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Determinants of parenting stress: Child characteristics, parent characteristics, and contextual factors

McIntire, Donald H., Ph.D.

The Ohio State University, 1991

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DETERMINANTS OF PARENTING STRESS:
CHILD CHARACTERISTICS, PARENT CHARACTERISTICS, 
AND CONTEXTUAL FACTORS

DISSERTATION

Presented in Partial Fulfillment of the Requirement
for the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Donald H. McIntire, B.S., M.S.

****

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1991

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ACKNOWLEDGEMENTS

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Studies in Clinical Child Psychology
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CHAPTER I

INTRODUCTION

Most theories of child development argue that parental functioning is a major predictor of child outcomes. However, it is overly simplistic to assume that the relationship between parental functioning and child outcomes is a unidirectional one in which the quality of parenting brings about specific child outcomes without the influence of additional factors. Such additional influences could include, for example, characteristics of the child such as age, health, and temperament that directly influence the child's ability to interact with the environment in an optimal fashion and to learn new skills in preparation for subsequent developmental tasks. Furthermore, these same child characteristics may either serve to facilitate or disrupt parental functioning as they interact with certain parental characteristics such as physical health, psychopathology, age, intellectual and educational status, and various personality traits. Contextual, or environmental, factors such as socioeconomic status, cultural heritage, and social support will also have an
impact on the parent-child relationship. Finally, the interactive patterns of all of these factors will change over time in response to child, parent, and family attempts to negotiate various individual and systemic developmental tasks.

Research and theory in developmental psychology has generally followed a similar path of viewing child outcomes from the perspective of unidirectional parental effects on children until the 1960s and 1970s when Richard Bell and his associates began to direct the focus of attention toward the bidirectional effects of children on their parents and the reciprocal effects of the parent on the child (Bell, 1968; 1979; Bell & Harper, 1977). Transactional models (Sameroff & Chandler, 1975; Siegel & Cunningham, 1984) were concurrently developed to describe the interactive fashion in which environmental and child constitutional factors operate. Contextual variables were subsequently addressed in ecological models that argued for the assessment of cultural and social influences on parent and child behavior (Bronfenbrenner, 1986) within the context of the family. Developmental theorists and researchers will likely address the changes in these influences over the developmental course of the individual as well as over the developmental course of the family.
Transactions between the child and parent are likely to change over time as a function of the history of their prior transactions, and as a function of the developmental status of both the child and the parent. Other characteristics of each member of the transaction will interact with the ecological context within which they find themselves to determine levels of functioning. The issue of direction of effects is a very complex one that requires a model, or combination of models, that can focus attention on the primary components of the process relating parent and child functioning. Jay Belsky (1984) proposed a model that addresses the determinants of parental functioning. Although a more comprehensive model is ultimately needed to address the transactional nature of parent and child functioning over time, Belsky's model represents a coherent beginning.

Belsky delineates three general determinants of parental functioning: characteristics of the child, personal or psychological resources of the parent, and contextual sources of stress or support. He and Abidin (1990) describe parental stress as being an index of overall parental functioning. They claim that parental stress and functioning are more strongly influenced by the parent's perceptions of the child's characteristics, of their own psychological characteristics, or of their contextual
situation than by actual child, parent, or contextual characteristics. Even though the direction of effects between actual and perceived functioning is often unclear, predictors of parental functioning as indexed by parental stress can be delineated within the framework of this model.

Child characteristics exert their influence by presenting various forms of behavior that may be noxious and difficult to manage, or that may be gratifying and rewarding to the parent. Whereas the former are most often experienced as being stressful by the parent, the latter would be rewarding and supportive of parental efforts.

Parent psychological and personal characteristics directly influence parenting styles and, more indirectly, child development, by determining the parent's ability or inability to respond adequately and appropriately to the needs of the child. Parental qualities also influence contextual factors by facilitating social interactions that would further the development of supportive, rather than stressful, relationships.

