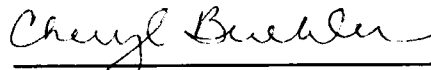


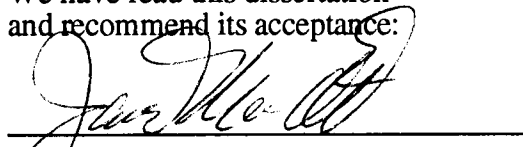
To the Graduate Council:

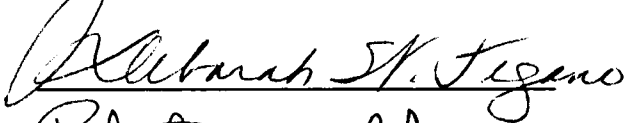
I am submitting herewith a dissertation written by Anuradha Bakshi entitled "Early Family Experience, Chronic Peer Rejection in School, and Overgeneralized Social Problem Solving as Predictors of Child Adjustment at Age Seven". I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for degree of Doctor of Philosophy, with a major in Human Ecology.

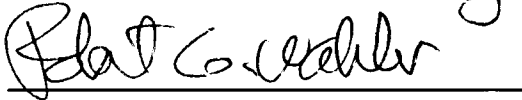


Dr. Cheryl Buehler, Major Professor

We have read this dissertation
and recommend its acceptance:







Accepted for the Council:



Associate Vice Chancellor
and Dean of the Graduate School

**Early Family Experience, Chronic Peer Rejection in School, and Overgeneralized Social
Problem Solving as Predictors of Child Adjustment at Age Seven**

**A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville**

Anuradha Bakshi

August, 1993

ACKNOWLEDGMENTS

This research was supported by NIMH Grant 42498. My research would not have been feasible without the longitudinal data made available by this funding.

I am most thankful to Dr. Cheryl Buehler and Dr. Gregory S. Pettit for co-directing my research and being my mentors. I have benefited immensely from their joint guidance. In particular, I wish to thank Dr. Buehler for her dedicated involvement and thoroughness, and the warmth and care she extended by including me in a seminar group that met at her home. I wish to thank Dr. Pettit for getting me interested in ideas that led to this project, as well as his steadfast and sincere involvement and constant encouragement from Auburn, Alabama. The knowledge that he cared helped me complete my project.

Dr. Robert G. Wahler also has acted as my mentor. I am grateful for the interest he has shown in me as a student. I also am appreciative of the assistance provided by Dr. Jim Moran and Dr. Deborah Tegano. I especially thank all my committee members for their flexibility and readiness in giving feedback.

I am indebted to all the children and their families in Bloomington, Indiana, and Knoxville and Nashville, Tennessee, who participated in this project. I thank them for sharing a part of their lives with the research staff.

I thank my peers--Mandy Harrist, Sue Remaley, Gina Touch, Chris Burwinkel, and Shelley Paden--for their involvement in my research. They read drafts and willingly engaged in long discussions of my project.

Lastly, I acknowledge the immense support provided by my family and my friends. I have been able to accomplish this project because of their unfailing love and faith in me.

ABSTRACT

The purpose of this research was to predict child adjustment at age seven by examining family experience through age five, chronic peer rejection during kindergarten and first grade, and children's tendency to overgeneralize rules in social problem solving (SPS). It was proposed that family and peer variables would make unique contributions to explaining child adjustment. It also was hypothesized that the effects of early family experience would be stronger for children who experienced chronic peer rejection at school or who overgeneralized rules than for other children. Data from a three-site, two-cohort longitudinal study were used ($N = 450$). Child adjustment was operationalized as teacher and mother ratings of children's competencies and externalizing problems. Five aspects of early family experience were measured using parent interviews and questionnaires: non-hitting aversive parent behaviors, physical punishment, marital conflict, unplanfulness in child bearing, and socioeconomic status. Chronic peer rejection was sociometrically assessed. Overgeneralization of rules in SPS was assessed using a hypothetical-reasoning test. As hypothesized, family and peer variables made unique contributions to explaining child adjustment at age seven. Overall, the strongest predictor of child adjustment at age seven was chronic peer rejection, followed by socioeconomic status. In addition, chronic peer rejection strengthened the relationship between (a) socioeconomic status and child adjustment, and (b) marital conflict and child adjustment. Children's tendency to overgeneralize rules in SPS had a small, unique effect in predicting child adjustment. The constructs of risk and resilience were used to develop the model of child adjustment in this study as well as to interpret findings. The findings support previous theory and research underscoring the need to assess risk across multiple domains of a child's life. Importantly, this study forwards the literature by emphasizing that multiple domains of experience and risk are ordered sequentially, and that a child's entry into a new setting, such as school, provides opportunities for both constancy and change.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION AND LITERATURE REVIEW	1
Child Adjustment	1
Family Predictors of Child Adjustment: Defining Family Risk	3
Peer Rejection and Child Adjustment: Defining Peer Risk	5
Social Problem Solving and Child Adjustment.....	8
Summary	11
Resilience and Child Adjustment.....	11
Individual Differences in Child Adjustment	11
Identification of Factors from Multiple Contexts	12
Modeling Relationships among Factors.....	12
Negotiation of Life Changes	13
Summary	13
Development of a Model of Child Adjustment.....	13
II. METHOD	16
Sampling and Procedure.....	16
Background	16
Subjects	16
Overall Procedure.....	17
Measurement	17
Temporal Order in Measurement	17
Child Adjustment	19
Family Risk	23
Aversive parenting: Physical punishment and non-hitting aversive parent behaviors	23
Marital conflict.....	24
Unplanfulness in child bearing.....	24
Socioeconomic status	26
Chronic Peer Rejection.....	27
Overgeneralization of Rules in Social Problem Solving.....	28
Correlations among Predictor Variables	29
Analyses	31
Defining a Moderator Model.....	31
Hierarchical Regression Analysis Procedures.....	31

CHAPTER	PAGE
III. RESULTS.....	34
Hypotheses	34
Hypothesis 1	34
Hypothesis 2.....	34
Hypothesis 3.....	37
Hypothesis 4.....	40
Hypothesis 5.....	43
Hypothesis 6.....	43
Hypothesis 7.....	46
Hypothesis 8.....	49
Hypothesis 9.....	49
Simultaneous Consideration of Multiple Domain Variables	52
IV. DISCUSSION AND IMPLICATIONS	53
Dimensionality in Child Adjustment.....	53
Nature of Joint Contribution of Family and Peer Groups	53
Unique Effects of Early Family Experience	54
Unique Effects of the Peer Group	57
Interactive Relationships between the Family and the Peer Group	59
Conclusions	61
Nature of Contribution of Multiple Family Variables	62
Overgeneralization of Rules as an SPS Construct	64
Limitations	66
Implications for a Theory of Risk and Resilience.....	68
REFERENCES.....	69
APPENDICES.....	81
APPENDIX A: EXTENDED REVIEW OF LITERATURE	82
Child Adjustment	82
Family Predictors of Child Adjustment	90
Parental Characteristics: Maternal Adjustment.....	90
Parent-Child Variables.....	91
Marital Variables.....	93
Family Stress Variables.....	95
Issues	96

CHAPTER	PAGE
Peer Rejection and Child Adjustment	98
Peer Rejection: Definition and Description	99
Concurrent Prediction of Child Adjustment from Peer Rejection	102
Longitudinal Prediction of Child Adjustment from Peer Rejection.....	105
Social Problem Solving and Child Adjustment.....	107
Resilience and Child Adjustment.....	112
Individual Differences in Child Adjustment	113
Identification of Factors from Multiple Contexts	114
Modeling Relationships among Factors.....	115
Negotiation of Life Changes	115
Summary	116
Conclusion.....	117
References	120
APPENDIX B: EXPLANATION OF THE USE OF ACHENBACH MEASURES IN THIS STUDY	135
APPENDIX C: MULTIPLE-ITEM SCALES USED IN THE STUDY TO MEASURE FAMILY VARIABLES.....	137
Scale I: Non-Hitting Aversive Parent Behaviors	137
Scale II: Use of Physical Punishment	138
Scale III: Marital Conflict	140
APPENDIX D: ORIGINAL INSTRUMENTS USED TO CREATE FAMILY VARIABLE SCALES	141
Parent Interview Form.....	141
Conflict Tactics Scale.....	160
APPENDIX E: CALCULATION OF SLOPES OF MODERATED RELATIONSHIPS	165
VITA	176

LIST OF TABLES

TABLE	PAGE
1. Demographic Characteristics of Each Cohort.....	18
2. Descriptive Statistics for Children's Competencies and Externalizing Problems...	21
3. Correlation Coefficients among Dependent Variables	22
4. Descriptive Statistics for Predictor Variables	25
5. Intercorrelations among Predictor Variables	30
6. Simultaneous Multiple Regression for Children's Competencies with All Seven Predictor Variables.....	35
7. Simultaneous Multiple Regression for Children's Externalizing Problems with All Seven Predictor Variables	36
E.1 Abbreviated SPSS Printout: Multiple Regression with Interaction Terms.....	166

LIST OF FIGURES

FIGURE	PAGE
1. A model of child adjustment.	2
2. Temporal span of study.	19
3. Moderating effects of marital conflict on the relationship between non-hitting aversive parent behaviors and teacher-rated competencies.	38
4. Moderating effects of marital conflict on the relationship between non-hitting aversive parent behaviors and mother-rated competencies.	39
5. Moderating effects of marital conflict on the relationship between non-hitting aversive parent behaviors and teacher-rated externalizing problems.	41
6. Moderating effects of marital conflict on the relationship between physical punishment and mother-rated externalizing problems.	42
7. Moderating effects of chronic peer rejection on the relationship between marital conflict and teacher-rated competencies.	44
8. Moderating effects of chronic peer rejection on the relationship between SES and teacher-rated competencies.	45
9. Moderating effects of chronic peer rejection on the relationship between non-hitting aversive parent behaviors and mother-rated competencies.	47
10. Moderating effects of chronic peer rejection on the relationship between SES and teacher-rated externalizing problems.	48
11. Moderating effects of overgeneralization of rules on the relationship between unplanfulness in child bearing and teacher-rated externalizing problems.	50
12. Moderating effects of overgeneralization of rules on the relationship between marital conflict and mother-rated externalizing problems.	51
A.1 A three-tiered conceptualization of child adjustment.	85

I. INTRODUCTION AND LITERATURE REVIEW

The major purpose of this research was to examine the relationship between risk accruing from multiple domains and child adjustment at age seven. The most important social domains in the first seven years of a child's life are the family (e.g., Sameroff & Seifer, 1983), the peer group (e.g., Parker & Asher, 1987), and the child (e.g., Lytton, 1990). From these three domains, the specific constructs of family risk, peer rejection, and the children's social problem solving were used to predict child adjustment. The processes by which these constructs were linked was informed by theory and research on resiliency (see Figure 1).

Child Adjustment

Child adjustment was the dependent construct in this study. The term adjustment emphasizes the goal of negotiating and flexibly fitting one's behavior to the requirements of home, school, and other settings (Lorion, Cowen, & Caldwell, 1975). Therefore, child adjustment was defined as a child having (a) minimal difficulties in meeting the requirements of home and school as evidenced by a lack of problems, and (b) competencies or strengths that enable this fitting. This conceptualization highlights the bidimensionality of child adjustment by recognizing that strengths need not be the polar opposites of weaknesses (Gesten, 1976). Achenbach and Edelbrock (1978) support this view by stating that a greater variety of differences in adjustment are captured by assessing both competencies and problems.¹

As such, global child adjustment consists of two major dimensions: competencies and problems. Competencies are nonfactorial and therefore are considered unidimensional (Achenbach & Edelbrock, 1978). Examples of competencies include

¹Despite the theoretical distinction between competencies and problems, very few studies have included competencies in their measurement of child adjustment. This limitation is evident in the literature to be reviewed.

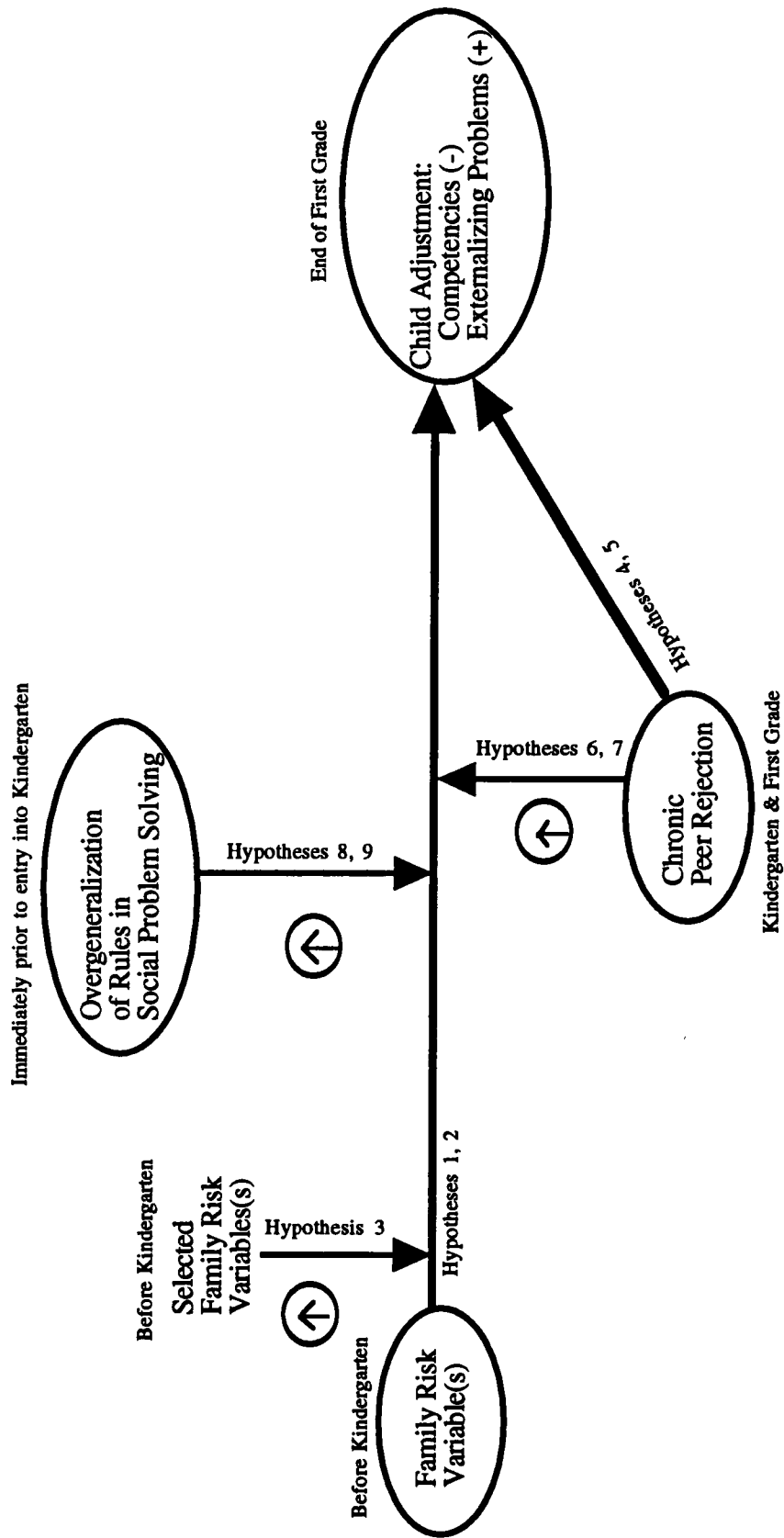


Figure 1. A model of child adjustment.

academic achievement and the ability to get along with others (Achenbach & Edelbrock, 1981).² In contrast, according to Achenbach and Edelbrock (1978) problem behaviors are multidimensional and can be divided into two broad-band categories: externalizing and internalizing problems. Externalizing problems include aggression and hyperactivity, whereas internalizing problems include anxiety, depression, and withdrawal (Edelbrock & Achenbach, 1980).

Externalizing problems are more salient than internalizing problems in childhood. Children with externalizing problems are at high risk for continuing problem behavior into adolescence and adulthood (Farrington, Loeber, & van Kammen, 1990; Lytton, 1990). In contrast, internalized emotional disturbance in the absence of other problems in childhood has failed to predict maladaptation into adulthood (Kohlberg, Ricks, & Snarey, 1984; Sroufe & Rutter, 1984). Thus, for this study, child adjustment is conceptualized as including (a) competencies and (b) externalizing problems.

Family Predictors of Child Adjustment: Defining Family Risk

Family predictors of child adjustment selected in this study were (a) aversive parenting, (b) marital conflict, (c) unplanfulness in child bearing, and (d) socioeconomic status. Aversive parenting includes several negative parental behaviors, most of which are physically aversive. Examples of aversive parenting include the use of physical punishment (e.g., Weiss, Dodge, Bates, & Pettit, 1992), physical abuse of children (e.g., Dodge, Bates, & Pettit, 1990), and the use of behaviors such as screaming, sulking, and hitting in dealing with family conflict (e.g., Patterson, 1986). The saliency of aversive parenting has been demonstrated best by the work of Patterson and his associates (Patterson, 1986; Patterson & Bank, 1989; Patterson, Dishion, & Bank, 1984). They found that escalating aversiveness (e.g., screaming, hitting, crying etc.) between family members starts and maintains conduct problems in boys. Aversive exchanges between

²In this study, the ability to get along with peers was excluded in the conceptualization of competencies in order to avoid overlap with peer rejection which was used to predict competencies.

parent and child and between siblings are triggered by aversive parenting.

Characteristically, parents of aggressive boys maintain a constant drone of admonishing threats which is punctuated erratically by extreme punishment including anger-ridden hitting and spanking. Measured observationally, these aversive family processes have explained 40% of the variance in boys' externalizing behavior problems (Patterson, 1986).

A second important family variable is marital conflict. Gottman and Katz (1989) stated that marital conflict is the best familial predictor of children's adjustment. Marital conflict ranges in duration and intensity from low and recent verbal conflict to chronic marital violence. Duration and intensity of marital conflict are related to children's adjustment, with children from persistent, high conflict, violent homes exhibiting the most severe behavior problems (Fantuzzo et al., 1991; Peterson & Zill, 1986). It is important to note that marital conflict is similar to the family processes described by Patterson (e.g., 1986) because it is evidenced by escalating aversiveness between parents.

Third, Rutter (1984, 1987, 1989) in his longitudinal studies of girls followed into adulthood emphasizes the importance of planfulness in child bearing and marriage. Planfulness in child bearing and marriage ameliorated a potentially negative developmental track for women who had experienced disrupted parenting in their childhood. In this study, unplanfulness in child bearing, especially shown by concurrent unmarried status, was used as an indicator of adult competence in women. Maternal incompetence has been associated positively with problem behaviors in children (Capaldi & Patterson, 1991).

A fourth important variable is the family's socioeconomic status (SES). There are two reasons why SES is important in studying child adjustment. First, SES defines the family's linkages to society and the resources that flow from these linkages (Reich, 1992). For a child, these may be the choice of neighborhood, school, peer group, and even play

patterns (Berg & Medrich, 1980; Rubin & Sloman, 1984). Second, there is evidence that norms of acceptable behavior between parents, between parents and children, and for children vary by SES (Gecas, 1979). As an inverse measure of the degree of socioeconomic deprivation and related stress, SES was hypothesized to be associated positively with child adjustment. In addition, it is possible that the relationship of parenting variables to child adjustment varies dependent upon the socioeconomic context. Therefore, there was a twofold reason to include SES in a study that examines interrelationships between predictors of child adjustment.

Although past research has suggested an association between certain family variables and child adjustment, an important caveat is that the experience of some aspect of family dysfunction does not necessitate the manifestation of problems in children. At best, the probability that these children will manifest problems is significantly different and higher than the base rate in the total population. Thus, family predictors carry risk rather than a prognosis for definite harm. In addition, family variables may predict child adjustment in concert. For example, the risk that one family predictor carries may be intensified in the presence of a second family predictor.

Family predictors of child adjustment represent risk that accrues from experiencing dysfunctional qualities of one setting. However, developmentally a child's world expands to include other settings. In the next section, the context used to predict child adjustment is changed to the peer-dominated school setting.

Peer Rejection and Child Adjustment: Defining Peer Risk

As a child enters school, the governing influence of the home is tempered by the school and peer group (Hartup, 1979). The experience of social acceptance and rejection by one's peers at school has been identified as a principal way in which the peer group has meaning for individual adjustment (Asher & Hymel, 1981). Therefore, peer rejection constitutes a second area of research explaining child adjustment.

Peer rejection was defined as how much a child is liked and disliked by peers at school (Asher & Hymel, 1981). It indicates children's success with peers which is a developmental task salient for school-aged children. Other than indicating social success, peer rejection also is important because it defines the range and affective quality of social situations in the peer group for a child (Coie, 1990). Thus, peer rejection was hypothesized to predict adjustment because it signifies a failed developmental task and because it is associated with aberrant peer socialization experiences (Coie, 1990; Parker & Asher, 1987).

Peer rejection was conceptualized as bidimensional: being disliked and being liked (Gottman, 1977). This issue of bidimensionality is especially important for differentiating children who are disliked actively (i.e., rejected) from those whose low acceptance implies that they have not made much of an impact (either positive or negative) on their peers (i.e., neglected) (Coie, Dodge, & Coppotelli, 1982). It was important to distinguish between rejected and neglected children because rejected children's statuses are most stable in contrast to neglected children. Rejected children also exhibit the most behavior problems compared to other peers including neglected children (Asher, Parkhurst, Hymel, & Williams, 1990; Coie & Kupersmidt, 1983; Cole & Carpentieri, 1990; Dodge, Coie, Pettit, & Price, 1990).

Past research has indicated that peer rejection predicts both concurrent child adjustment and adjustment over time. Concurrently, peer rejection has been associated with aggression and isolation in children (French & Waas, 1985; Hymel, Rubin, Rowden, & LeMare, 1990; Ollendich, Greene, Francis, & Baum, 1991). The strength of the relationship between peer rejection and behavior problems has ranged from modest (e.g., loneliness; Asher, Hymel, & Renshaw, 1984) to relatively high (e.g., aggression; Hymel et al., 1990). These patterns have been consistent for children of different ages (e.g., French & Waas, 1985), for different conceptualizations of peer rejection (e.g., Asarnow,

1988; Ollendich et al., 1991), and for reports from different agents (e.g., parents, teachers, and peers).

However, the consistency of these findings does not preclude individual differences in adjustment outcomes associated with peer rejection. French and Waas (1985) noted high standard deviations in the behavior problem scores of rejected children. Olson and Brodfeld (1991) found that only half of the rejected children had significant behavior problems at the end of the preschool year. French (1988, 1990) analyzed the heterogeneity in rejected boys and girls and found two subgroups that differed markedly in degree of problems. His findings demonstrated that the behavior problem correlates of rejection are not uniform across subjects; some children are rejected and have multiple problems, whereas others are less deviant.

Evidence from longitudinal studies parallels that from concurrent studies. Peer rejection is a significant longitudinal predictor of important outcomes in elementary school, adolescence, and adulthood. In short-term longitudinal studies, peer rejection variables have explained uniquely 19% of the variance in school adjustment in kindergarten (Ladd, 1990) and 20% of the variance in peer-rated isolation and teacher-rated externalizing problems in elementary school (Hymel et al., 1990). In a meta-analysis of long-term longitudinal studies, Parker and Asher (1987) reported that peer rejection experienced in elementary school years (around age 8-10) foretells dropping out of school in adolescence and delinquency or adult crime. Their study substantiated the widespread belief in the social development literature that peer-rejected children are at risk for developing problems in adolescence and adulthood.

There is an important qualification of peer rejection as a risk factor (Parker & Asher, 1987). In terms of predictive accuracy, knowledge of peer rejection increases chance prediction of later maladjustment by about 35%. Although this is a fairly strong prediction estimate, it is important to realize that not all children who are rejected will

develop problems over time. Parker and Asher's (1987) estimate suggested that 26% of children who are rejected by their peers later drop out of school or manifest delinquent or criminal behavior whereas 74% do not develop problems. Thus, as with family risk factors, peer rejection overselects children who may develop problems. More technically, the rate of making false positive errors is high (Parker & Asher, 1987, p. 378). (The rate of false negative errors is significantly lower.)

Some scholars have suggested that the predictive accuracy of peer rejection may be improved by examining the chronicity of rejection (Coie, 1990; Parker & Asher, 1987). Though peer rejection is a relatively stable phenomenon in elementary school there is the possibility for change. The greatest status consistency over time and across settings is exhibited by the group of rejected children (Coie & Kupersmidt, 1983; Dodge, Coie, Pettit, & Price, 1990; Ollendich et al., 1991). About 50% of rejected children in elementary school and preschool remain rejected over the course of a year or more, whereas half change statuses (Coie & Dodge, 1983; Ollendich et al., 1991; Olson & Brodfeld, 1991). Theoretically, peer socialization experiences would be most aberrant for children who continue to be rejected. Therefore, it was hypothesized that only children experiencing sustained rejection will be at risk for future development of stable problems (Coie, 1990).

The predictive accuracy of peer rejection also may be improved by examining the quality of extraclassroom relationships (Parker & Asher, 1987). It is possible that some children who are rejected in their school groups do not manifest problems because of the higher quality of relationships in the home. Finally, child attributes may be important, particularly children's social problem solving skills.

Social Problem Solving and Child Adjustment

Social information processing theory suggests a relationship between children's social problem solving (SPS) and behavioral adjustment (Dodge & Crick, 1990).

Exemplifying the social information processing approach, Dodge (1985, 1986; Dodge, Pettit, McClaskey, & Brown, 1986) hypothesized that there is a sequence of cognitive actions in solving a social problem, culminating in a behavioral response of varying competence. A child encodes, interprets, accesses responses, decides, and then enacts a behavioral response. Encoding variables include degree of cue utilization and recency bias (Dodge, 1986). Interpretation variables include hostile attribution bias (Dodge & Somberg, 1987). Response access variables include the proportion of aggressive and competent responses (Dodge, Bates, & Pettit, 1990). Response decision variables include nature of outcome evaluation and perceived efficacy (Perry, Perry, & Rasmussen, 1986). Each of these SPS variables modestly explains child adjustment (Dodge & Crick, 1990).

A potentially promising SPS construct is overgeneralization of rules.

Overgeneralization was defined as the application of a few, broad rules to all situations despite situational dissimilarities. This construct indicates inflexibility of thought or processing skills in social situations. To illustrate, a child may access one or two types of solutions repeatedly to solve a variety of social problems, evidencing overgeneralized SPS.

The inclusion of overgeneralization of rules in SPS in a model of child adjustment can be justified based on past research and theory. Theorists/researchers in multiple fields underscore the importance of flexibility, especially in problem solving. Sroufe and Rutter (1984) emphasized the developmental utility of flexibility by stating that “(i)nflexible employment of modes of functioning and limitations in perceiving opportunities or challenges in the environment compromise later environmental transactions” (p. 22). Problem solving researchers in the fields of creativity (Torrance, 1968) and intelligence (Guilford, 1971) have recognized that flexibility (i.e. the ability to switch modes of thought) is a critical component of successful problem solving. Family therapists have identified adaptability or the degree of flexibility in changing rules and

roles as a salient dimension of family functioning. When stuck dysfunctional families do the same thing harder and more, whereas competent families try something different (Beavers, 1982).

There also is evidence that over-generality characterizes children with problems. For example, in a study of cue utilization, aggressive children were prone to making global statements instead of describing the specific situation (Dodge & Tomlin, 1983). Eron (1987) found that aggressive children were more inclined to perceive themselves as aggressive, perceive others as aggressive, and view their world as an aggressive place. Finally, researchers have argued that social behavior must be situation-specific to be skillful (Dodge, 1985, 1986; Gesten, 1976). Rubin and Krasnor (1986), in a naturalistic observational study of how children matched solutions to problems and the success that ensued, found that no one response was successful in all situations.

Children's SPS frequently has been studied as mediating the impact of family variables on child adjustment (e.g., Pettit, Dodge, & Brown, 1988). However, there is an alternative model that maximizes the contribution of predictors from different domains in explaining child adjustment. Dubow and Tisak (1989) found that SPS moderated the relationship between stressful life events and child adjustment such that the relationship between stressful life events and teacher-rated problems was strong for children with low SPS skills but close to zero for children with high SPS skills. Accordingly, in this study it was hypothesized that overgeneralized SPS exacerbates the relationship between family risk factors and child adjustment by restricting the child's ability to see the situational limits of a phenomenon and thereby compromising the possibility for change.³

³Past research on other SPS variables would suggest a modest, independent effect of SPS on child adjustment (Evans & Short, 1991; Fischler & Kendall, 1988). However, it is not clear whether the proposed construct of overgeneralization of rules also would have an independent effect on child adjustment.

Summary

Three major constructs (family risk, peer rejection, overgeneralization of rules in SPS) that represent the three substantive areas of the family, peer group, and child have been described. In addition, the contribution of each to child adjustment has been discussed. Based on this discussion, a holistic model was proposed in which all three constructs were used to predict child adjustment (see Figure 1). Explanations for the manner in which interrelationships between predictors of child adjustment were patterned are presented in the next section. The construct of resilience provides the framework by which the three substantive areas are linked.

Resilience and Child Adjustment

Resiliency researchers have examined the processes that explain children's successful adjustment despite the experience of adversity and stress (Garmezy, 1987; Rutter, 1985). There are four major contributions from resiliency research relevant for this study.

Individual Differences in Child Adjustment

Despite a significant relationship between negative life experiences and problem behavior in children, outcomes associated with adversity are quite heterogeneous (Garmezy, 1987; Rutter, 1984, 1985; Rutter, Quinton, & Hill, 1990). In general, between one-third and one-half of the children who have experienced adversity do not manifest problems and thus are resilient; others manifest varying degrees of problems (e.g., Farrington, Gallagher, Morley, St. Ledger, & West, 1988; Rutter et al., 1990). As the phenomenon of resilience emphasizes individual differences associated with the manifestation of problems, predictors of maladjustment are best labeled risk factors (Sameroff & Seifer, 1983). Thus, a primary principle in resiliency theory is that the strongest relationship between adversity and related problems is that of heightened

susceptibility and that there are no fixed behavioral outcomes (Rutter, 1985). This principle was illustrated in both the family and peer literature reviewed earlier.

Identification of Factors from Multiple Contexts

A first step in explaining individual differences in adjustment associated with adversity is to identify factors from more than one context. A context is defined as a setting like the family, school, and neighborhood. Self-righting tendencies potentially are in the environment as well as the child. Thus, alternative domains of experience become important in canalizing development (see Sameroff & Seifer, 1983).

Modeling Relationships among Factors

There are two different ways of modeling relationships among factors. In one, there is an additive relationship between different predictors in explaining adjustment. In the other, there is an interactive relationship between different predictors in explaining adjustment.

Main effect models use the additive approach (e.g., Garnezy, Masten, & Tellegen, 1984). The critical assumption in this model is that a predictor has an effect on the outcome on its own, i.e., the effect does not have to be catalyzed by the presence of a second variable. Therefore, a factor has a beneficial or harmful effect irrespective of other conditions such as the presence or absence of stress (Cohen & Wills, 1985). Statistically, such an effect is termed a main effect and is interpreted as occurring when other variables are controlled as opposed to absent (see Rutter, 1985). Furthermore, when a set of such predictors is considered, adjustment is explained by the sum total of each unique (partialled) effect.

Moderator models use the interaction approach (e.g., Rutter, 1985). The critical assumption in this model is that there are no fixed effects associated with a risk factor either concurrently or over time (Rutter, 1985). The effect of a risk factor is contingent upon its interaction with a second variable termed the moderator. Under varying levels of

the moderator, the relationship between the risk factor and adjustment may be absent, increased, decreased, or reversed. Thus, instead of being in simple additive relationships, combinations of predictors interact to produce changes in expected relationships.

Adjustment in this model is explained either totally or incrementally by interaction effects between predictors.

Negotiation of Life Changes

Whether risk is heightened depends in large part on whether it is perpetuated into new settings. The nature of linkages between settings ameliorates or intensifies risk, and risk is intensified if one negative environment is followed by another negative environment (Rutter, 1985). However, if a link in the chain of probable settings and events is broken, there will be a concomitant change in the adjustment trajectory (Rutter, 1985, 1989). Hence, opportunities for change in adjustment coincide with developmental shifts in settings and events, such as entry into school, or later, entry into marriage and parenthood (see Rutter, 1984, 1985, 1987, 1989). The manner in which these life changes are negotiated moderates the effect of risk on behavioral outcomes.

Summary

In underlining that there are individual differences in adjustment related to the experience of adversity, findings from resiliency research compel a researcher to: (a) include multiple factors, especially from more than one context; (b) consider non-additive, interactive relationships between predictors; and (c) construct longitudinal designs that incorporate key changes in settings and events such as the entry into school.

Development of a Model of Child Adjustment

Three generalizations can be summarized from the substantive findings earlier reviewed. First, the family and the peer group constitute the most significant contexts of childhood, whereas social problem solving skills are important in constructing meaning in these contexts of social experience. Second, in each context there is a tendency to

overselect children who are supposed to manifest problems. Thus, each context provides an incomplete and overstated picture of subsequent adjustment. Third, family factors and peer rejection are developmentally ordered (see Hartup, 1979). Before the child enters school, the family is the primary setting and developmental tasks are defined within the confines of this (micro)system. Thus, the family is critical to the child's adjustment and simultaneously is the main arena in which the child can show his/her ability. With entry into school, the child has a new context in which the critical developmental task is forming and maintaining peer relationships. This also is an expansion of the child's world that provides an additional setting where the child can demonstrate competence.

These three generalizations, in conjunction with findings from resiliency research, have been used to develop the model displayed in Figure 1. As represented in the model, it was hypothesized that a negative, linear relationship exists between a family risk variable and children's competencies (hypothesis 1) and a positive, linear relationship exists between a family risk variable and children's externalizing problems (hypothesis 2). In addition, it was hypothesized that marital conflict, unplanfulness in child bearing, and SES may intensify the relationship between aversive parenting and child adjustment (hypothesis 3). Next, it was hypothesized that there is a negative, linear relationship between chronic peer rejection and children's competencies (hypothesis 4) and a positive, linear relationship between chronic peer rejection and children's externalizing problems (hypothesis 5). In addition, chronic peer rejection was hypothesized to moderate the relationship(s) between family risk and child adjustment. Specifically, it was hypothesized that the relationship between family risk and children's competencies is stronger for children who are rejected by their peers than for non-rejected children (hypothesis 6). It also was hypothesized that the relationship between family risk and children's externalizing problems is stronger for children who are rejected than for non-rejected children (hypothesis 7). Hypotheses 6 and 7 depict the exacerbating effects of

peer rejection. Finally, it was hypothesized that overgeneralization of rules in SPS by children also acts as a moderator variable. Specifically, it was hypothesized that the relationship between family risk and children's competencies is stronger for children who overgeneralize rules in SPS than for those who do not (hypothesis 8), and that the relationship between family risk and children's externalizing problems is stronger for children who overgeneralize rules in SPS (hypothesis 9).

In conclusion, a primary contribution of this research is the application of resiliency theory to the family, peer, and social problem solving literatures in child development. The results of this theorizing are twofold. First, resiliency theory offers insight into understanding the relationship between predictors (family, peer, and SPS) and outcomes (child adjustment). Second, the conceptualization of risk is made comprehensive by the use of substantive findings from the core areas of the family and the peer group. The sum total of these efforts should clarify the identification of risk in early childhood and children's subsequent adjustment.

II. METHOD

Sampling and Procedure

Background

The data for this study were drawn from a longitudinal research project funded by the National Institute of Mental Health and directed by K. A. Dodge, J. E. Bates, and G. S. Pettit. Whereas the larger longitudinal study spans 4 years for each subject, only the first 3 years of data were used in this study.

