and tell the child to "eat it, because I said so." When each dilemma is introduced, the mother is asked how often the dilemma occurs. If the mother does not feel that the question pertains to her she is instructed to type in a "9" and proceed to the next question. All responses to vignettes are rated on a 7-point Likert-type scale. In the current study two *a priori* aggregate maternal responses on the CPPD operationalized proximal risk factors: power assertion and hostility. In the current study three *a priori* aggregate maternal responses on the CPPD operationalized proximal protective factors: warmth, monitoring, and reasoning

A small study was conducted by the current investigator to assess the test-retest reliability of the CPPD. Twenty-seven subjects initially completed the CPPD and 21 subjects returned in an average of 2.5 weeks to retest on the instrument. Internal consistency was assessed by Cronbach's alpha for each of the 6 proposed variables. Internal consistencies of .50 and higher were viewed as acceptable (Kerlinger & Lee, 2000). The results are presented in Table 5 below.

Table 5

Internal Consistency and Test-Retest Reliability for the CPPD

Subscale	Cronbach Alpha		Test-Retest
	HS	FG	Correlation Coefficients
Warmth (praise + hug)	.68	.86	.82
Reasoning (reason r/t positive and negative behavior)	.63	.63	.61
Hostile (yelling + said so + spank)	.86	.79	.95
Power Assertion (said so + yell + spank)	.80	.77	.72
Monitoring (look + watch + listen + periodic check)	.58	.71	.66

HS= Head Start and FG= first grade.

Maternal Negative Parenting Attitudes

The Adult Adolescent Parenting Inventory (AAPI) was developed by Bavolek in 1978 to measure the amount of agreement or disagreement with certain parenting patterns (Bavolek, 1989). The AAPI consists of 32 statements about parenting and raising children. The subject agrees or disagrees with each statement based on a 5-point Likert scale. The instrument was created to serve as a primary prevention assessment in order to identify parents who agreed with recognized parenting patterns of maltreatment. Items were created to assess agreement with four abusive patterns which included: deficient parental empathy

towards children's needs, inappropriate parental expectations of the child, parental regard of physical punishment, and reversal in the parent-child role (Bavolek, 1989). Internal consistency for the entire AAPI scale for the Head Start year was .90 and for first grade was .94.

Maternal Aggressive Personality

The Aggression Questionnaire (AQ) is a 29-item self-report inventory composed of four subscales: physical aggression, hostility, verbal aggression, and anger (Buss & Perry, 1992). Items are rated on a Likert-type scale from 1 ("extremely uncharacteristic of me") to 5 ("extremely characteristic of me"). Test-retest reliability ranges from .47 to .88 (Harris, 1997). In the original evaluation of the measure test-retest correlations for the subscales included: "Physical aggression, .80; Verbal Aggression, .76; Anger, .72; and Hostility, .72" (Buss & Perry, 1992, p. 455). Harris (1996) found the four aggression subscales to be positively associated with respondents' reports of being the target of aggression (correlations from .11 to .33). Convergent validity has also been established (.32 to .76) for all subscales (Harris, 1997). The Cronbach alpha for this sample was .88 in Head Start and .88 in first grade for the complete inventory.

Maternal demographic Information

Maternal education and maternal income will be measured by the maternal demographic information questionnaire (see Appendix A). Mothers were indicated the range of monthly income on the demographic questionnaire. On the same demographic form mothers indicated their educational level.

Choices ranged from 6th grade to college graduate. Mothers will be classified into two groups high school dropout or high school graduate.

Child Socioemotional Measures

Preschool Behavior Questionnaire

The Preschool Behavior Questionnaire (PBQ) was administered in the children's Head Start and first grade year. The PBQ is a teacher rating scale of behavior problems in children ranging from 3 to 6 years of age that yields three subscale scores that have established concurrent validity. These scales include hostile/aggressive, anxious/fearful, and hyperactive/distractible (Behar, 1977). The Teacher Rating Form of the Child Behavior Profile (TRF) is the alternative to the PBQ but was not used in this study during Head Start because the standardized norm references are for children age 5 and older (Achenbach, 1991). Teachers completed the PBQ for each of 78 Head Start children during the spring semester of their Head Start year. Completion of the measures took 10 to 20 minutes. Subscales on the PBQ used in this sample included anxious/fearful, hostile/aggressive, and hyperactive/distractible. Internal consistencies for these 3 subscales revealed alpha levels of .94 for the Head Start year and .92 the for first grade year. The investigator will examine all three scales of the PBQ in this study.

Howes' Rating Scales of Social Competence with Peers

The Howes' Rating Scale of Social Competence with Peers (RSSCP) was included in the Head Start and kindergarten years of this study. This instrument is an 18-item, teacher rating scale of peer social functioning that yields three

factors. Ratings have been found to be stable over time and behavior observations have also been found to support construct validity of the three factors (Howes, 1988). Teachers completed the RSSCP in the spring during the children's Head Start year. For this study the investigator used the sociable subscale from the Howes inventory (internal consistency= .74).

Child Behavior Checklist-Teacher Report Form

Child Behavior Checklist-Teacher Report Form (TRF) of behavior problems was used as an additional measurement for socioemotional competence in this study (Achenbach, 1991). The scale is divided into children's internalizing and externalizing problems. Teachers rate children's adaptive functioning, academic performance, and behavioral/emotional problems on a five and seven point scale. The TRF is scored using different profiles for boys and girls. Both test-retest reliability and internal consistency for the TRF have been reported. Test-retest reliability for the TRF ranges from .62 to .96 while, internal consistency for the TRF ranges from .72 to .95 (Achenbach, 1991). Criterion validity has also been established (Achenbach, 1991).

Teacher ratings for the internalizing and externalizing subscales of the TRF operationalize behavior problem outcomes at first grade in this study. The Cronbach alpha for teachers in this sample on the internalizing subscale was .87. The Cronbach alpha for teachers in this sample on the externalizing subscale was .95.

Teacher Checklist of Peer Relationships

The Teacher Checklist of Peer Relationships (TCPR), a 12-item measure, was used to measure social competence with peers in kindergarten and first grade. The TCPR measured social competence (e.g., "This child gets along with peers") or aggression against peers (e.g., "When this child has been teased, he or she gets angry easily and strikes back"). The checklist has been administered to teachers to rate kindergarten to 10-year-old children (Dodge & Somberg, 1987; Pettit, et al., 1991). Internal consistencies have ranged from .89 for aggression and .87 for social competence (Pettit et al., 1991). For this sample the internal consistency was .94 and .91 for the social competence subscale in kindergarten and first grade, respectively. This researcher examined relations between TCPR and Howes (RSSCP) scores in kindergarten to determine whether there was sufficient shared variance between subscales of the two measures to assume that the construct measured is the same. The results were r = .720. Therefore the investigator assessed Howes' scores for socioemotional competence in Head Start and TCPR scores for socioemotional competence in first grade.

Child Cognitive Competence Measures

Peabody Picture Vocabulary Test Revised Version

The Peabody Picture Vocabulary Test Revised Version (PPVT-R) is a standardized test of receptive vocabulary designed to test individuals between 2.5 and 40 years of age. Researchers have discovered the PPVT-R to be positively correlated with school achievement (Ladd, 1990). Internal

consistencies have ranged from .67 to .88 and validity (.71) has been found with vocabulary subscales of IQ tests (Dunn & Dunn, 1981).

Data Collection

Data were collected from eight Head Start/kindergarten programs in north-central Oklahoma. Written permission to collect the data was obtained from the United Community Action Program, Inc. (UCAP) Head Start Policy Council. This study was approved by the Institutional Review Board at Oklahoma State University (see Appendix B). All mothers and teachers signed informed consent forms before participating in each of the four stages of the study. Head Start data were collected beginning September 1995 through May 1997. First grade data were collected beginning September 1997 through May 1999. These data were collected by research assistants trained by the principal and co-principal investigators of a grant. (see Table 6).

Table 6

Outline of Data Collection

Risk Variables	Head Start Year	First Grade
Poverty	Yes	Yes
CPPD Power Assertion	Yes	Yes
CPPD Hostility	Yes	Yes
Marital Status	Yes	Yes
Negative Parenting Attitudes (AAPI)	Yes	Yes
Aggressive Personality (AQ)	Yes	Yes

Protective Variables	Head Start Year	First Grade
CPPD Maternal Warmth	Yes	Yes
CPPD Maternal Monitoring	Yes	Yes
CPPD Maternal Reasoning	Yes	Yes
Presence of co-parent	Yes	Yes
Maternal Education	Yes	Yes

Outcome Variables	Head Start Year	First Grade
Preschool Behavior Questionnaire	Yes	Yes
Howes (RSSCP)	Yes	No
Teacher Checklist of		
Peer Relationships	No	Yes
Teacher Report Form (TRF)	No	Yes
Peabody Pictorial Vocabulary Test	Yes	Yes

Limitations

A major threat to the external validity of this study is having a nonrandom sample. Because this data set does not include a random sample, this study does not necessarily represent all Head Start families with children between 3-6 years of age. The opportunity to generalize from this study given this limitation is restricted (Kerlinger & Lee, 2000).

Social desirability, or the desire of the informant to offer socially appropriate answers in order to obtain social approval or acceptance, is a threat

to the internal validity of this study (Keillor, Owens, & Pettijohn, 2001). Because this study assessed self-reported parenting practices, mothers could have answered questions in what they thought was a socially appropriate manner. Mothers may have underreported or failed to report certain behaviors they perceived to be socially undesirable such as discipline tactics they employed with their children. Head Start mothers may have also feared that if they did not provide the answers the researchers were looking for they could be labeled as an incompetent parent.

Another limitation of this study is that poverty cutoffs for this sample were based on maternal reports. Mothers reported their monthly income on the demographic question. There was no way to verify independently the accuracy of maternal reports, which might have been influenced by mothers' desire to receive Head Start benefits.