Direct contextual effects on parental functioning might arise from the status and amount of support in the marital relationship, family size and income, and parental occupational status as sources of support or stress. Many of these hypotheses are supported by the results of a study (Wolfe, 1987) that addresses a causal model of parental
functioning. The model reveals direct effects of parenting history, parent psychological functioning, social support, financial support, and child adjustment on parenting style. Furthermore, less direct relationships are revealed between parenting history and psychological resources and between social support and parent psychological resources. Relationships were also found between parent psychological resources and child adjustment, social support and child adjustment, and between financial support and child adjustment.

Belsky (1984) argues further that parent, child, and contextual determinants are not equally influential in their effects on parenting. His review of the research suggests that personal psychological resources of the parent are of primary importance in protecting the parent-child relationship from stress. His review indicates that parental psychopathology puts children at risk for poor developmental outcomes whereas healthy parents are often shown to be able to withstand enormous difficulties and to help children to overcome developmental or behavioral handicaps (see Figure 1).

Several recent studies have focused on the determinants of parental functioning and have looked at determinants of parental stress (Mckinney & Peterson, 1987; Mash & Johnston, 1990, 1983), parental discipline and behavior
(Mash & Johnston, 1990, Baldwin & Skinner, 1989), and of parent-child interactions as a possible source and mediator of stress (Hammen, Burge, & Stansbury, 1990; Mash & Johnston, 1990; Webster-Stratton, 1990). These studies have consistently found that parental stress is heavily influenced by parent psychological factors and, in turn, affects parental behavior and child outcomes.

Contextual determinants are of secondary importance in influencing the parent-child relationship, with the marital relationship offering the primary source of support or stress to each parent (Belsky, 1981; 1984). Child characteristics are considered to be of least importance in influencing parental stress and parental functioning as parents of difficult or delayed children are often able to respond quite well to the child's needs.

Optimal situations include those in which a psychologically healthy, intelligent, and caring parent with positive marital support and with adequate income, educational background, and meaningful occupation, interacts with a child of pleasant temperament, adequate developmental status, and good physical health. Even when the child's characteristics are less than optimal, healthy parents are able to cope with the child's needs by accessing community resources and support systems. This becomes easier when financial means are available and marital,
Figure 1. A process model of the determinants of parenting (Belsky, 1984).
familial, or other forms of social support are needed.

The model described provides a framework within which to investigate the various influences on parental functioning. Parental functioning is seen as being a primary influence on child functioning and outcomes. Other influences are not denied but it is assumed that parental stress is a major predictor of child outcomes and developmental status as it reflects and indexes the quality of overall parental functioning. In the next chapter, studies providing support for Belsky's model will be reviewed and, as factors influencing parental stress are discussed, their indirect effects on child outcomes, if available, will also be reviewed. The review will be followed by a statement of the problem, the aims, and the hypotheses of the present study whose methods, results, and implications will be discussed in subsequent chapters.
CHAPTER II

LITERATURE REVIEW

Determinants of Parental Stress

As noted earlier, Belsky (1984) and Abidin (1990) proposed that parental stress determined by child, parent, and contextual factors can be used as an index of parental functioning. Parental stress might be categorized most easily as stress arising from the requirements of the parental role. Stress has been defined in a number of different ways, even by researchers in the area. Rutter (1983) noted this confusion and added, "stress seems to apply equally to a form of stimulus (or stressor), a force requiring change of adaptation (strain), a mental state (distress), and a form of bodily reaction or response (that is, Selye's general adaptation syndrome of stress)" (p. 1). Selye (1978, p. 64) defined stress as "the state manifested by a specific syndrome which consists of all the nonspecifically-induced changes within a biologic system." These changes presumably prepare the system for some response to the perceived source of stress. For the
purposes of this study, stress will be defined as a process consisting of negative cognitive appraisal of an event, accompanied by a negative affective state, that elicits some response aimed at removing the negative condition or re-establishing equilibrium.