Subjects

The sample consisted of 450 children, stratified into two cohorts (children entering kindergarten in 1987 and 1988) at three research sites representing a medium-sized city (Nashville, Tennessee) and two smaller cities (Bloomington, Indiana and Knoxville, Tennessee).⁴ The primary goal in sampling populations at these three sites was to include subjects who were demographically diverse. Special care was taken to include poor families who lived in subsidized housing with high violent crime rates. In Nashville, elementary schools with over 80% participation in the government-subsidized lunch program were included. In Bloomington and Knoxville, elementary schools in school districts with the highest city-wide drop-out and delinquency rates were included.

Families were solicited randomly to participate. Eighty percent of the families were solicited during registration at elementary schools. The 20% of the children at these schools who had not pre-registered were recruited when school began. Approximately 70% of the parents approached consented to participate in the longitudinal study.

The sample of 450 children was 51% male and 49% female. The ethnic composition of the sample was 80% Caucasian and 18% African-American. The sample was socioeconomically heterogeneous. The Hollingshead four-factor index of social status yielded the following distribution for 5 (increasing) levels of socio-economic class: 9%,

⁴There were 585 subjects in the longitudinal study. However, for this research the sample was restricted to the 450 subjects who had complete data on the child adjustment measures.

13%, 27%, 34%, and 17%. Family composition also varied; 66% of the children lived with both their biological parents, 8% with a biological parent and a step-parent, and 27% in single-parent families. Parents' education averaged 13.6 years with a standard deviation of 2.66 years. The demographic characteristics of each cohort are presented in Table 1.

There were two indicators of the representativeness of the sample. First, the demographic characteristics of these families were representative of the geographic regions from which they are drawn (Weiss et al., 1992). Second, subjects did not differ significantly from non-tested peers at school (Pettit, Dodge, & Bates, 1992).

Overall Procedure

Parents heard a brief talk about the study from research staff at spring round up for kindergarten in 1987 and 1988. Appointments with parents were made during the summers of 1987 and 1988 (cohorts 1 and 2 respectively), and a team of research workers went to each target child's home, obtained written consent, and separately interviewed each of the parents and the pre-kindergartner. Both parents also individually completed questionnaires. During each subsequent summer in the study, target children were interviewed individually and parents completed questionnaires. Peer sociometric interviews were conducted nearing the end of the fall terms in each year of the study. Teachers completed questionnaires on each target child in the spring of each year. Parents and teachers were paid nominal amounts for their participation.

Measurement

Temporal Order in Measurement

For this study, Time 1A refers to assessments completed in the summer before a child entered kindergarten. Time 1A assessments were of family history (retrospective and current) and children's social problem solving (SPS). Time 1B refers to assessment of peer rejection at the end of the fall term in kindergarten. Time 2B refers to the

Table 1

Demographic Characteristics of Each Cohort

	Cohort 1 (<i>n</i> = 237)	Cohort 2 (<i>n</i> = 213)
Sex:		
Female	48%	51%
Male	52%	49%
Ethnic group:		
Caucasian	81%	80%
African-American	17%	19%
SES ^a :		
Unskilled laborers/Menial service workers	7%	11%
Machine operators/Semiskilled workers	12%	15%
Skilled craftsmen/Clerical, sales workers	31%	21%
Medium business/Minor professional	31%	38%
Major business/Professional	19%	15%
Family composition:		
Both biological parents	71%	59%
Two-adult family ^b	6%	11%
Single-parent family	23%	30%
Parents' education:		
Mother's education ^c	13.70 (2.42)	13.10 (2.30)
Father's education	14.10 (2.85)	13.46 (3.00)

^a SES refers to the Hollingshead four-factor index of social status. Percentages were computed for each of the five levels of social strata described by Hollingshead.

^b Two-adult families refers to families containing two adults, one of whom is not the biological parent of the child.

^c Number of years of education, with standard deviation in parentheses; 12 = high school graduation, 16 = B.A./B.S.

assessment of peer rejection at the end of the fall term in first grade. Lastly, Time 3 (end of first grade for teachers, summer after first grade for parents) refers to the assessment of the dependent construct, child adjustment. See Figure 2 for the temporal span of this study.

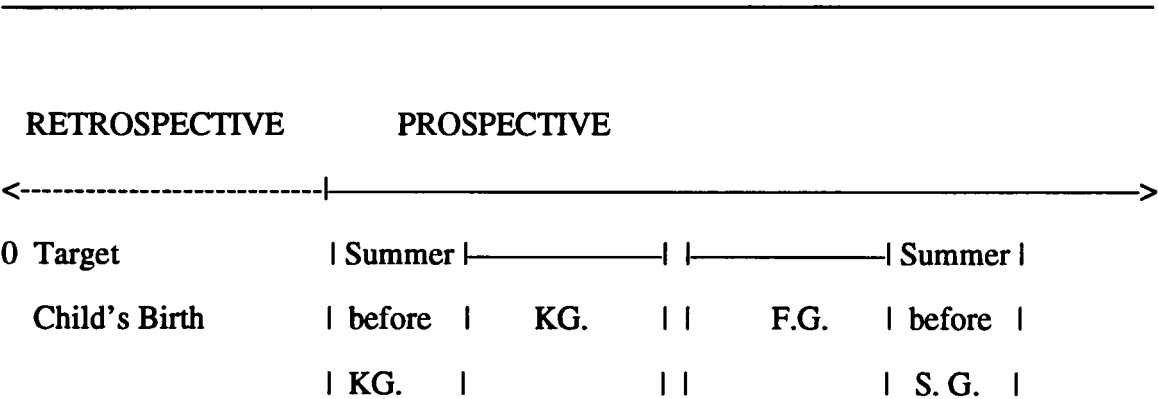


Figure 2. Temporal span of study.

Child Adjustment

Child adjustment was assessed at the end of first grade (Time 3). It was operationalized as mother and teacher ratings of child’s behavior problems and competencies. Mothers completed the parent form called the Child Behavior Checklist (CBCL; Achenbach, 1991a) and teachers completed the Teacher Report Form (TRF; Achenbach, 1991b). The Achenbach scales are the most widely used measures of child adjustment and have evidence of both reliability and validity (Achenbach, 1991a; Achenbach, 1991b).

The following scores were generated for each child: (a) a competencies score obtained from teacher ratings, (b) a competencies score obtained from mother ratings,

(c) an externalizing problems score obtained from teacher ratings, and (d) an externalizing problems score obtained from mother ratings. There were two reasons for using both mother and teacher ratings of child adjustment. First, children differ in whether they exhibit problems in one or more settings; in general, half of the children are consistent across settings, whereas half have problem behaviors specific to one setting (Johnson, Bolstad, & Lobitz, 1976; Patterson, 1976; Ramsey, Patterson, & Walker, 1990). Second, parent and teacher judgments of child adjustment are relatively independent and according to Achenbach (1991a) constitute two separate axes in the measurement of child adjustment.

The treatment of the Achenbach measures to derive these scores differed slightly from normed procedures. An explanation of the use of the Achenbach measures in this study is given in Appendix B. Descriptive statistics for the four dependent variables are presented in Table 2. Correlation coefficients among dependent variables are presented in Table 3.

The correlation coefficients between competencies and externalizing problems encourage the conclusion that these two dimensions of child adjustment are separate and do not characterize opposite poles of the same adjustment continuum. The distinction between competencies and externalizing problems was most evident when mothers rather than teachers rated the child. The shared variance between competencies and externalizing problems was 6% for mothers and 45% for teachers. Perhaps because teachers see children in a more restricted range of situations than do parents, they are more subject to a halo effect when rating children's behavior. In earlier work, teacher measures of children's competencies and problems have shown comparable levels of convergence (Dubow & Tisak, 1989).

Correlations among the child adjustment measures also were examined to ascertain the independence of teacher and mother judgments. The correlation coefficients

Table 2

Descriptive Statistics for Children's Competencies and Externalizing Problems

Variables (N = 450)	Theoretical Range	Actual Range	Mean	S.D.	Cronbach's Alpha
(1) Teacher-Rated Competencies	–	1-25.51 ^a	16.54	5.47	.89
(2) Mother-Rated Competencies	–	1-74.78	37.08	13.01	.83
(3) Teacher-Rated Externalizing Problems	boys: 0-118 girls: 0-108	0-85	15.13	18.25	.97
(4) Mother-Rated Externalizing Problems	boys: 0-80 girls: 0-98	0-50	13.66	9.38	.90

^aThe range of values possible for an item differed across items on the competence scales. Therefore, items in the competence scales for mothers and teachers were standardized before computing a summed score. A constant was added to scores generated from summing standardized items in order to remove negative numbers and improve interpretability. This linear transformation has no effect on estimates of variability and covariation. Raw summed scores for teacher-rated competencies had a theoretical and actual range of 4-29. Raw summed scores for mother-rated competencies had a theoretical range of 0-72, and an actual range of 12-59.

Table 3

Correlation Coefficients among Dependent Variables

Variables (N = 450)	(1)	(2)	(3)	(4)
(1) Teacher-Rated Competencies		.43	-.67	-.31
(2) Mother-Rated Competencies			-.31	-.25
(3) Teacher-Rated Externalizing Problems				.35
(4) Mother-Rated Externalizing Problems				

Note. All correlation coefficients were significant at $p < .01$.

of .43 for competencies and .35 for externalizing problems were congruent with expectations. Achenbach, McConaughy, and Howell (1987) reported a metanalytic mean correlation of .28 between (ratings of child adjustment by) informants from different settings. Clearly, the child is not viewed similarly in different settings (Achenbach & McConaughy, 1987).

Family Risk

Family risk was measured using data obtained in the summer before kindergarten and pertained to the entire period of family history from the child's birth up to child's entry into school (Time 1A).

Aversive parenting: Physical punishment and non-hitting aversive parent behaviors. Two types of aversive parent behaviors were included. First, the use of physical punishment was assessed, which by definition involved hitting. Second, based on Patterson's (1986) description of aversive processes, non-hitting behaviors such as screaming at child or shoving child were included. There was a low correlation of .19 ($p < .01$) between the use of physical punishment and non-hitting aversive parent behaviors and therefore they were retained as separate scales.

The measure of non-hitting aversive parent behaviors was derived from parent questionnaire data. Each parent completed a series of questionnaires privately while the other parent was being interviewed. Four items from the Conflict Tactics Scale (CTS, Straus, 1979) that pertained to parent-child behaviors were used to formulate this scale. Examples of items include: *Yelled, insulted or swore at your child* and *Pushed, grabbed, or shoved your child*. Items excluded from the CTS to formulate this scale included discussion items, items that conceptually overlapped with the physical punishment scale, and items that correlated highly with items on the marital conflict scale. Cronbach's alpha was .69. Theoretically, this scale ranged from 1 to 13. In this sample, the range was from 1 to 13, with a mean of 4.78 and a standard deviation of 2.64.

The measure of physical punishment was derived from parent interview data. Parent interviews were conducted in private with each parent at home and lasted approximately 90 minutes. Trained interviewers followed a standardized format. After a rapport-building period, the parent was asked family history questions pertaining to two eras: from target child's birth to fourth birthday, and the fifth year of the target child's life. Interviewers wrote down parent responses, and where required rated an item on a given scale.

The physical punishment scale consisted of 10 items, 5 pertaining to the period when the child was age one to four, and 5 to target child's fifth year. These items recorded whether the child was spanked, the frequency of physical punishment, the usual method of administering physical punishment, the most intense method of administering physical punishment, and the interviewer's certainty rating of physical injury to child. Items were standardized to give equal weight to each item before computing a summed score. Cronbach's alpha was .83. Physical punishment ranged from 1 to 38.82, with a mean value of 24.07 and a standard deviation of 6.22.⁵

Marital conflict. The measure of marital conflict was derived from parent questionnaire data. Eight items from the CTS that pertained to inter-spousal conflict behaviors were used. Items included the following: *Yelled, insulted or swore at your spouse, Hit or tried to hit your spouse, but not with anything, and Hit or tried to hit your spouse with something*. Cronbach's alpha was .90. The theoretical range for this variable was obtained in this sample (1 to 25). The mean was 8.55 with a standard deviation of 5.66.

Unplanfulness in child bearing. Unplanfulness in child bearing was measured through mother interview ratings of degree of planning pregnancy, acceptance of pregnancy with target child, and marital status at time of pregnancy. The *planfulness of*

⁵A constant was added to the non-hitting aversive parent behavior, physical punishment, marital conflict, and chronic peer rejection scores to obtain a minimum value of one. (See Table 4.)

Table 4

Descriptive Statistics for Predictor Variables

Predictor Variables	n	Actual Range	Mean	S.D.	Cronbach's Alpha
(1) Non-hitting aversive parent behaviors	445	1-13	4.78	2.64	.69
(2) Use of physical punishment	450	1-38.82	24.07	6.22	.83
(3) Marital Conflict	390	1-25	8.55	5.66	.90
(4) Unplanfulness in child bearing	445	1-8	2.67	2.09	–
(5) Socioeconomic status	443	11-66	39.86	13.83	–
(6) Chronic peer rejection	450	1-15.68	7.88	2.57	.48 ^a
(7) Overgeneralization of rules	450	1-10	5.22	1.57	–

^aCorrelation coefficient rather than Cronbach's alpha.

pregnancy rating ranged from 1 to 4, where 1 = planned and 4 = unplanned, unprepared. *Marital status* was coded as one for married and two for unmarried. The two ratings were combined in a multiplicative term to assess unplanfulness in child bearing. In doing so the *planfulness of pregnancy* rating was weighted heavily by marital status. This was critical to a meaningful operationalization of unplanfulness. An unplanned pregnancy in a married relationship is not as essentially unplanful as one in which the parents are unmarried. The theoretical range of this variable was from 1 to 8. Unplanfulness in child bearing ranged from 1 to 8, with a mean of 2.67 and a standard deviation of 2.09.

Socioeconomic status. Parents completed a *Family Information Form* that requested information necessary to compute the family's socioeconomic status (SES). SES was measured using the four-factor index formulated by Hollingshead (1976). The four factors of this index are education, occupation, sex, and marital status. Years of formal education were scored on a 1 to 7 scale, where 1 = less than seventh grade and 7 = graduate degree. Occupation status was scored on a 1 to 9 scale, where 1 = farm laborers/mental service workers and 9 = higher executives, proprietors of large businesses, and major professionals. The scaled scores for education and occupation were summed after multiplying each with its respective factor weight (3 for education, and 5 for occupation). Sex and marital status were pertinent insofar as the calculation of SES for families with both spouses employed. In such cases, the average SES of the two was used to reflect the family's SES. Hollingshead (1976) has validated the four-factor index using Census data and the National Opinion Research Center data as external criteria. The resultant scores theoretically range from 8 to 66 with higher scores reflecting a higher SES. In this sample, SES scores ranged from 11 to 66, with a mean of 39.86 and a standard deviation of 13.83. Modal SES fell in the range of skilled craftsmen, and clerical and sales workers.

Chronic Peer Rejection

Peer rejection was assessed at the end of the fall term in kindergarten (Time 1B) and first grade (Time 2B). Permission forms were sent home to all children in a classgroup with a subject child. Individually administered peer sociometric interviews were begun after receiving permission to conduct interviews with a minimum 70% of the classgroup. Children had the aid of photographs (of their classmates) as they nominated three *liked most* and three *liked least* classmates. Following completion of interviews, the number of *liked most* and *liked least* nominations were standardized to control for differences in number of peer-informants across classgroups.

Peer rejection was operationalized as the difference between standardized *liked least* and *liked most* peer nominations. This measure was identical to the Coie et al. (1982) continuous social preference measure except that the subtracting was reversed so that a higher score indicated greater rejection. A continuous measure was chosen as it has the advantage of indexing the degree of rejection.

A competing measure of peer rejection considered was a classificatory scheme which assigns children into one of five sociometric status groups: popular, controversial, average, neglected, and rejected (Coie et al., 1982). In terms of discrete sociometric status groups, the measure used in this study contrasted popular children on the low end with rejected children on the high end. The middle levels consisted of controversial, average, and neglected children. The equating of controversial and neglected children with average children was not construed as a major problem. Controversial children are both liked and disliked, and exhibit a mix of the behaviors typical of the popular and rejected subgroups (Coie et al., 1982). Therefore, it can be argued that their placement in the middle of a continuous scale is not inappropriate. Neglected children, who are neither liked nor disliked, are not significantly different from average children (Coie & Kupersmidt, 1983; Dodge, Coie, Pettit, & Price, 1990; Ollendich et al., 1991). Neglected

children, in direct contrast to rejected children, are not considered to be at risk (Parker & Asher, 1987). In fact, the decision to use the continuous measure was made after ensuring that it placed neglected and rejected children on different points of the scale.

Peer rejection Time 1B and peer rejection Time 2B were correlated at $r = .48$ ($p < .01$). The scores for these two years were summed to indicate chronic peer rejection. It was assumed that the effects of the experience of being rejected in one year would add to those in the other year. Chronic peer rejection ranged from 1 to 15.68, with a mean of 7.88 and a standard deviation of 2.57.

Overgeneralization of Rules in Social Problem Solving

Child SPS was assessed in the summer before kindergarten (Time 1A).⁶ Cartoon and video stimuli were used to elicit children's characteristic SPS patterns during a home visit lasting approximately 90 minutes. Two portions of this assessment were used to measure overgeneralized SPS. In the first, the child was presented with cartoon stimuli of 8 social problems. Examples of these social problems included making friends with another child on the first day of school and getting your place back in line after being pushed. In the second procedure, child actors had been video-taped role playing each of 24 social situations. The subject child answered several questions after viewing each video vignette, including how (s)he would respond if the situation presented had actually occurred. Examples of social problems presented on video included being refused after asking to join in a game with other children and having your arm nudged while painting in art class. All social problems were variations of: (a) initiating entry into an ongoing peer activity, and (b) responding to peer provocation that was either ambiguous or obvious.

⁶Time 2A overgeneralization of rules was assessed in the summer before first grade. Time 1A and Time 2A overgeneralization of rules were correlated at $r = .21$ ($p < .01$). Thus, there was low intra-individual consistency across the two years. Also, the range of scores was somewhat more restricted in first grade. Finally, the first grade assessment was uncorrelated with other variables. Therefore, only Time 1A scores were retained for analyses.

The first strategy given for each of 8 social problems presented pictorially was used, along with the one strategy given for each of 24 video-vignettes. Therefore, the SPS data used in this study were first responses to 32 social problems involving peers.

Scoring followed several steps. Each first response was scored as one of the following 11 types: verbal aggression, physical aggression, passive, ask, tell, trade/bribe/bargain, share or take turns, enlist help of adults, general niceness, general assertive, and other relevant (e.g., a trick). Next, the number of types of first responses that a child used across the 32 situations was calculated. Finally, the number-of-types score was reversed to reflect overgeneralization of rules in SPS.

Theoretically, the overgeneralization score ranged from 0 to 10, where 0 = use of 11 types of strategies and 10 = use of one type of strategy. The actual Time 1A overgeneralization scores ranged from 1 to 10, with a mean of 5.22 and a standard deviation of 1.57.

Correlations among Predictor Variables

Bivariate correlations among predictor variables are presented in Table 5. Correlation coefficients among non-hitting aversive parent behaviors, use of physical punishment, and marital conflict ranged from $r = .19$ to $r = .39$. Despite being examples of aversive family processes, these variables were relatively independent from each other. Socioeconomic status correlated most strongly with unplanfulness in child bearing ($r = -.38$). Interestingly, there was a low positive correlation between SES and non-hitting aversive parent behaviors. Perhaps higher SES families are more likely to use non-hitting aversive behaviors because, as found in this study and others (Gecas, 1979), higher SES families are less likely to use physical punishment than lower SES families (Gecas, 1979). Chronic peer rejection was correlated modestly but significantly with all family variables except non-hitting aversive parent behaviors. In general, the SPS variable was

Table 5

Intercorrelations among Predictor Variables

Predictor Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) Non-hitting aversive parent behaviors						
(2) Use of physical punishment	.19					
(3) Marital Conflict	.39	.25				
(4) Unplanfulness in child bearing	-.18	.10	.10			
(5) Socioeconomic status	.15	-.28	-.25	-.38		
(6) Chronic peer rejection	.06	.23	.14	.20	-.21	
(7) Overgeneralization of rules	-.01	-.02	.05	.03	-.04	.10

Note. Correlations $\geq .13$ are significant at $p < .01$; correlations $\geq .10$ are significant at $p < .05$. Sample size ranged from 390 to 450.

uncorrelated with other predictor variables with the exception of a low, positive correlation with chronic peer rejection.

Analyses

The following statistical procedures were employed to analyze the data: (a) bivariate and partial correlation coefficients between predictors variables and child adjustment; (b) simultaneous multiple regression with all seven independent variables to compute the sum total of the unique effects of family, peer, and SPS variables in explaining child adjustment; (c) hierarchical multiple regression with interaction terms to qualify the nature of joint contribution between family variables, between family and peer variables, and between family and SPS variables; and, (d) graphing to interpret significant interaction terms.

Defining a Moderator Model

A moderator model is illustrative of a statistical procedure that may be used to test the constructs of risk and resilience. A moderator model is one in which interaction effects between a focal independent variable and a moderator variable are specified. A moderator variable modifies a possible relationship (e.g., between family risk and child adjustment) by specifying conditions under which the relationship will hold (e.g., peer rejection) and is tested statistically as an interaction variable in multiple regression (Baron & Kenny, 1986; Jaccard, Turrisi, & Wan, 1991). An interaction effect that is significant signals differences in the nature and/or strength of the focal relationship in different subsets of the sample. Conceptually, moderator or interaction effects underline the importance of contextual determinants of relationships or that factors act in concert with certain combinations leading to different results.

Hierarchical Regression Analysis Procedures

Four two-step multiple regression equations were calculated for each hypothesized interaction relationship. For example, the interaction relationship between

marital conflict and chronic peer rejection (hypotheses 6 and 7) was examined in four equations, one for each of the child adjustment variables.

The focal predictor variable (X_1) and the moderator variable (X_2) were entered in the first step. The interaction term (X_1X_2), which was a cross product term between X_1 and X_2 , was entered in the second step. The interaction term tested whether the effect of X_1 on Y is multiplied by X_2 .

Two transformations of data were made. First, the moderator variable in each case was dichotomized to enable ease in interpretation of interaction effects. In most cases the dichotomy was formed using a median split which generated two groups, one below average and the other above average on the moderator. Comparison groups on peer rejection were split on the 66th percentile as well to examine differences between significantly rejected children and the others. Second, as suggested by Jaccard et al. (1991), the constituent variables were centered before creating the interaction terms. Variables were centered by subtracting the mean from each score. This procedure reduces multicollinearity between constituent variables and the multiplicative term. The high correlations of X_1 and X_2 with X_1X_2 are reduced to low correlations. Multicollinearity is a practical rather than substantive problem because it hinders the accurate use of algorithms in standard statistics software (Jaccard et al., 1991).

Interaction effects were graphed using a procedure described by Jaccard et al. (1991). The slope of Y on X_1 was calculated at the two recoded values of X_2 (0 or 1) using the following formula: $Y = \text{intercept} + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_1X_2)$. When X_2 equals zero this equation is reduced to $Y = \text{intercept} + \beta_1(X_1)$. When X_2 equals one this equation is reduced to $Y = (\text{intercept} + \beta_2) + (\beta_1 + \beta_3)X_1$. As recommended, estimates of the unstandardized regression coefficients were used in these algebraic equations (Jaccard et al., 1991). This allowed plotting of regression slopes using the actual range of

values of X_1 . See Appendix E for the calculation of slopes for each significant interaction term.

III. RESULTS

Hypotheses

The purpose of this research was to examine the tenability of the model diagrammed in Figure 1. Each of the specific relationships in this model characterizes a hypothesis under test. Evidence in support of each of the nine hypotheses is presented in the following paragraphs.

Hypothesis 1

It was hypothesized that a negative, linear relationship exists between family risk and children's competencies. As seen in Table 6, bivariate relationships were significant for all family variables except non-hitting aversive parent behaviors. Significant bivariate correlations ranged from $r = -.19$ ($p < .01$) for physical punishment and teacher-rated competencies to $r = .37$ ($p < .01$) between SES and mother-rated competencies. As expected, partial correlation coefficients that controlled for all other predictor variables were smaller than bivariate correlation coefficients. Moreover, the negative relationship between physical punishment and children's competencies became nonsignificant when chronic peer rejection was included in the model. As with bivariate relationships, the unique strength of SES as a predictor was double that of other family variables. It can be concluded that marital conflict and unplanfulness in child bearing each carry modest risk for children's competencies whereas SES carries a stronger risk for children's competencies. Lastly, the strength of each relationship was consistent across mother and teacher ratings.

Hypothesis 2

It was hypothesized that a positive, linear relationship exists between family risk and children's externalizing problems. As seen in Table 7, all bivariate relationships were significant except that between non-hitting aversive parent behaviors and teacher-rated externalizing problems. A major change in this pattern was noted for partial correlations. Most family variables did not uniquely predict teacher-rated externalizing problems. SES

Table 6

Simultaneous Multiple Regression for Children's Competencies with All Seven Predictor Variables

	Teacher-Rated Competencies				Mother-Rated Competencies			
	Zero-Order	Partial	Beta	t test	Zero-Order	Partial	Beta	t test
(1) Non-hitting aversive parent behaviors	.01	.03	.03	ns	.05	.06	.06	ns
(2) Use of physical punishment	-.19	-.01	-.01	ns	-.20	-.08	-.08	ns
(3) Marital conflict	-.20	-.09	-.08	.05	-.20	-.10	-.11	.03
(4) Unplanfulness in child bearing	-.27	-.10	-.09	.04	-.25	-.09	-.09	.05
(5) Socioeconomic status	.35	.20	.19	.00	.37	.23	.24	.00
(6) Chronic peer rejection	-.54	-.48	-.46	.00	-.26	-.16	-.15	.00
(7) Overgeneralization of rules	-.18	-.14	-.12	.00	-.15	-.13	-.12	.01
Adjusted R square:		36%				19%		

Note. Correlations are significant at the following levels: correlations $\geq .13$ at $p < .01$ and correlations $\geq .10$ at $p < .05$. The F for each of the two equations was significant at $p < .00$. The n for zero-order correlation coefficients ranged from 390 to 450. All other statistics are based on an N of 450.

Table 7

Simultaneous Multiple Regression for Children's Externalizing Problems with All Seven Predictor Variables

	Teacher-Rated Externalizing Problems				Mother-Rated Externalizing Problems			
	Zero-Order	Partial	Beta	t test	Zero-Order	Partial	Beta	t test
(1) Non-hitting aversive parent behaviors	.03	.04	.03	ns	.20	.14	.14	.00
(2) Use of physical punishment	.14	-.03	-.03	ns	.28	.14	.14	.00
(3) Marital conflict	.11	-.01	-.01	ns	.28	.11	.11	.02
(4) Unplanfulness in child bearing	.20	.06	.05	ns	.12	.03	.03	ns
(5) Socioeconomic status	-.26	-.14	-.13	.00	-.23	-.13	-.13	.01
(6) Chronic peer rejection	.58	.54	.54	.00	.30	.21	.21	.00
(7) Overgeneralization of rules	.12	.07	.06	ns	.05	.03	.02	ns
Adjusted R square:				35%			18%	

Note. Correlations are significant at the following levels: correlations $\geq .13$ at $p < .01$ and correlations $\geq .10$ at $p < .05$. The F for each of the two equations was significant at $p < .00$. The η^2 for zero-order correlation coefficients ranged from .390 to .450. All other statistics are based on an N of 450.

was the only family variable uniquely related to teacher-rated externalizing problems. There was a low, negative relationship between SES and teacher-rated externalizing problems.

Differences in significance of bivariate versus sixth-order partial correlations were not dramatic for mother-rated externalizing problems. All family variables except unplanfulness in child bearing were related uniquely to mother-rated externalizing problems. The strength of each of these individual relationships was consistently modest. It can be concluded that with the exception of the effects of SES, family variables carry unique risk for mother-rated but not teacher-rated externalizing problems.

Hypothesis 3

It was hypothesized that marital conflict, unplanfulness in child bearing, and SES may intensify the relationship between aversive parenting and child adjustment. This hypothesis was supported with two qualifications. First, only marital conflict intensified the relationship between aversive parenting and child adjustment. Interaction terms between aversive parenting and unplanfulness in child bearing or SES were not significant. Second, the nature of interaction was unexpected in one case.

Three out of four possible interaction relationships between non-hitting aversive parent behaviors and marital conflict were significant. First, as graphed in Figure 3, the relationship between parents' yelling/screaming at child and teacher-rated competencies was minimally positive when marital conflict was below average. In contrast, this relationship was negative when marital conflict was above average. In other words, the risk associated with non-hitting aversive parenting for teacher-rated competencies was evident only when marital conflict increased beyond average levels. This interaction term incrementally accounted for 1% of the variance in teacher-rated competencies (F change $p = .01$). Similarly, as shown in Figure 4, the relationship between parents' yelling at/shoving child and mother-rated competencies was positive when marital conflict was below average. However, when marital conflict was above average there was a moderately strong negative

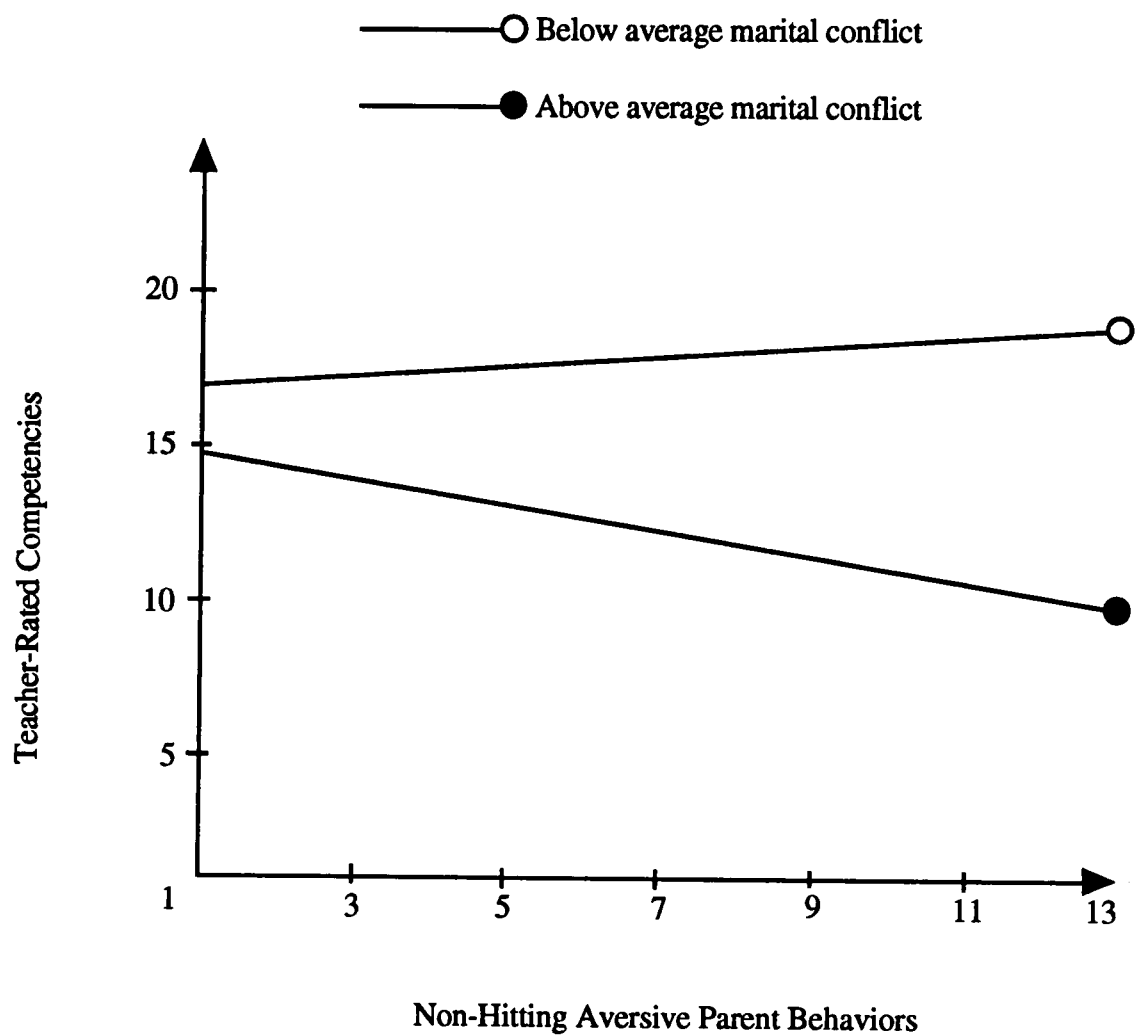


Figure 3. Moderating effects of marital conflict on the relationship between non-hitting aversive parent behaviors and teacher-rated competencies.

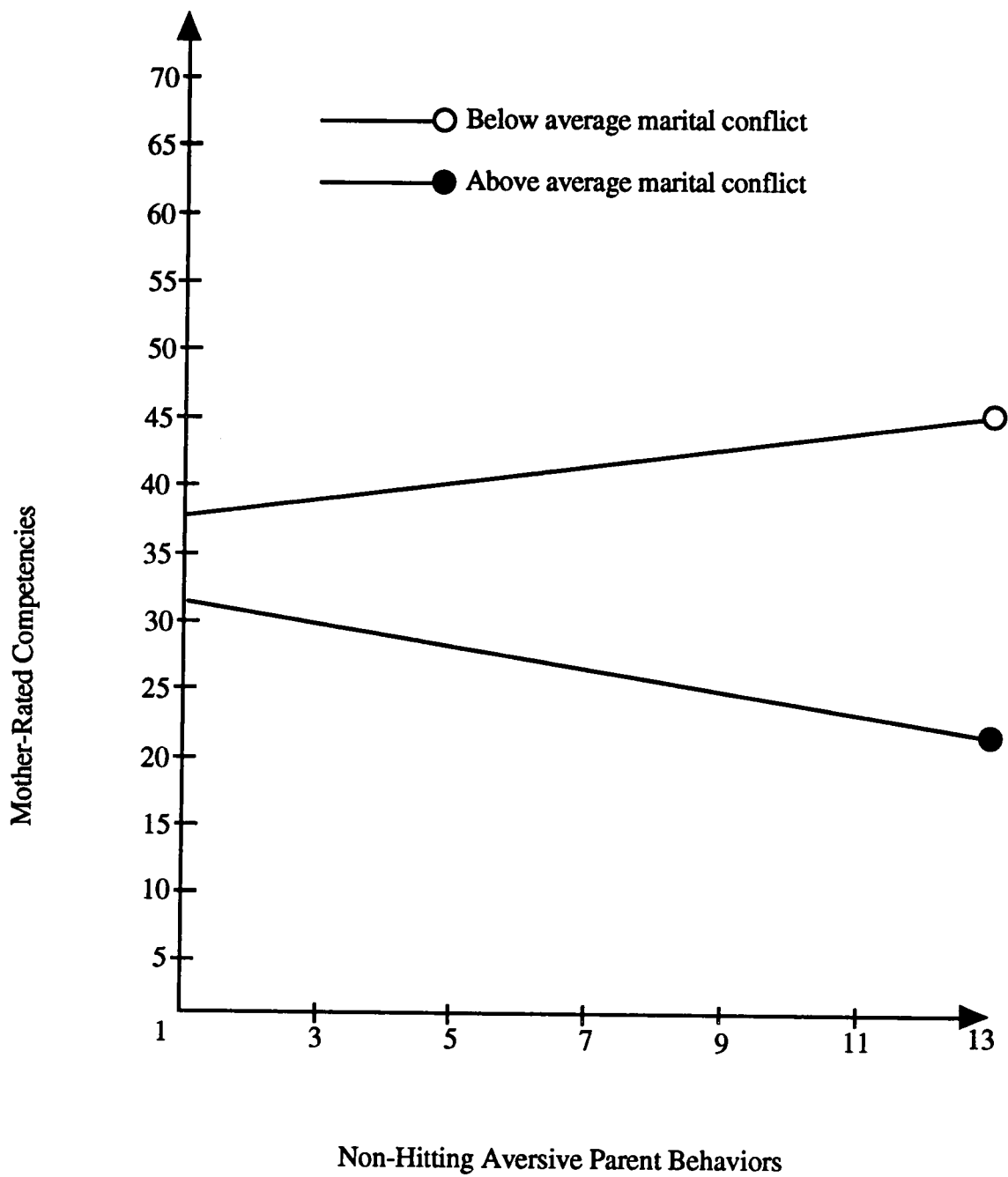


Figure 4. Moderating effects of marital conflict on the relationship between non-hitting aversive parent behaviors and mother-rated competencies.

relationship between non-hitting aversiveness and mother-rated competencies. This interaction term incrementally accounted for 2% of the variance in mother-rated competencies (F change $p = .00$). Again, non-hitting aversiveness did not carry risk for children's competencies unless children experienced greater than average levels of marital conflict.