Another potential threat to the internal validity of this study is the attrition rate of the subjects. Withdrawal from a study always poses concern. Mothers may have withdrawn from this study because they moved, had conflicts with work schedules, became ill, or refused to continue participating (see Hubbs-Tait et al., 2002).

CHAPTER 4

ANALYSIS AND EVALUATION

Introduction

This chapter begins with an analysis of the descriptive data for each of the

demographic risk variables. Following this, descriptive statistics for the parenting

variables are presented. Finally, regression analyses of the data pertaining to

each research question are presented. Child effects on parents were controlled

in the first block of all regression equations, because the researcher entered the

child's score during Head Start on the same variable, which served as the

outcome in first grade.

Analysis

Descriptive Data Variables

The results of the demographic data are shown in Tables 7 and 8.

Table 7

Demographic Information for Head Start Year

Variable	Mean	± SD	%
Child age	4.6	± .24	
Child gender			
Male			60.3%
Female			39.7%
Mothers age	29.9	± 6.57	
Income Level Per Month	1436.54	± 791.910	
$0-50			1.3%

$51-250	11.5%
$251-750	15.4%
$751-1250	25.6%
$1251-1750	28.2%
$1751-2250	9.0%
$2251-2750	6.4%
$2751-3750	1.3%
$3751-4000	1.3%

Mothers' educational level

8 years	1.3%
9 years	1.3%
10 years	7.7%
11 years	6.4%
12 years or greater	83.3%

Mothers' marital status

Married, first time	47.4%
Single, never married	7.7%
Single, separated	5.1%
Single, divorced	15.4%
Single, widowed	3.8%
Remarried	20.0%

Mothers' ethnic background

Native American	14.1%

African American	1.3%
Hispanic	2.6%
White	78.2%
Multiethnic	3.8%

N=78

Table 8

Demographic Information for First Grade Year

Variable	Mean	± SD	%
Child age	6.6	± .24	
Mothers' age	31.9	± 6.57	
Income Level Per Month	1442.21	± 1036.63	
$1-50			7.8%
$51-250			9.1%
$251-750			24.7%
$751-1250			19.5%
$1251-1750			7.8%
$1751-2250			18.2%
$2251-2750			3.9%
$2751-3750			3.9%
$3751-4000			2.6%
Mothers' educational level			
8 years			1.3%

9 years	1.3%
10 years	6.4%
11 years	5.1%
12 years or greater	85.8%
Mothers' marital status	
Married, first time	42.3%
Single, never married	7.7%
Single, separated	7.7%
Single, divorced	14.1%
Single, widowed	1.3%
Remarried	26.9%
Mothers' ethnic background	
Native American	14.1%
African American	1.3%
Hispanic	2.6%
White	78.2%
Multiethnic	3.8%

N=78.

An analysis of the demographic data from Head Start and first grade indicates that there were a large percentage of white (78.2%) and Native American participants in this sample (14.1%). Although the majority of mothers reported an educational level of 12th grade in both Head Start and first grade there was a slight increase in educational level over the time of the study,

because one mother with a 10th grade and one with an 11th grade education

completed high school (or equivalency).

During Head Start 47.4% of mothers reported being married, 20.0%

reported being remarried, and 15.4% reported being single and divorced. On the

other hand, during first grade 42.3% of mother reported being married, 26.9%

reported being remarried, and 14.1% reported being single and divorced. Thus,

there were more mothers that were married when the children were in first grade

than when the children were in Head Start. However many of these mothers

were remarried.

On the demographic questionnaire monthly family income categories

ranged from zero to more than four thousand dollars. Using procedures outlined

in the Infant Health and Development Program (Duncan et al., 1994; Hubbs-Tait

et al., 2002) monthly family incomes were converted from categorical to

continuous measures by assigning the midpoint of each interval. Potential

income midpoints range from $0 to $4,000. The lowest midpoint at both time

points was $50 (i.e. $0-$100 category). The highest midpoint at both time points

was $4,000 (i.e. $4,000 plus category). Midpoints were converted to per capita

income by dividing by the number of individuals living in the home. To identify

families living below poverty, federal monthly poverty guidelines were used for

each family size. For Head Start year 1996 and 1997 poverty guidelines were

averaged together to obtain an approximate poverty threshold for the two cohorts

in this sample (see Table 9). For first grade year 1998 and 1999 poverty

guidelines were also averaged together to obtain an approximate poverty

threshold for the two cohorts (see Table 10).

Table 9

Federal Poverty Guidelines for 1996-1997

Size of Family Unit	Poverty Threshold Per Month
2	$ 873.75
3	$1,096.25
4	$1,318.75
5	$1,541.25
6	$1,763.75
7	$1,986.25
8	$2,208.75
9	$2,431.25

Table 10

Federal Poverty Guidelines for 1998-1999

Size of Family Unit	Poverty Threshold Per Month
2	$ 912.92
3	$1,147.08
4	$1,381.25
5	$1,615.42
6	$1,849.58
7	$2,083.75
8	$2,317.92
9	$2,552.08

Obtained from http://aspe.os.dhhs.gov/poverty (2/25/2004)

The mode (28.2%) of mothers reported their monthly salary during children's Head Start year to be between $1,251-$1,750 while 25.6% of participants reported their monthly salary to be between $751-$1,250. During the first grade year the modal (24.7%) monthly salary was between $251-$750 while 19.5% of the participants reported their monthly salary to be between $751-$1,250. These data demonstrate that the majority of mothers participating in this study experienced a decrease in salary over the time of the study. In the Head Start year 42 of the 78 families (54%) were identified as being at or below the poverty level. In first grade year 46 of the 78 families (60%) were identified as being at or below the poverty level.

Descriptive data analysis for mothers' responses on various measures were conducted. Table 11 presents descriptive data for maternal measures in Head Start while Table 12 presents descriptive data for maternal measures in first grade.

Table 11

Descriptive Information on Maternal Measures for Head Start Year

Variable	Mean or Median*	± SD	%			
			25	50	75	100
Aggression Questionnaire						
Total Score	60.54	16.28	47.75	60.00	70.25	106.00
CPPD						
Monitor	25.39	5.72	22.00	25.00	30.00	38.00
Power Assertion	16.66	6.73	11.75	15.00	20.99	38.00
Hostile	12.40	5.40	9.00	11.00	13.25	44.00
Warmth	25.09	3.34	24.00	26.00	28.00	28.00
AAPI	62.37	16.07	50.00	60.00	72.00	103.00

AAPI= Adult Adolescent Parenting Inventory; CPPD= Computer Presented Parenting Dilemmas. *N*=78.

Table 12

Descriptive Information on Maternal Measures for First Grade Year

Variable	Mean	± SD	%			
			25	50	75	100
Aggressive Questionnaire						
Aggression	55.68	16.28	45.00	53.50	65.00	97.00
CPPD						
Monitor	25.72	6.42	21.75	26.00	30.00	40.00
Power Assertion	16.19	6.47	11.00	15.00	19.00	36.00
Hostile	11.64	4.68	9.00	9.00	13.00	36.00
Warmth	24.72	4.16	22.00	26.00	28.00	28.00
AAPI	58.27	17.57	43.00	56.00	68.00	110.00

AAPI= Adult Adolescent Parenting Inventory; CPPD= Computer Presented Parenting Dilemmas. *N*=78.

The descriptive results on maternal aggression showed that scores decreased over time (Head Start mean=60.54; first grade mean=55.68). Maternal parenting scores on the AAPI also decreased over time (Head Start mean=62.37; first grade mean=58.27). On the CPPD, mothers' mean scores basically stayed the same over the course of the study. Paired *t*-tests of mothers' Head Start and first grade scores on the CPPD (e.g., monitoring, power assertion, hostility, and warmth) along with scores on the aggressive questionnaire and AAPI were computed. Results revealed that aggression scores decreased significantly over

time t (1,77) = 3.42 for aggressive questionnaire $p<$ .001) and t (1,77) = 3.42 for

AAPI $p<$ .001). None of the CPPD scores were significant.

After reviewing the demographic data, preliminary analyses were

conducted prior to answering the research questions. First the investigator

assessed the number of missing values on the risk/protective variables. Based

on this assessment the researcher determined that reasoning would be deleted

from the study. There were 16 mothers who left reasoning items blank,

particularly on story 15 of the CPPD. Story 15 involves a situation where the

mother comes to pick up her child from her child's friend's home and the child

tells his or her mother that he or she does not want to go home. The reasoning

response was "Please rate how likely you would be to talk with your child about

how you understand how hard it is to leave a friend who is fun to play with, but

that now it is time to go home". The investigator determined that the response

might have been left blank because the sentence was written in a way that may

have been difficult to understand. Because of the high number of missing values

on this and other reasoning items, the decision was made to remove reasoning

from this study.

For the subjects who were missing values on other risk/protective

variables the author decided to substitute mean scores. For the CPPD subscales

(i.e., warmth, hostility, and power assertion) no mothers left more than one story

blank. Thus the investigator substituted the mean score of the other items for the

missing values. For example for the warmth subscale only 1 mother had 1 of the

4 items missing; for the power assertion subscale, 6 mothers had items missing

(5 mothers did not answer in Head Start and 1 of the 5 did not answer the item in both Head Start and first grade); and for the hostile subscale, 3 mothers did not answer 3 or the 9 items leaving the 6 items from the other 2 stories available for computing the item mean.

Preliminary analyses were also conducted in order to assess the amount of shared variance between two predictors that operationalized the same risk or protective concept. For this analysis the researcher subtracted time 1 scores from time 2 and then correlated the change scores. For example, the investigator hypothesized that if variables shared .50 or greater amount of variance and no varying pattern of correlation with other predictors, then the investigator would only use one variable. Hostility and warmth were negatively correlated (see Table 13). However the varying pattern of correlations for hostility and warmth meant that the investigator retained both variables because warmth was positively correlated with monitoring and hostility was not. The findings also revealed that presence of a co-parent and marital status were highly correlated (see Table 13); therefore, presence of a co-parent was removed from the risk/protection profile. The reason co-parent was removed instead of marital status is because the literature is replete with studies on the influence of marital status in relation to child outcomes; however, the literature lacks substantial studies on the influence of co-parent status on child outcomes. Thus, inclusion of marital status provides points of comparison between the current study and previous work. Table 13 depicts all other correlations among variables.