Whereas Selye is referring to the biological system of the individual, and family theorists such as Boss (1988) use Selye's definition to refer to the family's systemic response to stress, Belsky (1984), Abidin (1990), and this study, have looked at the parental system as the unit in question. Abidin (1990) developed the Parenting Stress Index as a measure of parental stress arising from a combination of child characteristics, parental characteristics, and situational variables that directly relate to the parenting role.

Parental perceptions of events in terms of expectations of efficacy or ability to influence the course of future events may either increase the experience of distress or facilitate coping and reduction of distress. These perceptions, and the adaptational responses they engender, then influence later perception-response sequences in a recursive fashion, either adding to, or diminishing, the parent's coping repertoire and sense of efficacy. Sequences of event/perception-of-the-event/response/perception-of-effectiveness-of-response, may influence, and be influenced
by, chronic levels of stress. Perceptions of the child's behavior, of one's effectiveness in coping with that behavior, and of the amount of support received in that endeavor may all have differential effects on stress levels.

Stressors arise from child, parent, and contextual sources, as do protective, adaptational, or coping variables. The following literature review and study comprise a look at the interplay of these various factors in determining parental stress levels and, indirectly, child outcomes.

**Child Characteristics**

**Child Age.** The birth and raising of a child is an ongoing source of delight but also of stress as it establishes the need for continuous change in parental role definitions and behavior in response to the changing developmental characteristics and needs of the child. There are some indications that parental stress levels vary with the child's age. Age seems especially relevant when seen in relationship with various child developmental, emotional, or behavioral characteristics. For example, Kinsbourne & Caplan (1979) have noted that symptoms of impulsivity and hyperactivity change with the age of the impulsive child. Impulsive preschoolers are characterized by extreme
levels of activity and risk-taking behavior. Entry into school for the latency-age impulsive child results in repeatedly noted incomplete or incompetent academic performance. As this child enters adolescence, accumulated experiences of social rejection and academic failure may result in increased emotional difficulties as well as more serious delinquent behavior.

Changes in the impulsive child's symptom picture may change with the age and developmental status of the child, with resulting alterations in the affects of these difficulties on parental stress levels. Developmental changes in impulsivity, developmental delays, physical handicaps, or in emotional/behavioral difficulties require differing levels of awareness, flexibility, and effort from the parents at different times in the child's life. For example, in a study in which the children's ages ranged from 4 to 12, parents of older autistic children were found to experience greater stress in response to the child's symptoms than parents of younger autistic children (Konstantareas & Homatidis, 1989b). Parents perceived the younger children to be less symptomatic than did clinicians. The authors hypothesize that parents of younger autistic children may tend to be more defensive and to perceive their children's symptoms and behavior as blending more easily with the behavior of active, inattentive and
more immature children. As the parents come to face the reality of the diagnosis (Bristol & Schopler, 1983), they lose the ability to attribute the child's behavior to more normative characteristics. Acknowledgement that the child's problems are relatively permanent and pervasive may lead to attributions that are relatively global, stable, and generally outside of the parent's area of control.

In contrast to parents of autistic children, mothers of younger hyperactive children tend to experience greater levels of stress than mothers of older hyperactive children (Mash & Johnston, 1983), with stress measured by an early version of the Parenting Stress Index. Interestingly, maternal characteristics of depression and perceiving themselves to lack skill and knowledge in parenting were the best discriminators of mothers of younger and older hyperactive children as mothers of younger children felt more depressed and lacking in the necessary ability to cope with their child's behavior. Mothers of hyperactive children across all ages experienced more distress than did mothers of normal children and mothers of normal children did not experience any differences in stress levels as a function of the child's age.