In the third case, depicted in Figure 5, parents' yelling/screaming at child was unrelated to teacher-rated externalizing problems under conditions of below average marital conflict. This relationship was strongly positive under conditions of above average marital conflict. This interaction effect explained incrementally 1% of the variance in teacher-rated externalizing problems (F change $p = .02$). Once again, the risk associated with non-hitting aversiveness was potentiated when marital conflict was high.

One out of four possible interaction terms between use of physical punishment and marital conflict was significant. As seen in Figure 6, the relationship between physical punishment and mother-rated externalizing problems was positive when marital conflict was below average. Contrary to hypothesis, there was no relationship between physical punishment and mother-rated externalizing problems when marital conflict was above average. In other words, the risk associated with physical punishment was reduced in the presence of high marital conflict. This interaction term explained incrementally 1% of the variance in mother-rated externalizing problems (F change $p = .01$).

Hypothesis 4

It was hypothesized that there is a negative, linear relationship between chronic peer rejection and children's competencies. There was strong support for this hypothesis (see Table 5). The sixth-order partial correlation coefficient between chronic peer rejection and teacher-rated competencies was $-.48$ ($p < .01$). The strength of this relationship was not consistent across teacher and mother ratings. The correlation between chronic peer rejection and teacher-rated competencies was more than twice as strong as that with mother-

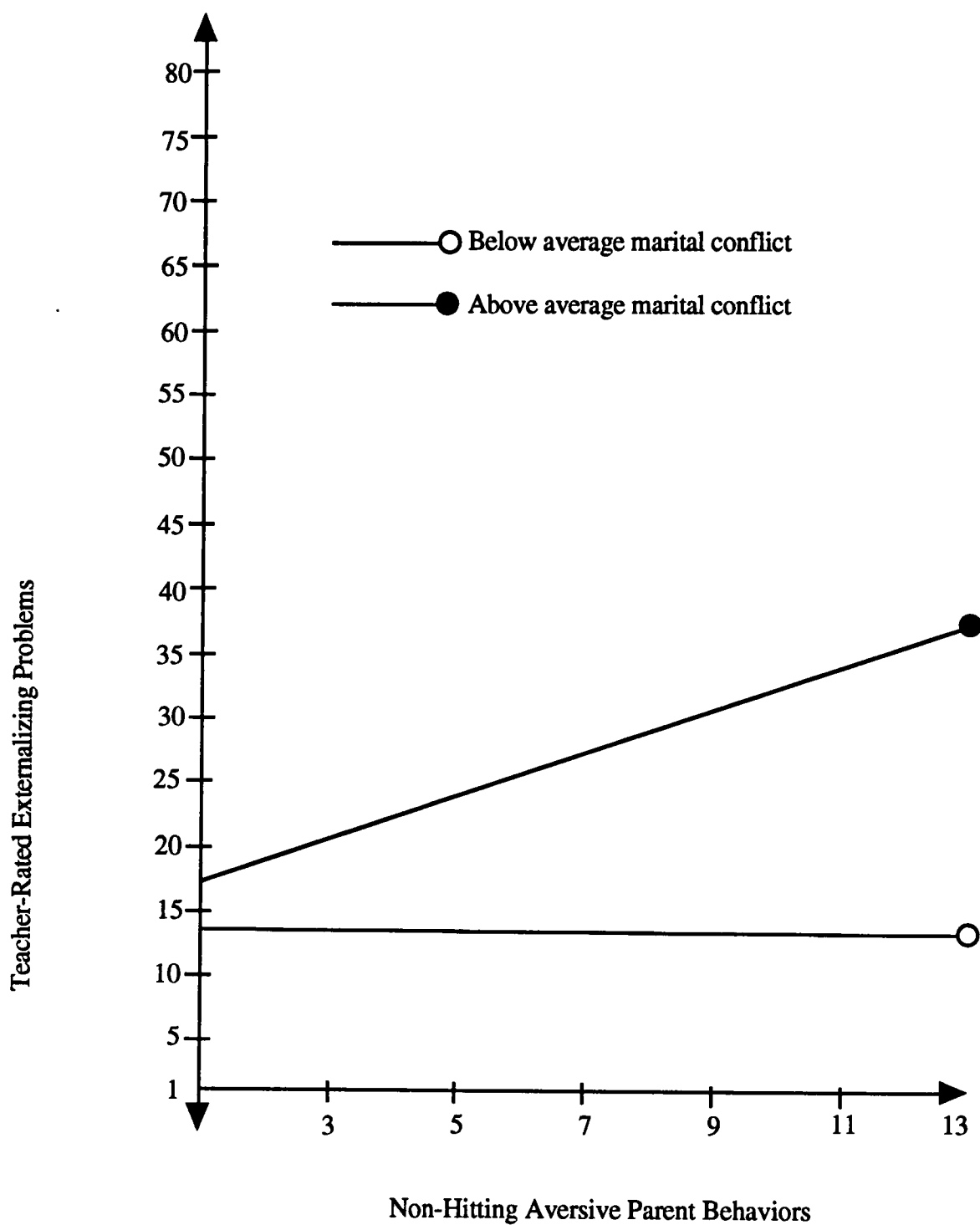


Figure 5. Moderating effects of marital conflict on the relationship between non-hitting aversive parent behaviors and teacher-rated externalizing problems.

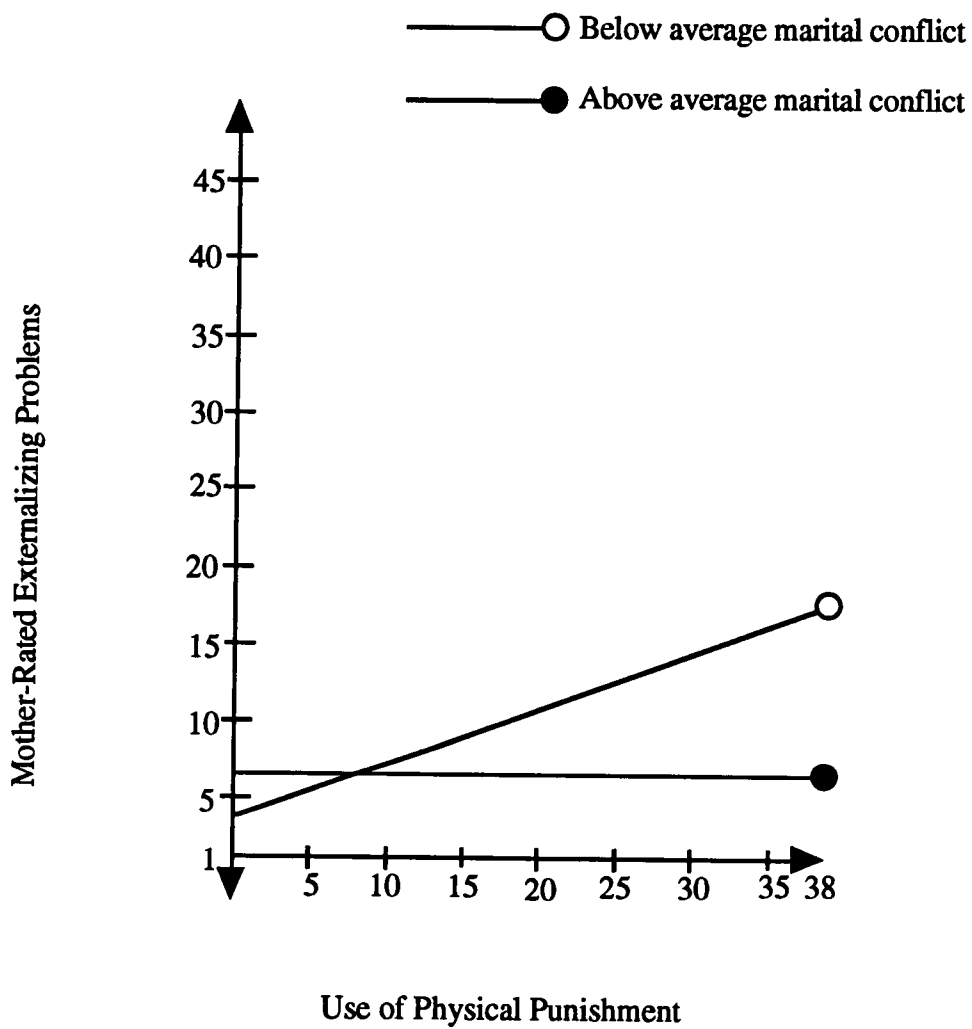


Figure 6. Moderating effects of marital conflict on the relationship between use of physical punishment and mother-rated externalizing problems.

rated competencies. It can be concluded that chronic peer rejection carries strong risk for children's competencies that are seen by teachers and more modest risk for competencies seen by mothers.

Hypothesis 5

It was hypothesized that there is a positive, linear relationship between chronic peer rejection and children's externalizing problems. The correlational and regression data provided strong support for this hypothesis (see Table 6). In fact, chronic peer rejection was the strongest predictor of children's externalizing problems within the set of seven predictors. Also, chronic peer rejection was more influential in predicting teacher-rated than mother-rated externalizing problems. It can be concluded that chronic peer rejection carries strong risk for externalizing problems evident to teachers and a smaller risk for externalizing problems evident to mothers.

Hypothesis 6

It was hypothesized that the relationship between family risk and children's competencies is stronger for children who are rejected by their peers than for non-rejected children. This hypothesis was supported for three out of five family variables. First, as illustrated in Figure 7, the relationship between marital conflict and teacher-rated competencies was barely negative under conditions of below average chronic peer rejection. This relationship became sharply negative under conditions of above average chronic peer rejection. In other words, chronic peer rejection exacerbated the risk associated with marital conflict for teacher-rated competencies. This interaction term explained incrementally 1% of the variance in teacher-rated competencies (F change $p = .03$).

Second, as seen in Figure 8, the lines representing the competencies of two groups of children--one below average on chronic peer rejection and the other above average on chronic peer rejection--diverged at the low end of the SES continuum but converged at the

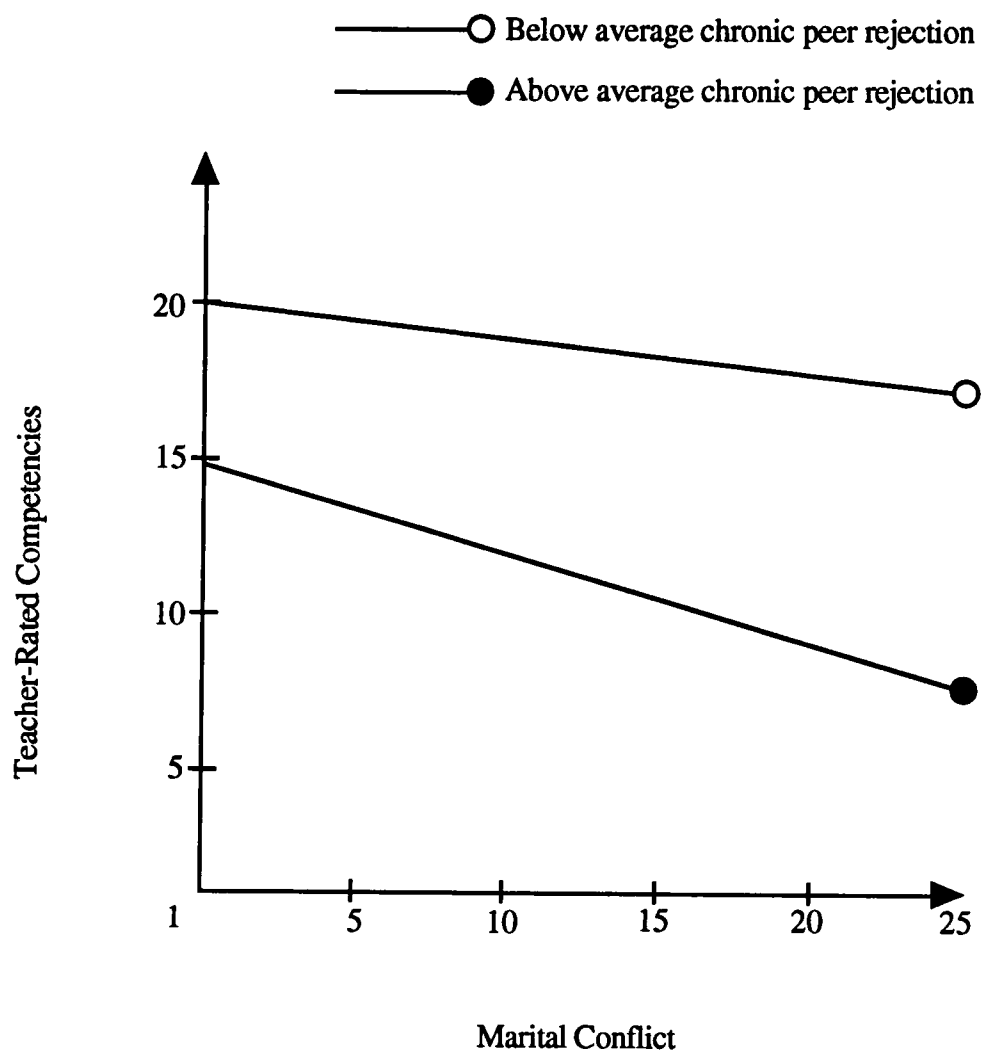


Figure 7. Moderating effects of chronic peer rejection on the relationship between marital conflict and teacher-rated competencies.

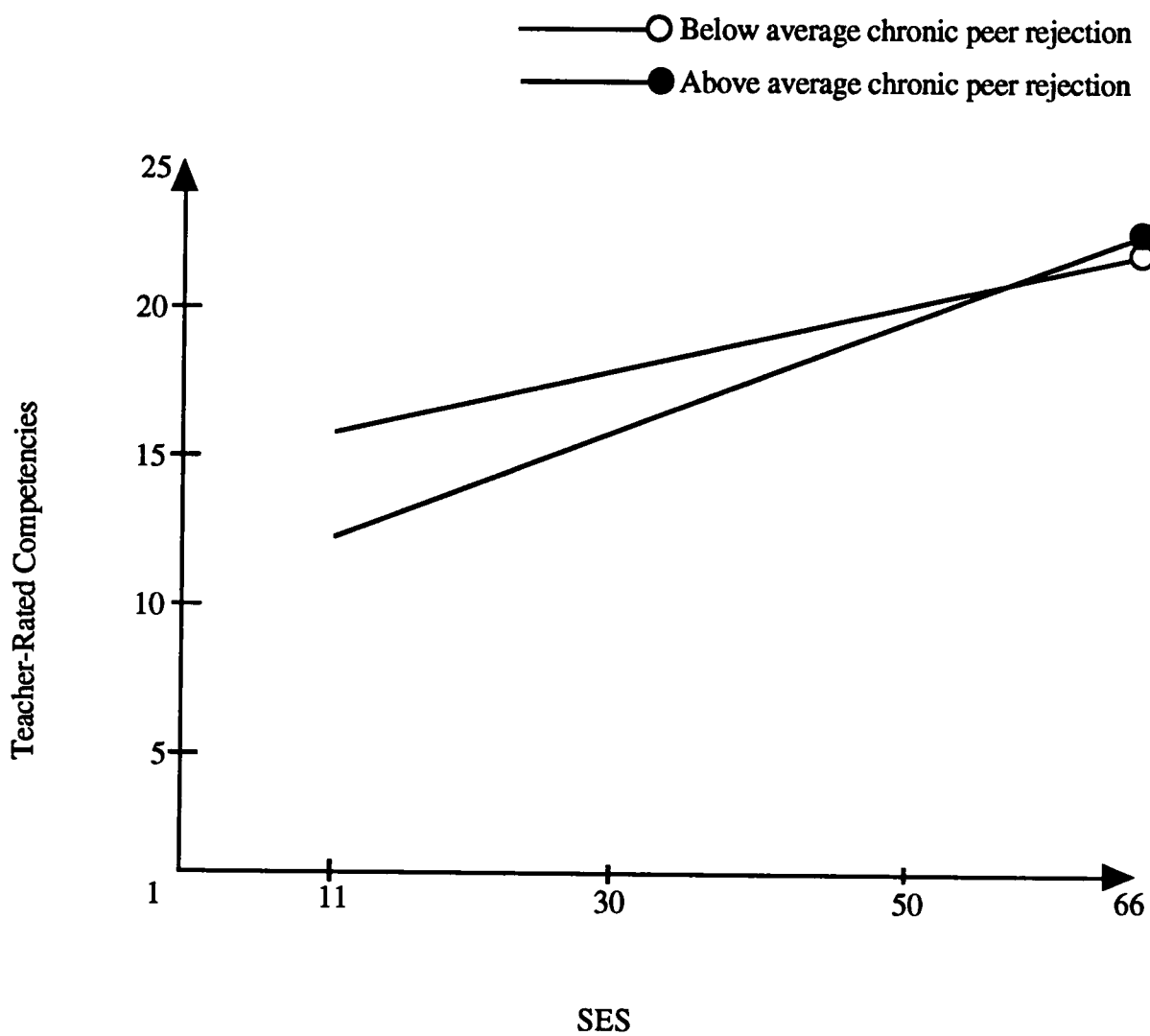


Figure 8. Moderating effects of chronic peer rejection on the relationship between SES and teacher-rated competencies.

high end of the SES continuum. The two groups converged in their manifestation of competencies because the positive relationship between SES and teacher-rated competencies was doubled in strength when children experienced above average levels of chronic peer rejection. It can be concluded that under conditions of chronic peer rejection, low SES children do worse on teacher ratings of competencies but high SES children appear to do the same as non-chronically rejected children because of magnified SES-related benefits. This interaction effect explained incrementally 1% of the variance in teacher-rated competencies (F change $p = .02$).

Finally, as displayed in Figure 9, there was a low, positive relationship between non-hitting aversive parent behaviors and mother-rated competencies in the group with chronic peer rejection values upto the 66th percentile. In sharp contrast, the relationship was negative in the group of children with chronic peer rejection values higher than the 66th percentile. Therefore, non-hitting aversiveness did not carry risk by itself but was potentiated by the experience of chronic peer rejection. This interaction term explained incrementally 2% of the variance in mother-rated competencies (F change $p = .00$). Chronic peer rejection did not moderate the effects of physical punishment or unplanfulness in child bearing on children's competencies.

Hypothesis 7

It was hypothesized that the relationship between family risk and children's externalizing problems is stronger for children who are rejected than for non-rejected children. This hypothesis was not supported with the exception of one robust case. As shown in Figure 10, there was a moderately negative relationship between SES and teacher-related externalizing problems when chronic peer rejection was below average. However, this relationship was doubled in strength when chronic peer rejection was above average. It can be concluded that the presence or absence of SES-related benefits has a sharper effect on teacher-rated child adjustment when children experience chronic peer

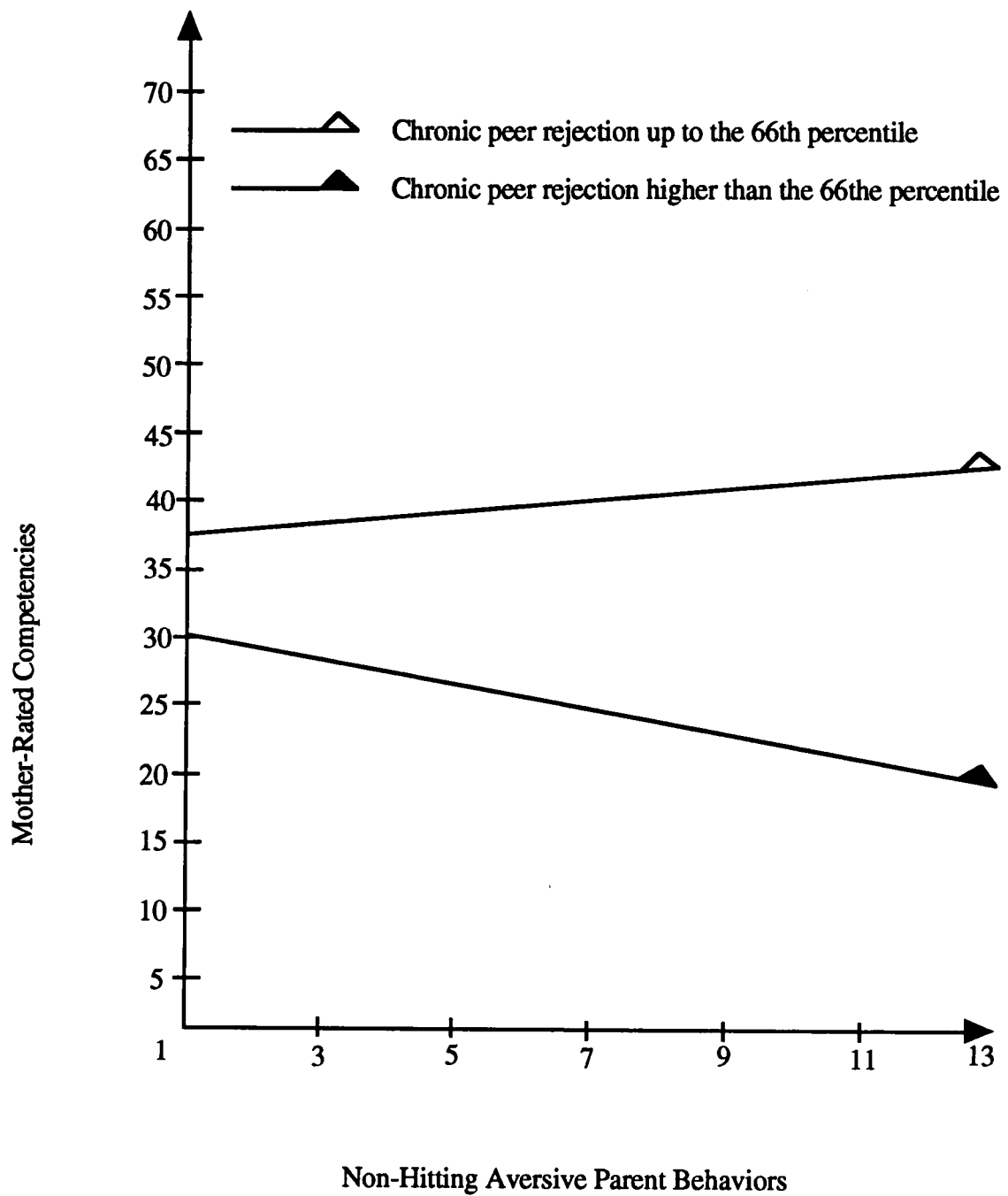


Figure 9. Moderating effects of chronic peer rejection on the relationship between non-hitting aversive parent behaviors and mother-rated competencies.

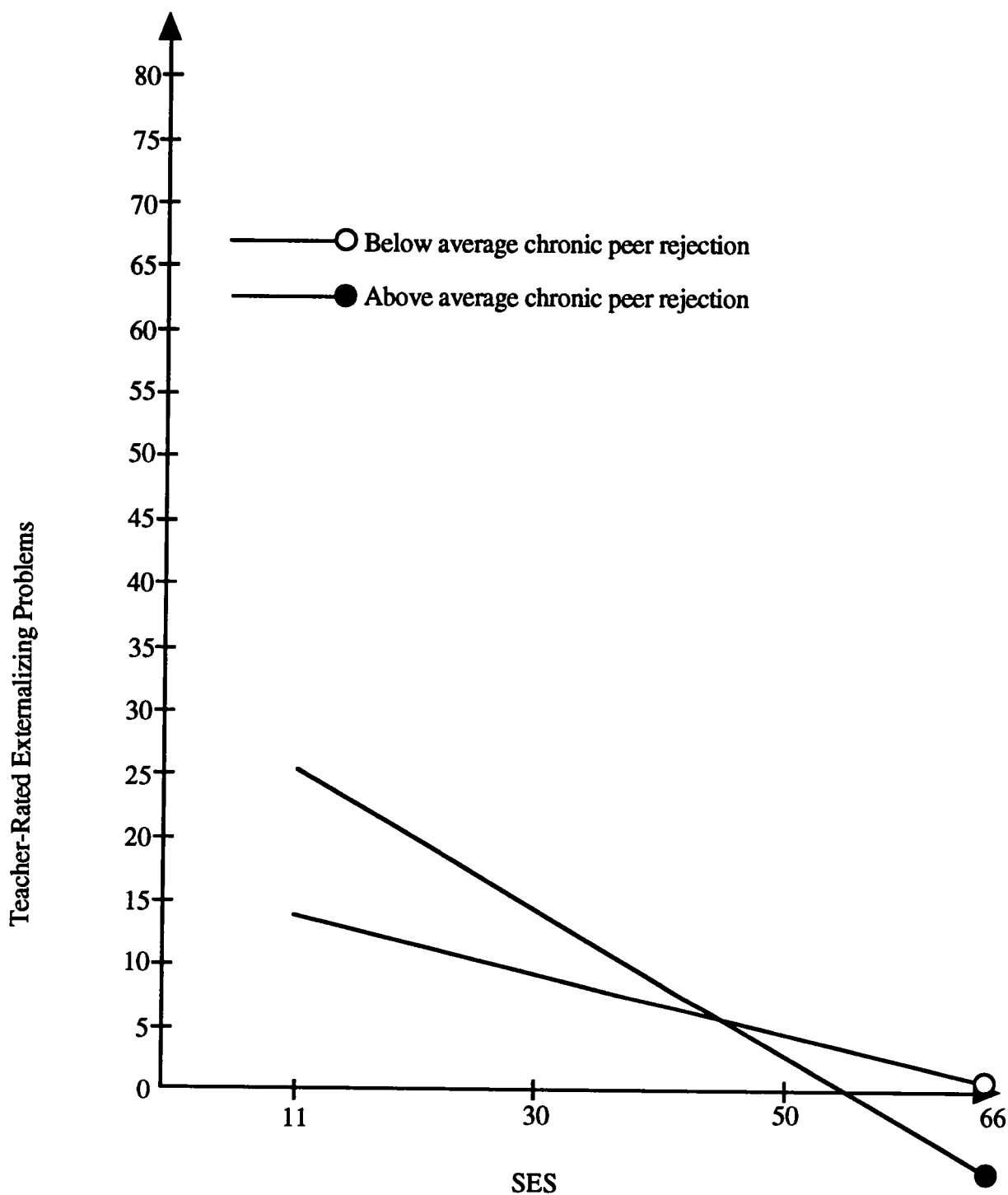


Figure 10. Moderating effects of chronic peer rejection on the relationship between SES and teacher-rated externalizing problems. (The steepness of the regression slope for the group above average on chronic peer rejection plunged the regression line into negative values of teacher-rated externalizing problems. The externalizing problems scale itself did not have negative values.)

rejection at school. This interaction term incrementally accounted for 1.5% of the variance in teacher-rated externalizing problems (F change $p = .00$).

Hypothesis 8

It was hypothesized that the relationship between family risk and children's competencies is stronger for children who overgeneralize in SPS than for those who do not. This hypothesis was rejected. Overgeneralization of rules did not moderate the relationships between family risk variables and children's competencies. Instead, there was a small, independent effect of overgeneralization of rules on both teacher- and mother-rated competencies.

Hypothesis 9

Finally, it was hypothesized that the relationship between family risk and children's externalizing problems is stronger for children who overgeneralize rules in SPS. Two interaction terms were significant, providing modest support for this hypothesis. In the first case, as seen in Figure 11, there was a moderate positive relationship between unplanfulness in child bearing and teacher-rated externalizing problems under conditions of below average overgeneralization of rules. This relationship was doubled in strength under conditions of above average overgeneralization of rules. Therefore, the risk associated with unplanfulness in child bearing was increased when children overgeneralized in their SPS. This interaction effect incrementally accounted for 1% of the variance in teacher-rated externalizing problems (F change $p = .02$). Second, as graphed in Figure 12, the relationship between marital conflict and mother-rated externalizing problems was positive under conditions of below average overgeneralization of rules. However, this positive relationship became stronger under conditions of above average overgeneralization of rules. Thus, overgeneralized SPS exacerbated the risk associated with marital conflict. This interaction term incrementally accounted for 1% of the variance in mother-rated externalizing problems (F change $p < .05$).

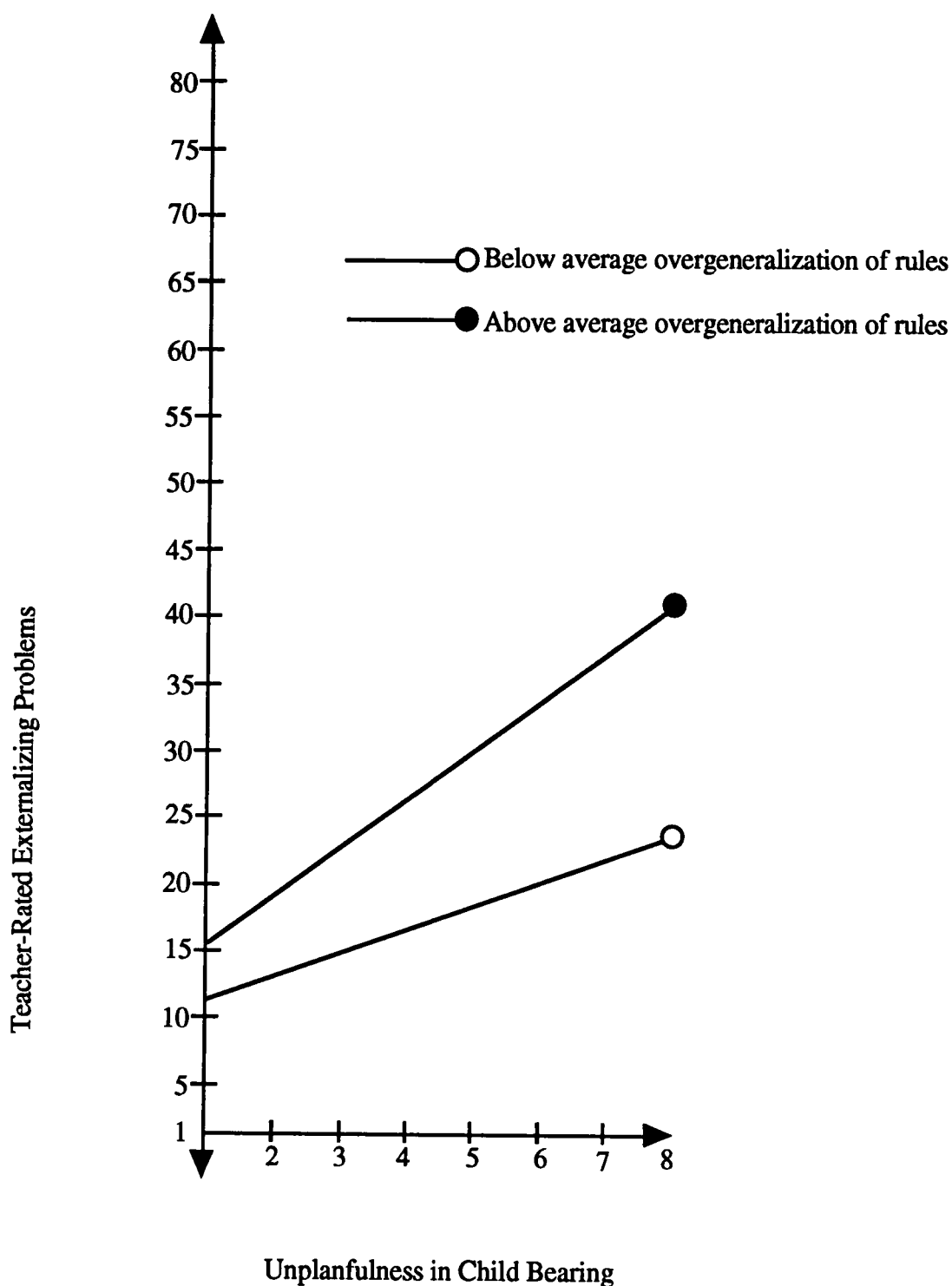


Figure 11. Moderating effects of overgeneralization of rules on the relationship between unplanfulness in child bearing and teacher-rated externalizing problems.

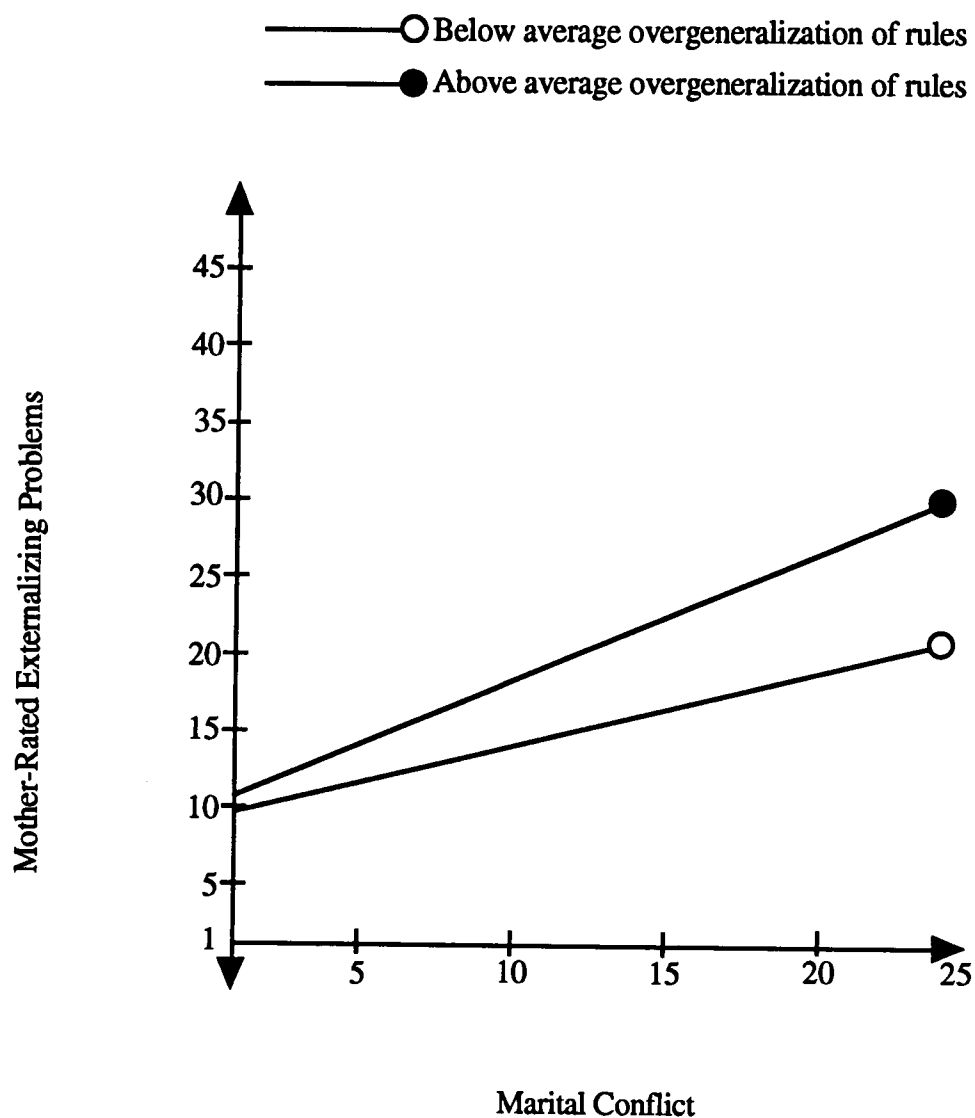


Figure 12. Moderating effects of overgeneralization of rules on the relationship between marital conflict and mother-rated externalizing problems.