Table 13

Bivariate Correlations of Risk/Protective Change Variables

Variable	1	2	3	4	5	6	7	8	9
(1) Change Warm									
(2) Change Hostile	-.506**								
(3) Change Power A.	.265*	.272*							
(4) Change Monitor	.347**	.016	.241*						
(5) Change AQ	-.042	.092	-.040	-.152					
(6) Change AAPI	-.026	-.113	-.173	-.282**	.070				
(7) Change Money	.070	-.116	-.004	-.019	.345**	.153			
(8) Change Education	.016	.028	-.001	.078	.024	.009	.009		
(9) Change Co-Parent	.046	-.189+	-.199	.000	.000	-.097	-.115	-.121	
(10) Change Marital	.026	-.025	-.135	.056	-.002	-.110	-.147	-.073	.526**

The sample size for all correlations in Head Start year was 78 and in first grade year was 77. HS= Head Start, FG= first grade, Power A= power assertion, AQ= Aggression Questionnaire, AAPI= Adult Adolescent Parenting Inventory.
*p<.05, **p<.01, +p<.10.

Quantitative Change Questions

Prior to analyzing quantitative question 1, the researcher divided the sample into percentiles (e.g. top 25% highest risk, top 25% highest protection) and then computed summary variables measuring continuous risk, continuous protection, increasing risk, and increasing protection. **Continuous risk** is the number (out of 9) of predictors per family in the highest 25% of risk at both time points. **Continuous protection** is the number (out of 9) of predictors per family in the highest 25% of protection at both time points. **Increasing risk** is the number of predictors (out of 9) in the top 25% of risk at time 2 (first grade) but not at time 1 (Head Start). **Increasing protection** is the number of predictors (out of

9) in the top 25% of protection at time 2 (first grade) but not at time 1 (Head Start).

Correlations among continuous risk, increasing risk, continuous protection, and increasing protection were conducted in order to determine if these summary measures were highly correlated with one another. The results indicated that none of the correlations were .50 or greater. See table 14 for the exact correlations and table 15 for the frequency tables.

Table 14

Correlations of Continued Risk, Increasing Risk, Continued Protection, and Increasing Protection.

Variable	1	2	3	4
(1) Continued Risk		-.477**	.276*	.161
(2) Continued Protection			-.370**	-.376**
(3) Increasing Protection				.244*
(4) Increasing Risk				

The sample size for all correlations was 78. *$p \leq .05$; **$p < .01$.

Table 15

Frequencies of the Number of Risk Factors for Continued Risk, Continued Protection, Increasing Risk, and Increasing Protection

Category	Number of Risk/ Protective Factors	Frequency	Percent
Continuous Risk	.00	18	23.1%
	1.00	24	30.8%
	2.00	23	29.5%
	3.00	7	9.0%
	4.00	2	2.6%
	5.00	2	2.6%
	6.00	1	1.3%
	7.00	1	1.3%
Continuous Protection	.00	14	17.9%
	1.00	27	34.6%
	2.00	11	14.1%
	3.00	15	19.2%
	4.00	7	9.0%
	5.00	4	5.1%

Increasing Protection	.00	39	50.0%
	1.00	35	44.9%
	2.00	3	3.8%
	3.00	1	1.3%
Increasing Risk	.00	40	51.3%
	1.00	30	38.5%
	2.00	7	9.0%
	3.00	1	1.3%

Multiple regression analysis was conducted in order to answer the first quantitative question, "Are changes in the total number of risk and/or protective variables a better predictor of cognitive or socioemotional outcomes in children than any particular variable (e.g., increase in number of risks factors explains more variance in cognitive outcomes than increasing negative attitudes alone or increase in number of risk factors explains more variance in cognitive outcomes than increase in power assertive parenting alone)?" The child outcomes evaluated in the analyses were those for which data were available at both Head Start and First grade: PBQ aggression, PBQ anxiety, PBQ hyperactivity, PPVT score, and sociability (Howes RSSCP sociability in Head Start and TCPR social competence in first grade see Table 6).

The investigator compared the variance explained by the summary measures of continued protection, continued risk, increasing protection, and

increasing risk to the variance explained by each risk factor as a continuous variable (e.g. total monitoring, total power assertion scores). The results indicated that the summary measures of risk and protection explained teacher ratings of children's behavior problems but not PPVT scores (see Table 16).

For child aggression in first grade, 12% of the variance was explained by the combination of increasing risk, continuous risk, increasing protection, and continuous protection over time. However the only individual predictor of the group that was significant was increasing risk, which predicted 4% of the variance in first grade aggression (see Table 16).

When looking at the influence of the combination of risk/protection factors on anxiety in children the results suggested that 12% of the variance in child anxiety was predicted from the combination of increasing risk, continuous risk, increasing protection, continuous protection. Again increasing risk was the only one of the individual variables that was significant. The results indicated that increasing risk predicted 5% of the variance in child anxiety (see Table 16).

For hyperactivity the results indicated that the 4 risk/protection variables (e.g. increasing risk, increasing protection, continuous protection, and continuous risk) explained 15% of the variance in child hyperactivity. Individual risk/protection variables revealed that increasing risk was significant ($p = .053$) explaining 4% of the variance in child hyperactivity. Continuous risk also approach significance, ($p=.077$), explaining 4% of the variance (see table 16).

For two outcomes, PPVT-R scores and sociability, the combination of risk and protection measures did not explain significant variance in outcomes.

Table 16

*Regressions Evaluating Contributions of Summary Risk and Protection Measures
to Children's PBQ and PPVT Scores*

Outcome	Change statistics (a)			Coefficients (b)				
Block and Predictors	ΔR^2	df	P	β	B	SE	Sr^2	P
First Grade Aggression								
1 – Head Start Aggression	.178	1, 75	.000	.422	.365	.091		
2 – Risk and Protection	.119	4, 71	.024					
Increasing Risk				.229	1.61	.759	.044	.037
Increasing Protection				.130	1.02	.850	.014	.235
Continuous Risk				.020	.007	.402	.000	.865
Continuous Protection				-.091	-.139	.430	.006	.460
First Grade Anxiety								
1 – Head Start Anxiety	.032	1, 75	.121	.178	.171	.109		
2 – Risk and Protection	.117	4,71	.055					
Increasing Risk				.239	.897	.447	.048	.049
Increasing Protection				-.138	-.577	.499	.016	.252
Continuous Risk				.148	.279	.235	.017	.240
Continuous Protection				-.112	-.210	.253	.008	.410
First Grade Hyperactivity								
1 – Head Start Hyperactivity	.079	1, 75	.013	.281	.333	.131		
2 – Risk and Protection	.149	4,71	.013					

	ΔR²	df	p	β	B	SE	sr²	p
Increasing Risk				.223	.830	.422	.042	.053
Increasing Protection				.117	.485	.422	.011	.312
Continuous Risk				.215	.400	.223	.035	.077
Continuous Protection				.002	.000	.239	.000	.990

Head Start PPVT

	ΔR²	df	p	β	B	SE	sr²	p
1 – Head Start PPVT	.321	1, 76	.000	.567	.695	.116		
2 – Risk and Protection	.056	4,72	.182					
Increasing Risk				-.134	-3.20	2.44	.014	.193
Increasing Protection				-.157	-4.19	2.75	.020	.133
Continuous Risk				-.134	-1.61	1.35	.012	.236
Continuous Protection				-.201	-2.375	1.40	.025	.093

First Grade Sociable

	ΔR²	df	p	β	B	SE	sr²	p
1 – First Grade PPVT	.147	1, 74	.001	.384	.246	.069		
2 – Risk and Protection	.043	4,70	.452					
Increasing Risk				.067	.218	.381	.004	.570
Increasing Protection				-.097	-.353	.432	.008	.417
Continuous Risk				-.193	-.316	.206	.027	.129
Continuous Protection				-.051	-.008	.218	.002	.708

(a) ΔR^2 is the change in R^2, the unique variance explained by each block in the regression.

(b) β is the standardized regression coefficient. B is the non-standardized regression coefficient. SE is the standard error of B. sr^2 is the squared semipartial correlation coefficient,

the unique variance explained by each variable above all others in the block. Small, medium, and large effect sizes of R^2 or sr^2 are .0196, .1304, and .2592, respectively.

In order to completely answer quantitative question 1, additional regressions were conducted to determine whether any of the individual continuous measures of risk would explain significant variance beyond increasing risk over time (see Table 17). The regressions revealed that poverty at Head Start (a distal variable) along with increasing risk explained a significant amount of the variance in first grade child aggression. Poverty at Head Start predicted 4% of the variance in child aggression while increasing risk explained 10% of the variance in child aggression. Hostility in first grade (a proximal variable) and increasing risk predicted child anxiety at first grade. Maternal hostility in first grade accounted for 7% of the variance in child anxiety while increasing risk accounted for 8% of the variance in child anxiety. Poverty in first grade (a distal variable) explained 5% of the variance in child anxiety in first grade. Interestingly, as shown in Table 17, increasing risk did not explain significant variance in this equation.