It is interesting to note that the characteristics of the child appear to be secondary to the parental perceptions of the child and of the parent's own
competencies in dealing with the child's difficulties in determining the parent's levels of distress. Younger hyperactive children exhibit a great deal of noxious behavior whose origins are often attributed by parents to their own incompetencies. As the child gets older, parents continue to feel even less competent but seem to experience less stress overall. It may be that they have come to make attributions regarding the child's behavior that no longer refer to their own perceived incompetencies but, rather, refer to temperamental qualities of the child. Although parents of hyperactive children may feel hopeless in changing those qualities, they no longer feel as responsible for creating them. On the other hand, parents of autistic children may be faced with a different challenge as the child's behavior actually becomes more difficult to manage and potentially dangerous, in contrast to the hyperactive child whose intensity usually declines with age (Konstantareas & Homatidis, 1989b; Kinsbourne & Caplan, 1979).

**Child's Clinical Status.** Studies investigating the interaction of children's developmental, behavioral or emotional status and parental functioning generally fall into two categories. Many studies divide the number of subjects into different groups based upon the child's
clinical status. Other studies assess the parents' perceptions of the child based upon clinical interview, questionnaire responses, or behavior checklist responses and look at relationships between these perceptions and various parent, child or contextual variables. Many of the first type of studies attempt to separate the children into clinical categories using criteria and information based only upon parent-generated information and, therefore, based on parental perceptions of the child. This third group of studies will be included among the second group of studies looking at parental perceptions of the child for the purposes of this review.

Many studies that look at the child's clinical status do not describe selection criteria. LaFiosca & Loyd (1986) used the Parenting Stress Index and the State-Trait Anxiety Inventory to measure parental stress and anxiety among parents of poorly-defined clinic-referred children, a very heterogenous group of children. They found that mothers of clinic-referred children experienced more stress and both state and trait anxiety than did mothers of non-clinic-referred children.

The nature of the child's clinical status is related to the extent and pattern of parental stress experienced. Mothers of hyperactive children have been shown to experience higher levels of stress than mothers of normal
children (Barkley, Fischer, Newby, & Breen, 1988; Breen & Barkley, 1988; Mash & Johnston, 1983) whereas parents of emotionally maladjusted children experience greater levels of stress than do parents of learning disabled children, who in turn experienced greater levels of stress than did parents of mentally retarded children (Jenkins, 1982).

High stress levels among parents of ADHD children are related to the number of problem situations experienced with the children in the home and as measured on the Home Situations Questionnaire (Breen & Barkley, 1988). Ross & Ross (1982) have argued that the increased stress involved in parenting hyperactive children is due to strained interactions arising from disciplinary attempts on the part of the parents.

Barkley (1990) has recently argued that the direction of effects between parents and hyperactive children is largely from child to parent as the child's behavior is very unpredictable, noxious and difficult to manage. This creates stress for the parent, accompanied by a range of negative emotions including frustration, confusion, helplessness, and anger. The parent then resorts to upper-limit-control strategies (Bell, 1979) that include negative commands, criticism and punishment. The child retaliates and escalates, starting the initial stages of a coercive
interaction pattern (Patterson, 1982) that, if permitted to fully evolve, leads to increasing aggressiveness on the part of the child (Patterson, DeBaryshe, & Ramsey, 1989).

Parents of young developmentally delayed children also experience greater levels of stress arising from the characteristics of the child, as measured by the Child Domain of the Parenting Stress Index (McKinney & Peterson, 1987). These parents did not see themselves as having any greater feelings of depression or lack of competence than mothers in the standardization group of the PSI. Although trends suggest that parents of Down's syndrome children experience less stress than parents of children with cerebral palsy, these differences were not significant.