Simultaneous Consideration of Multiple Domain Variables

Variables from the domains of the family, the peer group, and the child were included with the assumption that together rather than singly they will explain more variance. This was found to be the case. The variance explained by the set of variables was higher than the contribution of any one domain. The sum total of the unique effects of family, peer, and SPS variables explained 35% of the variance in teacher-rated competencies, 18% of the variance in mother-rated competencies, 36% of the variance in teacher-rated externalizing problems, and 19% of the variance in mother-rated competencies (see Tables 5 and 6). The model appeared to fit teacher-rated child adjustment better than mother-rated child adjustment because the peer domain was less powerful in explaining adjustment seen by mothers.

IV. DISCUSSION AND IMPLICATIONS

Dimensionality in Child Adjustment

The pattern of results varied for competencies versus externalizing problems and teacher versus mother ratings of adjustment. This finding corroborates the dimensionality in child adjustment. Clearly, having fewer strengths does not equate having more problems. Second, the differences by informant are interpreted as the differences between adjustment at school and adjustment at home. Both teacher and mother ratings of child adjustment were used in this study with the intention to differentiate adjustment to school requirements from adjustment to home requirements. Different settings have common requirements as well as requirements peculiar to the setting. In addition, there is a 50% chance based on past literature that a child showing behavior problems in one setting (home or school) will not show behavior problems in the other setting (e.g., Johnson et al., 1976). Complementarily, informants cue in mainly to the setting in which they play a dominant role (Loeber, Green, & Lahey, 1990).

Nature of Joint Contribution of Family and Peer Groups

The family is centrally influential in the early years of a child's life (Maccoby & Martin, 1983). However, the centrality accorded the family undergoes change when the child enters school. Entry into school coincides with growth in the social orientation of children (Hartup, 1983). Relationships with peers assume the beginnings of social mutuality, and the peer group joins ranks with the family in providing necessary experiences for development (Hartup, 1983).

In this research, the contribution of early family experience and elementary school experience were combined to explain child adjustment at age seven. As the core areas in a child's life, each was expected to have its own unique effect on child adjustment. Simultaneously, it was hypothesized that any risk associated with early family experience would be increased if sustained stress was evident in the new setting. In other words, the

relationship between family experience in the first five years and child adjustment at age seven would be heightened under conditions of high levels of chronic peer rejection at school. Thus, a second portion of the predictive influence of the family and peer group was sought from interactive relationships. In sum, child adjustment was expected to have both unique and interaction effects.

Unique Effects of Early Family Experience

The unique contribution of early family experience was greatest in explaining mother-rated externalizing problems at age seven and least in explaining teacher-rated externalizing problems. Five aspects of early family experience were examined: non-hitting parental aversiveness, severity of physical punishment, marital conflict, unplanfulness in child bearing, and SES. Each family variable made a unique contribution to the explanation of at least one dimension of child adjustment. These findings provide important evidence of the enduring effects of early family experience. The effects of family experience in the first few years endured over a minimum two year period which included a significant socioecological change in the lives of children, i.e., the addition of the context of school. These findings complement the work of Pettit and Bates (1989) and Sroufe, Egeland, and Kreutzer (1990) on the effects of early experience. In these studies, aspects of family experience in infancy and toddlerhood predicted later adjustment even after taking into account intermediate and/or contemporaneous experience. For instance, Pettit and Bates (1989) found that positive maternal involvement in infancy/toddlerhood predicted child adjustment at age four even after controlling for contemporaneous positive maternal involvement. The Pettit and Bates study is noteworthy in demonstrating that early experience in one setting uniquely predicts beyond later experience in the same setting. The current study is important in demonstrating that early experience in the family uniquely predicts beyond later experience in another setting.

How much risk did each family variable carry for child adjustment at age seven? The strength of each individual relationship was modest. However, in calculating risk, the pervasiveness of effects of a family variable across dimensions of child adjustment also must be taken into account. In other words, consideration should be given to whether the family variable uniquely predicts competencies as well as externalizing problems in one or both settings.

The enduring unique effects of the two aversive parenting variables were limited to mother-rated externalizing problems. Children who were yelled at more frequently or physically punished more frequently and severely may be remembered by parents as being more problematic. Also, children learn aggressive behaviors as recipients of verbal and physical aggression from their parents. They are more likely to perform these behaviors when punishment is delivered inconsistently or is accompanied by parental rejection (Parke & Slaby, 1983).

Marital conflict made unique contributions to teacher- and mother-rated competencies, and mother-rated externalizing problems. Frequently it is assumed that marital conflict impacts child adjustment via its influence on parenting variables (Belsky, 1984; Holden & Ritchie, 1991). In this study, the unique contributions indicate that marital conflict had its own direct effect on child adjustment, unmediated or shared by other variables in the model, including the two parenting variables. In fact, this is commensurate with some recent research. Miller, Cowan, Cowan, Hetherington, and Clingempeel (1993) modeled the relationships between parent's depression, couple's positive affection, couple's conflict, parenting warmth, parenting control, and children's externalizing behaviors in two samples--preschoolers and early adolescents. There was a direct path from marital conflict to children's externalizing problems in the mother data from both samples. (In father data, marital conflict and children's externalizing behaviors were unrelated.) Therefore, regardless of systemic interdependence of spousal and

parent-child subsystems (Brody, Stoneman, & Burke, 1987), marital conflict carries its own risk for children's adjustment.

Two mechanisms are used to explain the enduring effects of inter-parental hostility on the development of competencies in young children: absence of competencies in salient adult models and young children's stress reactions to marital conflict (Grych & Fincham, 1990). Adults in maritally-distressed homes do not demonstrate the ability to get along with another person. Second, the manner in which young children cope with the distress evoked by severe marital conflict interferes with their attainment of social developmental milestones. There is evidence that the preschool child's adaptations to severe marital conflict hinder the development of empathy (Fantuzzo et al., 1991) and the ability to regulate emotional states (Gottman & Katz, 1989, p. 373). The relationship between marital conflict and children's externalizing problems in the home can be explained by what children learn from their models: aggressive behaviors and that aggression is efficacious and permissible (Grych & Fincham, 1990). Children also may be aggressive to detract parental attention from their own problems (Emery, 1982). The enduring unique effects of marital conflict on externalizing problems were not evident in the school setting.

Unplanfulness in child bearing uniquely predicted children's competencies. Based on past literature, it was hypothesized that unplanfulness in child bearing may be negatively related to adult competence in women (Rutter, 1984, 1987, 1989). The specific negative relationship between unplanfulness in child bearing and children's competencies may illustrate the unavailability of a competent model in the home setting. Alternatively, this relationship could be due to a low self-image in the child, a self-image that the mother may have reflected back to her unplanned child.

SES made unique contributions to each of the four dimensions of child adjustment at age seven; its influence was larger on competencies than on externalizing problems.

Sameroff and Seifer (1983) reported that differential relationships between SES and varied aspects of child adjustment emerge during preschool years. In the Rochester Longitudinal Study, SES strongly predicted 2 1/2-year-old children's socioemotional functioning. However, at age four, SES had diminished in importance as a predictor of socioemotional functioning and instead had become a powerful predictor of their cognitive competence. Competence (cognitive, academic or social) rather than problem behaviors may be more closely tied to the benefits of high SES. The benefits of high SES range from a language-rich environment to advantaged schooling (Reich, 1992; Sameroff & Seifer, 1983). On the other hand, the more modest but consistently unique relationship between SES and externalizing problems may be a function of the experience of disadvantages of low SES--such as exposure to violence and environmental instability (Dodge, Pettit, & Bates, in press; Vaughn, Egeland, Sroufe, & Waters, 1979). SES summarizes complex differences in life experiences that impact child adjustment. There have been commendable efforts recently to isolate socialization experiences that account for the relationship between SES and child adjustment (see Dodge et al., in press). However, "(d)espite the fact that the way social status affects individuals is through component processes, it remains an important construct because it is an organized aspect of the environment that endures over time yet varies among different groups of people" (Sameroff & Seifer, 1983, p. 1263). The summary quality of SES is simultaneously its weakness and strength. It is suggested that SES be retained as a risk factor in future studies along with efforts that specify its component processes.

Unique Effects of the Peer Group

Chronic peer rejection during the first two years of school uniquely predicted each aspect of child adjustment at age seven. These unique effects were strikingly strong for teacher-rated adjustment. Overall, these findings are significant in demonstrating the salience of the peer domain in the beginning years of school.

The strong relationship between chronic peer rejection and child adjustment can be considered a function of the child's experience of sustained stress in the school setting. The experiences of rejected children in the peer group are more harrowing than that of other children. There are reactionary changes in group behavior toward rejected children (Coie, 1990). They often are excluded from regular play groups. Peers do not respond as positively to their social overtures as they do with other children. Not only is the experience of an attenuated range of normal, positive experiences with peers stressful, it also reduces opportunities to learn and practice social skills. Further, the duration of such sub-optimal experiences with peers is critical (Coie, 1990; Parker & Asher, 1987). Thus, the predictive strength of peer rejection in this study derives in part from the chronicity of peer rejection across kindergarten and first grade.

It can be critiqued that the strong relationship between chronic peer rejection and child adjustment especially at school is because of informant effects. In particular, it is possible that classroom observations of the child's rejection by classmates colors the teacher's judgments of child behaviors that do not specifically pertain to rejection. However, even if teacher judgments are distorted they are still valuable. As the prominent adult in the school setting, the teacher's perceptions will have meaning in creating and maintaining patterns in the child's social experience at school. In fact, chronic peer rejection may impact child adjustment partly because of teacher behaviors. Stressful experiences associated with peer rejection possibly include negative teacher attention. There is a need to research differences in teacher behaviors toward rejected and non-rejected children.

A note of caution must be extended in interpreting the uniqueness of the effects of chronic peer rejection. Hartup (1983) theorized that there are conjunctive relations between family and peer systems, and therefore, the unique effects of the peer group may subsume effects of the family. Two family variables in this study supported this

possibility for certain aspects of child adjustment. The variance in children's competencies explained by physical punishment was absorbed by the variance explained by chronic peer rejection. Similarly, the variance in teacher-rated externalizing problems explained by unplanfulness in child bearing was absorbed by chronic peer rejection. In other words, chronic peer rejection mediated the effect of physical punishment on children's competencies and that of unplanfulness in child bearing on teacher-rated externalizing problems.

Interactive Relationships between the Family and Peer Group

Weak support was found for interactive relationships between family and peer variables. In a few cases, the risks or benefits associated with early family experience were strengthened under conditions of chronic peer rejection. This was the first study to test and substantiate this hypothesis in a developmental model. Two other studies have looked at interactive relationships between family and peer variables. Patterson, Cohn and Kao (1989) studied the relationship between maternal warmth and sociometric status in predicting 6-year-old children's competencies and (acting-out, shy-anxious, and learning) problems in a study spanning a year. Rejected children with low maternal warmth were rated by teachers as having more problems than rejected children with high maternal warmth. The groups were not significantly different on competencies. Likewise, the positive relationship between stressful life events and teacher-rated problems was highest for elementary school children with low peer support in a cross-sectional study by Dubow and Tisak (1989). The substantiation of the interaction hypothesis in a developmental framework is an important extension of previous work. In a developmental model, the question addressed is more complex: How is earlier experience in one setting incorporated into later experience in another setting?

The consistent and enduring unique effect of marital conflict on children's competencies was noted earlier. In the school setting, this negative relationship between

the early experience of marital conflict and children's competencies at age seven was increased substantially under conditions of above average chronic peer rejection. The experience of severe marital conflict before age five is especially harmful for the development of prosocial competencies in young children between the ages of five and seven (Fantuzzo et al., 1991; Gottman & Katz, 1989). However, on beginning school, if these children are liked by their peers, they are granted an opportunity to model and practice competencies away from the stressful home environment. In this case, the unique risk of marital conflict for teacher-rated competencies remains modest. In contrast, the experience of chronic peer rejection at school entails additional distress along with curtailment of normal opportunities to learn and practice competencies at school. This stifling of latter opportunity in a new but crucial setting exacerbates existing risk. Under these conditions, the unique risk of marital conflict for child adjustment becomes strong.

The pervasive unique relationship between SES and each aspect of child adjustment also was noted earlier. The positive effects of SES on child adjustment at school (competencies and externalizing problems) were doubled when children experienced chronic peer rejection. In other words, SES was doubly pertinent for child adjustment given failure with classmates. As a result, at high levels of SES, the differences in school adjustment between children below average and those above average on chronic peer rejection disappeared. When children from higher SES homes experience peer rejection at school they may begin to draw more from the resources available at home. Perhaps they develop hobbies or become involved in extra-school clubs. Low SES children, on the other hand, appear to be more dependent upon gains through experiences at school. Their parents may not have the time and energy to provide alternate positive experiences with peers or have the resources to nurture interests that may deflect from negative experiences at school. Rutter (1984) has documented the

importance of positive school experiences for children at risk. In a longitudinal study of institutionalized children who had experienced disrupted parenting, he found that resilient girls were distinguished by having positive social experiences at school. School experiences were not critical in defining the adjustment of children from stable homes.

Lastly, chronic peer rejection moderated the relationship between non-hitting, aversive parent behaviors and mother-rated competencies. A negative relationship between non-hitting, aversive parent behaviors and mother-rated competencies was evident only when children experienced chronic peer rejection. This interaction relationship was different from others in two respects: it was the only interaction relationship between family and peer variables significant for mother-rated adjustment, and it represented potentiation of earlier risk only under conditions of subsequent risk. Being yelled at or shoved by parents apparently does not lower competencies at home unless children experience longer-lasting rejection at school. The content of what was yelled at them or the affective message in being shoved by their parents may become especially prominent as they react to being disliked persistently at school. They may overemphasize the negativity verbally expressed by their parents if "matching" experiences occur at school, and begin to feel and act less competently at home.

Conclusions

One general conclusion can be drawn from both the unique and interactive effects of family and peer variables in explaining children adjustment. With entry into school, it was expected that the governing influence of the home would be tempered by the school and peer group (see Hartup, 1979). Therefore, as expected, chronic peer rejection was more salient than early family experience in explaining adjustment in the school setting. Moreover, a few of the relationships between early family experience and school adjustment were strongest under conditions of high stress in the school setting. However, these findings were not replicated in strength and number for the home setting. Chronic

peer rejection was less influential in predicting child adjustment in the home setting. Further, there was only one instance in which chronic peer rejection exacerbated the risk associated with early family experience. Clearly, the developmental saga of early predominance of family factors and later growing salience of school factors does not occur across settings simultaneously. It appears that this process occurs more slowly in the home setting.

Given the discrepancy in the variance explained in teacher- versus mother-rated adjustment, it is pertinent to ask what does explain adjustment at home or as seen by mothers at this stage. If non-school factors are still playing a substantially large role in defining child adjustment in the home setting, more variance in mother-rated adjustment may be explained by examining temporally proximal family variables.

Nature of Contribution of Multiple Family Variables

A previously unexplored aspect in the literature has been whether multiple family variables interact with each other in explaining child adjustment. Three non-parenting variables were postulated as moderating the relationship between the two aversive parenting variables and child adjustment. Of the three, only marital conflict emerged as a significant moderator. This finding was not surprising because marital conflict is similar to aversive parenting in that it illustrates aversiveness in a different dyadic relationship within the family (see Patterson , 1986). Thus, the exacerbative role of marital conflict in defining the relationship between non-hitting aversive parent behaviors and child adjustment can be explained by the escalating effects of multiple aversive family processes. Two scenarios can be pictured. In one, parents yell and scream at their children but do not fight violently with their spouse. In this scenario, parents may be using yelling and screaming as an alternative to physical punishment in disciplining children. The low correlation between non-hitting parental aversiveness and use of physical punishment suggests that this is possible. In reflecting an absence of the use of

physical punishment, parents' yelling and screaming may be related positively to children's competencies and negatively to their externalizing problems. In the second scenario, parents yell and scream at their children and fight violently with one another. In this case, instead of a substitute for physical punishment, non-hitting parental aversiveness is illustrative of friction including violent behaviors between parents. This pervasive negative affect and behavior may lower children's competencies and increase their problem behaviors. The hostility expressed in both parent-child and husband-wife dyads may be the training ground for stable conduct problems (see Patterson, 1986).

The direction of effect of one interaction term was unexpected. The positive relationship between the use of physical punishment and mother-rated externalizing problems was reduced to zero under conditions of above average marital conflict. This finding runs counter to what is suggested from past work. For instance, Steinmetz (1977) reported that couples who used aggression to resolve their disputes tended to be physically punitive towards their children who were more likely to be aggressive toward their siblings. There are certain conditions under which physical punishment is associated with reduced problems in children but these do not include marital conflict (Parke & Slaby, 1983). Perhaps in this sample, families with high marital conflict used physical punishment extremely consistently. Intraagent and interagent consistency in administering physical punishment has been associated with suppression of aggression in children (Parke & Slaby, 1983).

This research clarifies the nature of the concept of family risk. A variety of singular family predictors of child adjustment have been researched in past literature. In addition, there is evidence that multiple, interrelated family variables explain child adjustment (see Patterson & Bank, 1989). Therefore, it was critical that multiple family variables were included in a study examining the role of the family in explaining child adjustment. The data indicated that family risk is not a unitary concept. Family variables

did not act in unison. Family variables differed from each other in which aspects of child adjustment they explained uniquely, the strength of these relationships, and whether or not they interacted in combination with other variables. Clearly, one cannot assume simple additiveness of negative qualities in computing total risk from the home setting. The partialled effects of certain qualities may not be significant and interaction relationships may increase the effects of some qualities.

Overgeneralization of Rules as an SPS Construct

An attempt also was made in this study to extend research in children's social problem solving. A new SPS construct, overgeneralization of rules, was conceptualized in this study. In previous work, considerable attention has been focused on quantifying the quality of multiple solutions children give to hypothetical social problems. Fischler and Kendall (1988) rated the appropriateness and effectiveness of solutions. Dodge, Bates and Pettit (1990) computed the proportions of aggressive and competent responses. A neglected slant has been the number of types of solutions children give across different social problems. Types of solutions include asking, telling, bargaining, screaming/calling names, sharing, hitting, waiting, and appealing to authority (e.g., Rubin & Krasnor, 1986). Children who access few types of solutions evidence overgeneralized SPS.

There are two findings related to overgeneralized SPS that merit discussion. First, the pattern of results varied depending on the aspect of child adjustment being considered. The unique effect model was upheld for children's competencies whereas the interaction model was supported best (albeit modestly) for children's externalizing problems. This is congruent with Dubow and Tisak's (1989) findings. SPS (skills) in their study only had a unique positive effect on children's competencies whereas it moderated the relationships between stressful life events and teacher- and mother-rated problems. It appears that the effects of risk or benefit associated with children's SPS are different for the development of children's strengths as opposed to problems. A deficit in

SPS may generally lower strengths but may not increase problems behaviors necessarily. Problem behaviors are increased only if other risk is also present--in this case, unplanfulness in child bearing and marital conflict. It may be concluded that a deficit in SPS creates a small vulnerability status for the child. Vulnerability is maintained both through decreased strengths and the dormant susceptibility to problems.

Second, it is important to examine the usefulness of the construct of overgeneralized SPS for children of different ages. There was a low correlation between overgeneralization of rules in kindergarten versus first grade. This implies low intra-individual consistency in overgeneralized SPS over the two years. Moreover, the range of scores was slightly more restricted in first grade. Lastly, the first grade assessment was uncorrelated with child adjustment. These findings suggest that overgeneralized SPS is useful at kindergarten but not first grade. Rubin and Krasnor (1986) have deplored the complete absence of developmental data regarding children's SPS. Their research to date is the only source of developmental norms in children's SPS. They found an identical pattern with respect to the number of valid solutions children gave and whether they changed type of strategy within pairs of responses. They found that highly sociable children in kindergarten gave more valid solutions, and more types of solutions following a probe than did average or isolate children. However, this "head-start" was erased by the time children were in first grade (Rubin & Krasnor, 1986, p.33). It appears that the number of solutions children give including the number of type of solutions differentiates children at different levels of social adjustment only until age six. Rubin and Krasnor suggest that past kindergarten the breadth of responses given on hypothetical reasoning tests is not important and that a ceiling in number of responses is reached by all children by first grade. Instead, by first grade, children's knowledge and use of socially appropriate strategies is important. These findings explain why an inconsistent relationship between the number of responses and child adjustment has been reported in

past literature in contrast to the consistent relationship between quality of responses and child adjustment.

Limitations

Five aspects of early family experience were selected in this study. The predictive strength of early family experience may be improved by considering alternate aspects of family experience. Several recent studies depict a robustly strong relationship between antisocial parents and antisocial child behavior (Capaldi & Patterson, 1991; Lahey et al., 1988). In addition, observational assessment of coercive family exchanges characterized by inept disciplining has explained substantial portions of the variance in boy's conduct problems (e.g., Patterson, 1986). Inclusion of these constructs may yield stronger relationships between early family experience and child adjustment. Also, careful assessment of the stability of negative family experience in the first five years may be important. Research on preadolescent boys suggests that only stable antecedent patterns are influential in explaining later behavior. Vuchinich, Bank, and Patterson (1992) found that parenting at age 9-10 related to boys' antisocial behavior at age 11-12 through its influence on later parenting and the initiation of stable conduct problems at age 9-10. In their study the durability of the predictor and the durability of the outcome initiated were important in explaining antisocial behavior in boys aged 11-12.

Second, the longitudinal relationship between family and peer variables as they predict child adjustment is a new area of investigation. It may be too soon to be tied to specific hypotheses. Attention should be directed at establishing normative data and explaining why aspects of the family differ in the manner in which they are incorporated into later experience. Another limitation in this study is the absence of analysis of gender differences. The pattern of results may have differed by gender. There is some evidence in the literature that the same predictor variable is experienced differently by boys and girls and that relationship to outcome measures also may vary by gender. For example,

Eron (1992) reported that punishment for aggressive behaviors were harsher for boys than for girls leading to boys being more aggressive than girls.

The word risk was used in this study to connote a probable as opposed to a fixed relationship between predictor and outcome. For instance, the presence of marital conflict may heighten a child's susceptibility to problems but there are wide individual differences in whether children do manifest problems. No attempt was made to study risk from a clinician's perspective. The outcome measures were based on the entire continuum of behavioral ratings rather than categorical identification of clinical levels of problems in children.

Lastly, there are two important issues relating to the measurement of peer rejection in this study. First, a continuous measure of peer rejection was chosen over a categorical one. Coie et al. (1982) validated two measures of peer rejection, a continuous social preference measure and a categorical measure that places children into different sociometric status groups. In this study the social preference measure was used with one change: the difference score between liked least and liked most nominations was reversed so that high scores would indicate peer rejection rather than popularity. The reversed social preference measure was preferred over the sociometric status group classification because it indexed the continuous difference in the number of negative versus positive nominations as well as retained the necessary distinction between neglected and rejected children. One disadvantage of this operationalization is that middle levels aggregate average, neglected, and controversial children. This was not construed as a major problem because neglected and controversial children are not significantly different from average children (Coie & Kupersmidt, 1983; Dodge, Coie, Pettit, & Price, 1990; Ollendich et al., 1991). However, future studies should examine the hypotheses proposed in this study using sociometric status groups as the measure of peer rejection. Second, based on recommendations in the literature (Coie, 1990; Parker &

Asher, 1987), a chronicity component was included in the measurement of peer rejection. Peer rejection in each of two years was summed to indicate chronicity in peer rejection. The peer rejection measure in this study was made especially strong by capitalizing on the duration of peer rejection experiences over the two year period. It is urged that chronicity be included in measurements of peer rejection in future research. Also, alternative methods of operationalizing the chronicity of peer rejection must be explored.

Implications for a Theory of Risk and Resilience

In conclusion, it is important to examine the implications of this study for a theory of risk and resilience. Early family experience carried modest risk for maladjustment at age seven. These modest effects of early family experience were not consistent across settings. The modest susceptibility to difficulties in adjustment associated with early family experience were observed best for mother-rated adjustment. The experience of stable chronic peer rejection in the first two years of school carried strong risk for both externalizing problems and a lack of competencies in the school setting. Chronic peer rejection had a more modest association with adjustment in the home setting. Overgeneralized SPS in kindergarten foretold a small risk for adjustment. There was some support, albeit small, that the presence of risk in the new setting (peer rejection at school) heightens the risk or benefits associated with family variables. Thus, the negative effects of marital conflict and the beneficial effects of higher SES were heightened under conditions of above average chronic peer rejection. Finally, the evidence that the risk associated with one setting is not equally influential in explaining behaviors in another setting is important. It may allow for flexibility in development tracks and provide leeways away from the path toward maladjustment.

LIST OF REFERENCES

LIST OF REFERENCES

- Achenbach, T. M. (1991a). Manual for the Child Behavior Checklist/4-18 and 1991 Profile. Burlington, VT: University of Vermont, Dept. of Psychiatry.
- Achenbach, T. M. (1991b). Manual for the Teacher's Report Form and 1991 Profile. Burlington, VT: University of Vermont, Dept. of Psychiatry.
- Achenbach, T. M., & Edelbrock, C. S. (1978). The classification of child psychopathology: A review and analysis of empirical efforts. Psychological Bulletin, 85 (6), 1275-1301.
- Achenbach, T. M., & Edelbrock, C. S. (1981). Behavioral problems and competencies reported by parents of normal and disturbed children aged 4 to 16. Monographs of the Society for Research in Child Development, 46, Serial No. 188.
- Achenbach, T. M., & McConaughy, S. H. (1987). Empirically based assessment of child and adolescent psychopathology: Practical applications. Newbury Park, CA: Sage.
- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situation specificity. Psychological Bulletin, 101 (2), 213-232.
- Asarnow, J. R. (1988). Peer status and social competence in child psychiatric inpatients: A comparison of children with depressive, externalizing, and concurrent depressive and externalizing disorders. Journal of Abnormal Child Psychology, 16, 151-162.
- Asher, S. R., & Hymel, S. (1981). Children's social competence in peer relations: Sociometric and behavioral assessment. In J. D. Wine & M. D. Smye (Eds.), Social competence (pp. 125-157). NY: Guilford.
- Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. Child Development, 55, 1456-1464.

- Asher, S. R., Parkhurst, J. T., Hymel, S., & Williams, G. A. (1990). Peer rejection and loneliness in childhood. In S. R. Asher & J. D. Coie (Eds.), Peer rejection in childhood (pp. 253-273). NY: Cambridge University Press.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51 (6), 1173-1182.
- Beavers, R. (1982). Healthy, midrange, and severely dysfunctional families. In F. Walsh (Ed.), Normal family processes (pp. 45-66). NY: Guilford.
- Belsky, J. (1984). The determinants of parenting: A process model. Child Development, 55, 83-96.
- Berg, M. & Medrich, E. A. (1980). Children in four neighborhoods. The physical environment and its effect on play and play patterns. Environment and Behavior, 12 (3), 320-348.
- Brody, G. H., Stoneman, Z., & Burke, M. (1987). Family system and individual child correlates of sibling behavior. American Journal of Orthopsychiatry, 57 (4), 561-569.
- Capaldi, D. M., & Patterson, G. R. (1991). Relation of parental transitions to boys' adjustment problems: I. A linear hypothesis. II. Mothers at risk for transitions and unskilled parenting. Developmental Psychology, 27 (3), 489-504.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. Psychological Bulletin, 98 (2), 310-357.
- Coie, J. D. (1990). Toward a theory of peer rejection. In S. R. Asher & J. D. Coie Eds.), Peer rejection in childhood (pp. 365-401). NY: Cambridge University Press.
- Coie, J. D., & Dodge, K. A. (1983). Continuities and changes in children's sociometric status: A five-year longitudinal study. Merrill-Palmer Quarterly, 29, 261-282.

- Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. Developmental Psychology, 18 (4), 557-570.
- Coie, J. D., & Kupersmidt, J. B. (1983). A behavioral analysis of emerging social status in boys' groups. Child Development, 54, 1400-1416.
- Cole, D. A., & Carpentieri, S. (1990). Social status and the comorbidity of child depression and conduct disorder. Journal of Consulting and Clinical Psychology, 58 (6), 748-757.
- Dodge, K. A. (1985). Facets of social interaction and the assessment of social competence in children. In B. H. Schneider, K. H. Rubin, & J. E. Ledingham (Eds.), Children's peer relations: Issues in assessment and intervention (pp. 3-22). NY: Springer-Verlag.
- Dodge, K. A. (1986). A social information-processing model of social competence in children. In M. Perlmutter (Ed.), Cognitive perspectives on children's social and behavioral development. The Minnesota Symposia on Child Psychology, (Vol. 18, pp. 77-125). Hillsdale, NJ: Lawrence Erlbaum.
- Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. Science, 250, 1678-1683.
- Dodge, K. A., Coie, J. D., Pettit, G. S., & Price, J. M. (1990). Peer status and aggression in boys' groups: Developmental and contextual analyses. Child Development, 61, 1289-1309.
- Dodge, K. A., & Crick, N. R. (1990). Social information-processing bases of aggressive behavior in children. Personality and Social Psychology, 16 (1), 8-22.
- Dodge, K. A., Pettit, G. S., & Bates, J. E. (in press). Socialization mediators of the relation between socioeconomic status and child conduct problems. Child Development.

- Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. M. (1986). Social competence in children. With commentary by J. M. Gottman. Monographs of the Society for Research in Child Development, 51 (2), Serial No. 213.
- Dodge, K. A., & Somberg, D. R. (1987). Hostile attributional biases among aggressive boys are exacerbated under conditions of threats to self. Child Development, 58, 213-224.
- Dodge, K. A., & Tomlin, A. (1983). The role of cue utilization in attributional biases among aggressive children. Unpublished paper, Indiana University.
- Dubow, E. F., & Tisak, J. (1989). The relation between stressful life events and adjustment in elementary school children: The role of social support and social problem-solving skills. Child Development, 60, 1412-1423.
- Edelbrock, C. S., & Achenbach, T. M. (1980). A typology of Child Behavior Profile Patterns: Distribution and correlates for disturbed children aged 6-16. Journal of Abnormal Child Psychology, 8 (4), 441-470.
- Emery, E. (1982). Interparental conflict and the children of discord and divorce. Psychological Bulletin, 92 (2), 310-330.
- Eron, L. D. (1987). The development of aggressive behavior from the perspective of a developing behaviorism. American Psychologist, 42 (5), 435-442.
- Eron, L. D. (1992). Gender differences in violence: Biology and/or socialization. In K. Björkqvist & P. Niemelä (Eds.), Of Mice and Women: Aspects of female aggression (pp. 89-97). San Diego: Academic Press.
- Evans, S. W., & Short, E. J. (1991). A qualitative and serial analysis of social problem solving in aggressive boys. Journal of Abnormal Child Psychology, 19 (3), 331-340.

- Fantuzzo, J. W., DePaola, L. M., Lambert, L., Martino, T., Anderson, G., & Sutton, S. (1991). Effects of interparental violence on the psychological adjustment and competencies of young children. Journal of Consulting and Clinical Psychology, 59 (2), 258-265.
- Farrington, D. P., Gallagher, B., Morley, L., St. Ledger, R. J., & West, D. J. (1988). A 24-year follow-up of men from vulnerable backgrounds. In R. L. Jenkins & W. K. Brown (Eds.), The abandoning of delinquent behavior: Promoting the turnaround (pp. 155-173). NY: Praeger.
- Farrington, D. P., Loeber, R., & van Kammen, W. B. (1990). Long-term criminal outcomes of hyperactivity-impulsivity-attention deficit and conduct problems in childhood. In L. N. Robins & M. Rutter (Eds.), Straight and devious pathways from childhood to adult life (pp. 62-81). Cambridge: Cambridge University Press.
- Fischler, G. L., & Kendall, P. C. (1988). Social cognitive problem solving and childhood adjustment: Qualitative and topological analyses. Cognitive Therapy and Research, 12, 133-153.
- French, D. C. (1988). Heterogeneity of peer-rejected boys: Aggressive and nonaggressive subtypes. Child Development, 59, 976-985.
- French, D. C. (1990). Heterogeneity of peer-rejected girls. Child Development, 61, 2028-2031.
- French, D. C., & Waas, G. A. (1985). Behavior problems of peer-neglected and peer-rejected elementary-aged children: Parent and teacher perspectives. Child Development, 56, 246-252.
- Garmezy, N. (1987). Stress, competence, and development: Continuities in the study of schizophrenic adults, children vulnerable to psychopathology, and the search for stress-resistant children. American Journal of Orthopsychiatry, 57 (2), 159-174.

- Garnezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. Child Development, 55, 97-111.
- Gecas, V. (1979). The influence of social class on socialization. In W. R. Burr, R. Hill, F. I. Nye, & I. Reiss (Eds.), Contemporary theories of the family (pp. 365-404). NY: Free Press.
- Gesten, E. L. (1976). A Health Resources Inventory: The development of a measure of the personal and social competence of primary-grade children. Journal of Consulting and Clinical Psychology, 44 (5), 775-786.
- Gottman, J. M. (1977). Toward a definition of social isolation in children. Child Development, 48, 513-517.
- Gottman, J. M., & Katz, L. F. (1989). Effects of marital discord on young children's peer interaction and health. Developmental Psychology, 25 (3), 373-381.
- Grych, J. H., & Fincham, F. D. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. Psychological Bulletin, 108 (2), 267-290.
- Guilford, J. P. (1971). Some misconceptions regarding measurements of creative talents. Journal of Creative Behavior, 5, 77-87.
- Hartup, W. W. (1979). The social worlds of childhood. American Psychologist, 34 (10), 944-950.
- Hartup, W. W. (1983). Peer relations. In P. H. Mussen's (Ed.), Handbook of Child Psychology (Vol IV, pp. 103-196). New York: John Wiley.
- Holden, G. W., & Ritchie, K. L. (1991). Linking extreme marital discord, child rearing and child behavior problems: Evidence from battered women. Child Development, 62 (2), 311-327.

- Holden, G. W., & Ritchie, K. L. (1991). Linking extreme marital discord, child rearing and child behavior problems: Evidence from battered women. Child Development, 62 (2), 311-327.
- Hollingshead, A. B. (1976). Four factor index of social status: Working paper. New Haven, Conn.: Hollingshead.
- Hymel, S., Rubin, K. H., Rowden, L., & LeMare, L. (1990). Children's peer relationships: Longitudinal prediction of internalizing and externalizing problems from middle to late childhood. Child Development, 61 (6), 2004-2021.
- Jaccard, J., Turrissi, R., & Wan, C. K. (1990). Interaction effects in multiple regression. Newbury Park, CA: Sage.
- Johnson, S. M., Bolstad, O. D., & Lobitz, G. K. (1976). Generalization and contrast phenomena in behavior modification with children. In E. J. Mash, L. A. Hamerlynck, & L. C. Hanly (Eds.), Behavior modification and families (pp. 160-188). NY: Brunner/Mazel.
- Kohlberg, L., Ricks, D., & Snarey, J. (1984). Child development as a predictor of adaptation in adulthood. Genetic Psychology Monographs, 110, 91-172.
- Ladd, G. W. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment. Child Development, 61, 1081-1100.
- Lahey, B. B., Hartdagen, S. E., Frick, P. J., McBurnett, K., Connor, R., & Hynd, G. W. (1988). Conduct disorder: Parsing the confounded relation to parental divorce and antisocial personality. Journal of Abnormal Psychology, 97, 334-337.
- Loeber, R., Green, S. M., & Lahey, B. B. (1990). Mental health professionals' perception of the utility of children, mothers, and teachers as informants on childhood psychopathology. Journal of Clinical Child Psychology, 19 (2), 136-143.