Table 17

Results of Regressions Comparing Individual Risk/Protective Factors to

Combination of Several Risk/Protective Factors

Outcome	Change statistics (a)			Coefficient (b)				
Block and Predictors	ΔR^2	df	P	β	B	SE	sr^2	P
First Grade Aggression								
1 – Head Start Aggression	.178	1, 75	.000	.422	.365	.091		
2 – Risk/Protective Factors	.126	3, 72	.007					
First Grade Poverty				-.067	-.684	1.168	.003	.560
Head Start Poverty				.224	2.227	1.101	.040	.047
Increasing Risk				.378	2.660	.814	.103	.002
First Grade Anxiety								
1 – Head Start Anxiety	.032	1, 75	.121	.178	.171	.109		
2 – Risk and Protection	.162	3, 72	.004					
First Grade Hostility				.347	.197	.077	.072	.013
Head Start Hostility				-.082	-.004	.067	.004	.548
Increasing Risk				.284	1.066	.400	.080	.010
First Grade Hyperactivity								
1 – Head Start Hyperactivity	.032	1, 75	.121	.178	.171	.109		
2 – Risk and Protection	.120	3, 72	.023					
First Grade Poverty				.257	1.40	.691	.048	.047
Head Start Poverty				-.079	-.420	.642	.005	.515

Increasing Risk   .150   .564   .478   .016   .243

(a) ΔR^2 is the change in R^2, the unique variance explained by each block in the regression.

(b) β is the standardized regression coefficient. B is the non-standardized regression

coefficient. SE is the standard error of B. sr^2 is the squared semipartial correlation coefficient,

the unique variance explained by each variable above all others in the block. Small, medium,

and large effect sizes of R^2 or sr^2 are .0196, .1304, and .2592, respectively.

The investigator also looked at the total number of risk factors (top 25%)

at each time point and found a similar pattern. The outcomes for total number of

first grade risk factors were essentially the same as the outcomes for an increase

in risk factors over time.

The second quantitative question was "In this sample is the number of

critical risk and protective factors the same as identified by Rutter (e.g. 2 or more

verses 0 or 1)? That is, are there clear differences among children whose

numbers of risk factors increase by two or more, increase by one only, or remain

stable at 0 or 1? If not what is the critical number in this sample?" Part of

question 2 was answered in the analysis of question 1. In question 1 the range of

the increase in risk variables from Head Start to first grade was 0 to 3. When all

other measures of risk/protection (continuous risk, continuous protection,

increasing risk, and increasing protection) were included in the regression

equations predicting child outcomes, only increasing risk was significant. This

indicated that increasing risk was the only variable that was significant in

predicting child outcomes.

The researcher further evaluated question 2 by comparing children with 0 versus 2 increasing risk factors, 1 versus 2 increasing risk factors, and 0 versus 1 increasing risk factor. Planned contrasts were conducted using Univariate Analysis of Variance (ANOVA) with Head Start scores as the covariate. See Tables 18, 19, and 20. Note that of the children with 0 increasing risk factors, one child was missing PBQ data. Thus the frequency categories under increasing risk in Table 15 differ from the degree of freedom numbers in Table 18.

Table 18

Planned Contrasts of 2 versus 0 Increasing Risk Factors for Aggression

Source	Sum of Squares	df	Mean Square	F	Significance
Corrected Model	494.645	2	247.322	11.169	.000
Intercept	320.969	1	320.969	14.495	.000
HS Aggression	275.166	1	275.166	12.426	.001
Increasing Risk	213.865	1	213.865	9.658	.003
Error	974.334	44	22.144		
Total	2213.000	47			

HS=Head Start

Table 19

Planned Contrasts of 2 versus 1 Increasing Risk Factors for Aggression

Source	Sum of Squares	df	Mean Square	F	Significance
Corrected Model	326.780	2	163.390	8.074	.001
Intercept	297.143	1	297.143	14.683	.001
HS Aggression	152.701	1	152.701	7.546	.009
Increasing Risk	203.630	1	203.630	10.062	.003
Error	708.299	35	20.237		
Total	1841.000	38			

HS= Head Start

Table 20

Planned Contrasts of 0 versus 1 Increasing Risk Factor for Aggression

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	276.763	2	138.381	9.524	.000
Intercept	103.233	1	103.233	7.105	.010
HS Aggression	272.523	1	272.523	18.756	.001
Increasing Risk	.001517	1	.001517	.001	.974
Error	958.977	66	14.530		
Total	1950.000	69			

HS=Head Start

Children from families with 2 versus 0 risk factors in first grade controlling

for Head Start aggression significantly differed in first grade aggression (see

Table 18). Children from families with 2 versus 1 risk factors in first grade while

controlling for Head Start aggression also differed significantly in first grade

aggression (see Table 19). However there were no significant differences

between groups who had 0 or 1 risk factor (see Table 20). Similar analyses were

conducted for anxiety and hyperactivity. There were no significant differences in

first grade anxiety for those with 0 versus 1 or 2 versus 1 risk factors. Results of

ANOVAs looking at significant differences between children from families with 0

versus 2 risk factors approached significance for first grade anxiety, $F(1,44) =$

3.54; p=.066) For hyperactivity, children from families with 0 versus 1 risk factor

significantly differed in first grade hyperactivity, $F(1,66) = 4.40$; p=.04 and the

difference in hyperactivity for children from families with 2 versus 0 risk factors

approached significance, $F(1,44) = 3.13$; p=.084. However there were no

significant differences in predicting child hyperactivity between children from

families with 2 versus 1 risk factors.

The third quantitative question was "Is there an inverse relation between risk and protective factors? If so do protective variables offset risk variables? In order to evaluate the inverse relation between risk and protective factors, the researcher considered effect sizes. Cohen (1988) described small effect sizes as R^2s from .02 to .12, medium effect sizes as R^2s from .13 to .25, and large effect sizes as R^2s greater than .26. Only if the effect size was not large could the researcher explore whether protective variables offset risk variables. Large effect sizes would mean that the two variables were measuring the same construct. Correlations revealed that continued protection and continued risk are inversely correlated (see Table 14) and all effect sizes were small or medium. Increasing protection and continuous protection are also inversely correlated. Increasing risk is negatively related to continuing protection.

The second part of quantitative question 3 was whether protection variables offset risk variables. Additional regressions were conducted to answer this question. The investigator looked at interactions between increasing risk and continuous protection in predicting first grade aggression, anxiety, and hyperactivity. In the equations, Head Start scores were held constant in block one, and in block two centered protection and risk were entered. Centered scores were created by subtracting the mean from each individual score to avoid multicollinearity. Only the interaction effect for first grade anxiety approached significance ($p=.088$). In this regression, adding centered risk and centered protection in block 2 explained 9% of the variance. Finally the investigator

conducted regressions evaluating the interaction between continuous protection and continuous risk and there were no significant interaction effects.

Qualitative Change Questions

The first qualitative change question, was "Changing which risk or protective variables is most closely associated with cognitive competence in children?" PPVT scores were used to examine cognitive competence. The sample was divided into two samples. Those with high PPVT scores (scores>100) were considered to be cognitively competent and those with low PPVT scores (scores<88.8, the mean for the 2001 National Head Start Evaluation) were considered to be cognitively incompetent. Four univariate ANOVA's were conducted which evaluated: Head Start total number of distal risk/protective factors with protective factors recoded as risk factors (poverty, marital status, negative parenting attitudes, aggressive personality, and level of education) thus a score of 0-9; first grade total number of distal risk/protective factors (poverty, marital status, negative parenting, aggression, and level of education); Head Start total number of proximal risk/protective factors (power assertion, hostility, warmth, and monitoring); first grade total number of proximal risk/protective factors. The results of the ANOVA's are presented in tables 21, 22, 23, and 24.

Table 21

Results of ANOVA of Head Start Distal Risk/Protective Factors by PPVT

Competence Groups.

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	9.313	1	9.313	5.896	.019
Intercept	155.109	1	155.109	98.199	.00
PPVT Group	9.313	1	9.313	5.896	.019
Error	74.238	47	1.580		
Total	231.00	49			
Corrected Total	83.551	48			

Table 22

Results of ANOVA of Head Start Proximal Risk/Protective Factors by PPVT

Competence Groups.

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	7.185	1	7.185	7.948	.007
Intercept	62.043	1	62.043	68.631	.000
PPVT Group	7.185	1	7.185	7.948	.007
Error	42.488	47	.904		
Total	107.000	49			
Corrected Total	49.673	48			

Table 23

Results of ANOVA of First Grade Distal Risk/Protective Factors by PPVT

Competence Groups.

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	1.966	1	1.966	1.686	.200
Intercept	139.109	1	139.109	119.288	.000
PPVT Group	1.966	1	1.966	1.686	.200
Error	54.810	47	1.166		
Total	194.00	49			
Corrected Total	56.776	48			

Table 24

Results of ANOVA of First Grade Proximal Risk/Protective Factors by PPVT

Competence Groups.

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	2.083	1	2.083	1.691	.200
Intercept	50.900	1	50.900	41.306	.000
PPVT Group	2.083	1	2.083	1.691	.200
Error	57.917	47	1.232		
Total	109.000	49			
Corrected Total	60.00	48			

The tables indicated that competent versus incompetent children on PPVT groups differed significantly on Head Start proximal risk/protective factors (*M* = 1.52 vs. .75, *SD* = 1.12 vs. .80) and Head Start distal risk/protective factors (*M* = 2.24 vs. 1.36 , *SD* = 1.55 vs. .99).

Prior to analyzing qualitative question 2 the investigator computed mean item scores for externalizing and internalizing TRF scores to compare the sample to normative TRF scores. The data on girls' TRF scores were complete; however, there were 5 boys that had missing data. Four of the five boys were missing data because they were retained in Kindergarten. For the one boy who was missing an item (i.e. TRF item 3) the investigator computed the mean score of the other items for this child and inserted the mean score for the missing item.

To evaluate the second qualitative change question, an ANOVA was conducted to determine which risk/protective factors differentiated between competent and incompetent socioemotional groups. The sample was divided into two groups. Those children with high externalizing TRF scores (i.e. scores $\geq$ mean scores for boys + 1 SD and $\geq$ mean scores for girls + 1 SD) were in the

incompetent externalizing group and those children with high internalizing TRF scores (i.e., scores $\geq$ mean scores for boys + 1 SD and scores $\geq$ mean scores for girls + 1 SD) were in the incompetent internalizing group. Children scoring at or below the mean + 1 standard deviation were considered to be competent (i.e. not presenting behavior problems). The reason this procedure was followed is because the TRF manual does not suggest what specific levels of behavior problems constitute competence. Because the TRF is a negative measure of socioemotional health, all children who did not have clinically significant scores would be classified as competent if clinical cutoffs were used as the criterion for competence versus incompetence. Identifying all children with scores below the clinical level as competent would have been a more liberal operationalization of socioemotional competence than was the operationalization of cognitive competence as the mean on the PPVT-R.