- Lorion, R. P., Cowen, E. L., & Caldwell, R. A. (1975). Normative and parametric analyses of school maladjustment. American Journal of Community Psychology, 3 (4), 291-301.
- Lytton, H. (1990). Child and parent effects in boys' conduct disorder: A reinterpretation. Developmental Psychology, 26 (5), 683-697.
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: Parent-child interaction. In P. H. Mussen's (Ed.), Handbook of Child Psychology (Vol IV, pp. 1-102). New York: John Wiley.
- Miller, N. B., Cowan, P. A., Cowan, C. P., Hetherington, E. M., & Clingempeel, W. G. (1993). Externalizing in preschoolers and early adolescents: A cross-study replication of a family model. Developmental Psychology, 29 (1), 3-18.
- Ollendich, T. H., Greene, R. W., Francis, G., & Baum, C. G. (1991). Sociometric status: Its stability and validity among neglected, rejected, and popular children. Journal of Child Psychology and Psychiatry, 32 (3), 525-534.
- Olson, S. L., & Brodfeld, P. L. (1991). Assessment of peer rejection and external behavior problems in preschool boys: A short-term longitudinal study. Journal of Abnormal Child Psychology, 19 (4), 493-503.
- Parke, R. D., & Slaby, R. G. (1983). The development of aggression. In P. H. Mussen's (Ed.), Handbook of Child Psychology (Vol IV, pp. 547-642). New York: John Wiley.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? Psychological Bulletin, 102 (3), 357-389.
- Patterson, C. J., Cohn, D. A., & Kao, B. T. (1989). Maternal warmth as a protective factor against risks associated with peer rejection among children. Development and Psychopathology, 1, 21-38.

- Patterson, G. R. (1976). Parents and teachers as change agents: A social learning approach. In D. Olson (Ed.), Treating relationships. Lake Mills, IA: Graphic Press.
- Patterson, G. R. (1986). Performance models for antisocial boys. American Psychologist, 41 (4), 432-444.
- Patterson, G. R., & Bank, L. (1989). Some amplifying mechanisms for pathologic processes in families. In M. R. Gunnar & E. Thelen (Eds.), Minnesota Symposia on Child Psychology, (Vol. 22, pp. 167-209). Hillsdale, NJ: Erlbaum.
- Patterson, G. R., Dishion, T. J., & Bank, L. (1984). Family interaction: A process model of deviancy training. Aggressive Behavior, 10, 253-267.
- Perry, D. G., Perry, L. C., & Rasmussen, P. (1986). Cognitive social learning mediators of aggression. Child Development, 57, 700-711.
- Peterson, J. L., & Zill, N. (1986). Marital disruption, parent-child relationships, and behavior problems in children. Journal of Marriage and the Family, 48, 295-307.
- Pettit, G. S., & Bates, J. E. (1989). Family interaction patterns and children's behavior problems from infancy to 4 years. Developmental Psychology, 25 (3), 413-420.
- Pettit, G. S., Dodge, K. A., & Bates, J. E. (1992). Predictors and adjustment outcomes of after-school care. Funded grant proposal, NICHD.
- Pettit, G. S., Dodge, K. A., & Brown, M. M. (1988). Early family experience, social problem solving patterns, and children's social competence. Child Development, 59, 107-120.
- Ramsey, E., Patterson, G. R., & Walker, H. M. (1990). Generalization of the antisocial trait from home to school settings. Journal of Applied Developmental Psychology, 11, 209-223.
- Reich, R. B. (1992). The work of nations. Preparing ourselves for 21st-century capitalism. NY: Random House.

- Rubin, K. H., & Krasnor, L. R. (1986). Social-cognition and social behavioral perspectives on problem solving. In M. Perlmutter (Ed.), Cognitive perspectives on children's social and behavioral development. The Minnesota Symposia on Child Psychology, (Vol. 18, pp. 1-68). Hillsdale, NJ: Lawrence Erlbaum.
- Rubin, Z., & Sloman, J. (1984). How parents influence their children's friendships. In M. Lewis (Ed.), Beyond the dyad. NY: Plenum Press.
- Rutter, M. (1984). Resilient children. Psychology Today, March, 57-65.
- Rutter, M. (1985). Resilience in the face of adversity. Protective factors and resistance to psychiatric disorder. British Journal of Psychiatry, 147, 598-611.
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. American Journal of Orthopsychiatry, 57 (3), 316-331.
- Rutter, M. (1989). Pathways from childhood to adult life. Journal of Child Psychology and Psychiatry, 30 (1), 23-51.
- Rutter, M, Quinton, D, & Hill, J. (1990). Adult outcome of institution-reared children: Males and females compared. In L. N. Robins & M. Rutter (Eds.), Straight and devious pathways from childhood to adulthood (pp. 135-157). Cambridge: Cambridge University Press.
- Sameroff, A. J., & Seifer, R. (1983). Family risk and child competence. Child Development, 54, 1254-1268.
- Sroufe, L. A., Egeland, B, & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual adaptation in childhood. Child Development, 61, 1363-1373.
- Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. Child Development, 55, 17-29.
- Steinmetz, S. K. (1977). The cycle of violence: Assertive, aggressive and abusive family interaction. New York: Praeger.

- Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics Scale. Journal of Marriage and the Family, 41 (1), 75-88.
- Torrance, E. P. (1968). Examples and rationales of test tasks for assessing creative abilities. Journal of Creative Behavior, 2, 165-177.
- Vaughn, B., Egeland, B., Sroufe, L. A., & Waters, E. (1979). Individual differences in infant-mother attachment at 12 and 18 months: Stability and change in families under stress. Child Development, 50, 971-975.
- Vuchinich, S., Bank, L., & Patterson, G. R. (1992). Parenting, peers, and the stability of antisocial behavior in preadolescent boys. Developmental Psychology, 28 (3), 510-521.
- Weiss, B., Dodge, K. A., Bates, J. E., & Pettit, G. S. (1992). Some consequences of early harsh discipline: Child aggression and a maladaptive social information processing style. Child Development, 63, 1321-1335.

APPENDICES

APPENDIX A

EXTENDED REVIEW OF LITERATURE

A prediction model of child adjustment was proposed in this study. Child adjustment was predicted combinatively and longitudinally from family factors, peer rejection, and social problem solving. The construct of resilience was used to pattern the interrelationships among these predictors. Accordingly, the goals of this extended review of literature were to (a) examine child adjustment as a dependent construct, (b) present the current research and theory in the three substantive areas of family factors, peer rejection, and social problem solving, and (c) present the conceptual underpinnings of the proposed interrelationships.

Child Adjustment

A frequent goal in child development research is understanding how children become behaviorally competent and emotionally healthy (e.g., Luthar, 1991; Sroufe, Egeland, & Kreutzer, 1990). The significance of this goal is magnified by the recognition that such competence and health are not static but require an active, ongoing negotiation of life situations (Rutter, 1989). The study of child adjustment fits within this goal.

A first step in defining child adjustment is distinguishing it from related concepts such as adaptation, social competence, or behavior disorders and psychopathology. Both adjustment and adaptation may be defined as how well a child meets situational or developmental demands (e.g., Lorion, Cowen, & Caldwell, 1975; Sroufe, 1979). The goal is to negotiate and flexibly fit one's behavior to the requirements of the age and/or setting. Of the two, adaptation, a term favored by Sroufe (1979), is conceptualized using broad-based developmental issues. Thus, positive adaptation in infancy is demonstrated by secure attachment(s) with caregiver(s) and in elementary school is demonstrated by quality of relationships with classmates (Sroufe et al., 1990). On the other hand,

adjustment does not have a developmental task orientation. It is conceptualized as meeting the requirements of the school setting or age-modified requirements of the home setting and includes behaviors such as compliance and vigor in approaching and completing tasks (e.g., Lorion et al., 1975).

Social competence has been used to index adequacy in various aspects of social functioning (Dodge, 1985; Dodge, Pettit, McClaskey, & Brown, 1986). Social skills, social behavior, and third-person evaluations each have been studied and defined as social competence (Dodge, 1985; Dodge et al., 1986). Therefore, it is helpful to use McFall's (1982) and Dodge et al.'s (1986) definition of social competence and its relation to other aspects of social functioning. Social skills are specific, prerequisite abilities (McFall, 1982), such as the abilities to delay gratification (Cavell, 1990), communicate (Hops, 1983), and process social information (Dodge, 1985). Social skills are hypothesized to enable the performance of social behavior (Dodge et al., 1986; McFall, 1982). In contrast, social competence is an evaluative generalization of the quality of this behavior made by a third person (McFall, 1982, p. 12). In accordance, Dodge (1985) and Foster and Ritchey (1979) state that social competence is operationalized most frequently as the evaluations of adults and peers, with peer sociometric evaluations being the most frequent. It also follows that when adult judgments of social behavior are used to index social competence, child adjustment and social competence are synonymous (see Dodge, 1985).

Behavior disorders and psychopathology can be defined as difficulties in meeting age-defined or situational demands. For example, conduct disorder may be identified by age-inappropriate aggression (Lytton, 1990). Child adjustment is broader than the constructs of behavior disorders and psychopathology and includes child psychopathology as it pertains to the entire continuum of the ability of a child to meet requirements. Behavior disorders and psychopathology are distinguished by their

exclusive focus on difficulties and greater reliance on diagnostic classifications (e.g., Lahey et al., 1988).

There is a second definitional issue. Defect approaches in the study of adjustment have given way to competence models since the late 1940s (Wine, 1981). This shift emphasizes the need to study requisite skills or competencies rather than deviancies and difficulties in functioning. Interestingly enough, competence models are not devoid of a focus on deficits or weaknesses as is illustrated by social-cognitive concepts like hostile-attribution bias and recency bias (e.g., Dodge, 1986). Nevertheless, a recognition of competence reflects an understanding that recording an absence of problems is not enough and that strengths need not be the polar opposites of weaknesses (Gesten, 1976). Thus, it is important to enumerate which unproblematic behaviors are strengths (Foster & Ritchey, 1979).

Child adjustment is reflected by the competencies and problems exhibited by the child in meeting age and situation defined requirements. Whereas competencies have been found to be unidimensional, problem behaviors are described by Achenbach and Edelbrock (1978) as multidimensional at two levels. At the first level, is the broad differentiation of problems into externalizing and internalizing problems also labeled undercontrolled and overcontrolled behavior problems (Achenbach & Edelbrock, 1978). These molar categories are called broad-band syndromes. At the second level are the narrow-band syndromes which are more numerous. A majority of the narrow-band syndromes are subtypes of the broad-band syndromes. Thus, the narrow-band syndromes of delinquency and aggression are subtypes of the externalizing broad-band syndrome, whereas anxiety, depression, and withdrawal are subtypes of the internalizing broad-band syndrome. Thus, child adjustment is conceptualized into three tiers: (a) competencies and problems, (b) externalizing and internalizing problems, and (c) narrow-band problems (see Figure A.1).

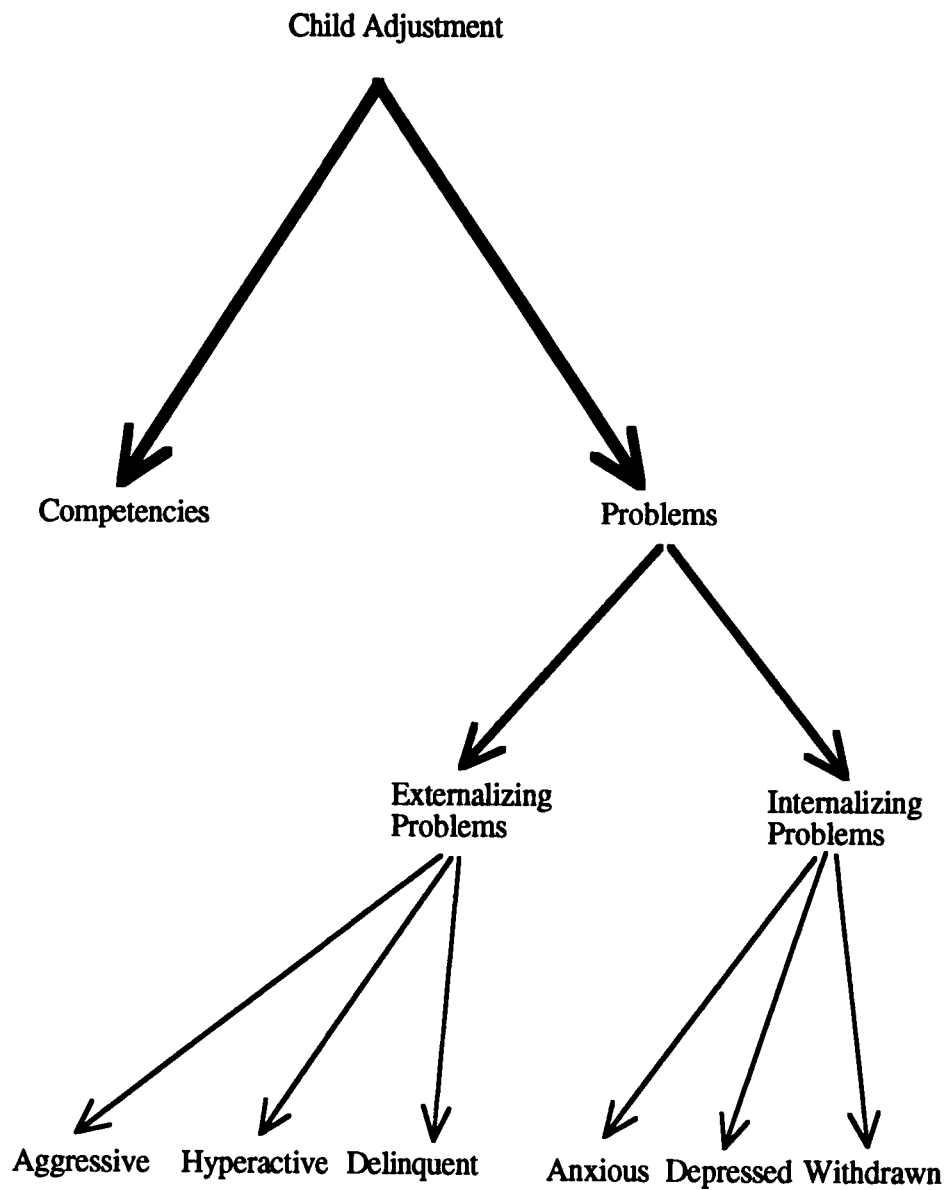


Figure A.1. A three-tiered conceptualization of child adjustment. (See Achenbach & Edelbrock, 1978; Edelbrock & Achenbach, 1980.)

It is important to differentiate between the two global types of problems. First, the general picture of concurrent and predictive adjustment differs for children with primarily externalizing problems versus internalizing problems (Achenbach & Edelbrock, 1978; Sroufe & Rutter, 1984). Children with primarily internalizing problems have higher school performance and standardized achievement scores, stay in therapy longer, and show greater improvement than do children with primarily externalizing problems (Achenbach & Edelbrock, 1978). Furthermore, internalized emotional disturbance in the absence of other problems in childhood has failed to predict maladaptation in adulthood (Kohlberg, Ricks, & Snarey, 1984; Sroufe & Rutter, 1984). In contrast, externalizing problems predict continuing maladjustment with some accuracy (Farrington, Loeber, and van Kammen, 1990), perhaps at the rate of almost 50% (Lytton, 1990). Second, there are predictors specific to either internalizing or externalizing problems (Cohen, Brook, Cohen, Velez, & Garcia, 1990). More importantly even interrelationships between predictors may vary depending on type of problem. Thus, the stress buffering effects that Luthar (1991) found for externalizing problems were non-existent for internalizing problems. Social expressivity and internality buffered the effects of stressful life events on externalizing outcomes but not internalizing outcomes of depression, anxiety and self-criticism in the inner-city adolescent sample.

Narrow-band syndromes enable specification of differences in adjustment within the externalizing or internalizing groups. For example, Edelbrock and Achenbach (1980) clustered children first into those having externalizing and internalizing problems and further into type of externalizing and internalizing problems. Externalizing girls formed a heterogeneity of hyperactive, delinquent, or aggressive-cruel subtypes, with aggressive-cruel girls having significantly lower school competence scores than the hyperactive and delinquent girls.

In choosing a level of differentiation of problem behaviors, a first criterion is whether the level of differentiation is pertinent to children's age. As exemplified in both Cairn's (Cairns, Cairns, Neckerman, Ferguson, & Garipey, 1989) and Harter's (1980) work and in the theoretical principles put forth by Werner (Langer, 1969), areas of functioning and related constructs change from relatively global to increasingly differentiated structures as children become older. At what ages, do broad-band and narrow-band syndromes begin to be useful? Achenbach and McConaughy (1987) report children's problems to be differentiated into externalizing and internalizing subtypes at ages as young as 2-3 years. Narrow-band syndromes have been standardized for children aged 4-5, 6-11, and 12-16 (Achenbach & Edelbrock, 1978). Similarly, subtypes of behavior problems have been found in 4-5 year olds in other studies (Egeland, Kalkoske, Gottesman, & Erickson, 1990; Pettit & Bates, 1989).

Given that narrow-band syndromes are valid for young children, the decision to use all or some narrow-band syndromes for elementary school aged children rests on the specific interests of the researcher. Furthermore, different levels of specification of child adjustment are not mutually exclusive (Achenbach & Edelbrock, 1984). In fact it is important to conceptualize child adjustment in more than one way to answer necessary questions. Thus far, three levels of specification are recommended: (a) a competence score and a composite behavior problem score, (b) externalizing and internalizing problems, and (c) consideration of one or more specific narrow types with established validity like aggression (e.g., Achenbach, Verhulst, Baron, & Althaus, 1987).

A final consideration in the specification of child adjustment has to do with the setting(s) in which the child is showing difficulties or competencies. The first basic question is whether children show difficulties in one setting and not another. Theorists still controvert about whether children's behavior is situation-specific or trait-like (Achenbach, McConaughy, & Howell, 1987). There is ample evidence for both in that

there are individual differences in the consistency of behavior across situations. Thus, in three studies testing consistency in problem behaviors exhibited at home and at school, approximately 50% of the subjects were found to have problems in both settings (Johnson, Bolstad, & Lobitz, 1976; Patterson, 1976; Ramsey, Patterson, & Walker, 1990). Thus, generally half of the children may be consistent across settings whereas the other half may have problem behaviors specific to a situation.

It is even more interesting to note that the cross-situational consistency of behavioral adjustment is an important variable by itself (Bem & Allen, 1974; Campus, 1974). Children with cross-situational problems have more severe and numerous problems than children with problems in only the home or the school setting (Bierman & Smoot, 1991; Loeber & Dishion, 1984). Furthermore, cross-situational problem behavior also is likely to be more stable (Lytton, 1990).

How should children's adjustment at home and at school be assessed? This question is closely related to the use of multiple informants. Typically, such assessments involve using parents and teachers as informants based on the assumption that they are cueing into the setting in which they play a dominant role, i.e., parents in the home and teachers in the classroom. Their unique and complementary perspectives are exemplified in research conducted by Edelbrock and Achenbach (1984) and Loeber, Green and Lahey (1990). For example, slightly different factor structures of children's problems are obtained when rated by teachers versus parents. Alternatively, teachers may be seen as the most useful informant of problems like child's attentiveness whereas the parent may be seen as most useful in reporting problems like oppositional behavior (Loeber et al., 1990). Further evidence that adults in different settings provide different and unique portions of the variance in child adjustment is taken from reliability data on child adjustment. In a meta-analysis, Achenbach et al. (1987) found low inter-rater reliability between settings (e.g., parents versus teachers; $r = .28$) and relatively high inter-rater

reliability within settings (e.g., pairs of parents; $r = .60$).¹ Rather than construing this as a validity issue, Achenbach and McConaughy (1987) have urged that such differences are tapping variations in child adjustment that necessitate the use of multiple informants. In fact, Achenbach (1985) has developed a system of multi-axial assessment of children's adjustment in which parent and teacher reports are two separate axes.

Given that children differ in whether they exhibit problems in one or more settings and that parent and teacher judgments of child adjustment are relatively independent, it is important to use both parent and teacher ratings of children's behavior problems and competence. Various studies have used this approach successfully (e.g., Capaldi & Patterson, 1991).

There is one additional issue in conceptualizing child adjustment. It is clear from the Achenbach studies (Achenbach & Edelbrock, 1984) that factor structures of adjustment are different for children of different ages and sexes. Thus, it is important to reference an individual's adjustment against children of his or her age and sex. In fact, such an approach corroborates the theoretical definition of child adjustment.

In conclusion, child adjustment includes both competencies and problems. Problems can be specified into externalizing and internalizing syndromes and their subtypes. Lastly, such competencies and problems must be referenced by the setting(s) in which they are displayed and by a child's age and sex.

Having examined the dependent construct, the next question is that of predictors of the dependent variable. Three classes of predictors were selected--family factors, peer rejection, and children's social problem solving. The next section focuses on a description of the relationship between family factors and child adjustment.

¹These are mean values computed in the meta-analysis. In their own studies they report much higher within setting reliability. Thus, Achenbach and Edelbrock (1981) found inter-parent reliability to be .985 for behavior problems and .978 for competence.

Family Predictors of Child Adjustment

Several factors that explain child adjustment pertain to the family. Family predictors of child adjustment can be grouped into variables describing (a) the parent(s), (b) parenting, (c) the parents' marriage, and (d) family stress.

Parental Characteristics: Maternal Adjustment

Maternal psychopathology has been found to bear a consistent negative relationship to child adjustment (Hammen, Burge, & Adrian, 1991). Rather than a specific maternal diagnosis, the severity and chronicity of maternal psychiatric disorder best predict child adjustment (Sameroff & Seifer, 1983). Similar results have been obtained in studies in which only one maternal diagnosis, generally maternal depression, is chosen (e.g., Fendrich, Warner, & Weissman, 1990; Hammen, Burge, & Stansbury, 1990). The relationship between maternal psychopathology and child adjustment is moderate in strength; maternal psychopathology explained 8% of the unique variance in 4-year-old children's socio-emotional competence in the Rochester Longitudinal Study (Sameroff & Seifer, 1983). There is some evidence that although a maternal psychiatric disorder predicts general child adjustment, it predicts internalizing problems better than externalizing problems (Fendrich et al., 1990).

The antisocial mother has been studied more recently. Several studies show a robust positive relationship between antisocial mothers and antisocial child behavior or conduct problems in children (Lahey et al., 1988; Patterson & Bank, 1989). Patterson and Dishion (in press, cited in Patterson & Bank, 1989) found that mother and child antisocial behavior were correlated at .34 ($p < .001$). Capaldi and Patterson (1991) reported a much stronger relationship. They found maternal antisocial behavior to account directly for 33% of the variance in a multidimensional construct of child adjustment (that included both antisocial behavior and depression) in 11-year-old boys. Capaldi and Patterson's (1991) maternal antisocial behavior and child adjustment

constructs were created using more indicators than those used by Patterson and Dishion (in press). For instance, maternal antisocial behavior in both studies was indicated by MMPI scores, license suspensions, and arrests. Two additional indicators used by Capaldi and Patterson (1991) were drug use and age at first birth.

Parent-Child Variables

Quality of parenting also is associated with child adjustment. If successful adjustment requires the ability to control one's behavior, situations in which the child is guided by the parent to do so must be important (Baumrind, 1973). In other words, whether and how a parent exercises control must have important implications for child adjustment. Baumrind (1973, 1978) found that an absence of parental control and maturity demands is associated with immaturity in preschool children indicated by low self-reliance, low self-control, and the avoidance of intellectual challenges.

The manner in which a parent exercises control is equally crucial. Induction, or the use of information and reasoning by the parent in eliciting voluntary compliance from the child, is correlated positively with child adjustment (Rollins & Thomas, 1979). Coercion, the use of direct and arbitrary parental power to elicit compliance, is correlated negatively with child adjustment (Hoffman, 1970; Peterson & Rollins, 1987).

Patterson and his associates (e.g., Patterson, Dishion, & Bank, 1984; Patterson, 1986; Patterson & Bank, 1989) have advanced the idea of a coercion process to explain the development of antisocial behavior in boys. They describe multiple, reciprocally related variables and recognize the coercive child, parent, and siblings. Patterson (1986) defined coercion as patterns of escalating aversiveness (e.g., screaming, hitting, crying etc.) between family members. Coercive exchanges between parent and child and between child and sibling are fueled by the inability of the parent to obtain compliance from children, i.e. by inept disciplining. Their explication of the inept disciplining construct is a major contribution.

What constitutes inept disciplining? Central to this construct are aversiveness and inconsistency. Inept disciplining is characterized by constant use of scolding and threats punctuated by erratic use of extreme punishment including anger-ridden hitting and spanking (Patterson et al., 1984; Patterson, 1986). Both the scolding and physical punishment are aversive and the schedule in which they are used is inconsistent. The inept disciplining construct, measured by (a) constant irritable parental natter, (b) explosive punishment, and (c) inconsistency rating, accounted for 40% of the variance in child antisocial behavior (Patterson, 1986).

Wahler (e.g., Wahler & Dumas, 1986) has made further contributions to understanding the importance of inconsistent disciplining in explaining child problems. Wahler et al. amend Patterson's model and suggest that (a) inconsistency in the home environment is aversive by itself, and that (b) problem behaviors are maintained because these behaviors increase predictability in the home environment. The aversiveness of unpredictability exceeds that of punishment.

Another parent-child variable significantly related to child adjustment is child abuse. Dodge, Bates, and Pettit (1990) found that physical harm to child before entry into school increased threefold the chances that the child would be aggressive in school. Furthermore, this relationship held even when controlling for four biological and five family ecological variables (e.g., temperament, socioeconomic status etc.). Abused children, especially girls, also were likely to have internalizing problems.

Parental support is defined as parental behavior toward a child that enhances feelings of acceptance and approval by the parent (Thomas, Gecas, Weigert, & Rooney, 1974) such as praising, approving, co-operating, assisting, and expressing affection (Straus & Tallman, 1971, p. 393). Parental support is correlated positively with child adjustment (Peterson & Rollins, 1987). Pettit and Bates (1989) found that 4-year-old children with many problems initiated more social contact with mothers ($r = .56, p <$

.001) and had mothers who did not initiate proactive and affectionate interaction ($r = -.62$, $p < .001$).

Marital Variables

Families also differ in how parents behave toward one another. Thus, a third set of family variables relate to the marital dyad. Gottman and Katz (1989) state that marital conflict (or spousal hostility) is the best familial predictor of children's adjustment.

Marital conflict ranges in duration and intensity from low and recent verbal conflict to chronic marital violence. Duration and intensity of marital conflict are related linearly to children's adjustment, with children from persistent, high conflict, violent homes exhibiting the most behavior problems (Fantuzzo et al., 1991; Peterson & Zill, 1986).

Although there is a clear consensus about the relationship between marital conflict and children's behavior problems (Grych & Fincham, 1990), there is a lack of consensus about the type of problems children may exhibit. Haddad, Barocas and Hollenbeck (1991) found that high conflict predicted antisocial behavior but not anxiety disorders in their sample of 9-to-13-year-old boys. Holden and Ritchie (1991) found that children (aged 2-8) of battered women had internalizing but not externalizing problems. In contrast, Peterson and Zill (1986) found that persistent high conflict was related to both depression/withdrawal and antisocial behavior.

Marital conflict may have different forms that are variously associated with externalizing or internalizing problems. This proposition is substantiated by the findings from the Fantuzzo et al. (1991) study. They found that young children aged 3 to 6 who had experienced : (a) verbal marital conflict alone had moderate levels of conduct problems, (b) verbal and physical marital conflict had clinical levels of conduct problems and moderate levels of emotional problems, and (c) verbal and physical marital conflict plus shelter residence had clinical levels of both conduct and emotional problems. There may be a threshold past which escalated and multifaceted conflict that normally only

causes externalizing behavior problems becomes associated in turn with multifaceted problems. It is important to note that Fantuzzo et al. excluded child abuse victims from their sample. Therefore, child abuse and marital violence may have independent relationships to child adjustment (See Dodge, Bates, & Pettit, 1990). Demographic variables were not related systematically to different forms of marital conflict in the Fantuzzo et al. (1991) study, and 40% of the variance in child adjustment was explained by exposure to the various combinations of marital conflict.

Divorce is a related variable because the family disruption often culminates from marital conflict. Divorce has been studied most frequently as a structural variable. For example, Peterson and Zill (1986) compared intact families with varying levels of conflict with divorced families consisting of single parent, remarried, and redisrupted families. The mean antisocial behavior of 12-to-16-year-old boys in single-mother families was significantly higher than that of boys in low conflict-intact families or single-father families but not higher than that of boys in high conflict-intact families. In comparison, 12-to-16-year-old girls in remarried families had the highest antisocial behavior of all the girls in the sample. Membership in the various conflict and divorced types of families explained 14% of the variance in antisocial behavior in boys and 9% of the variance in antisocial behavior in girls.

An alternative, creative conceptualization of divorce is to view it as the child's experience of multiple parental transitions which more generally would be the experience of family instability. In a sample of 206 nine-year-old boys, Capaldi and Patterson (1991) found a linear, positive relationship between boys' adjustment problems and number of parenting transitions. Parenting transitions, income, and socioeconomic status explained 21% of the variance in child adjustment.

Family Stress Variables

The level of stress experienced by the family is studied frequently as a correlate of child adjustment. One way of measuring family stress is to count major life events (Goodyer, 1990a); researchers differ in whether or not they weight these events by the amount of distress involved (Wertlieb, Weigel, & Feldstein, 1987). Life events scores are related moderately to behavior problems in children (r s between .20 and .30), explaining approximately 10% of the variance (Wertlieb et al., 1987). However, when considered with family variables, life events may not add incremental power in predicting child adjustment. Therefore, life events measurement seems to be redundant. The recent call for exploring qualitative methods of measuring life events (Goodyer, 1990a) further exacerbates this redundancy. Nevertheless, life events research has made a significant contribution in suggesting a possible threshold effect in the relationship between family variables and child adjustment (Rutter, Tizard, & Whitmore, 1970; Sterling, Cowen, Weissberg, Lotyewski, & Boike, 1985). In a threshold model it is assumed that child adjustment becomes associated with family factors when family factors are experienced cumulatively and have exceeded a certain number.

A second measure of stress is chronic economic strain such as poverty (Wertlieb et al., 1987). Campbell, Breaux, Ewing and Szumowski (1986) found that lower social class predicted hyperactivity and aggression in young children who were followed from age 3 through age 6. Welfare dependence was related to behavior problems in children (Sandler & Block, 1979). Continuous measures of socioeconomic status (SES) have yielded similar results. Patterson, Kupersmidt, and Vaden (1990) examined the relationships of low income, gender, household composition, and ethnicity to behavior problems in 868 elementary school children. Income was the second strongest predictor of behavior problems in children ($p < .001$), following gender. An income x gender interaction specified that the relationship between income and behavior problems was

stronger for boys than for girls. Gender, income, household composition, and ethnicity accounted for 20% of the variance in behavior problems. Finally, SES is related to parenting behaviors which predict child adjustment. This also suggests a relationship between economic variables and child adjustment, albeit indirect. Gecas (1979) found SES to be related modestly but consistently to aversive parenting behaviors such as the use of physical punishment. Similarly, Robertson, Elder, Skinner, & Conger (1991) found a positive relationship between economic pressure experienced by men and negativity toward wife and punitiveness toward children.

Issues

Characteristics of parents, their parenting, their marriage, and family stress are related to child adjustment. An important issue is whether it is necessary to include each of the significant family variables reviewed in studying the relationship between family factors and child adjustment. First, certain variables may be excluded if their effects are over-ridden by a third variable. Thus, there is substantial evidence that protracted high marital conflict is associated more strongly with children's problems than is divorce (Cherlin et al., 1991; Goodyer 1990b; Grych & Fincham, 1990; Peterson & Zill, 1986), and that parental antisocial behavior explains the relationship between divorce and child adjustment (Capaldi & Patterson, 1991; Lahey et al., 1988). In addition, family predictors can be selected based on the type of predicted outcome. There is evidence that certain predictors are related more strongly with externalizing outcomes than with internalizing outcomes and vice versa. For example, in the Rochester Longitudinal Study (Sameroff & Seifer, 1983), SES diminished in importance as a predictor of 4-year-old children's socioemotional competence and became a powerful predictor of their cognitive competence. In contrast, maternal psychopathology continued to be a stable predictor of young children's socioemotional competence, making no significant, independent contribution to the prediction of their cognitive competence. In like manner, Fendrich et

al. (1990) found that parental depression was a better predictor of child psychopathology (using DSM-III diagnoses) than family discord, except in the prediction of conduct disorder; parent-child discord predicted conduct disorder better than parental depression. Most importantly, selection of family variables can be based on the amount of variance explained in child adjustment in previous work. Despite the prolific research in this area, substantial amounts of variance have been explained only by a select number of family variables. These variables address aspects of family dysfunction and are parental antisocial personality (e.g., Capaldi & Patterson, 1991), aversive parenting (e.g., Patterson, 1986), and protracted, hostile marital conflict (e.g., Fantuzzo et al., 1991).

Parenthetically, findings like those reported by Fendrich et al. (1990) provide evidence of some level of differentiation in pathways between family factors and child adjustment. It also is important to note there appear to be fewer family variables that predict mostly internalizing problems than externalizing problems and several variables that predict both externalizing and internalizing problems. See Cohen et al. (1990) for a formal test of both differentiated and general prediction of child adjustment from three domains of family variables.

Second to the selection of family variables is the issue of how to conceptualize multiple family factors as they simultaneously relate to child adjustment. There is evidence that multiple, interrelated family variables explain child adjustment. For example, Patterson and Bank (1989) have begun to model interrelationships among mother's antisocial personality, marital problems, maternal stress, and parent-child variables as they relate to coercive family processes and hence child antisocial behavior. There are two possibilities to be explored. First, it is possible that multiple family factors represent an underlying family risk construct. In such a conceptualization, the total risk from the home setting would be indicated by different family variables that have been found salient in past work. This conceptualization assumes simple additiveness of

negative qualities in computing total risk. Contrary to this assumption is the possibility that whether or not a family variable carries a predisposition to problem behavior in children is completely contingent upon its combination with another characteristic of the home. Addition of salient family variables, with or without factor weights, to compute total risk would then provide an incorrect estimation of the impact of family variables. In either case it is critical that multiple family variables are included in research examining the role of the family in explaining child adjustment.

A final point relates to the probabilistic quality of the relationship between family factors and child adjustment. It is safe to conclude that family factors have explained at best 40% of the variance in concurrent child adjustment. Therefore, the prediction of child adjustment from family factors is strong but not perfect. In fact, few studies have been able to explain 40% of the variance in child adjustment. Whereas, poor measurement may be responsible for attenuated strength in some studies, this also implies that given experience of adversity such as marital violence, some children do not manifest problems. For example, the experience of child abuse leads to a threefold increase in the probability of developing problems (Dodge, Bates, & Pettit, 1990). The key idea is that a probability is defined and that not all children will develop problems either concurrently or longitudinally. Thus, the essential quality of family factors as predictors of child adjustment is their capacity for defining risk for the development of problems.

Peer Rejection and Child Adjustment

The school and the peer group are salient contexts in the lives of children (Hartup, 1979). However, the two are not disparate because a significant body of peers is defined by the school experience. In fact, extensive research efforts have been focused on children's peer relationships at school, especially peer rejection (e.g., French & Waas,

1985; Kupersmidt & Coie, 1990; Ladd, 1990). In this section, peer rejection is examined as a predictor of child adjustment.

The interest in peer relationships is relatively new and reflects a paradigmatic shift in the theoretical traditions of child development from psychoanalysis and classic behaviorism to social learning and cognitive-developmental theories (see Rubin, LeMare, & Lollis, 1990; Stevenson, 1983). These later theories suggested the importance of the peer group in development and the exclusive interest in the family was expanded to include the school and the peer group.

Peer Rejection: Definition and Description

The underlying construct in peer rejection is that of success or competence with peers (Dodge, 1985; Sroufe et al., 1990). Peer competence is specified as peer rejection through the use of sociometry which quantifies the attraction between members in a group (Asher & Hymel, 1981). Therefore, peer rejection is defined as how much a child is liked and disliked by peers (at school) and indicates children's success with peers (Asher & Hymel, 1981).² Other than indicating social success, peer rejection is valuable in itself as it qualifies the social experience of a child in the group (Coie, 1990).

Two sociometric procedures have been used to assess peer rejection (Asher & Hymel, 1981). A rating method asks a child to rate each classmate on a one to five scale of likability. Ratings summed across peers provide a measure of acceptability of the child in the group. An alternative method is to ask children to nominate three best liked and three least liked classmates. The peer nomination method generates two scores, a summed like most and summed like least for each child. There is a moderately strong relationship between the two methods ($r = .63$; Hymel & Asher, 1977). However, the peer nomination method is preferred as it differentiates being liked from being disliked.

²Peer rejection is operationalized most frequently in the context of the class group at school (e.g., Coie, Dodge, & Coppotelli, 1982; Kupersmidt & Patterson, 1991).

Being liked (positive nominations) and being disliked (negative nominations) are separate dimensions. Positive and negative nominations are not highly correlated, denoting substantial unshared variance. Gottman (1977) reported a correlation coefficient of $-.30$ between positive and negative nominations. Second, positive and negative nominations have different correlates. For example, in the Kupersmidt and Patterson (1991) study, boys' aggression correlated $.01$ with like most nominations and $.51$ with like least nominations. A classic illustration is provided by Coie et al. (1982). The three strongest correlates of like most nominations were *supports peers*, *physically attractive*, and *cooperative with peers*, with correlation coefficients ranging from $.51$ to $.63$. In contrast, the three strongest correlates of like least nominations were *disrupts the group*, *aggresses indirectly*, and *starts fights*, with correlation coefficients ranging from $.70$ to $.78$.

The issue of bidimensionality is especially important in order to differentiate children who are actively disliked from those whose low-acceptance reflects that they have not made much of an impact on their peers either positive or negative (Coie et al., 1982). Current research has suggested that the two groups, labeled rejected and neglected respectively, differ considerably in both stability (Coie & Kupersmidt, 1983; Dodge, Coie, Pettit, & Price, 1990) and adjustment (Asher, Parkhurst, Hymel, & Williams, 1990; Cole & Carpentieri, 1990; French & Waas, 1985). Rejected children's status is most stable and they exhibit the most behavior problems in direct contrast to neglected children.

Peer rejection has been indexed both as a continuous and categorical variable using peer nomination methodology. Liked most and liked least nominations have been used directly to denote peer acceptance and peer rejection, respectively (e.g., Asarnow, 1988; Kupersmidt & Patterson, 1991). More commonly, liked most and liked least nominations have been used to create children's levels of social preference and social

impact (e.g., Coie et al., 1982). Social preference or the difference score between liked most and liked least nominations was used by itself as the peer rejection concept in some studies (e.g., Ladd, 1990; Strassberg, Dodge, Bates, & Pettit, in press). It has value in that it differentiates between rejected and neglected children and, being a continuous measure, it also indexes the degree of rejection. Finally, sociometric status groups can be created from social preference and social impact scores (Coie et al., 1982). Therefore, in some studies the sociometric status groups of popular, controversial, average, neglected, and rejected were compared on the outcome variable(s) of interest (e.g., Coie & Kupersmidt, 1983; Cole & Carpentieri, 1990; French & Waas, 1985).

A further test of the importance of peer rejection is its independence from other constructs. Interestingly, peer rejection does not overlap completely with a child's friendships in the class group. Ladd (1990) found that social preference in kindergarten correlated .45 with the number of friendships and that social preference incrementally predicted school adjustment beyond the consideration of friendship measures. Mental age correlated .32 with social preference (Ladd, 1990), and achievement test scores correlated .27 with sociometric ratings (Asher, Hymel, & Renshaw, 1984). Again, peer rejection incrementally predicted adjustment even when mental age was held constant (e.g., Ladd, 1990).

The significance of peer rejection also depends on the degree to which it is a stable phenomenon. Asher and Hymel (1981) stated that the stability of sociometric scores parallels that of achievement test scores in elementary school years. Corroboratively, Coie et al. (1982) reported 3-month stability coefficients of .65 for both positive and negative nominations in class groups of 8 to 14 year old children. Hymel, Rubin, Rowden and LeMare (1990) obtained a 3-year stability coefficient of .56 for sociometric ratings measured at grades 2 and 5. How stable is peer rejection in groups of younger children? Stability of negative nominations over the preschool year was found

to be .44 by Olson and Brodfeld (1991). Ladd (1990) found that the stability of social preference over a 6 month period in kindergarten was .62. Lastly, the stability of peer rejection is not consistent across subgroups. Rejected children have been found to be the most stable followed by popular children, with neglected children being best described as unstable (Ollendich, Greene, Francis, & Baum, 1991).

Children are members of more than one group of peers. How generalizable is the peer rejection experienced in one group? Two studies have compared a child's social preference at school with that formed in a play group with unfamiliar peers. Social preference stabilized in new groups (of elementary school children) at the astonishing rate of a few weeks and began to correspond to the status children had acquired in the school context (Coie & Kupersmidt, 1983; Dodge, Coie, Pettit, & Price, 1990). Excluding the first two play group sessions, the correlation between school social preference and play group social preference averaged .65 for 9 to 11 year old boys in the Coie and Kupersmidt (1983) study. Dodge, Coie, Pettit, and Price (1990) obtained a lower cross-setting stability coefficient of .31 with first and third grade boys. There also is data which suggest that the cross-setting consistency in social preference may differ by status groups. Behaviors of rejected children (such as disruptiveness) were most consistent across settings (Coie & Kupersmidt, 1983); and children rejected at school unlike children neglected at school had significantly lower social preference scores in new groups than children with average status in school (Dodge, Coie, Pettit, & Price, 1990). Despite being a group consensus, it appears that the experience of peer rejection is stable across situations for some individuals. Therefore, peer rejection is not just the result of idiosyncratic group dynamics.

Concurrent Prediction of Child Adjustment from Peer Rejection

There is a correlational relationship between peer rejection and child adjustment. Peer rejection is associated positively with behavior problems in children (e.g., French &

Waas, 1985; Hymel et al., 1990). This finding holds constant for children of different ages (e.g., French & Waas, 1985) and for different conceptualizations of peer rejection (e.g., Asarnow, 1988; Ollendich et al., 1991).

Which kinds of problems are associated with peer rejection? Peer rejection predicts both externalizing and internalizing problems concurrently but the prediction of externalizing problems is more robust. Parents have reported that rejected children (as contrasted with popular and neglected children) have significantly more externalizing problems but not internalizing problems with the exclusion of withdrawal (French & Waas, 1985). Teachers have rated rejected children as more aggressive, hostilely withdrawn, and academically disabled than popular or neglected children (French & Waas, 1985; Ollendich et al., 1991). Peers have reported that less accepted children are more aggressive and isolated (Hymel et al., 1990). Finally, low accepted children have reported significantly higher loneliness and social dissatisfaction (Asher et al., 1984). Thus, it can be concluded that peer rejection is associated with aggression and isolation in children.

Is peer rejection associated with a comorbid pattern of externalizing and internalizing problems? Conversely, are externalizing and internalizing problems alternative expressions of psychopathology that are associated with peer rejection? Evidence suggests that peer rejection is associated with having only externalizing problems or comorbid problems but not with only internalizing problems (Asarnow, 1988; Cole & Carpentieri, 1990). In their multi-informant study of fourth grade children, Cole and Carpentieri (1990) found that the occurrence of depression alone was similar for all status groups. However, controversial (children with high scores on both positive and negative peer nominations) and rejected children were disproportionately represented in the conduct disorder only and dual-disturbance groups.

The strength of the relationship between peer rejection and behavior problems ranges from modest (e.g., loneliness; Asher et al., 1984) to relatively high (e.g., aggression; Hymel et al., 1990). However, French and Waas (1985) have noted high standard deviations in the behavior problem scores of rejected children. The magnitude of the relationship and the spread of scores suggested heterogeneity in the manifestation of problems within sociometric status groups (Asher et al., 1984; Asher et al., 1990; French & Waas, 1985). Apparently, not all rejected children manifest problems and some non-rejected do. Olson and Brodfeld (1991) found that the overlap between rejection and behavior problems was 50% at the end of the preschool year. French (1988, 1990) analyzed heterogeneity in rejected boys and girls and found two sub-groups that markedly differed in degree of problems. His findings demonstrated that the behavior problem correlates of rejection are not uniform across subjects; some children are rejected and have multiple problems, others are less deviant.

Which comes first--behavior problems or peer rejection? Whereas this question is pertinent in any correlational research, it represents a theoretical conundrum in the peer rejection literature. Peer rejection is valued as a predictor of behavior problems (Parker & Asher, 1987). Simultaneously, behavioral adjustment is espoused as the major predictor of peer rejection in school (Dishion, 1990; Patterson, 1986). Recent theory clarifies the hypothesized direction(s) of effect. First, the causal and incidental models represent the two different orientations in the study of peer relationships (Parker & Asher, 1987). However, in both models it is recognized that behavior problems antecede peer rejection and that maladjustment follows peer rejection. Second, Coie (1990) outlined a theory of the development of peer rejection. He specified phases in which sociometric status emerges, is maintained, and has consequences. Disruptive behavior is characteristic of the emergent phase, aggression and isolation characterize the maintenance phase, and maintained rejection is related to maladjustment in adolescence

and adulthood. Again, behavior problems are hypothesized as both preceding and following peer rejection.

The case for peer rejection as a predictor of child adjustment would be made stronger if temporal relationships are established empirically. In fact, there are several longitudinal studies examining peer rejection as a predictor of child adjustment.

Longitudinal Prediction of Adjustment from Peer Rejection

There are short-term longitudinal studies that span between 6 months and 3 years (e.g., Hymel et al., 1990; Kupersmidt & Patterson, 1991; Ladd, 1990). Ladd (1990) demonstrated that lower social preference in kindergarten was associated with lowered liking for school (3% of the unique variance), heightened school avoidance (10% of the unique variance), and poorer school performance (6% of the unique variance) 6 months later. Hymel et al. (1990) also reported significant predictive relationships. Acceptability at grade two incrementally predicted 5% of the variance in teacher-rated externalizing problems and 15% of the variance in peer-rated isolation at grade 5.

Short-term longitudinal results prompt two questions: First, does peer rejection predict child adjustment over longer periods of time? Second, does peer rejection predict adjustment in adolescence and adulthood? Parker and Asher (1987) conducted a meta-analysis, testing peer rejection and related behaviors as long-term predictors of three domains of adjustment in adolescence and adulthood--school (dropping out), conduct (adolescent delinquency and adult crime), and mental health. They reported that peer rejection experienced in elementary school years (around age 8-10) foretells dropping out of school and delinquency or adult crime. In comparison with competing predictors, namely aggression and withdrawal, peer rejection was the most robust predictor of school drop-out and the second most robust predictor of adolescent and adult crime. (Contradictory findings characterized predictor-outcome relationships in the area of adult mental health.) It is important to note that these findings were obtained even though

rejected and neglected children were not distinguished in the majority of studies included in the meta-analysis.

Kupersmidt and Coie (1990) followed a sample of 11-year-old children for 7 years. They found that peer rejection predicted general maladjustment indexed by the occurrence of any negative outcome rather than one specific outcome. Kupersmidt and Patterson (1991) followed children in grades 2 through 4 for 2 years. Sociometric status significantly predicted a nonspecific negative outcome in both boys and girls. Rejected boys and both rejected and neglected girls were more likely to be in the clinical range of one of the narrow-band scales (such as aggressive or delinquent) than other children. In addition, peer rejection also served as specific predictor. For example, liked most nominations predicted aggression in boys. There are two reasons for studying peer rejection as a predictor of nonspecific negative outcomes rather than specific outcomes. Statistically, it makes the relationship between peer rejection and later adjustment easier to detect. Otherwise, the relationship between peer rejection and child adjustment may increase or diminish depending upon the specific outcome of interest. Conceptually, this orientation recognizes that a variety of problems are associated with early peer rejection.

With what accuracy does peer rejection earmark children who will later develop problems? Parker and Asher (1987) found that if peer rejection is used as a marker to identify children who will develop problems the ratio of false positive errors is extremely high whereas false negative errors are fewer. Only 10.6% of accepted children developed subsequent problems (rate of false negatives). In contrast, 25.5% of rejected children developed problems and 74.5% did not (rate of false positives). Peer rejection overselects children who may develop problems. Nevertheless, knowledge of peer rejection increases chance prediction of later maladjustment by 35%.³

³This percentage has been calculated from Table 4 titled "*Predictive sensitivity, specificity, and efficacy of significant follow-up findings*" (p.375) of the meta-analysis conducted by Parker and Asher (1987). Note that Parker and Asher cite an incorrect estimate of 25.5% in the text (p. 376).

What will improve the predictive accuracy of peer rejection? Both Coie (1990) and Parker and Asher (1987) emphasize the importance of studying the chronicity of rejection and the quality of extraclassroom relationships. It is a viable hypothesis that children who experience temporary rejection do not continue to manifest problems as do those who experience chronic rejection. It also is possible that some children who are rejected in their school groups do not manifest problems because of the quality of relationships in the home. Hypothetically, individual differences in the adjustment of rejected children may depend on how a child processes social information obtained at home and at school.

Social Problem Solving and Child Adjustment

The third substantive area to be discussed is children's social problem solving. In this section, the social problem solving correlates of child adjustment are reviewed.

In a study of multiple predictors of child adjustment, a case must be made for the inclusion of each construct. How is social problem solving (SPS) justified as a choice in predicting child adjustment? SPS is a child characteristic. Family characteristics and social rejection are factors of the social environment of the child (even given the role of the child in acquiring a rejected status). SPS is a child characteristic directly implicated in but simultaneously independent of the assessment of behavioral outcomes. If thought precedes behavior, then social cognition is the direct antecedent of social behavior. Social-cognitive researchers (see Dodge 1985, 1986) assume that efficient and accurate SPS makes it likely that the child will behave competently and will manifest few problems.

The relationship between social cognition and behavioral adjustment is part of social information processing theory which derives from attribution theory, decision-making theory and information-processing theory, exemplifying a welding between social and cognitive psychologists (Dodge & Crick, 1990).

Exemplary of the social information processing theory is Dodge's (e.g., 1985, 1986) five-step model. Dodge hypothesized that there is a sequence of cognitive actions in solving a social problem, culminating in a behavioral response. A child encodes, interprets, accesses responses, decides, and, enacts a behavioral response. There are individual differences in SPS that covary with the child's competent performance. A competing model is presented by Rubin and Krasnor (1986). Their contribution is in detailing the sequencing of cognitive and behavioral actions past the success or failure of the (first) enacted response.

There is an empirical relationship between SPS (measured as children's cognitive responses to hypothetical situations) and child adjustment. This relationship is dependent on the nature of SPS. In particular, qualitative SPS variables are correlated positively with child adjustment (Evans & Short, 1991; Pelligrini, 1985). In contrast, the number of responses irrespective of quality, has shown an inconsistent relationship to child adjustment (e.g., Fischler & Kendall, 1988; Richard & Dodge, 1982).

Qualitative variables are numerous and are best ordered by Dodge's five-step model, supplemented by Rubin and Krasnor's model. Each qualitative variable measures incomplete or inaccurate processing at one of the steps of information-processing (Dodge, 1986). Encoding variables include degree of cue utilization and use of recency bias (Dodge, 1986). An especially robust interpretation variable is the hostile attribution bias (Dodge & Somberg, 1987). A tendency to over-attribute hostile intent to peer provocateurs has been associated with child aggression, especially affect-driven reactive aggression (Dodge & Crick, 1990).

Response access variables address the quality of multiple solutions. Ratings of appropriateness and effectiveness (Fischler & Kendall, 1988), and proportions of aggressive and competent responses (Dodge, Bates, & Pettit, 1990) are variables that have correlated significantly with child adjustment. An important issue has been the

strength of first versus subsequent responses in predicting child adjustment. In two different studies, only ineffective subsequent responses were associated with aggression and withdrawal (Evans & Short, 1991; Richard & Dodge, 1982). Effectiveness of first responses was unrelated to either outcome.

Potentially important response access variables are embedded in the Waterloo social problem solving studies (Rubin & Krasnor, 1986). For example, they suggested that for intervention it is important to know how much a child depends on a solution as compared to her age cohort. This information also may be valuable in basic research. Another potential variable implied in one of their observational studies is children's adaptability in generating different responses for different social situations. In their naturalistic observations of children matching solutions to problems, they found that no one response was successful in all situations. Thus, it seems disadvantageous to generalize solutions across varied situations.

During the response decision step children make a certain choice because (a) they use a preemptive mode that omits evaluation (see Costanzo & Dix, 1983), or (b) their outcome evaluations for that response are positive, or (c) they feel efficacious in performing that response (Dodge & Crick, 1990). Thus, relevant variables for this step are the nature and extent of outcome evaluation and perceived efficacy. Perry, Perry, & Rasmussen (1986) found support for both as correlates of aggression in 9 to 12 year old children. Children's ability to evaluate appropriateness of responses also is part of this step but Richard and Dodge (1982) found it was unrelated to child adjustment.

The last step of children's SPS (elucidated by Rubin and Krasnor, 1986) is sequencing of solutions past a preliminary failure. Having failed, a child may "give up, repeat, or modify" (Rubin & Krasnor, 1986, p. 26) the chosen response, with the last being most adaptive (Goetz & Dweck, 1980). However, flexibility in sequencing responses remains a construct with equivocal value as there are no clear findings from the

Waterloo studies. Instead of flexible sequencing, a general construct of flexibility (defined as the ability to modify solutions) seems to be more important. In fact, problem solving researchers in the fields of creativity (Torrance, 1968) and intelligence (Guilford, 1971) recognize the crucial role of flexibility. Switching modes of thought aids successful problem solving. Therefore, an important variable with demonstrated utility in related fields and also suggested by Rubin and Krasnor is the number of categories of responses.

In clarifying the relationship between SPS and child adjustment, it is interesting to know whether SPS variables better predict one aspect of child adjustment over another. In general, SPS variables have predicted total problems at school using the Devereux Elementary School Behavior Scale as well as both internalizing and externalizing problems using the CBCL.⁴ In addition, a substantial number of SPS studies (see Dodge & Crick, 1990) have been carried out by researchers interested in child aggression. Therefore, there are SPS variables that best predict child aggression. For example, the use of a recency bias or a hostile attributional bias is typical of aggressive children (Dodge & Crick, 1990). Thus, although SPS variables predict more than one aspect of child adjustment, there are some SPS variables that mostly predict child aggression.

The strength of relationship between SPS variables and child adjustment is moderate with approximately 10 to 20% of the variance in child adjustment explained in any single study. For example, effective subsequent responses explained 7% of the variance in the aggression subscale of the CBCL and 10% of the variance in the withdrawal subscale of the CBCL in the Evans and Short (1991) study. Similarly, seven processing variables explained 9% of the variance in later aggression in a study by Dodge, Bates, and Pettit (1990). Fischler and Kendall (1988) were able to explain 3% of

⁴An exception is Fischler and Kendall's (1988) study in which social problem solving variables did not predict parent-rated externalizing problems on the CBCL.

the variance in each dependent variable. Dodge and Crick (1990) concluded that the relationship between SPS and child adjustment is stable and modest in strength.

It is important to note that SPS predicts child adjustment over and above verbal problem solving and intelligence test scores (Evans & Short, 1991). These data provide support for the discriminant validity of the SPS construct.

A concluding issue addresses the modeling of interrelationships between SPS and other predictor variables explaining child adjustment. The first question is whether SPS and other predictors make separate, independent contributions to child adjustment or whether SPS mediates the relationship between qualities of settings and child adjustment. In a mediation model it is hypothesized that family factors are related to child adjustment primarily via child's SPS, and that consideration of the path from family factors to SPS and (thence) from SPS to child adjustment would make the path from family factors to child adjustment redundant (e.g., Weiss, Dodge, Bates, & Pettit, 1992). Mediation models are valuable in providing a possible explanation of how qualities of relationships in important settings transmit their influence on child adjustment (Pettit, Dodge, & Brown, 1988).

Various tests have been conducted of the role of SPS in mediating the impact of family variables on child adjustment (Downey & Walker, 1989; Pettit et al., 1988). At best, SPS appears to mediate partially externalizing but not internalizing outcomes. Partial mediation implies that family factors have both direct and indirect effects on child adjustment. Dodge, Bates, and Pettit (1990) hypothesized that children's social information processing patterns would mediate the relationship between early child abuse in the family and later aggression at school. Children's social information processing did mediate aggression at school but did not mediate internalizing outcomes. Pettit et al. (1988) demonstrated that the relationship between family variables and children's social skills at school became largely nonsignificant when the relationship between children's

SPS and social skills was considered. In comparison, Pettit, Harrist, Bates, and Dodge (1991) provided limited support for the mediation hypothesis as few correlations were significant within each indirect path. Weiss et al. (1992) studied the relationship between physical discipline, children's SPS, and children's aggression and internalizing problems. SPS partially mediated the relationship between physical disciplining and child aggression; SPS was unrelated to internalizing problems. Moreover, both physical discipline and SPS also made unique direct contributions in predicting aggression. Finally, only the independent effects of SPS were upheld in a study by Downey and Walker (1989). Maltreatment by parents and children's SPS predicted children's aggression separately and directly.

Is there an alternative model that maximizes the contribution of predictors from different domains in explaining child adjustment? Dubow and Tisak (1989) found that SPS moderated the relationship between stressful life events and child adjustment, such that the slope for the relationship between teacher-rated problems and stressful life events was reduced substantially and was close to zero for children with high SPS skills. Moderating effects of SPS and peer support explained 8% of the variance in child adjustment.

The issues of moderator effects, and more generally, the patterning of inter-relationships between predictors of child adjustment are detailed in the next section. The construct of resilience is used to order findings that have been discussed in the areas of the family, peer group, and children's SPS.

Resilience and Child Adjustment

Resiliency research is the study of the processes that explain children's successful adjustment despite the experience of adversity and stress (Garmezy, 1987; Rutter, 1985). Four major contributions of resiliency research in explaining child adjustment, abstracted from key literature in resilience, are elucidated below.

Individual Differences in Child Adjustment

The first major contribution is the recognition that despite a significant relationship between negative life experiences and problem behavior in children, outcomes associated with adversity are quite heterogeneous (Garmezy, 1987; Rutter, 1984, 1985; Rutter, Quinton, & Hill, 1990). Between group differences underemphasize considerable variation within groups. Not all children who have experienced adversity exhibit problems (false positives), and there is a small percentage of children not targeted as having problems who do manifest problems (false negatives). False positive errors greatly exceed false negative errors. The phenomenon of false positives is described as resilience. The construct of resilience demonstrates a concern for adaptation as opposed to maladaptation (Garmezy, 1987). More importantly, resiliency research addresses the broader issue of individual differences in adjustment, i.e., given experience of adversity, who, when and why, will manifest problems (see Rutter, 1989; Sroufe & Rutter, 1984).

Epithets used for resilience are "ubiquitous" and "universal" (see Rutter, 1985; Garmezy, 1987). What evidence is there to back such strong statements? What proportion of children are resilient? Evidence of resilience derives from two sources. First, concurrent relationships between adversity and adjustment are modest in strength (Fergusson, Horwood, & Lawton, 1990; Spanier, 1989). Second, there are estimates of predictive inaccuracy. In following into adulthood children who had experienced disrupted, deviant parenting resulting in institutional care, Rutter et al. (1990) found that 21% had a good outcome, 45% had an intermediate outcome, and 34% had a poor outcome. In the Cambridge Study of Delinquency, boys first contacted at age 8 or 9 were assessed at age 32 (Farrington, Gallagher, Morley, St. Ledger, & West, 1988). Using a general index of social failure at age 32, the rate of false positives was found to be 50%, and the rate of false negatives 20%. In general, between one-third and one-half of the

children who have experienced adversity do not manifest problems (Rutter, 1984, 1985; Werner & Smith, 1982).

The phenomenon of resilience emphasizes individual differences associated with the manifestation of problems. Therefore, predictors of maladjustment should be labeled risk factors (Sameroff & Seifer, 1983), and it would be most helpful to construct the probability estimates of developing problems related to different types of adverse experiences. Fergusson et al. (1990) have demonstrated the importance of this reconceptualization. They obtained a correlation coefficient of .20 between a composite measure of family risk and problems in children. In contrast, the correlation between rate of problems and membership in risk or non-risk group was .42 ($p < .0001$). Rutter reiterates that the strongest relationship found between adversity and related problems is that of heightened susceptibility and that there are no fixed effects.

Finally, it is obvious that the study of heterogeneous outcomes is best addressed by longitudinal research (Rutter, 1988), which then simultaneously is a study of continuities and discontinuities in development (Rutter, 1987).

Identification of Factors from Multiple Contexts

An initial step in explaining individual differences in adjustment (related to the experience of adversity) is to select factors from more than one context. A context is defined as a setting such as the family, neighborhood, and school for a child. The identification and inclusion of factors from multiple contexts is not unique but reinforced in resiliency theory. Resiliency research demonstrates that risk defined in one context can be ameliorated by experiences in another context. For example, girls with positive outcomes following disrupted parenting had had successful school experiences in a study by Rutter and Quinton (1984). These examples illustrate that there are self-righting tendencies in the environment as well as in the child, and that alternative domains of experience become important in canalizing development (see Sameroff & Seifer, 1983).

Modeling Relationships among Factors

There are two different ways of modeling relationships between factors. Main effect models use the additive approach (e.g., Garnezy, Masten, & Tellegen, 1984) whereas moderator models use the interaction approach (e.g., Rutter, 1985). The critical assumption in the main effect model is that a predictor has an effect (on the dependent variable) on its own, i.e. the effect does not have to be catalyzed by the presence of a second variable. Thus, a factor has a beneficial or harmful effect regardless of the qualities of sub-populations. Statistically, such an effect is termed a main effect and must be understood as occurring when other variables are controlled as opposed to absent (see Rutter, 1985). Furthermore, when a set of such predictors is considered, adjustment is explained by the sum total of each unique (partialled) effect.

The critical assumption in the moderator model is that there are no fixed effects associated with a risk factor either concurrently or over time (Rutter, 1985). An expected behavioral outcome, such as behavior problems, is dependent upon the potentiation of the primary relationship between adversity and adjustment by another variable termed a moderator. Therefore, an essential component of this model is interaction wherein one variable potentiates the effect of a second variable (Rutter, 1985, p. 601). Potentiation may occur in one of two ways: (a) the effect of the target predictor may be evident only in the presence of the moderator, or (b) the effect of the target predictor may be substantially increased or decreased in the presence of the moderator (see Cohen & Wills, 1985; Rutter, 1987). Thus adjustment is explained either totally or incrementally by interaction effects between predictors.

Negotiation of Life Changes

Another significant contribution of resiliency research is the finding that opportunities for change in adjustment coincide with developmental shifts in settings and events such as entry into school, or later, entry into marriage and parenthood (see Rutter,

1984, 1985, 1987, 1989). Stability in adjustment is maintained through the likelihood that one negative environment is followed by another or that one positive environment is followed by another positive environment (Rutter, 1984). For instance, it is more probable that children from advantaged homes enter better schools (Rutter, 1989). It also follows that if a link in the chain of probable settings and events is broken, there will be a concomitant change in the trajectory of adjustment (Rutter, 1985, 1989). Rutter et al. (1990) reported that girls institutionalized because of parenting breakdown were significantly more likely to become pregnant as teenagers and marry deviant men than girls who grew up with nondisrupted parenting. At the same time, marriage with a nondeviant, supportive spouse completely ameliorated the relationship between experienced adversity and maladjustment. Amelioration also occurred at an earlier point, i.e. with the experience of success at school. Thus, resilience occurred because of successful negotiation of a life change (Rutter, 1985).

It is critical that protective factors be studied during key changes in settings or events. It is the nature of linkages between settings that lead to amelioration or intensification of risk (Rutter, 1985).

Summary

The contributions of resiliency research in explaining child adjustment are summarized as follows:

1. There are individual differences in adjustment related to the experience of adversity.
2. The first step in explaining individual differences in adjustment is the inclusion of multiple factors, especially from more than one context.
3. Non-additive, interaction relationships between predictors must be considered.

4. Manifestation of long-term problems is dependent upon qualitative links between settings or life changes. Conversely, discontinuity or resilience may result from such a link being broken.

Conclusion

1. Child adjustment is an important dependent construct in child development research. The study of variations in child adjustment reveals the process by which children come to be behaviorally competent and emotionally healthy. The term adjustment underscores the goal of negotiating and flexibly fitting one's behavior to the requirements of the home, school, and other settings.

A child may exhibit both difficulties and competencies in meeting situational requirements. It is important to note that competencies need not be the polar opposites of problem behaviors.

Finally, variations in child adjustment can be conceptualized along the following dimensions: (a) total number of problems and competencies exhibited; (b) broad type of problem behaviors exhibited (i.e. externalizing versus internalizing); (c) intensity of behaviors pertaining to a narrow, specific subtype such as aggression; and, (d) range of problems and competencies restricted to one setting and/or uniform across settings.

2. Compatible with the order in which development proceeds, the first set of factors that explain child adjustment pertain to the family. Whereas, there is a plethora of family variables explaining child adjustment, the greatest variance in child adjustment up-to-date has been explained by parental antisocial personality, coercive family exchanges characterized by inept disciplining, and protracted hostile marital conflict. An important observation is that the experience of some aspect of family dysfunction does not necessitate the manifestation of problems in children. At best the probability that these children will manifest problems is significantly different and higher than that in the total base population. Second, in computing such risk it would be meaningful to consider

multiple family variables simultaneously. Finally, children are in contexts other than their families, and therefore there is a need to change the context used to predict child adjustment.

3. As a child enters school, the governing influence of the home may be moderated by the salience that is acquired by school and the peer group. The school and the peer group are interrelated because a significant body of peers is defined by the school. In fact, the experience of social acceptance and rejection by one's peers at school has been identified as a primary way in which the peer group comes to have meaning for individual adjustment. Therefore, peer rejection constitutes a second area of research explaining child adjustment.

Concurrently, peer rejection is associated with aggression and isolation in children. Longitudinally, peer rejection experienced in elementary school years predicts dropping out of school and delinquency or adult crime. However, it may be best to conceptualize peer rejection as a predictor of any nonspecific negative outcome.

Peer rejection overselects children who may develop problems; about 25.5% of low-accepted children may develop problems as contrasted with 74.5% who may not. More importantly, knowledge of peer rejection increases chance prediction of later maladjustment by 35%.

Three recommendations are made for improving the predictive accuracy of peer rejection. First, it is important to study how chronic the experience of rejection has been. Second, the quality of extraclassroom relationships must be considered. Third, child attributes may be important, particularly children's social problem solving.

4. Both the experience of family dysfunction and peer rejection may be exacerbated or ameliorated depending upon how a child processes social information at home and at school. Therefore, child's social problem solving skills may define the nature of relationship of family or peer factors to child adjustment. More specifically,

overgeneralization of rules may limit a child's ability to succeed in varied contexts. A hostile attribution bias and inflexibly inept responses to social problems may be related to the quality of child adjustment.

5. Resiliency research helps synthesize and evaluate the findings in the three substantive areas of family factors, peer rejection, and the child's social problem solving ability, as they relate to child adjustment. A primary contribution of resiliency research is the finding that the strongest relationship found between adversity and related problems is that of heightened susceptibility. There are no fixed effects. Second, adjustment is best understood longitudinally because long-term well-being is dynamically related to normative and non-normative changes in life situations. The quality of experiences that follow an experience of adversity necessarily moderate any effects of the initial experience.

In underlining that there are individual differences in adjustment related to the experience of adversity, findings from resiliency research compel a researcher to (a) include multiple factors, especially from more than one context, (b) consider non-additive, interaction relationships between predictors, and, (c) construct longitudinal designs that incorporate key changes in settings and events such as the entry into school.

REFERENCES

- Achenbach, T. M. (1985). Assessment and taxonomy of child and adolescent psychopathology. Newbury Park, CA: Sage.
- Achenbach, T. M., & Edelbrock, C. S. (1978). The classification of child psychopathology: A review and analysis of empirical efforts. Psychological Bulletin, 85 (6), 1275-1301.
- Achenbach, T. M., & Edelbrock, C. S. (1981). Behavioral problems and competencies reported by parents of normal and disturbed children aged 4 to 16. Monographs of the Society for Research in Child Development, 46, Serial No. 188.
- Achenbach, T. M., & Edelbrock, C. S. (1984). Psychopathology of childhood. Annual Reviews Psychology, 35, 227-256.
- Achenbach, T. M., & McConaughy, S. H. (1987). Empirically based assessment of child and adolescent psychopathology: Practical applications. Newbury Park, CA: Sage.
- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situation specificity. Psychological Bulletin, 101 (2), 213-232.
- Achenbach, T. M., Verhulst, F. C., Baron, G. D., & Althaus, M. (1987). A comparison of syndromes derived from the Child Behavior Checklist for American and Dutch boys aged 6-11 and 12-16. Journal of Child Psychology and Psychiatry, 28 (3), 437-453.
- Asarnow, J. R. (1988). Peer status and social competence in child psychiatric inpatients: A comparison of children with depressive, externalizing, and concurrent depressive and externalizing disorders. Journal of Abnormal Child Psychology, 16, 151-162.

- Asher, S. R., & Hymel, S. (1981). Children's social competence in peer relations: Sociometric and behavioral assessment. In J. D. Wine & M. D. Smye (Eds.), Social competence (pp. 125-157). NY: Guilford.
- Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. Child Development, 55, 1456-1464.
- Asher, S. R., Parkhurst, J. T., Hymel, S., & Williams, G. A. (1990). Peer rejection and loneliness in childhood. In S. R. Asher & J. D. Coie (Eds.), Peer rejection in childhood (pp. 253-273). NY: Cambridge University Press.
- Baumrind, D. (1973). The development of instrumental competence through socialization. Minnesota Symposia on Child Psychology, 7, 3-46.
- Baumrind, D. (1978). Parental disciplinary patterns and social competence in children. Youth and Society, 9 (1), 239-273.
- Bem, D. J., & Allen, A. (1974). On predicting some of the people some of the time: The search for cross-situational consistencies in behavior. Psychological Review, 81, 506-520.
- Bierman, K. L., & Smoot, D. L. (1991). Linking family characteristics with poor peer relations: The mediating role of conduct problems. Journal of Abnormal Child Psychology, 19 (3), 341-356.
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Ferguson, L. L., & Garipey, J-L. (1989). Growth and aggression: 1. Childhood to early adolescence. Developmental Psychology, 25 (2), 320-330.
- Campbell, S. B., Breaux, A. M., Ewing, L. J., & Szumowski, E. K. (1986). Correlates and predictors of hyperactivity and aggression: A longitudinal study of parent-referred problem preschoolers. Journal of Abnormal Child Psychology, 14 (2), 217-234.