Four Univariate ANOVA's looking at TRF externalizing groups (competent versus incompetent) were conducted evaluating Head Start total number of distal risk/protective factors (poverty, marital status, negative parenting, aggression, and level of education); first grade total number of distal risk/protective factors (poverty, marital status, negative parenting, aggression, and level of education); Head Start total number of proximal risk/protective factors (power assertion, hostility, warmth, and monitoring); first grade total number of proximal risk/protective factors. The same analyses were conducted for TRF internalizing groups (competent versus incompetent). The results of the ANOVA's are presented in tables 25, 26, 27, 28, 29, 30, 31, and 32.

Table 25

ANOVA Results of Head Start Distal Risk/Protective Factors by Externalizing

Groups.

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	8.182	1	8.182	5.999	.017
Intercept	152.668	1	152.668	111.940	.000
PPVT	8.182	1	8.182	5.999	.017
Error	98.197	72	1.364		
Total	282.000	74			
Corrected Total	106.378	73			

Table 26

ANOVA Results of Head Start Proximal Risk/Protective Factors by Externalizing

Groups.

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	.124	1	.124	.155	.695
Intercept	43.097	1	43.097	54.068	.000
PPVT	.124	1	.124	.155	.695
Error	57.390	72	.797		
Total	120.00	74			
Corrected Total	57.514	73			

Table 27

ANOVA Results of First Grade Proximal Risk/Protective Factors by Externalizing

Groups

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	5.388	1	5.388	5.154	.026
Intercept	54.198	1	54.198	51.850	.000
PPVT	5.388	1	5.388	5.154	.026
Error	75.261	72	1.045		
Total	136.000	74			
Corrected Total	80.649	73			

Table 28

ANOVA Results of First Grade Distal Risk/Protective Factors and Externalizing

Groups

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	.185	1	.185	.162	.688
Intercept	123.158	1	123.185	108.168	.000
PPVT	.185	1	.185	.162	.688
Error	81.977	72	1.139		
Total	264.000	74			
Corrected Total	82.162	73			

Table 29

ANOVA Results of Head Start Grade Proximal Risk/Protective Factors and

Internalizing Groups

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	.114	1	.114	.142	.707
Intercept	40.978	1	40.978	51.401	.000
PPVT	.114	1	.114	.142	.707
Error	57.400	72	.797		
Total	120.00	74			
Corrected Total	57.514	73			

Table 30

ANOVA Results of Head Start Distal Risk/Protective Factors by Internalizing

Groups

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	1.731	1	1.731	1.191	.279
Intercept	125.406	1	125.406	86.283	.000
PPVT	1.731	1	1.731	1.191	.279
Error	104.648	74	1.453		
Total	282.000	72			
Corrected Total	106.378	73			

Table 31

ANOVA Results of First Grade Proximal Risk/Protective Factors by Internalizing

Groups

Source	Sum of Squares	Df	Mean Square	F	Significance
Corrected Model	1.334	1	1.334	1.211	.275
Intercept	42.848	1	42.848	8.896	.000
PPVT Group	1.334	1	1.334	1.211	.275
Error	79.314	74	1.102		
Total	136.000	72			
Corrected Total	80.649	73			

Table 32

ANOVA Results of First Grade Distal Risk/Protective Factors by Internalizing

Groups

Source	Sum of Squares	df	Mean Square	F	Significance
Corrected Model	5.715	1	5.715	5.382	.023
Intercept	145.174	1	145.174	136.728	.000
PPVT	5.715	1	5.715	5.382	.023
Error	76.448	72	1.062		
Total	264.000	74			
Corrected Total	82.162	73			

The tables indicated that competent versus incompetent children on externalizing problems differed significantly on Head Start distal risk/protective factors (*M* = 1.37 vs. 2.2, *SD* = 1.14 vs. 1.26) and first grade proximal risk/protective factors (*M* = .73 vs. 1.40, *SD* = .98 vs. 1.18). The tables also indicate that competent versus incompetent children on internalizing problems differed significantly on first grade distal risk/protective factors (*M*= 1.43 vs. 2.14, *SD* = 1.60 vs. .86).

The third qualitative question, "For children with the same increase or decrease in risk factors is there a difference in cognitive/socioemotional competence as a function of the identity of one of the particular risk factors?" Chi-Squares were conducted to assess proximal and distal risk factors in Head Start and First grade in order to see which differentiated children classified as competent (>100) versus incompetent (<88.8). Results revealed that level of education was the only first grade distal risk/protective factor (poverty, marital status, aggression, AAPI, and level of education) [Fisher's Exact Test] ($p=.015$) that was significant. Chi-square evaluations assessing the relation of PPVT competence groups to Head Start proximal risk/protective factors revealed that power assertion differentiated competence groups (Pearson Chi-Square=5.026; $p=.025$; df=1) and the relation between warmth and competence groups approached significance (Pearson Chi-Square=3.68; $p=.055$; df=1).

Chi-Squares were also computed to see which risk/protective factors were associated with competence groups on internalizing and externalizing problems. The investigator examined proximal and distal risk factors in Head Start and First grade in order to see which factors differentiated competent from incompetent externalizing children. Marital status (Pearson Chi-Square=2.875; $p=.09$; df=1) and AAPI (Fisher's Exact Test $p=.008$) were the 2 distal risk/protective factors that differentiated externalizing groups in Head Start. Power assertion (Fisher's Exact Test $p=.096$) and hostility (Fisher's Exact Test $p=.053$) were the 2 proximal (power assertion, hostility, warmth, and monitoring) risk/protective factors that differentiated externalizing groups in first grade. Poverty (Pearson Chi-

Square=4.07; p=.044; df=1) was the only distal risk/protective factor that

differentiated internalizing groups in first grade.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter discusses demographic characteristics and significant

hypothesized relationships between risk or protective factors and children's

socioemotional or cognitive outcomes. Both significant and marginally significant

relationships among variables are addressed. Then conclusions are presented.

This chapter concludes with recommendations for future research.

Demographic Characteristics

This longitudinal study examined the relations between contextual

risk/protective factors and children's socioemotional and cognitive outcomes in

an economically disadvantaged sample. Teachers' reports, mothers' reports, and

child performances were assessed in Head Start and first grade. The typical

participant in this sample was a married or remarried Caucasian or Native

American mother who experienced a decrease in income over the time of the

study. The child sample consisted of more boys than girls.

Based on the descriptive data, results for the majority of mothers in this

sample demonstrated a decrease in aggression and negative attitudes over the

time of the study. Mothers' scores on the CPPD basically stayed the same over

the course of the study. However it is important to note that maternal hostility and

power assertion scores on the CPPD did decrease slightly over time. Paired t-

tests revealed that aggression and AAPI scores significantly decreased over

time. However although mothers' scores on the CPPD slightly decreased over

time none of the decreases was significant. Baumrind (1978) proposed that

between the intervals of preschool and first grade mothers tend to alter parenting patterns. According to Baumrind parents have a directive role during the preschool years because this time period is very intense and emotional. According to Baumrind (1978) during preschool parental direction coupled with parental warmth influences competence in children.

When children enter early school age the need for intense parental direction decreases (Baumrind, 1978). During this stage of development, children often desire approval from others and are able to begin to reason with others (Baumrind, 1978). The children in this sample might have experienced these developmental changes, which would offer another explanation for why mothers in this sample experienced a decrease in negative parenting practices over time.

Discussion of Quantitative Research Questions

The results of quantitative research question one indicated that the combination of risk/protective factors over time (continuous risk, continuous protection, increasing risk, and increasing protection) explained more variance (12%) than any single variable alone. Several researchers have found the combination of risk/protective factors to account for a large amount of variance in children's outcomes. This finding supports the Hicks, Lalonde, and Pepler (1993) study that looked at immigrant and refugee children and discovered that the children's outcomes were predicted by a combination of risk and protective factors. Rutter (1979) argued that it was not just the type of risk factor but also the accumulation of risk factors that mattered. In addition, Sameroff et al. (1997) found that no single risk or protective variable was a significant predictor of child

outcomes but that only the combination of multiple risk factors was significantly associated with child outcomes. Burchinal and colleagues (2000) found that risk factor scores provided better predictive power for describing patterns of change than individual risk factors.

It was interesting to note that of all the combinations of risk/protective variables, increasing risk (e.g. risk at first grade) was the only individual variable that was significant in predicting childhood aggression, anxiety, and hyperactivity. The results of a study by Ackerman, Brown, and Izard (2004) found in a disadvantaged sample of Head Start children that current assessments tend to have a more direct influence on children's outcomes when holding prior behavior constant. The importance of current circumstances has also been reported in attachment studies (Lewis, Feiring, and Rosenthal, 2000). However, increasing risk and current risk are not the same concept.

The finding that increasing risk was the most important of the four risk/protective variables is unique to this study. This finding suggests that increasing risk has a more powerful influence on children's outcomes than increasing protection, continuous risk, or continuous protection in this disadvantaged sample. To the authors' knowledge this specific finding has not been presented in the current literature.

No significant relations were found between risk/protective factors and children's cognitive outcomes. This is an interesting finding because many studies have found contextual risk factors similar to the ones used in this study to be significantly related to children's cognitive or academic achievement

(Sameroff et al. 1997). One reason cognitive outcomes were not found to be significantly related to the risk/protective variables in this study could be because the PPVT was the only measure used to assess cognitive outcomes. The longer time line of the Ackerman study could also account for why academic outcomes (measured by the PPVT) were significantly related to risk variables. It is important to note that when PPVT scores were used to classify children into competence groups, PPVT scores were significantly associated with risk/protective factors (see discussion below).