- Campus, N. (1974). Transsituational consistency as a dimension of personality. Journal of Personality and Social Psychology, 29, 593-600.
- Capaldi, D. M., & Patterson, G. R. (1991). Relation of parental transitions to boys' adjustment problems: I. A linear hypothesis. II. Mothers at risk for transitions and unskilled parenting. Developmental Psychology, 27 (3), 489-504.
- Cavell, T. A. (1990). Social adjustment, social performance, and social skills: A tri-component model of social competence. Journal of Clinical Child Psychology, 19 (2), 111-122.
- Cherlin, A. J., Furstenberg Jr., F. F., Chase-Landsdale, P. L., Kiernan, K. E., Robins, P. K., Morrison, D. R., & Teitler, J. O. (1991). Longitudinal studies of effects of divorce on children in Great Britain and the United States. Science, 252, 1386-1389.
- Cohen, P., Brook, J. S., Cohen, J., Velez, C. N., & Garcia, M. (1990). Common and uncommon pathways to adolescent psychopathology and problem behavior. In L. N. Robins & M. Rutter (Eds.), Straight and devious pathways from childhood to adulthood (pp. 242-258). Cambridge: Cambridge University Press.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. Psychological Bulletin, 98 (2), 310-357.
- Coie, J. D. (1990). Toward a theory of peer rejection. In S. R. Asher & J. D. Coie (Eds.), Peer rejection in childhood (pp. 365-401). NY: Cambridge University Press.
- Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: A cross-age perspective. Developmental Psychology, 18 (4), 557-570.
- Coie, J. D., & Kupersmidt, J. B. (1983). A behavioral analysis of emerging social status in boys' groups. Child Development, 54, 1400-1416.

- Cole, D. A., & Carpentieri, S. (1990). Social status and the comorbidity of child depression and conduct disorder. Journal of Consulting and Clinical Psychology, 58 (6), 748-757.
- Costanzo, P. R., & Dix, T. H. (1983). Beyond the information processed: Socialization in the development of attributional processes. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), Social cognition and social development: A sociocultural perspective (pp. 63-81). NY: Cambridge University Press.
- Dishion, T. J. (1990). The family ecology of boys' peer relations in middle childhood. Child Development, 61, 874-892.
- Dodge, K. A. (1985). Facets of social interaction and the assessment of social competence in children. In B. H. Schneider, K. H. Rubin, & J. E. Ledingham (Eds.), Children's peer relations: Issues in assessment and intervention (pp. 3-22). NY: Springer-Verlag.
- Dodge, K. A. (1986). A social information-processing model of social competence in children. In M. Perlmutter (Ed.), Cognitive perspectives on children's social and behavioral development. The Minnesota Symposia on Child Psychology, 18 (pp. 77-125). Hillsdale, NJ: Lawrence Erlbaum.
- Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. Science, 250, 1678-1683.
- Dodge, K. A., Coie, J. D., Pettit, G. S., & Price, J. M. (1990). Peer status and aggression in boys' groups: Developmental and contextual analyses. Child Development, 61, 1289-1309.
- Dodge, K. A., & Crick, N. R. (1990). Social information-processing bases of aggressive behavior in children. Personality and Social Psychology, 16 (1), 8-22.

- Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. M. (1986). Social competence in children. With commentary by J. M. Gottman. Monographs of the Society for Research in Child Development, 51 (2), Serial No. 213.
- Dodge, K. A., & Somberg, D. R. (1987). Hostile attributional biases among aggressive boys are exacerbated under conditions of threats to self. Child Development, 58, 213-224.
- Downey, G., & Walker, E. (1989). Social cognition and adjustment in children at risk for psychopathology. Developmental Psychology, 25 (5), 835-845.
- Dubow, E. F., & Tisak, J. (1989). The relation between stressful life events and adjustment in elementary school children: The role of social support and social problem-solving skills. Child Development, 60, 1412-1423.
- Edelbrock, C. S., & Achenbach, T. M. (1980). A typology of Child Behavior Profile Patterns: Distribution and correlates for disturbed children aged 6-16. Journal of Abnormal Child Psychology, 8 (4), 441-470.
- Edelbrock, C. S., & Achenbach, T. M. (1984). The teacher version of the Child Behavior Profile: I. Boys aged 6-11. Journal of Consulting and Clinical Psychology, 52 (2), 207-217.
- Egeland, B., Kalkoske, M., Gottesman, N., & Erickson, M. F. (1990). Preschool behavior problems: Stability and factors accounting for change. Journal of Child Psychology and Psychiatry, 31 (6), 891-909.
- Evans, S. W., & Short, E. J. (1991). A qualitative and serial analysis of social problem solving in aggressive boys. Journal of Abnormal Child Psychology, 19 (3), 331-340.
- Fantuzzo, J. W., DePaola, L. M., Lambert, L., Martino, T., Anderson, G., & Sutton, S. (1991). Effects of interparental violence on the psychological adjustment and

- competencies of young children. Journal of Consulting and Clinical Psychology, 59 (2), 258-265.
- Farrington, D. P., Gallagher, B., Morley, L., St. Ledger, R. J., & West, D. J. (1988). A 24-year follow-up of men from vulnerable backgrounds. In R. L. Jenkins & W. K. Brown (Eds.), The abandoning of delinquent behavior: Promoting the turnaround (pp. 155-173). NY: Praeger.
- Farrington, D. P., Loeber, R., & van Kammen, W. B. (1990). Long-term criminal outcomes of hyperactivity-impulsivity-attention deficit and conduct problems in childhood. In L. N. Robins & M. Rutter (Eds.), Straight and devious pathways from childhood to adult life (pp. 62-81). Cambridge: Cambridge University Press.
- Fendrich, M., Warner, V., & Weissman, M. M. (1990). Family risk factors, parental depression, and psychopathology in offspring. Developmental Psychology, 26 (1), 40-50.
- Fergusson, D. M., Horwood, L. J., & Lawton, J. M. (1990). Vulnerability to childhood problems and family social background. Journal of Child Psychology and Psychiatry, 31 (7), 1145-1160.
- Fischler, G. L., & Kendall, P. C. (1988). Social cognitive problem solving and childhood adjustment: Qualitative and topological analyses. Cognitive Therapy and Research, 12, 133-153.
- Foster, S. L., & Ritchey, W. L. (1979). Issues in the assessment of social competence in children. Journal of Applied Behavior Analyses, 12 (4), 625-638.
- French, D. C. (1988). Heterogeneity of peer-rejected boys: Aggressive and nonaggressive subtypes. Child Development, 59, 976-985.
- French, D. C. (1990). Heterogeneity of peer-rejected girls. Child Development, 61, 2028-2031.

- French, D. C., & Waas, G. A. (1985). Behavior problems of peer-neglected and peer-rejected elementary-aged children: Parent and teacher perspectives. Child Development, 56, 246-252.
- Garmezy, N. (1987). Stress, competence, and development: Continuities in the study of schizophrenic adults, children vulnerable to psychopathology, and the search for stress-resistant children. American Journal of Orthopsychiatry, 57 (2), 159-174.
- Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. Child Development, 55, 97-111.
- Gecas, V. (1979). The influence of social class on socialization. In W. R. Burr, R. Hill, F. I. Nye, & I. Reiss (Eds.), Contemporary theories of the family (pp. 365-404). NY: Free Press.
- Gesten, E. L. (1976). A Health Resources Inventory: The development of a measure of the personal and social competence of primary-grade children. Journal of Consulting and Clinical Psychology, 44 (5), 775-786.
- Goetz, T. E., & Dweck, C. S. (1980). Learned helplessness in social situations. Journal of Personality and Social Psychology, 39 (2), 246-255.
- Goodyer, I. M. (1990a). Annotation: Recent life events and psychiatric disorder in school aged children. Journal of Child Psychology and Psychiatry, 31 (6), 839-848.
- Goodyer, I. M. (1990b). Family relationships, life events, and child psychopathology. Journal of Child Psychology and Psychiatry, 31 (1), 161-192.
- Gottman, J. M. (1977). Toward a definition of social isolation in children. Child Development, 48, 513-517.
- Gottman, J. M., & Katz, L. F. (1989). Effects of marital discord on young children's peer interaction and health. Developmental Psychology, 25 (3), 373-381.

- Grych, J. H., & Fincham, F. D. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. Psychological Bulletin, 108 (2), 267-290.
- Guilford, J. P. (1971). Some misconceptions regarding measurements of creative talents. Journal of Creative Behavior, 5, 77-87.
- Haddad, J. D., Barocas, R., & Hollenbeck, A. R. (1991). Family organization and parent attitudes of children with conduct disorder. Journal of Clinical Child Psychology, 20 (2), 152-161.
- Hammen, C., Burge, D., & Adrian, C. (1991). Timing of mother and child depression in a longitudinal study of children at risk. Journal of Consulting and Clinical Psychology, 59 (2), 341-345.
- Hammen, C., Burge, D., & Stansbury, K. (1990). Relationship of mother and child variables to child outcomes in a high risk sample: A causal modeling analysis. Developmental Psychology, 26 (1), 24-30.
- Harter, S. (1988). Causes, correlates and the functional role of global self-worth. A life-span perspective. In J. Kolligan and R. Sternberg (Eds.), Perceptions of competence and incompetence across the life-span. New Haven, CA: Yale University Press.
- Hartup, W. W. (1979). The social worlds of childhood. American Psychologist, 34 (10), 944-950.
- Holden, G. W., & Ritchie, K. L. (1991). Linking extreme marital discord, child rearing and child behavior problems: Evidence from battered women. Child Development, 62 (2), 311-327.
- Hops, H. (1983). Children's social competence and skill: Current research practices and future directions. Behavior Therapy, 14, 3-18.
- Hoffman, M. L. (1970). Moral development. In P. H. Mussen (Ed.), Carmichael's Manual of Child Psychology, Vol. 2, 3rd Ed. (pp. 261-359). NY: Wiley.

- Hymel, S., & Asher, S. R. (1977). Assessment and training of isolated children's social skills (ERIC Document Reproduction Service No. ED 136930). Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans.
- Hymel, S., Rubin, K. H., Rowden, L., & LeMare, L. (1990). Children's peer relationships: Longitudinal prediction of internalizing and externalizing problems from middle to late childhood. Child Development, 61 (6), 2004-2021.
- Johnson, S. M., Bolstad, O. D., & Lobitz, G. K. (1976). Generalization and contrast phenomena in behavior modification with children. In E. J. Mash, L. A. Hamerlynck, & L. C. Hanly (Eds.), Behavior modification and families (pp. 160-188). NY: Brunner/Mazel.
- Kohlberg, L., Ricks, D., & Snarey, J. (1984). Child development as a predictor of adaptation in adulthood. Genetic Psychology Monographs, 110, 91-172.
- Kupersmidt, J. B., & Coie, J. D. (1990). Preadolescent peer status, aggression, and school adjustment as predictors of externalizing problems in adolescence. Child Development, 61, 1350-1362.
- Kupersmidt, J. B., & Patterson, C. J. (1991). Childhood peer rejection, aggression, withdrawal, and perceived competence as predictors of self-reported behavior problems in preadolescence. Journal of Abnormal Child Psychology, 19 (4), 427-449.
- Ladd, G. W. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment. Child Development, 61, 1081-1100.
- Lahey, B. B., Hartdagen, S. E., Frick, P. J., McBurnett, K., Connor, R., & Hynd, G. W. (1988). Conduct disorder: Parsing the confounded relation to parental divorce and antisocial personality. Journal of Abnormal Psychology, 97, 334-337.

- Langer, J. (1969). Theories of development. NY: Holt, Rinehart, & Winston.
- Loeber, R., & Dishion, T. J. (1984). Boys who fight at home and school: Family conditions influencing cross-setting consistency. Journal of Consulting and Clinical Psychology, 52 (5), 759-768.
- Loeber, R., Green, S. M., & Lahey, B. B. (1990). Mental health professionals' perception of the utility of children, mothers, and teachers as informants on childhood psychopathology. Journal of Clinical Child Psychology, 19 (2), 136-143.
- Lorion, R. P., Cowen, E. L., & Caldwell, R. A. (1975). Normative and parametric analyses of school maladjustment. American Journal of Community Psychology, 3 (4), 291-301.
- Luthar, S. (1991). Vulnerability and resilience: A study of high-risk adolescents. Child Development, 62, 600-616.
- Lytton, H. (1990). Child and parent effects in boys' conduct disorder: A reinterpretation. Developmental Psychology, 26 (5), 683-697.
- McFall, R. M. (1982). A review and reformulation of the concept of social skills. Behavioral Assessment, 4, 1-35.
- Ollendich, T. H., Greene, R. W., Francis, G., & Baum, C. G. (1991). Sociometric status: Its stability and validity among neglected, rejected, and popular children. Journal of Child Psychology and Psychiatry, 32 (3), 525-534.
- Olson, S. L., & Brodfeld, P. L. (1991). Assessment of peer rejection and external behavior problems in preschool boys: A short-term longitudinal study. Journal of Abnormal Child Psychology, 19 (4), 493-503.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? Psychological Bulletin, 102 (3), 357-389.

- Patterson, C. J., Kupersmidt, J. B., & Vaden, N. A. (1990). Income level, gender, ethnicity, and household composition as predictors of children's school-based competence. Child Development, 61, 485-494.
- Patterson, G. R. (1976). Parents and teachers as change agents: A social learning approach. In D. Olson (Ed.), Treating relationships. Lake Mills, IA: Graphic Press.
- Patterson, G. R. (1986). Performance models for antisocial boys. American Psychologist, 41 (4), 432-444.
- Patterson, G. R., & Bank, L. (1989). Some amplifying mechanisms for pathologic processes in families. In M. R. Gunnar & E. Thelen (Eds.), Minnesota Symposia on Child Psychology, Vol. 22 (pp. 167-209). Hillsdale, NJ: Erlbaum.
- Patterson, G. R., Dishion, T. J., & Bank, L. (1984). Family interaction: A process model of deviancy training. Aggressive Behavior, 10, 253-267.
- Pelligrini, D. S. (1985). Social cognition and competence in middle childhood. Child Development, 56, 253-264.
- Perry, D. G., Perry, L. C., & Rasmussen, P. (1986). Cognitive social learning mediators of aggression. Child Development, 57, 700-711.
- Peterson, G. W., & Rollins, B. C. (1987). Parent-child socialization. In M. B. Sussman & S. K. Steinmetz (Eds.), Handbook of marriage and the family (pp. 471-507). NY: Plenum Press.
- Peterson, J. L., & Zill, N. (1986). Marital disruption, parent-child relationships, and behavior problems in children. Journal of Marriage and the Family, 48, 295-307.
- Pettit, G. S., & Bates, J. E. (1989). Family interaction patterns and children's behavior problems from infancy to 4 years. Developmental Psychology, 25 (3), 413-420.

- Pettit, G. S., Dodge, K. A., & Brown, M. M. (1988). Early family experience, social problem solving patterns, and children's social competence. Child Development, 59, 107-120.
- Pettit, G. S., Harrist, A. W., Bates, J. E., & Dodge, K. A. (1991). Family interaction, social cognition, and children's subsequent relations with peers at kindergarten. Journal of Social and Personal Relationships, 8, 383-402.
- Ramsey, E., Patterson, G. R., & Walker, H. M. (1990). Generalization of the antisocial trait from home to school settings. Journal of Applied Developmental Psychology, 11, 209-223.
- Richard, B. A., & Dodge, K. A. (1982). Social maladjustment and problem-solving in school-aged children. Journal of Consulting and Clinical Psychology, 50, 226-233.
- Robertson, E. B., Elder Jr., G. H., Skinner, M. L., & Conger, R. D. (1991). The costs and benefits of social support in families. Journal of Marriage and the Family, 53, 403-416.
- Rollins, B. C., & Thomas, D. L. (1979). Parental support, power, and control techniques in the socialization of children. In W. R. Burr, R. Hill, F. I. Nye, & I. Reiss (Eds.), Contemporary theories about the family (pp. 317-364). NY: Free Press.
- Rubin, K. H., & Krasnor, L. R. (1986). Social-cognition and social behavioral perspectives on problem solving. In M. Perlmutter (Ed.), Cognitive perspectives on children's social and behavioral development. The Minnesota Symposia on Child Psychology, Vol. 18 (pp. 1-68). Hillsdale, NJ: Lawrence Erlbaum.
- Rubin, K. H., LeMare, L. J., & Lollis, S. (1990). Social withdrawal in childhood: Developmental pathways to peer rejection. In S. R. Asher & J. D. Coie (Eds.), Peer rejection in childhood (pp. 217-249). NY: Cambridge University Press.
- Rutter, M. (1984). Resilient children. Psychology Today, March, 57-65.

- Rutter, M. (1985). Resilience in the face of adversity. Protective factors and resistance to psychiatric disorder. British Journal of Psychiatry, 147, 598-611.
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. American Journal of Orthopsychiatry, 57 (3), 316-331.
- Rutter, M. (1988). Longitudinal data in the study of causal processes: Some uses and some pitfalls. In M. Rutter (Ed.), Studies of psychosocial risk: The power of longitudinal data (pp. 1-44). Cambridge: Cambridge University Press.
- Rutter, M. (1989). Pathways from childhood to adult life. Journal of Child Psychology and Psychiatry, 30 (1), 23-51.
- Rutter, M., & Quinton, D. (1984). Long-term follow-up of women institutionalized in childhood: Factors promoting good functioning in adult life. British Journal of Developmental Psychology, 18, 225-234.
- Rutter, M, Quinton, D, & Hill, J. (1990). Adult outcome of institution-reared children: Males and females compared. In L. N. Robins & M. Rutter (Eds.), Straight and devious pathways from childhood to adulthood (pp. 135-157). Cambridge: Cambridge University Press.
- Rutter, M., Tizard, J., & Whitmore, K. (1970). Health education and behavior. London: Longmans.
- Sameroff, A. J., & Seifer, R. (1983). Family risk and child competence. Child Development, 54, 1254-1268.
- Sandler, I. N., & Block, M. (1979). Life stress and maladaptation of children. American Journal of Community Psychology, 7, 425-440.
- Spanier, G. B. (1989). Bequeathing family continuity. Journal of Marriage and the Family, 51, 3-13.
- Sroufe, L. A. (1979). The coherence of individual development. Early care, attachment, and subsequent developmental issues. American Psychologist, 34 (10), 834-841.

- Sroufe, L. A., Egeland, B., & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual adaptation in childhood. Child Development, 61, 1363-1373.
- Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. Child Development, 55, 17-29.
- Sterling, S., Cowen, E. L., Weissberg, R. P., Lotyewski, B. S., & Boike, M. (1985). Recent stressful life events and young children's school adjustment. American Journal of Community Psychology, 13, 87-98.
- Stevenson, H. (1983). How children learn--the quest for a theory. In P. H. Mussen (Ed.), Handbook of Child Psychology, Vol I. History, theory, and methods (pp. 213-236). NY: Wiley.
- Strassberg, Z., Dodge, K. A., Bates, J. E., & Pettit, G. S. (in press). The relation between parental conflict strategies and children's sociometric standing in kindergarten. Merrill Palmer Quarterly.
- Straus, M. A., & Tallman, I. (1971). SIMFAM: A technique for observational measurement and experimental study of families. In J. Adous, T. Condon, R. Hill, M. A. Straus, & I. Tallman (Eds.), Family problem solving (pp. 379-438). Hinsdale, Ill.: Dryden Press.
- Thomas, D. L., Gecas, V., Weigert, A. J., & Rooney, E. (1984). Family socialization and the adolescent. Lexington, Mass.: D. C. Heath.
- Torrance, E. P. (1968). Examples and rationales of test tasks for assessing creative abilities. Journal of Creative Behavior, 2, 165-177.
- Wahler, R. G., & Dumas, J. E. (1986). "A chip off the old block": Some interpersonal characteristics of coercive children across generations. In P. Strain (Ed.), Children's social behavior: Development, assessment, and modification (pp. 49-91). NY: Academic Press.

- Weiss, B., Dodge, K. A., Bates, J. E., & Pettit, G. S. (1992). Some consequences of early harsh discipline: Child aggression and a maladaptive social information processing style. Child Development, 63, 1321-1335.
- Werner, E. E., & Smith, R. S. (1982). Vulnerable but invincible. A longitudinal study of resilient children and youth. NY: McGraw-Hill.
- Wertlieb, D., Weigel, C., & Feldstein, M. (1987). Stress, social support, and behavior symptoms in middle childhood. Journal of Clinical Child Psychology, 16, 204-211.
- Wine, J. D. (1981). From defect to competence models. In J. D. Wine & M. D. Smye (Eds.), Social competence (pp. 3-35). NY: Guilford.

APPENDIX B

EXPLANATION OF THE USE OF ACHENBACH MEASURES IN THIS STUDY

The treatment of the Teacher Report Form (TRF; Achenbach, 1991b) and the Child Behavior Checklist (CBCL; Achenbach, 1991a) to derive child adjustment scores differed from normed procedures in the following ways:

1. A few items were deleted to remove content overlap with the predictor variable--peer rejection. Three items from the competence scale of the CBCL were deleted from the computation of mother-rated competencies score: (a) Item V1, *About how many close friends does your child have?* (b) Item V2, *About how many times a week does your child do things with them?* (c) Item VIb, *Compared to other children of his/her age, how well does your child get along with other children?* Item 25 (*Doesn't get along with other pupils*) and item 48 (*Not liked by other children*) in both the TRF and the CBCL were deleted from the computation of the externalizing problem score.

2. The following items were not used to compute the teacher-rated competencies score: Item 2, *Is the child in a special class?*, item 3, *Has the child ever repeated a grade?*, and item 4, *Has the child any academic or other problems in school?*-- (a) *academic/school readiness* (b) *social/behavioral* (c) *health* (d) *other*--*When did these problems start? Have these problems ended?* These items overlapped with the measurement of problem behaviors in children.

3. In computing competence scores, Achenbach (e.g., 1991a) does not treat each item as having equal weight. First, the range of values possible for an item differ across items on the scale. Second, some items are summed and the mean score of the multiple items is used to compute the final competence score. (For example, three items measuring how well a child gets along/behaves well with siblings, friends, and parents are averaged.) This weighting scheme lowered reliability coefficients drastically (for mother-rated

competencies) and therefore in this study the competencies scores are based on non-averaged, standardized items. The correlation coefficients between a competencies score computed using non-averaged, standardized items and a competencies score computed using averaged, unstandardized items were as follows: $r = .99$ ($p < .01$) for teacher-rated competencies and $r = .91$ ($p < .01$) for mother-rated competencies. Cronbach's alphas for competencies scores based on non-averaged, standardized items were much improved.

4. Generally, in computing behavior problem scores, raw scores are converted into t scores. As two items were deleted from the computation of externalizing problem scores, the conversion to t scores was no longer meaningful. Therefore, raw scores were used in this study. The correlation coefficients between raw scores and t scores obtained in this sample were as follows: $r = .93$ ($p < .01$) for teacher-rated externalizing problems and $r = .97$ ($p < .01$) for mother-rated externalizing problems.¹

¹T scores are based on all items.

APPENDIX C

MULTIPLE-ITEM SCALES USED IN THE STUDY TO MEASURE FAMILY VARIABLES

Scale I: Non-hitting Aversive Parent Behaviors

Source: Parent questionnaire data--The Conflict Tactics Scale (CTS; Straus, 1979).

Agent(s): Mother report on herself and her husband, father report on himself and his wife.

Time referenced: (a) Child's birth to age 4. (b) Child's age 4 to 5.

Items (pertaining to parent-child conflict):

1. Yelled, insulted or swore at your child.
2. Threw, smashed, hit or kicked an object.
3. Threw something at your child.
4. Pushed, grabbed, or shoved your child.

Scale: 0 = never

1 = less than once a month

2 = once a month

3 = more than once a month

Computation/transformation of raw data:

(a) Responses were recoded to a '0 to 3' scale to make Cohort 1 and Cohort 2 data comparable.

(b) For each item the maximum value reported by either agent for self or spouse for either time period was chosen as the response. (Negative behavior tends to be underreported; the aim was to measure the highest manifestation of a risk variable. This method is endorsed by the developers of the CTS [see Strassberg, Z., Dodge, K. A., Bates, J. E., & Pettit, G. S., press]).¹

(c) Items were summed to form a scale score.

Reliability coefficient: .69.

¹Strassberg, Z., Dodge, K. A., Bates, J. E., & Pettit, G. S. (in press). The relation between parental conflict strategies and children's sociometric standing in kindergarten. Merrill-Palmer Quarterly.

Scale II: Use of Physical Punishment

Source: Parent interview data.

Agent(s): Mother, father (interviewees).

Time referenced: (a) Child's age 1 to 4. (b) Child's age 4 to 5.

Items:

1. Age 1 to 4: whether child was physically punished.
2. Age 1 to 4: frequency of physical punishment.
3. Age 1 to 4: usual form of administering physical punishment.
4. Age 1 to 4: most intense form of administering physical punishment.
5. Age 1 to 4: certainty rating for physical injury to child.
6. Age 4 to 5: whether child was physically punished.
7. Age 4 to 5: frequency of physical punishment.
8. Age 4 to 5: usual form of administering physical punishment.
9. Age 4 to 5: most intense form of administering physical punishment.
10. Age 4 to 5: certainty rating for physical injury to child.

Original Scales Before Standardization:

Items 1 and 6: 0 = no

1 = yes

Items 2 and 7: 0 = rarely

1 = occasionally

2 = nearly monthly

3 = nearly weekly

4 = nearly daily

Items 3, 4, 8, and 9: 0 = not physically punished

1 = mild, hand on clothed area

2 = hand on bare skin

3 = object on clothes

4 = object on bare skin

Items 5 and 10: 1 = definitely not

2 = probably not

3 = suspected, possible

4 = probably occurred

5 = authorities involved

Computation/transformation of raw data:

(a) Cohort 1 data recoded on items 2 and 7 to make comparable with Cohort 2 data.

(b) The higher value of the two reported (mother and father) taken to represent the true value.

(c) Items were standardized to give equal weight to each item.

(d) Standardized items were summed to form a scale score.

Reliability coefficient of scale: .83.

Scale III: Marital Conflict

Source: Parent questionnaire data--The Conflict Tactics Scale (CTS; Straus, 1979).

Agent(s): Mother report on herself and her husband, father report on himself and his wife.

Time referenced: (a) Child's birth to age 4. (b) Child's age 4 to 5.

Items (pertaining to inter-spousal conflict):

1. Yelled, insulted or swore at your spouse.
2. Sulked and/or refused to talk about it.
3. Stomped out of the room or house.
4. Threatened to hit or throw something at your spouse.
5. Threw something at your spouse.
6. Pushed, grabbed, or shoved your spouse.
7. Hit or tried to hit spouse, but not with anything.
8. Hit or tried to hit with something.

Scale: 0 = never

1 = less than once a month

2 = once a month

3 = more than once a month

Computation/transformation of raw data:

(a) Responses were recoded to a '0 to 3' scale to make Cohort 1 and Cohort 2 data comparable.

(b) For each item the maximum value reported by either agent for self or spouse for either time period was chosen as the response.

(c) Items were summed to form a scale score.

Reliability coefficient: .90.

APPENDIX D
ORIGINAL INSTRUMENTS USED TO CREATE FAMILY VARIABLE SCALES

PARENT INTERVIEW FORM

Parent's Name _____ Interviewer _____
Subject's Number _____ Date _____
Mother/Father/Other _____

Home Visit Interview - Developmental History¹

I'd like to talk to you about _____'s experiences with family and friends. I will be asking you to think about three "eras": _____'s first year, then years 1 to 4, and finally, the past year. My questions will cover a range of topics and some question might sound dumb, irrelevant or be hard to answer. I hope they're not too hard, but remember, if you don't want to answer something that's okay. (Okay? Check for understanding.)

(Start the conversational ball rolling by talking about the children in the family. Use this as a time to establish the conversation and the pace of the questions. Allow and encourage the parent to talk but keep the focus on the questions. Prompt and request elaboration but be ready to move on if the parent meanders or balks.)

I. Let's start with who is in your family. Describe each child in a few sentences.

Child's Name	Sex	Age	Comments*
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

*Comments: Be sure to note whether the child was present during the visit, lives at this home on a regular basis, is a step or half sibling to the target child, and any thing else that seems notable.

(After a brief discussion of the children, orient the parent to the time of the target child's birth and the first year.)

II. We'd like to get a history of _____'s development. Think back to the time when (the mother) was pregnant with _____, and that first year after birth.

¹This is the form used with Cohort 1 subject families. The following year for Cohort 2 this form underwent some change; a few items were added and the coding scheme on some items was redevise.

1. What were the pregnancy, birth, and first few months like ? (Probe if necessary.)

a. Child's health: Healthy 1 Minor/brief 2 Major 3

b. Mother's health: Healthy 1 Minor/brief 2 Major 3

c. Planfulness of pregnancy:

Planned 1 Unplanned, but 2 Unplanned, but 3 Unplanned, 4
under discussion accepted unprepared

d. Marital status:

Married to current Married to other No partner,
partner 1 partner 2 unmarried 3

2. What was that first year like for the family?

easy 1 mostly easy 2 mostly hard 3 hard 4

a. Mother working: No 0 Yes, where _____

full time, full time, part time, part time,
8-12 MOs 4 < 8 MOs 2 8-12 MOs 3 < 8 MOs 1

b. Father working: No 0 Yes, where _____

full time, full time, part time, part time,
8-12 MOs 4 < 8 MOs 2 8-12 MOs 3 < 8 MOs 1

c. General family situation:

disorganized varied over generally
disrupted 1 year 2 smooth 3

d. Child's behavior/ease of care:

easy 1 mostly easy 2 mostly hard 3 hard 4

e. Child in daycare, approximate number of hours in nonparental care. (Get as specific a number as possible, write that number in the space).

none 0

8-12 MOs: 30+ Hs 6 20-30 Hs 5 < 20 Hs 4

< 7 MOs: 30+ Hs 3 20-30 Hs 2 < 20 Hs 1

Rating 1: Family's adjustment to infant in first year. Considering all information above, how much disruption did the arrival of child cause for the family?

1	2	3	4	5
entire year disrupted	minimal adjustment	eventual or variable	minimal disruption	easy, pleasurable incorporation

3. Anything else notable about _____'s first year? (To wrap era.)

0 = nothing mentioned

1 = mostly positive changes

2 = moderately stressful

3 = things mentioned

4 = major stressors

III. **Let's move forward. Now think about the time from the end of that first year to about a year ago. (Give referents depending on time of interview). This covers when _____ was a toddler and a preschooler; age one year to 4-4 1/2 years.

4. Were you (still) working? No 0 Yes, where _____

full time: > 3 Ys 4 2-3 Ys 3 1-2 Ys 2 < 1 yr. 1

part time: > 3 Ys 4 2-3 Ys 3 1-2 Ys 2 < 1 yr. 1

(Note: For more than one job within 4a or 4b, sum to total time employed.)

5. Was spouse (still) working? No 0 Yes, where _____

full time: > 3 Ys 4 2-3 Ys 3 1-2 Ys 2 < 1 yr. 1

part time: > 3 Ys 4 2-3 Ys 3 1-2 Ys 2 < 1 yr. 1

6. Who were _____'s main caregivers during this time?

(Interviewer: Use scale to indicate amounts of time, put number in blank for all indicated arrangements. Note specifics where possible. Also, ask why parent chose arrangements, as needed for rating #5.)

0 = not in this type of care

1 = brief care; fewer than 6 MOs or less than once a month over era

2 = moderate; 6-18 MOs or less than once a week over era

3 = frequent; 5-20 Hs/wk for more than 18 MOs, or once a week over era

4 = major; > 20 Hs/wk for more than 18 mos.

(Note: If in a given type of care more than once, sum total time and reevaluate 0-4 rating.)

In home

- a. Mother _____
- b. Father _____
- c. Older siblings _____
- d. Relative comes in _____
- e. Sitter comes in _____
- f. Other (specify) _____

Out of home

- a. Goes to relative _____
- b. Small group sitter _____
- c. Group daycare _____
- d. Preschool (structure) _____
- e. Neighbors _____
- f. Other (specify) _____

Rating 2: Is care provided by a stable, predictable set of caregivers of adequate ability?

1	2	3	4	5
inadequate, chaotic		variable, sometimes organized		stable, well- organized

****Tell me about _____'s involvement with other kids.**

7. As a toddler, how often was _____ around other kids? (Had opportunities to play and interact with nonsiblings; estimated average hours per week; consider all contacts.)

Ys 1 to 2 1/2:	40+ Hs/wk 5	25-40 4	15-25 3	5-15 2	< 5 1
2 1/2 to 4 1/2:	40+ Hs/wk 5	25-40 4	15-25 3	5-15 2	< 5 1

8. What kinds of situations? (0 = no contact, 1 = mentioned, 2 = more than one distinct situation of this type)

- a. neighborhood kids _____
- b. daycare home _____
- c. preschool _____
- d. play group, Sunday School, etc. _____
- e. family gatherings _____
- f. kids of parents' friends _____
- g. other _____

(Note: For playgroup, include any classlike group situation, semi-regular, that may occur weekly or less often, or more often [e.g., dance class, boys club, day camp].)

9. Has _____ been around any children you would consider to be aggressive? (Probe for details if needed.)

when: none 0 briefly 1 some 2 often 3

who (coded 0 = not mentioned, 1 = mentioned, 2 = mentioned more than once):

- a. neighbor _____
- b. daycare/school _____
- c. friend _____
- d. relative _____
- e. other _____

10. Did _____ have any playmates he/she played with a lot?

no one	moderately stable	highly stable,
specific <u>0</u>	and/or frequent <u>1</u>	familiar <u>2</u>

11. (If yes to #10.) How did _____ usually get along when playing with those playmates?

	withdraws,	conflicts	conflicts	
no	avoids	easily	required	
conflicts <u>1</u>	conflicts <u>3</u>	resolved <u>4</u>	intervention <u>5</u>	other <u>2</u>

(Note: Keep a list of "other" responses.)

Rating 3: Peer stability--potential for friendship and familiarity.

1	2	3	4	5
high turnover,		some		stable,
variable		variability		familiar group

Rating 4: Peer quantity--combine number of contacts with number of kids per contact.

1	2	3	4	5
isolated		moderate,		frequent,
opportunities		varied frequency		numerous

Rating 5: Parent's monitoring of peer experience. Parent's free expression of awareness and concern about the child's social situations and a willingness to use such considerations to structure the child's experiences. (Consider items 6-11.)

1	2	3	4	5
aware, but	no concerns	inconsistent	consistently	consistently
no action,	expressed	awareness	aware, some	aware and
didn't care		and action	action	acting

****The toddler and preschool stages are times when kids change a lot and can enjoy more independence. This can be a trying time for parents.**

12. Were these years easy times or difficult times for _____?

easy 1 mostly easy 2 mostly hard 3 hard 4

13. What did _____ do that required discipline? (What kinds of misbehavior?)

(Code 0 = not mentioned, 1 = mentioned)

- a. acts against people _____
- b. acts against property _____
- c. general resistance _____
- d. personal danger _____
- e. breaking other rules _____
- f. other _____

14. Who usually disciplined or dealt with _____'s misbehavior? (Most frequent disciplinarian.)

Mom 1 Dad 2 Both 3 Other 4

15. What about when both parents were home?

Mom 1 Dad 2 Both 3 Other 4

16. How was _____ disciplined? (How did you react to the misbehavior?)

(Code 0 = not mentioned, 1 = mentioned.)

- a. isolate _____
- b. withdraw privileges _____
- c. talk to _____
- d. scold _____
- e. yell _____
- f. grab/shake _____
- g. spank _____
- h. other _____

16a. (If spanked/physical punishment not mentioned.) Was _____ ever spanked or physically punished?

No 0 Yes 1

17. (If physical punishment was used.) How often was ____ spanked or physically punished? (Slapped, swatted, grabbed, cuffed, etc.) 0 = never

		nearly	nearly	nearly
rarely 1	occasionally 2	monthly 3	weekly 4	daily 5

18. (If physically punished.) How did you usually spank ____ ? (Probe gently for how punishment was administered.)

a. usual form of administering physical punishment.

b. most intense form of administering physical punishment.

0 = not spanked or physically punished

1 = mild, hand on clothed area

2 = hand on bare skin

3 = object on clothes

4 = object on bare skin

19. Do you remember any times when _____ was disciplined severely enough that he/she may have been hurt? (Left a mark, bruised, or otherwise harmed?)

No 0

Minor 1

Major 2

20. Did you ever worry that you or someone else may have harmed ____ ? (Probe for agency involvement, removal of child, etc., if necessary.)

0 = nothing

1 = minor concern, unspecific

2 = concerned, possible harm by family member

3 = definite harm by nonfamily member

4 = definite harm by family member

21. All families have conflicts. What kinds of family strife and violence was ____ exposed to during this time, either within or outside the family? (Shouting, physical fights, pushing--between parents, or parents and children. If necessary, probe for child's witnessing such events or agency involvement. Also, you may need to probe for description of arguments.)

Not coded; item encompassed in Ratings 8 and 9.

Rating 6: Restrictive discipline. Parent's use of physical or restrictive discipline; non-restrictive can include physical control, for example when the child is in danger.

1	2	3	4	5
non-restrictive, mostly positive guidance		generally moderate, sometimes physical		severe, strict, often physical

Rating 7: Physical harm. Rater's certainty about whether or not the target child has been severely harmed.

1	2	3	4	5
definitely not	probably not	suspected, possible	probably occurred	authorities involved

Rating 8: Exposure to violence. Severity of violence child has observed outside the parental dyad. (Need not be restricted to immediate family. Include neighbors, other family members, friends, etc..)

1	2	3	4	5
none	mild verbal	major verbal	mild physical, major verbal	physical, more than once

Rating 9: Conflicts with partner. Severity of conflicts between partners. (Note any agency involvement.)

1	2	3	4	5
rarely even shout	mild verbal arguments	major verbal	mild physical, major verbal	physical more than once

22. What changes or adjustments occurred during this time? (Prompt from list, get approximate dates.)

(Code each 0 = no, 1 = mentioned, mild, 2= mentioned more than once, moderate to severe.)

- | | |
|----------------------------------|--------------------------------|
| a. moved/major remodel _____ | g. financial instability _____ |
| b. medical problems: child _____ | h. legal problems _____ |
| c. medical : close family _____ | i. stress/conflicts |
| d. death: important person _____ | in extended family _____ |

- e. divorce/separation _____
 child's parents _____
- j. sibling additions/deletions _____
- k. other _____
- f. parent-child separation _____

23. How did these changes affect _____? (Did she/he react negatively to anything specific?)

no impact 0 mild impact 1 moderate 2 severe 3

24. Did you have chances to get out and do things you wanted?

none 0 some 1 often 2 as desired 3

25. In what ways was your spouse helpful to you during this time? (Probe for helpfulness and emotional support, if necessary; mark one for each. No partner, code = 0.)

Help: none, when did own pitched in
 minimal 1 asked 2 chores 3 spontaneously 4

Support: minimal, good,
 none 1 tolerant 2 moderate 3 strong 4

26. In what ways were you helpful to your spouse? (Probe as above, if necessary, and mark one for each. No partner, code = 0.)

Help: none, when did own pitched in
 minimal 1 asked 2 chores 3 spontaneously 4

Support: minimal, good,
 none 1 tolerant 2 moderate 3 strong 4

27. What friends or relatives were available to you (to spend time with--on the phone or in person)? (Note approximate number.)

0 = no one specific

1 = one or two specific people mentioned

2 = three or four specific people mentioned

3 = more than four specific people mentioned

28. When you wanted a shoulder to cry on, or needed to let off steam who (if anyone) did you turn to? (Mark all. Probe "anyone else?") (Code each 0 = not mentioned, 1 = mentioned, 2 = more than one of this type.)

- | | |
|------------------|----------------------------|
| a. none _____ | e. friend _____ |
| b. spouse _____ | f. clergy/therapist _____ |
| c. sibling _____ | g. God/meditate/pray _____ |
| d. parent _____ | h. other _____ |

29. How were these people or the time you spent with them helpful? (How supportive were they?) (Code each 0 = not mentioned, 1 = mentioned, 2 = emphasized.)

- a. listened/shared _____
- b. gave needed advice _____
- c. intervened/gave help _____
- d. other _____

Rating 10: Social contact. Parent's sense of having support and contact with people.

Note that normal support includes expressing some sense of isolation. (Consider items 22-27.)

1	2	3	4	5
very isolated	somewhat isolated	normal support	well supported	very well supported

Rating 11: Stress. Extent of parent's report about stressful, challenging events in this era.

1	2	3	4	5
minimal challenge		moderate		severe frequent challenges

Rating 12: Coping. Parent's expression of a sense of control and resolution regarding life's challenges. (Items 20-27, based on parent's description of events.)

1	2	3	4	5
overwhelmed or obviously dissociated	somewhat flustered, detached	variable, but generally adequate	took most in stride	took in stride

30. Anything else notable happen before a year ago? (Anything else you'd like to add?)
(To wrap up era.)

0 = nothing

1 = mostly positive things mentioned

2 = moderately stressful things mentioned

3 = major or severe stress(ors) mentioned, emphasized, reiterated

IV. **Now let's talk about the past year. (From / date / to now.)

31. Are you (still) working? No 0 Yes, where _____

full time,	full time,	part time,	part time,
8-12 MOs <u>4</u>	< 8 MOs <u>2</u>	8-12 MOs <u>3</u>	< 8 MOs <u>1</u>

32. Is your spouse (still) working? No 0 Yes, where _____

full time,	full time,	part time,	part time,
8-12 Ms <u>4</u>	< 8 MOs <u>2</u>	8-12 MOs <u>3</u>	< 8 MOs <u>1</u>

33. Who have been _____'s main caregivers this past year?

(Interviewer: Use scale to indicate amounts of time, put number in blank for all indicated arrangements. Note specifics where possible. Also, ask why parent chose arrangements, as needed for rating #16.)

1 = brief care; less than once a week or anything lasting < 4 mos.

2 = moderate; < 20 Hs/wk for 9+ MOs or 20-30 Hs for 4-9 mos.

3 = frequent; 20-30 Hs/wk for at least 9 MOs, or 30+ for 4-9 mos.

4 = major; 30+ Hs per week for at least 9 mos.

(Code each of the following 0 to 4.)

In home

- a. Mother _____
- b. Father _____
- c. Older siblings _____
- d. Relative comes in _____
- e. Sitter comes in _____
- f. Other (specify) _____

Out of home

- a. Goes to relative _____
- b. Small group sitter _____
- c. Group daycare _____
- d. Preschool (structure) _____
- e. Neighbors _____
- f. Other (specify) _____

Rating 13: Is care provided by a stable, predictable set of caregivers of adequate ability?

1	2	3	4	5
inadequate, chaotic		variable, sometimes organized		stable, well- organized

****Tell me about _____'s involvement with other kids.**

34. During the past year, how often has _____ been around other kids? (Had opportunities to play and interact with nonsiblings; estimated average hours per week; consider all contacts.)

40+ Hs/wk 5 25-40 4 15-25 3 5-15 2 < 5 1

35. What kinds of situations? (0 = no contact, 1 = mentioned, 2 = more than one distinct situation of this type)

- a. neighborhood kids _____
- b. daycare home _____
- c. preschool _____
- d. play group, Sunday School, etc. _____
- e. family gatherings _____
- f. kids of parents' friends _____
- g. other _____

36. Has _____ been around any children you would consider to be aggressive? (Probe for details if needed.)

when: none 0 briefly 1 some 2 often 3

who (coded 0 = not mentioned, 1 = mentioned, 2 = mentioned more than once):

- a. neighbor _____
- b. daycare/school _____
- c. friend _____
- d. relative _____
- e. other _____

37. Does _____ have any playmates he/she played with a lot?

no one	moderately stable	highly stable,
specific <u>0</u>	and/or frequent <u>1</u>	familiar <u>2</u>

38. (If yes to #37.) How does _____ usually get along when playing with those playmates?

	withdraws,	conflicts	conflicts	
no	avoids	easily	required	
conflicts 1	conflicts 3	resolved 4	intervention 5	other 2

(Note: Keep a list of "other" responses.)

Rating 14: Peer stability--potential for friendship and familiarity.

1	2	3	4	5
high turnover, variable		some variability		stable, familiar group

Rating 15: Peer quantity--combine number of contacts with number of kids per contact.

1	2	3	4	5
isolated opportunities		moderate, varied frequency		frequent, numerous

Rating 16: Parent's monitoring of peer experience. Parent's free expression of awareness and concern about the child's social situations and a willingness to use such considerations to structure the child's experiences.

1	2	3	4	5
aware, but no action, didn't care	no concerns expressed	inconsistent awareness and action	consistently aware, some action	consistently aware and acting

39. Has the past year been easy or hard for _____?

easy 1	mostly easy 2	mostly hard 3	hard 4
--------	---------------	---------------	--------

40. What does _____ do that requires discipline? (What kinds of misbehavior?)

(Code 0 = not mentioned, 1 = mentioned)

- a. acts against people _____
- b. acts against property _____
- c. general resistance _____
- d. personal danger _____

e. breaking other rules _____

f. other _____

41. Who usually disciplines or deals with _____'s misbehavior? (Most frequent disciplinarian.)

Mom 1 Dad 2 Both 3 Other 4

42. What about when both parents are home?

Mom 1 Dad 2 Both 3 Other 4

43. How was _____ disciplined? (How did you react to the misbehavior?)
(Code 0 = not mentioned, 1 = mentioned.)

a. isolate _____

b. withdraw privileges _____

c. talk to _____

d. scold _____

e. yell _____

f. grab/shake _____

g. spank _____

h. other _____

43a. (If spanked/physical punishment not mentioned.) Was _____ ever spanked or physically punished?

No 0 Yes 1

44. (If physical punishment was used.) How often was _____ spanked or physically punished? (Slapped, swatted, grabbed, cuffed, etc.) 0 = never, not at all

rarely 1 occasionally 2 nearly monthly 3 nearly weekly 4 nearly daily 5

45. (If physically punished.) How did you usually spank _____? (Probe gently for how punishment was administered.)

a. usual form of administering physical punishment.

b. most intense form of administering physical punishment.

0 = not spanked or physically punished

1 = mild, hand on clothed area

2 = hand on bare skin

3 = object on clothes

4 = object on bare skin

46. Do you remember any times when _____ was disciplined severely enough that he/she may have been hurt? (Left a mark, bruised, or otherwise harmed?)

No 0

Minor 1

Major 2

47. Did you ever worry that you or someone else may have harmed _____ ? (Probe for agency involvement, removal of child, etc., if necessary.)

0 = nothing

1 = minor concern, unspecific

2 = concerned, possible harm by family member

3 = definite harm by nonfamily member

4 = definite harm by family member

48. All families have conflicts. What kinds of family strife and violence has _____ been exposed to during this time, either within or outside the family? (Shouting, physical fights, pushing--between parents, or parents and children. If necessary, probe for child's witnessing such events or agency involvement. Also, you may need to probe for description of arguments.)

Not coded.

Rating 17: Restrictive discipline. Parent's use of physical or restrictive discipline; non-restrictive can include physical control, for example when the child is in danger.

1

2

3

4

5

non-restrictive,
mostly positive
guidance

generally moderate,
sometimes physical

severe, strict,
often physical

Rating 18: Physical harm. Rater's certainty about whether or not the target child has been severely harmed.

1	2	3	4	5
definitely not	probably not	suspected, possible	probably occurred	authorities involved

Rating 19: Exposure to violence. Severity of violence child has observed outside the parental dyad. (Need not be restricted to immediate family. Include neighbors, other family members, friends, etc..)

1	2	3	4	5
none	mild verbal	major verbal	mild physical, major verbal	physical, more than once

Rating 20: Conflicts with partner. Severity of conflicts between partners. (Note any agency involvement.)

1	2	3	4	5
rarely even shout	mild verbal arguments	major verbal	mild physical, major verbal	physical more than once

49. What changes or adjustments occurred during this time? (Prompt from list, get approximate dates.)

(Code each 0 = no, 1 = mentioned, mild, 2= mentioned more than once, moderate to severe.)

- | | |
|--|---|
| a. moved/major remodel _____ | g. financial instability _____ |
| b. medical problems: child _____ | h. legal problems _____ |
| c. medical : close family _____ | i. stress/conflicts
in extended family _____ |
| d. death: important person _____ | j. sibling additions/deletions _____ |
| e. divorce/separation
child's parents _____ | k. other _____ |
| f. parent-child separation _____ | |

50. How did these changes affect _____? (Did she/he react negatively to anything specific?)

no impact 0 mild impact 1 moderate 2 severe 3

51. Have you been able to get out and do things you wanted?

none 0 some 1 often 2 as desired 3

52. In what ways was your spouse helpful to you during this time? (Probe for helpfulness and emotional support, if necessary; mark one for each. No partner, code = 0.)

Help: none, when did own pitched in
 minimal 1 asked 2 chores 3 spontaneously 4

Support: minimal, good,
 none 1 tolerant 2 moderate 3 strong 4

53. In what ways were you helpful to your spouse? (Probe as above, if necessary, and mark one for each. No partner, code = 0.)

Help: none, when did own pitched in
 minimal 1 asked 2 chores 3 spontaneously 4

Support: minimal, good,
 none 1 tolerant 2 moderate 3 strong 4

54. What friends or relatives were available to you (to spend time with--on the phone or in person)? (Note approximate number.)

0 = no one specific mentioned

1 = one or two specific people mentioned

2 = three or four specific people mentioned

3 = more than four specific people mentioned

55. When you wanted a shoulder to cry on, or needed to let off steam who (if anyone) did you turn to? (Mark all. Probe "anyone else?") (Code each 0 = not mentioned, 1 = mentioned, 2 = more than one of this type.)

- | | |
|------------------|----------------------------|
| a. none _____ | e. friend _____ |
| b. spouse _____ | f. clergy/therapist _____ |
| c. sibling _____ | g. God/meditate/pray _____ |
| d. parent _____ | h. other _____ |

56. How were these people or the time you spent with them helpful? (How supportive were they?) (Code each 0 = not mentioned, 1 = mentioned, 2 = emphasized.)

- a. listened/shared _____
- b. gave needed advice _____
- c. intervened/gave help _____
- d. other _____

Rating 21: Social contact. Parent's sense of having support and contact with people. Note that normal support includes expressing some sense of isolation.

1	2	3	4	5
very isolated	somewhat isolated	normal support	well supported	very well supported

Rating 22: Stress. Extent of parent's report about stressful, challenging events in this era.

1	2	3	4	5
minimal challenge		moderate		severe frequent challenges

Rating 23: Coping. Parent's expression of a sense of control and resolution regarding life's challenges.

1	2	3	4	5
overwhelmed or obviously dissociated (denying)	somewhat flustered, detached	variable, but generally adequate	took most in stride	took in stride

57. Anything else notable happen ? (Anything else you'd like to add?) (To wrap up era.)

0 = nothing

1 = mostly positive things mentioned

2 = moderately stressful things mentioned

3 = major or severe stress(ors) mentioned, emphasized, reiterated

58. Have you, _____, or any other part of the family been seen for therapy, consultation with a specialist, or been in any kind of special program?

0 = nothing mentioned, none

1 = something mentioned, doesn't matter what

(Use as marker for future reference.)

****That's the end of my questions about _____'s history. Before we move on , do you have any questions for us or anything else you would like to mention?**

CONFLICT TACTICS SCALE²

Mother Father (Circle)

Date _____

No matter how well people get along, there are times when they disagree on major decisions, get annoyed about something, or just have spats or fights because they're in a bad mood or tired or for some other reason. They also use many different ways trying to settle their differences. Here is a list of things that people might do during a conflict or a disagreement.

We would like you to try to remember how often these things occurred in your family during the first four years of your child's life, and during the past year. We would like you to consider all disagreements, not just the serious ones. First, we would like you to remember how often you did any of these things to your child, and then we would like you to remember how often your spouse did any of these things to your child. We would then like you to remember how often you did any of these things to your spouse, and then how often your spouse did any of these things to you.

It may be hard to remember everything that has happened in the past 5 years, exactly how many times these things may have happened, and when. Please try to be as accurate as possible, but we understand that you will probably have to give your best guess.

Use the following scale for your answer, and circle the number that best fits each time.

- 0 = never
- 1 = once a year
- 2 = two or three times a year
- 3 = often, but less than once a month
- 4 = about once a month
- 5 = more than once a month

²This is the CTS used with Cohort 1 subject families. The following year for Cohort 2 this scale had more items measuring violence and the reference points on the six-point scale were changed.

You to Child Scale

This page is for the things you may have done to your child. First, think about the time from when your child was born until he/she was 4 years old. Then, go through them again and answer for the past year. Use the following scale:

0	1	2	3	4	5
never	once a year	2 or 3 times a year	less than once a month	about once a month	more than once a month

	Child's Birth to Age 4	Past Year
1. <u>Tried</u> to discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
2. <u>Did</u> discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
3. Got information to back up your side of things	0 1 2 3 4 5	0 1 2 3 4 5
4. Brought in or tried to bring in someone to help settle things	0 1 2 3 4 5	0 1 2 3 4 5
5. Argued heatedly but short of yelling	0 1 2 3 4 5	0 1 2 3 4 5
6. Yelled, insulted or swore at your child	0 1 2 3 4 5	0 1 2 3 4 5
7. Sulked and/or refused to talk about it	0 1 2 3 4 5	0 1 2 3 4 5
8. Stomped out of the room or house	0 1 2 3 4 5	0 1 2 3 4 5
9. Threw, smashed, hit or kicked something	0 1 2 3 4 5	0 1 2 3 4 5
10. Threatened to hit or throw something at your child	0 1 2 3 4 5	0 1 2 3 4 5
11. Threw something at your child	0 1 2 3 4 5	0 1 2 3 4 5
12. Pushed, grabbed, or shoved your child	0 1 2 3 4 5	0 1 2 3 4 5
13. Hit or tried to hit your child, but not with anything	0 1 2 3 4 5	0 1 2 3 4 5
14. Hit or tried to hit with something	0 1 2 3 4 5	0 1 2 3 4 5

Spouse to Child Scale

This page is for the things your spouse may have done to your child. First, think about the time from when your child was born until he/she was 4 years old. Then, go through them again and answer for the past year. Use the following scale:

0	1	2	3	4	5
never	once a year	2 or 3 times a year	less than once a month	about once a month	more than once a month

	Child's Birth to Age 4	Past Year
1. <u>Tried</u> to discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
2. <u>Did</u> discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
3. Got information to back up your side of things	0 1 2 3 4 5	0 1 2 3 4 5
4. Brought in or tried to bring in someone to help settle things	0 1 2 3 4 5	0 1 2 3 4 5
5. Argued heatedly but short of yelling	0 1 2 3 4 5	0 1 2 3 4 5
6. Yelled, insulted or swore at your child	0 1 2 3 4 5	0 1 2 3 4 5
7. Sulked and/or refused to talk about it	0 1 2 3 4 5	0 1 2 3 4 5
8. Stomped out of the room or house	0 1 2 3 4 5	0 1 2 3 4 5
9. Threw, smashed, hit or kicked something	0 1 2 3 4 5	0 1 2 3 4 5
10. Threatened to hit or throw something at your child	0 1 2 3 4 5	0 1 2 3 4 5
11. Threw something at your child	0 1 2 3 4 5	0 1 2 3 4 5
12. Pushed, grabbed, or shoved your child	0 1 2 3 4 5	0 1 2 3 4 5
13. Hit or tried to hit your child, but not with anything	0 1 2 3 4 5	0 1 2 3 4 5
14. Hit or tried to hit with something	0 1 2 3 4 5	0 1 2 3 4 5

You to Spouse Scale

This page is for the things you may have done to your spouse. First, think about the time from when your child was born until he/she was 4 years old. Then, go through them again and answer for the past year. Use the following scale:

0	1	2	3	4	5
never	once a year	2 or 3 times a year	less than once a month	about once a month	more than once a month

	Child's Birth to Age 4	Past Year
1. <u>Tried</u> to discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
2. <u>Did</u> discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
3. Got information to back up your side of things	0 1 2 3 4 5	0 1 2 3 4 5
4. Brought in or tried to bring in someone to help settle things	0 1 2 3 4 5	0 1 2 3 4 5
5. Argued heatedly but short of yelling	0 1 2 3 4 5	0 1 2 3 4 5
6. Yelled, insulted or swore at your spouse	0 1 2 3 4 5	0 1 2 3 4 5
7. Sulked and/or refused to talk about it	0 1 2 3 4 5	0 1 2 3 4 5
8. Stomped out of the room or house	0 1 2 3 4 5	0 1 2 3 4 5
9. Threw, smashed, hit or kicked something	0 1 2 3 4 5	0 1 2 3 4 5
10. Threatened to hit or throw something at your spouse	0 1 2 3 4 5	0 1 2 3 4 5
11. Threw something at your spouse	0 1 2 3 4 5	0 1 2 3 4 5
12. Pushed, grabbed, or shoved your spouse	0 1 2 3 4 5	0 1 2 3 4 5
13. Hit or tried to hit your spouse, but not with anything	0 1 2 3 4 5	0 1 2 3 4 5
14. Hit or tried to hit with something	0 1 2 3 4 5	0 1 2 3 4 5

Spouse to You Scale

This page is for the things your spouse may have done to you. First, think about the time from when your child was born until he/she was 4 years old. Then, go through them again and answer for the past year. Use the following scale:

0	1	2	3	4	5
never	once a year	2 or 3 times a year	less than once a month	about once a month	more than once a month

	Child's Birth to Age 4	Past Year
1. <u>Tried</u> to discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
2. <u>Did</u> discuss an issue calmly	0 1 2 3 4 5	0 1 2 3 4 5
3. Got information to back up your side of things	0 1 2 3 4 5	0 1 2 3 4 5
4. Brought in or tried to bring in someone to help settle things	0 1 2 3 4 5	0 1 2 3 4 5
5. Argued heatedly but short of yelling	0 1 2 3 4 5	0 1 2 3 4 5
6. Yelled, insulted or swore at your spouse	0 1 2 3 4 5	0 1 2 3 4 5
7. Sulked and/or refused to talk about it	0 1 2 3 4 5	0 1 2 3 4 5
8. Stomped out of the room or house	0 1 2 3 4 5	0 1 2 3 4 5
9. Threw, smashed, hit or kicked something	0 1 2 3 4 5	0 1 2 3 4 5
10. Threatened to hit or throw something at your spouse	0 1 2 3 4 5	0 1 2 3 4 5
11. Threw something at your spouse	0 1 2 3 4 5	0 1 2 3 4 5
12. Pushed, grabbed, or shoved your spouse	0 1 2 3 4 5	0 1 2 3 4 5
13. Hit or tried to hit your spouse, but not with anything	0 1 2 3 4 5	0 1 2 3 4 5
14. Hit or tried to hit with something	0 1 2 3 4 5	0 1 2 3 4 5

APPENDIX E

CALCULATION OF SLOPES OF MODERATED RELATIONSHIPS

Calculation of Slopes Diagrammed in Figure 3¹

1. Below average levels of marital conflict: subset of sample experiencing marital conflict values up to the 50th percentile.

$$Y = \text{intercept} + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_1X_2)$$

Substituting X_2 with 0; entering values of intercept, β_1 , β_2 , and β_3 using the unstandardized regression coefficients reported in Table E.1:

$$\text{Teacher-rated competencies} = 16.88 + (.16)X_1 + [(-1.77)(0)] + [(-.56)(X_1)(0)]$$

Factoring X_1 out:

$$= 16.88 + .16X_1$$

Calculating Y at the lowest, middle, and highest values of X_1 which in this case are 1, 7, and 13 respectively:

$$\text{at } X_1 = 1$$

$$\text{at } X_1 = 7$$

$$\text{at } X_1 = 13$$

$$Y = 17.04$$

$$Y = 18$$

$$Y = 18.96$$

Plotting these values yields the regression slope of teacher-rated competencies on non-hitting parental aversiveness when marital conflict is below average (see Figure 3).

2. Above average levels of marital conflict: subset of sample experiencing marital conflict values higher than the 50th percentile.

$$Y = \text{intercept} + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_1X_2).$$

Substituting X_2 with 1; entering values of intercept, β_1 , β_2 , and β_3 using the unstandardized regression coefficients reported in Table E.1:

$$\text{Teacher-rated competencies} = 16.88 + (.16)X_1 + [(-1.77)(1)] + [(-.56)(X_1)(1)]$$

Factoring X_1 out:

$$= 16.88 - 1.77 + .16X_1 - .56X_1$$

$$= 15.11 - .40X_1$$

Calculating Y at the lowest, middle, and highest values of X_1 :

$$\text{at } X_1 = 1$$

$$\text{at } X_1 = 7$$

$$\text{at } X_1 = 13$$

$$Y = 14.71$$

$$Y = 12.31$$

$$Y = 9.91$$

Plotting these values yields the other regression slope in Figure 3.

¹The first example is detailed whereas for all others only the math is provided.

Table E.1

Abbreviated SPSS Printout: Multiple Regression with Interaction Terms

							df
Multiple R	.19	R ² change	.01	Regression			3
Adjusted R ²	.03	Signi F change	.01	Residual			446
				F = 5.73	Signi F = .00		
Variable	b	SE b	Beta	Corr	Partial	T	Signi T
X ₁	.16	.10	.08	.01	.07	1.56	.12
X ₂	-1.77	.57	-.15	-.14	-.15	-3.14	.00
X ₁ X ₂	-.56	.22	-.12	-.12	-.12	-2.53	.01
(Constant)	16.88	.55				30.63	.00

Note. Y = teacher-rated competencies
 X₁ = non-hitting parental aversiveness
 X₂ = dichotomized marital conflict
 X₁X₂ = multiplicative term between centered X₁ and centered X₂
 Constant = intercept
 b = unstandardized regression coefficient
 Beta = standardized regression coefficient
 N = 450

Calculation of Slopes Diagrammed in Figure 4

1. Below average levels of marital conflict: subset of sample experiencing marital conflict values upto the 50th percentile.

When $X_2 = 0$.

$$\begin{aligned}\text{Mother-rated competencies} &= 37.18 + (.62)X_1 + [(-5.03) (0)] + [(-1.49) (X_1) (0)] \\ &= 37.18 + .62X_1\end{aligned}$$

at $X_1 = 1$

at $X_1 = 7$

at $X_1 = 13$

$Y = 37.8$

$Y = 41.52$

$Y = 45.24$

2. Above average levels of marital conflict: subset of sample experiencing marital conflict values higher than the 50th percentile.

When $X_2 = 1$.

$$\begin{aligned}\text{Mother-rated competencies} &= 37.18 + (.62)X_1 + [(-5.03) (1)] + [(-1.49) (X_1) (1)] \\ &= 37.18 - 5.03 + .62X_1 - 1.49X_1 \\ &= 32.15 - .87X_1\end{aligned}$$

at $X_1 = 1$

at $X_1 = 7$

at $X_1 = 13$

$Y = 31.28$

$Y = 26.06$

$Y = 20.84$

Calculation of Slopes Diagrammed in Figure 5

1. Below average levels of marital conflict: subset of sample experiencing marital conflict values upto the 50th percentile.

When $X_2 = 0$.

Teacher-rated externalizing = $13.84 + (-.04)X_1 + [(1.66) (0)] + [(1.72) (X_1) (0)]$
problems

$$= 13.84 - .04X_1$$

at $X_1 = 1$

at $X_1 = 7$

at $X_1 = 13$

$Y = 13.8$

$Y = 13.56$

$Y = 13.32$

2. Above average levels of marital conflict: subset of sample experiencing marital conflict values higher than the 50th percentile.

When $X_2 = 1$.

Teacher-rated externalizing = $13.84 + (-.04)X_1 + [(1.66) (1)] + [(1.72) (X_1) (1)]$
problems

$$= 13.84 + 1.66 - .04X_1 + 1.72X_1$$

$$= 15.5 + 1.68X_1$$

at $X_1 = 1$

at $X_1 = 7$

at $X_1 = 13$

$Y = 17.18$

$Y = 27.26$

$Y = 37.34$

Calculation of Slopes Diagrammed in Figure 6

1. Below average levels of marital conflict: subset of sample experiencing marital conflict values upto the 50th percentile.

When $X_2 = 0$.

mother-rated externalizing = $3.45 + (.37)X_1 + [(3.00) (0)] + [(-.37) (X_1) (0)]$
problems

$$= 3.45 + .37X_1$$

at $X_1 = 1$

at $X_1 = 20$

at $X_1 = 38$

$Y = 3.82$

$Y = 10.85$

$Y = 17.51$

2. Above average levels of marital conflict: subset of sample experiencing marital conflict values higher than the 50th percentile.

When $X_2 = 1$.

mother-rated externalizing = $3.45 + (.37)X_1 + [(3.00) (1)] + [(-.37) (X_1) (1)]$
problems

$$= 3.45 + 3.00 + .37X_1 - .37X_1$$

$$= 6.45$$

at $X_1 = 1$

at $X_1 = 20$

at $X_1 = 38$

$Y = 6.45$

$Y = 6.45$

$Y = 6.45$

Calculation of Slopes Diagrammed in Figure 7

1. Below average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values upto the 50th percentile.

When $X_2 = 0$.

$$\begin{aligned}\text{Teacher-rated competencies} &= 20.01 + (-.11)X_1 + [(-4.88) (0)] + [(-.19) (X_1) (0)] \\ &= 20.01 - .11X_1\end{aligned}$$

at $X_1 = 1$

at $X_1 = 12$

at $X_1 = 25$

$Y = 19.9$

$Y = 18.69$

$Y = 17.26$

2. Above average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values higher than the 50th percentile.

When $X_2 = 1$.

$$\begin{aligned}\text{Teacher-rated competencies} &= 20.01 + (-.11)X_1 + [(-4.88) (1)] + [(-.19) (X_1) (1)] \\ &= 20.01 - 4.88 - .11X_1 - .19X_1\end{aligned}$$

at $X_1 = 1$

at $X_1 = 12$

at $X_1 = 25$

$Y = 14.83$

$Y = 11.53$

$Y = 7.63$

Calculation of Slopes Diagrammed in Figure 8

1. Below average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values upto the 50th percentile.

When $X_2 = 0$.

$$\begin{aligned}\text{Teacher-rated competencies} &= 14.65 + (.11)X_1 + [(-4.50) (0)] + [(.08) (X_1) (0)] \\ &= 14.65 + .11X_1\end{aligned}$$

at $X_1 = 11$

at $X_1 = 30$

at $X_1 = 66$

$Y = 15.86$

$Y = 17.95$

$Y = 21.91$

2. Above average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values higher than the 50th percentile.

When $X_2 = 1$.

$$\begin{aligned}\text{Teacher-rated competencies} &= 14.65 + (.11)X_1 + [(-4.50) (1)] + [(.08) (X_1) (1)] \\ &= 14.65 - 4.50 + .11X_1 + .08X_1 \\ &= 10.15 + .19X_1\end{aligned}$$

at $X_1 = 11$

at $X_1 = 30$

at $X_1 = 66$

$Y = 12.24$

$Y = 15.85$

$Y = 22.69$

Calculation of Slopes Diagrammed in Figure 9

1. Below average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values upto the 66th percentile.

When $X_2 = 0$.

$$\begin{aligned}\text{Mother-rated competencies} &= 36.92 + (.46)X_1 + [(-5.88) (0)] + [(-1.37) (X_1) (0)] \\ &= 36.92 + .46X_1\end{aligned}$$

at $X_1 = 1$	at $X_1 = 7$	at $X_1 = 13$
$Y = 37.38$	$Y = 40.15$	$Y = 42.9$

2. Above average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values higher than the 66th percentile.

When $X_2 = 1$.

$$\begin{aligned}\text{Mother-rated competencies} &= 36.92 + (.46)X_1 + [(-5.88) (1)] + [(-1.37) (X_1) (1)] \\ &= 36.92 - 5.88 + .46X_1 - 1.37X_1 \\ &= 31.04 - .91X_1\end{aligned}$$

at $X_1 = 1$	at $X_1 = 7$	at $X_1 = 13$
$Y = 30.1$	$Y = 24.67$	$Y = 19.21$

Calculation of Slopes Diagrammed in Figure 10

1. Below average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values upto the 50th percentile.

When $X_2 = 0$.

Teacher-rated externalizing = $16.64 + (-.24)X_1 + [(14.79) (0)] + [(-.33) (X_1) (0)]$
problems

$$= 16.64 - .24X_1$$

at $X_1 = 11$

at $X_1 = 30$

at $X_1 = 66$

$Y = 14$

$Y = 9.44$

$Y = 0.8$

2. Above average levels of chronic peer rejection: subset of sample experiencing chronic peer rejection values upto the 50th percentile.

When $X_2 = 1$.

Teacher-rated externalizing = $16.64 + (-.24)X_1 + [(14.79) (1)] + [(-.33) (X_1) (1)]$
problems

$$= 16.64 + 14.79 - .24X_1 - .33X_1$$

$$= 31.43 - .57X_1$$

at $X_1 = 11$

at $X_1 = 30$

at $X_1 = 66$

$Y = 25.16$

$Y = 14.33$

$Y = -6.19$

Calculation of Slopes Diagrammed in Figure 11

1. Below average levels of overgeneralization of rules: subset of sample experiencing overgeneralization of rules values upto the 50th percentile.

When $X_2 = 0$.

Teacher-rated externalizing = $9.42 + (1.78)X_1 + [(2.31) (0)] + [(1.87) (X_1) (0)]$
problems

$$= 9.42 + 1.78X_1$$

at $X_1 = 1$

at $X_1 = 4$

at $X_1 = 8$

$Y = 11.2$

$Y = 16.54$

$Y = 23.66$

2. Above average levels of overgeneralization of rules: subset of sample experiencing overgeneralization of rules values higher than the 50th percentile.

When $X_2 = 1$.

Teacher-rated externalizing = $9.42 + (1.78)X_1 + [(2.31) (1)] + [(1.87) (X_1) (1)]$
problems

$$= 9.42 + 2.31 + 1.78X_1 + 1.87X_1$$

$$= 11.73 + 3.65X_1$$

at $X_1 = 1$

at $X_1 = 4$

at $X_1 = 8$

$Y = 15.38$

$Y = 26.33$

$Y = 40.93$

Calculation of Slopes Diagrammed in Figure 12

1. Below average levels of overgeneralization of rules: subset of sample experiencing overgeneralization of rules values upto the 50th percentile.

When $X_2 = 0$.

Mother-rated externalizing = $9.30 + (.46)X_1 + [(.85) (0)] + [(.33) (X_1) (0)]$
problems

$$= 9.30 + .46X_1$$

at $X_1 = 1$

at $X_1 = 4$

at $X_1 = 8$

$Y = 9.76$

$Y = 14.82$

$Y = 20.8$

2. Above average levels of overgeneralization of rules: subset of sample experiencing overgeneralization of rules values higher than the 50th percentile.

When $X_2 = 1$.

Mother-rated externalizing = $9.30 + (.46)X_1 + [(.85) (1)] + [(.33) (X_1) (1)]$
problems

$$= 9.30 + .85 + .46X_1 + .33X_1$$

$$= 10.15 + .79X_1$$

at $X_1 = 1$

at $X_1 = 4$

at $X_1 = 8$

$Y = 10.94$

$Y = 19.63$

$Y = 29.9$

VITA

Anuradha Bakshi was born in New Delhi, India, on November 2 1963. She attended schools in various parts of India, graduating from Sardar Patel Vidyalaya, New Delhi, in May 1981. She entered the Maharaja Sayajirao University of Baroda in June 1981 and began majoring in Child Development in her second year. She obtained a Bachelor of Science degree in 1984 and was awarded the Shrimati Itchagauri Kuverji Naik Gold Medal. She obtained a Master of Science degree in 1986 and was awarded the Dr. Pramila Phatak Award. She lectured at the Maharaja Sayajirao University of Baroda during the academic year 1986-87. She continued her graduate education at the University of Tennessee at Knoxville, beginning September 1987, and received a Doctor of Philosophy degree in Child and Family Studies in August 1993.