The results of the second part of question 1 presented interesting findings. Poverty at Head Start along with an increase in risk factors over time were significant in predicting first grade child aggression. This finding adds additional support to the large body of literature that suggests poverty is negatively associated with children's behavior problems. Results of additional studies indicate that poverty is specifically associated with negative socioemotional and cognitive outcomes in children (Duncan, Books-Gunn, & Klebanov, 1994; Dearing et al, 2001; Petterson & Albers, 2001).

Ackerman, Brown, and Izard (2004) found poverty and contextual risk to relate independently to children's adjustment to school. In their study, poverty predicted child academic ability but failed to predict child behavior. This is the opposite of what was found in the current study. These results could also be because of the differences in age groups between the two samples. There is a paucity of published research studies that include at-risk populations such as

Head Start. Therefore it is important that future studies continue to elucidate the effects of poverty on disadvantaged children.

Maternal hostility in first grade and increasing risk were both significantly predictive of child anxiety at first grade. This finding is supported by numerous studies that show maternal hostility to be negatively associated with children's socioemotional outcomes (Bryant & Crockenberg, 1980; Crockenberg & Litman, 1990; Hubbs-Tait, Culp, Culp, Steel, & Fore, 1998; Rothbaum & Weisz, 1994; Vissing et al., 1991). This study adds further support to Campbell's study (1994), which found clear links between hostile behavior in parents and behavior problems in young children.

Other researchers have found maternal hostility to be associated with cognitive or academic difficulties (Egeland, et al., 1993; Olson, Bates, Kaskje, 1992; Warash & Markstrom, 2001). However in this study this finding was not revealed. Again this might be because the PPVT was used to measure cognitive outcomes in children. Researchers have found PPVT scores to be inconsistently associated with risk/protective factors (Smith, 1994). This might be why there were no significant associations between risk/protective factors and PPVT scores in this sample. Another reason could be because these children attend Head Start. This environment might have buffered negative effects of risk factors on children's cognitive development. Finally PPVT scores are typically considered to be a stable measurement in general populations (Smith, 1994). Because PPVT scores did not significantly differ over the time of this study, the stability might

have obscured significant relations with risk/protective factors (Hubbs-Tait, Culp, Huey et al., 2002).

Another interesting finding was that poverty at first grade was also significant in predicting child anxiety. In this regression, poverty at first grade reduced the effect of increasing risk. This finding provides further support for the idea that poverty is independently associated with child behavior outcomes over time especially in high-risk children. Although Head Start samples are at-risk populations, assessing progress above the poverty threshold over time still matters in Head Start samples.

The second quantitative question was whether the critical number of risk factors increased in this sample was similar to what Rutter reported in the literature. The data analysis revealed that groups with 2 or 3 versus 1 risk factor and groups with 2 or 3 versus 0 risk factors significantly differed. However groups with 0 or 1 risk factor did not significantly differ. These findings support Rutters' conclusions that 2 or more risk factors are associated with negative child outcomes. According to Rutter (1979) children with one risk factor were not more likely to have a psychiatric disorder than children with no risk factors. The results of this study also found that children with 0 or 1 risk factor had similar outcomes. On the other hand, when Rutter looked at children with 2 or more risk factors he found that the risk for having a psychiatric disorder increased fourfold. The data results of this study support Rutter's conclusion that children with 2 or more risk factors experienced significantly different outcomes than those with 0 or 1 risk factor.

The third quantitative question questioned whether there was an inverse relation between risk and protective factors. The results revealed that there were some risk/protective factors that were inversely correlated (i.e. continued protection and continued risk; increasing protection and continuous protection).

The results of the second part of quantitative question 3 revealed that some protection variables offset risk variables. For example, the interaction effect of risk interacting with protection for first grade anxiety approached significance. The results suggest that a greater amount of protection offset the risk of high anxiety.

<p style="text-align:center">Discussion of Qualitative Change Questions</p>

The first qualitative change question asked whether changing particular risk or protective variables was closely associated with cognitive competence in children. To answer this question the researcher divided the sample into competent and incompetent groups. The results indicated that competent versus incompetent children on PPVT scores differed significantly on Head Start proximal risk/protective factors and Head Start distal risk/protective factors. This suggests that cognitive competence as defined by the PPVT is predicted by Head Start (or pre-Head Start) risk factors and remains stable thereafter.

The second qualitative change question asked whether changing particular risk or protective variables was most closely associated with socioemotional competence in children. Again the sample was divided into a competent and incompetent group. The results indicated that proximal risk/protective factors differentiated competent from incompetent children or

externalizing scores on the TRF in first grade. This might be because proximal risk/protective factors (power assertion, hostility, warmth, and monitoring) consisted of mothers' parenting practices. Parenting practices have been shown to have a great impact on children's developmental outcomes in first grade (Egeland et al., 1993). This is a finding that has not been consistently reported in the literature. Another interesting finding was that distal risk/protective factors rather than proximal risk/protective factors differentiated externalizing competence groups in Head Start. Distal risk factors (poverty, marital status, negative parenting, aggression, and level or education) consisted of a combination of contextual risk/protective factors. One reason for this finding could be due to the negative effects of poverty early in a child's life on child behavioral outcomes (Evans & English, 2002).

Distal risk/protective factors were the only variables that differentiated competence groups based on internalizing scores on the TRF in first grade. These results are consistent with what Jones, Forehead, Brody, and Armistead (2002) found. They found distal risk factors to be significantly associated with internalizing and externalizing behavior problems in young children.

Children identified as competent in this sample have characteristics of resiliency. The children who were cognitively and socioemotionally competent were effective in adapting to the at-risk environment they were exposed to. In this sample the majority of children were growing up in poverty. Even when the children had no other risk factors they were considered to be an at-risk sample because they were in Head Start. Resilience is effective adaptation in the face of

significant individual or contextual hardship (Kirby & Fraser, 1997). This suggests that the cognitive and socioemotionally competent children in this sample were demonstrating resilience.

The final qualitative question was, "For children with the same increase or decrease in risk factors is there a difference in cognitive/socioemotional competence as a function of the identity of one of the particular risk factors?" The analyses supported interesting conclusions. Mothers' level of education was the only distal risk/protective factor that was linked to competence as defined by PPVT scores. Those mothers who have not graduated from high school had children who were low in competence on the PPVT. These findings are consistent with other studies that have found mothers' level of education to be largely associated with children's IQ (Sellers, Burns, & Guyrke, 2002).

Although many studies report a link between power assertion and negative socioemotional outcomes, most have not found a link between maternal power assertion and children's cognitive outcomes. However, in this study mother's power assertion was the only proximal risk/protective factor that was linked to competence as defined by PPVT scores. This is similar to what Kochanska, Aksan, Nichols (2003) found. In their study mothers' power assertion predicted young children's (56 months) cognitive competence.

Marital status and AAPI scores were 2 Head Start distal risk/protective factors that differentiated competence groups as defined by externalizing scores on the TRF. Other researchers have found marital status or parenting attitudes to be associated with children's behavioral outcomes. For instance Webster-

Stratton, and Hammond (1990) found single-parent status to be highly correlated with children's behavioral problems, whereas Barocas and colleagues (1991) found that negative parenting attitudes are associated with children's socioemotional problems.

Power assertion and hostility were the two first grade proximal risk/protective factors that significantly differentiated competence groups as defined by TRF scores. As stated previously, in the literature power assertion and hostility have consistently been linked to children's behavioral problems. Poverty was the only first grade distal risk/protective factor that differentiated competence groups based on internalizing scores on the TRF. This finding is similar to Eamon (2000) who found a strong association between recent poverty and four-to-five year old children's internalizing problems. This might be why poverty at first grade was significantly associated with children's internalizing problems but not at Head Start.
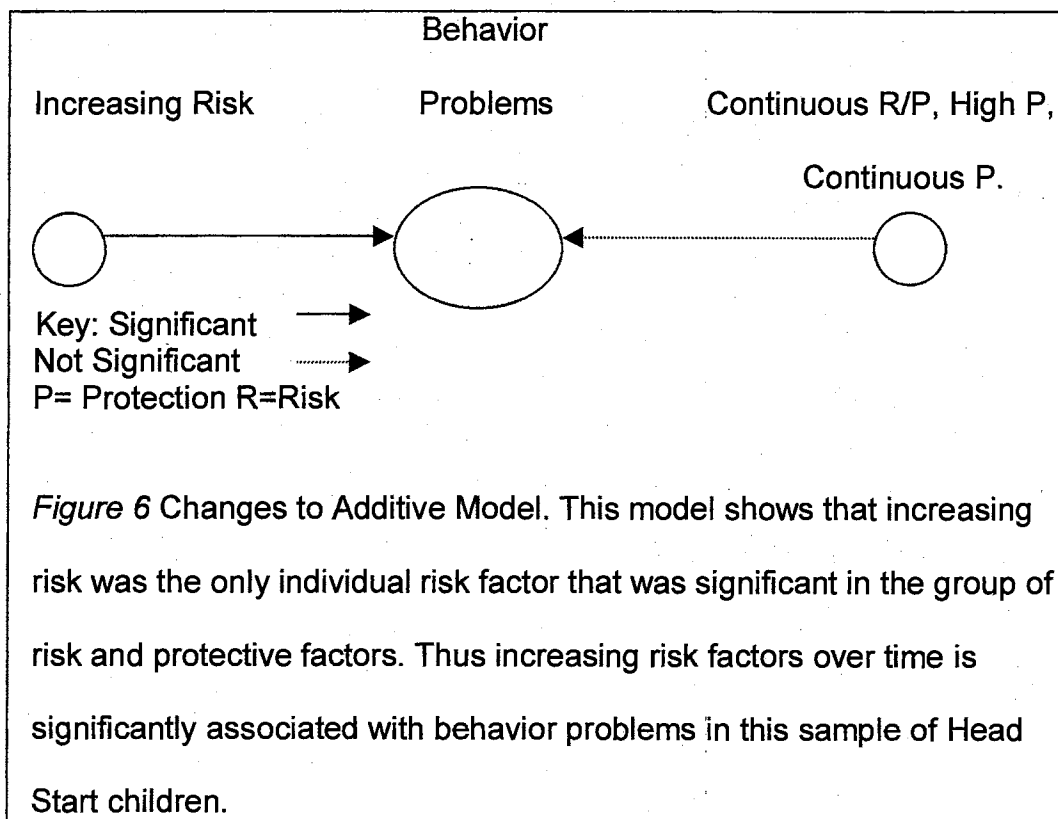
<div align="center">Support of Theory</div>

The analyses conducted in this study supported the additive approach to risk. For example, in quantitative question 1 the additive combination of risk/protective factors accounted for more variance in child socioemotional outcomes than any individual risk/protective factor. When looking at the 9 individual risk/protective factors it was found that increasing risk (from 0-3) at first grade accounted for more variance in socioemotional outcomes than any single risk factor, with the exception of poverty (predicting hyperactivity) and hostility (predicting anxiety).

Another theoretical framework presented in chapter 2 that ties into additive

models includes cumulative effect. In this study cumulative effect was assessed

through continuous risk/protective factors over time. The conclusions reached

with this sample support the idea of cumulative effect because increasing risk

factors over time significantly predicted child outcomes.

In chapter 2 figures were created to depict the various models used in this

study. New figures were constructed in order to depict the outcomes revealed in

this study.

Due to the study findings, changes were made to the additive model (see

Figure 6).

Figure 6 Changes to Additive Model. This model shows that increasing

risk was the only individual risk factor that was significant in the group of

risk and protective factors. Thus increasing risk factors over time is

significantly associated with behavior problems in this sample of Head
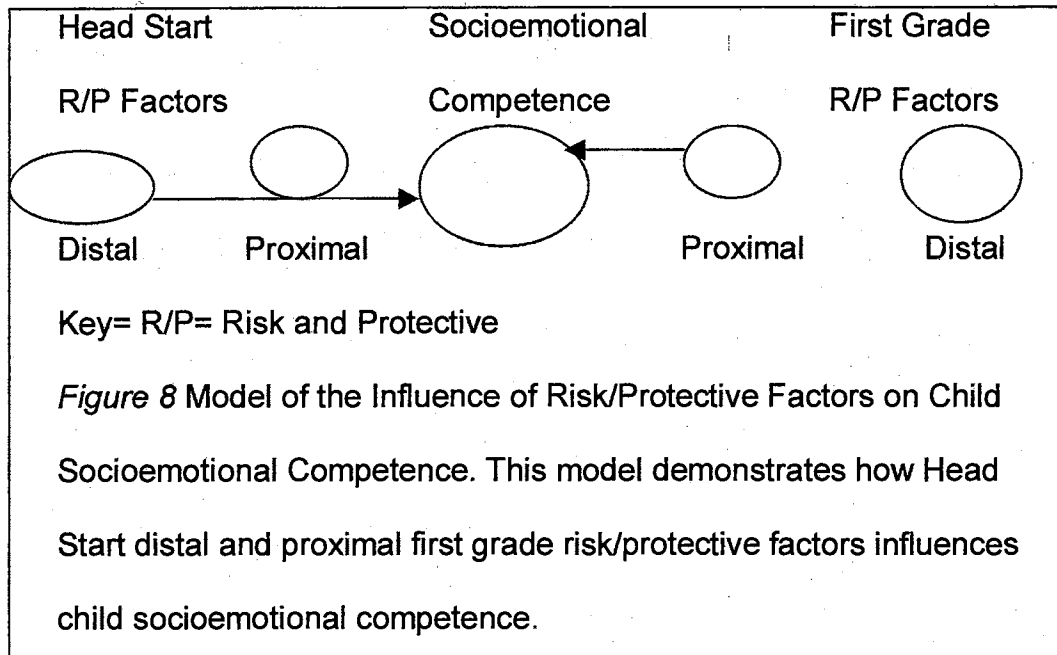
Start children.

Significant differences between children competent versus incompetent on

the PPVT in terms of proximal risk/protective factors in Head Start and distal

risk/protective factors in first grade were also found.

Head Start   Low Cognitive   First Grade

Risk/Protective Factors   Competence   Risk/Protective Factors

Distal   Proximal   Proximal   Distal

Key: High Amount ⟶

Figure 7 Additive Model- Risk/Protective Factors-Low Competence.
When there is a high amount of proximal risk/protective factors at Head
Start and distal risk/protective factors in first grade, low competence is
attained.
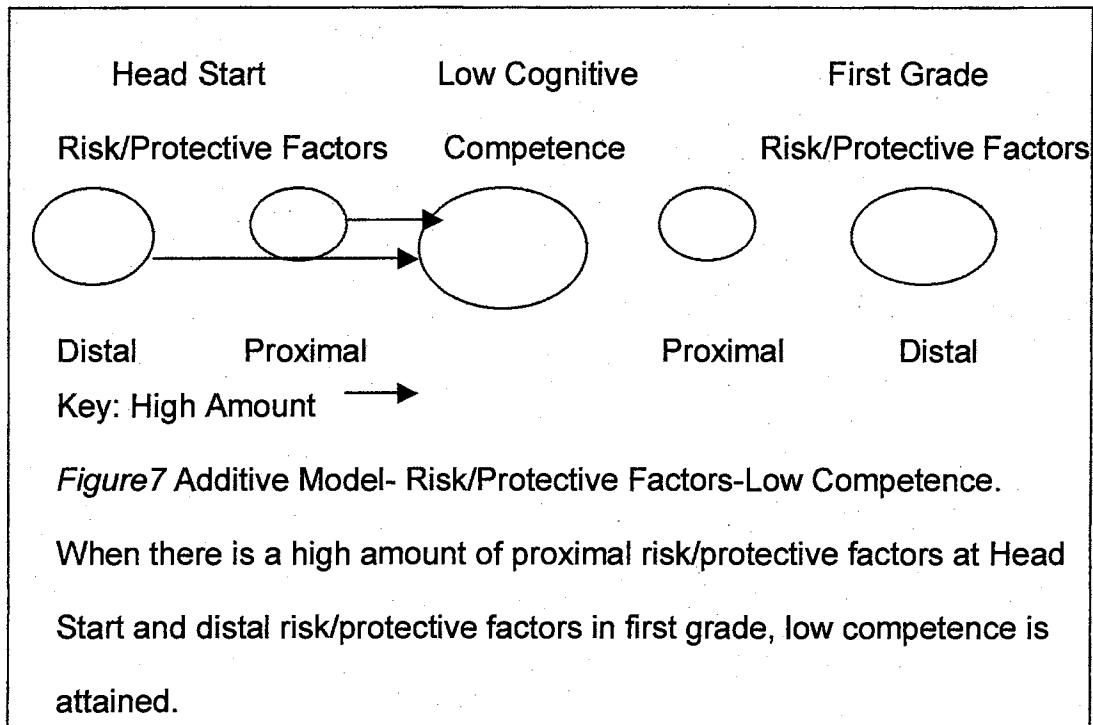
The second part of quantitative question 3 addressed interaction theory.

This question focused on whether protection variables offset risk variables. There

were no significant interactions found in this study.

The results of the analyses for the socioemotional competence group

based on external problems were the reverse for those based on the PPVT.

Figure 8 represents the findings from the data analyses.

Head Start   Socioemotional   First Grade

R/P Factors   Competence   R/P Factors

Distal   Proximal   Proximal   Distal

Key= R/P= Risk and Protective

Figure 8 Model of the Influence of Risk/Protective Factors on Child Socioemotional Competence. This model demonstrates how Head Start distal and proximal first grade risk/protective factors influences child socioemotional competence.

In chapter two the researcher proposed the idea of a threshold effect. The threshold was defined as belonging to the competent or incompetent group. Competent and incompetent groups were qualitatively determined by what is defined in the literature (e.g. PPVT or TRF). Chi-square analyses suggested that specific risk factors might be candidates for control parameters for PPVT competence. These risk factors were maternal education, power assertion, and warmth. Chi-square analyses also suggested that specific risk factors might be candidates for control parameters for externalizing TRF competence. These risk factors were marital status, AAPI, power assertion, and hostility. The only candidate for control parameter for internalizing TRF competence was poverty. These findings suggest that there is a significant difference between risk/protective factors that define cognitive and socioemotional competence in

this sample. In other words, risk/protective factors uniquely contribute to cognitive (PPVT) and socioemotional (TRF) outcomes.

Sameroff et al. (1987) found that it was the combination of certain risk factors (i.e. low maternal education, low socioeconomic status, rigid parental beliefs, and maternal anxiety) that led to negative cognitive outcomes in children. These findings are similar to what was found in this study. Risk/protective factors important in predicting PPVT competence were high maternal education, low power assertion, and high warmth.

A study by Nix et al. (1999) found mother's hostility to be strongly related to children's externalizing behavior problems. This supports what was found in this study. Children's externalizing incompetence in this study was associated with mothers' hostility, negative parenting attitudes, power assertion, and marital status.

Power assertion is the only risk/protective factor that qualitatively determined incompetence in both PPVT and TRF scores. This finding highlights the importance of decreasing maternal levels of power assertion in order to improve child outcomes.

There were a variety of risk and protective factors that differentiated variables related to internalizing and externalizing problems. Marital status, AAPI scores, power assertion, and hostility significantly contributed to children's externalizing behavior problems. This suggests that single mothers who use aggressive, overly controlling measures to control their child's behavior influence the development of externalizing behavior problems in their children. Poverty

significantly contributed to children's internalizing behavior problems. This suggests that living in poverty may contribute to children's level of anxiety and/or depression and feelings of withdrawal.

Qualitative, Quantitative, and Threshold Effects

Qualitative change in this study was identified through threshold effects. The threshold effects were measured quantitatively; however, the children who were competent in this sample were qualitatively different than those who were incompetent. The two groups of children were qualitatively different because those children who were identified as competent did not exhibit socioemotional and cognitive deficits; however, those children who were identified as incompetent did exhibit socioemotional and cognitive deficits.

Although control parameters were identified in this study, Dynamic Systems Theory has not extensively described qualitative and quantitative control parameters. Because of this it is not likely that there will be field wide agreement on this issue.

Implications for Interventions

Based on the results of this study, interventions to prevent cognitive deficits in Head Start children need to begin prior to Head Start. Programs such as Early Head Start should aim to prevent or decrease both distal and proximal risk factors and increase protective factors like the ones included in this study.

To prevent or decrease externalizing behavior problems in Head Start children interventions need to be aimed at distal risk/protective factors in Head Start and proximal risk/protective factors in first grade years. The results of this

study suggested that distal risk/protective factors (e.g. poverty, marital status, negative parenting attitudes, and aggressive personality) have a more profound influence on children's externalizing behavior problems in Head Start. However as children grow and mature proximal risk/protective factors (e.g. warmth, monitoring, and mothers' level of education) have a greater influence on children's externalizing behavior problems in first grade. Interventions in Early Head Start should focus on increasing maternal warmth, monitoring, and mothers' level of education in order to prevent children from having externalizing behavior problems in first grade.

To prevent or decrease internalizing behavior problems in former Head Start children interventions need to be aimed at distal risk/protective factors in first grade. The results of this study suggested that distal risk/protective factors (e.g. poverty, marital status, negative parenting attitudes, and aggressive personality) have a more profound influence on children's internalizing behavior problems in first grade. Based on this information interventions in Early Head Start should be aimed at improving mothers' negative parenting attitudes and aggressive personalities. This might help prevent children from having internalizing behavior problems in first grade.

Recommendations for Future Research

Future research should examine the influences of fathers' parenting practices on children's socioemotional and cognitive outcomes. This research study solely focused on mothers as parent leaving a gap in the literature of how

Head Start fathers' parenting practices relate to children's socioemotional and cognitive outcomes.

It is important to explore the influence of risk factors on children's socioemotional and cognitive outcomes with various populations. A limitation of this research study is that the sample only included Head Start children from an area in rural Oklahoma. It would be important to extend future research to include other ethnic groups (e.g. Asians, Hispanics, African-Americans) in order to see if there are differences in how diverse children respond to contextual influences (e.g. parenting practices, income levels, level of education).

Future research should also take a closer look at how certain distal and proximal risk/protective factors influence child socioemotional and cognitive outcomes. This study provided an initial understanding of how certain distal and proximal risk/protective factors differentiate between competent and incompetent groups. Additional studies that examine the process in how distal and proximal risk/protective factors influence socioemotional and cognitive outcomes are needed.

Finally it is important that future research assess interactions between individual risk and protective factors. Interaction effects were not found in this study. This could be due to the small sample size. Alternatively, it seems possible that some samples like the one in this study are so high risk that protective factors cannot offset risk. If this were true then additive models would always be supported. However, since interactions between risk and protection

remain theoretically important it is important for researchers to continue to conduct research on such interactions.

Summary

In conclusion, the results of this study indicate that disadvantaged children between Head Start and first grade can be at risk for socioemotional and cognitive deficits in response to risk/protective factors found in their contextual environment. It was consistently found that the combination of risk/protective factors was more powerful in predicting child socioemotional outcomes than individual risk/protective factors. However, when looking at individual risk/protective factors increasing risk was the most significant predictor of children's socioemotional problems (e.g. anxiety, hyperactivity, and aggression). Further analyses showed that distal and proximal risk/protective factors have differing influences on children's outcomes. For example, both distal and proximal risk/protective factors were very important in predicting children's competence as defined by PPVT scores in Head Start. However, distal risk/protective factors in Head Start and proximal risk/protective factors in first grade were significant in differentiating competence as defined by externalizing problems. While, in first grade distal risk/protective factors were the only significant factor in predicting internalizing behavior problems in children. The results of this study suggest that proximal and distal risk/protective factors contribute in meaningfully different ways to children's socioemotional and cognitive competence.

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APPENDICES

Appendix A

Maternal Demographic Information

Demographic Information Questionnaire   ID Number_____

complete each of the following items. All information will be kept confidential.

Your own date of birth: _____
                                         Month   Day   Year

Gender of your Head Start child (check one): _____ Male   _____ Female

Birthdate of your Head Start child: _____
                                         Month   Day   Year

Date your child began Head Start   _____
                                         Month   Day   Year

How old was your child? (circle one): 2 years old   3 years old   4 years old

Your marital status (check one):

___ Married, first time
___ Single, never married
___ Single, separated
___ Single, divorced
___ Single, widowed
___ Remarried
___ Other, please specify _____

Your current <u>household</u> income per <u>month</u> before taxes (please check one):

___ $ 0 - 100   ___ $2000-2499
___ $ 100 - 499   ___ $2500-2999
___ $ 500 - 999   ___ $3000-3499
___ $1000 - 1499   ___ $3500-3999
___ $1500 - 1999   ___ $4000 plus

Your own ethnic group (please check one):

___ Native American   Tribe: _____
___ African American
___ Hispanic
___ Asian
___ White
___ Multiethnic   Describe: _____
___ Other

Occupation (Please describe your job. Consult the list below for examples of what we mean by specific occupations): _____

day care center aide	secretary
waitress	maid
assembly line worker	cook (e.g. at cafeteria)
roofer	laborer
laundry sorter	med-tech assistant
security guard	draftsperson
nursing home aide	carpenter
school bus driver	janitor
teacher's aide	social worker
grocery story cashier	teacher
busboy	mason
auto body repair	welder
trucker	sales clerk
homemaker	disabled

Are you currently employed or unemployed in this occupation (please check one)?
____ employed   ____ unemployed

Please place a check mark next to the highest grade you completed in school.

__	6th grade	__	11th grade
__	7th grade	__	12th grade
__	8th grade	__	some vo-tech
__	9th grade	__	some college courses
__	10th grade	__	vo-tech graduate
		__	college graduate

With whom do you currently live? We do not need their names.

Relation	Sex	Occupation	Age
ex: husband_____	M F	_____	____
_____	M F	_____	____
_____	M F	_____	____
_____	M F	_____	____
_____	M F	_____	____

_____ M F _____

_____ M F _____

onthly income of your spouse/partner before taxes (please check one):

_ $ 0 - 100   __ $2000-2499
_ $ 100 - 499   __ $2500-2999
_ $ 500 - 999   __ $3000-3499
_ $1000 - 1499   __ $3500-3999
_ $1500 - 1999   __ $4000 plus

ccupation of your spouse/partner (Please describe. Consult the list under question #5 for examples of what we ean by specific occupations): _____

_____

your spouse/partner currently employed or unemployed in this occupation (please check one)?
_ employed   __ unemployed

ease place a check mark next to the highest grade your spouse/partner completed in school.

_   6th grade   __   11th grade
_   7th grade   __   12th grade
_   8th grade   __   some vo-tech
_   9th grade   __   some college courses
_   10th grade   __   vo-tech graduate
                            __   college graduate

your current spouse/partner the father of the child you have enrolled in Head Start (check one)?
__ Yes   __ No

ow often does your child see his/her biological father (please check one)

_ daily
_ weekly
_ monthly
_ 6 to 11 times per year
_ 3 to 5 times per year
_ twice a year
_ once a year
_ no contact

Ethnic group of the biological father of your Head Start child (check one):

__ Native American   Tribe: _____
__ African American
__ Hispanic
__ Asian
__ White
__ Multiethnic   Describe: _____
__ Other

Do you currently receive state or federal financial assistance (check as many as apply)?

__ WIC   __ Unemployment benefits
__ AFDC   __ Energy assistance
__ School lunch/breakfast   __ Social Security/SSI
                                    __ Medicaid

For how many years have you received such assistance (check one)?

__ five or more years
__ four years
__ three years
__ two years
__ one year
__ less than one year

Appendix B

Institutional Review Board Approval Letter

Oklahoma State University
Institutional Review Board

Protocol Expires: 6/17/03

Date: Tuesday, June 18, 2002   IRB Application No   HE0264

Proposal Title: PILOT STUDY OF THE COMPUTER-PRESENTED PARENTING DILEMMAS (CPPD)
                   INVENTORY

Principal
Investigator(s):

Kelley Ward   Laura Hubbs-Tait
17626 E. 85st N.   341 HES
Owasso, OK 74055   Stillwater, OK 74078

Reviewed and
Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the
expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals
who may be asked to participate in this study will be respected, and that the research will be conducted in a
manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol
   must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year.
   This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are
   unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB
procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to
the IRB, in 203 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).
Sincerely,

Carol Olson, Chair
Institutional Review Board

VITA

Kelley Ward, PhD, RN,C

Candidate for the Degree of

Doctor of Philosophy

Dissertation: MECHANISMS OF CONTEXTUAL RISK AND PROTECTION FROM HEAD START TO FIRST GRADE.

Major Field: Human Environmental Sciences

Biographical:

Personal Data: Born in Greenville, Texas, the daughter of David and Paula Hamlin.

Education: Graduated from Collinsville High School, Collinsville, Oklahoma in May 1992; received Bachelor of Nursing degree from University of Oklahoma, Norman Oklahoma in May 1996; received Master of Science degree major nursing education from University of Oklahoma, Tulsa Oklahoma in December 1999. Completed the requirements for the Doctor of Philosophy degree Oklahoma State University in July 2004.

Experience: Employed as a Neonatal Intensive Care Nurse at Hillcrest Medical Center from 1997 until 2002. Currently employed as an Instructor of Nursing at Langston University School of Nursing in Tulsa.

Professional Memberships: Sigma Theta Tau Beta Delta Chapter, National League for Nursing, American Nurses Association, Oklahoma Nurses Association, Phi Kappa Phi, Sigma Omicron Nu.