Children with various behavioral or developmental difficulties are sources of stress for their parents. Some of this stress is accompanied by parental depression and feelings of incompetence (e.g., Mash & Johnston, 1983) for parents of hyperactive children, whereas parents of developmentally delayed children do not experience such feelings and perceptions. Thus, the clinical status of the child has differential effects on the parent with regard to the nature of parental stress engendered. It may be that different clinical symptom clusters present various ranges of challenges to parents' effectiveness or sense
of control. Furthermore, symptom clusters may differ with regard to the extent to which they present the parents with major versus minor, or immediate versus long-range problems. Weinberg & Richardson (1981) found that major and immediate child-related problems were experienced as being more stressful than were minor or long-range problems. It may be that hyperactivity presents the parent with repeated problems that may seem to be of major importance because they require immediate attention, whereas developmentally delayed children present parents with problems that are relatively minor though long-range in nature. These problems may not act to diminish the parents' perceptions of their own effectiveness as they can easily attribute the child's behavior and difficulties to his or her handicapping condition, which with Down's syndrome or cerebral palsy children often have physically obvious correlates. Hyperactivity has no physical correlates that may serve as reminders that the child's behavior is attributable to temperamental or neurological conditions. The nature of a hyperactive child's behavior may lead to natural attributions that refer to the parents' ability to respond appropriately to, or substantially influence, the child's behavior and abilities.
Parental Characteristics

Various parental characteristics have been postulated to have a direct effect on parental functioning and stress, or to mediate the effects of other parent, child, or contextual factors on parental functioning. Examples of parental characteristics that have been investigated include age and sex, as well as such psychological characteristics as locus of control, knowledge of behavioral principles, perceptions of the child, sense of competence, and understanding of child development. Factors such as parental age and sex, locus of control, knowledge of behavioral principles, and perceptions of the child were investigated in this study.

**Sex of Parent.** Sex differences in parental functioning are actually due to a complex combination of factors related to differing parental roles and related role expectations. There have been a number of differences noted with regard to the functioning and stress levels of mothers and fathers. Mothers of children with learning (Konstantareas & Homatidis, 1989a) or behavioral problems (Breen & Barkley, 1988; Mash & Johnston, 1983) experience more stress than their husbands, as measured by the Parenting Stress Index, probably due to the traditional maternal role as advocate.
and primary disciplinarian for the child.

Mothers and fathers are likely to find different aspects of parenting to be differentially stress-inducing. Fathers of developmentally-delayed children found major problems to be the most stressful dimension involved in caring for their child (Weinberg & Richardson, 1981). The authors argue that this may be due to fathers being differentially involved in coping with major problems whereas mothers are more involved in coping with both major and minor problems.

**Parental Age.** Parental age may be an important factor as older and more mature parents may have learned a larger number of effective coping methods. In addition, older parents are likely to have had greater experience in parenting and accumulated a larger array of techniques from which to draw in trying to cope with a particular child. Older parents may also perceive their children differently as a function of experience, maturity, and acquired confidence in their own skills. Younger mothers tend to perceive more externalizing or difficult behavior problems in their children than do older mothers (Konstantareas & Homatidis, 1989b). Older parents may be better able to put the child's age into perspective and to feel more confident in their ability to respond
appropriately. Tolerance of noxious behavior may also increase with age.

Greater experience with one's own, or others', children and a longer period of exposure to information available in the culture with regard to children, is likely to lead to differences in levels of knowledge of child development, child behavior and medical problems, and a greater awareness of the resources available for coping with various problems faced in parenting. Field, Widmayer, Stringer, & Ignatoff (1980) found that younger mothers have less realistic expectations for their children and Jones, Green, & Kraus (1980) found that younger mothers are less responsive to their children.

**Parental Education.** Parental education is often addressed as a component of socioeconomic status. It is frequently noted that education, occupational status, and income levels are positively related and their effects on parental functioning are also likely to be interrelated. Advanced education presumes a certain level of intelligence as well as exposure to a large number of ideas and experiences that may be disconfirming of one's ideas and knowledge of children and child development. Knowledge of child development and appropriate child-rearing approaches are likely to be more sophisticated among those
receiving the most exposure to such information. McGillicuddy-DeLisi (1985) showed that the sophistication of parental beliefs with regard to children's learning was positively related to parental education. Her study further indicated that children of better-educated parents achieved better developmental status. Skinner (1985) found that parents with higher educations were better able to take their child's point of view and saw their child as being more active in the processes of learning and development.

Whereas Friedrich (1979) has found maternal education to be unrelated to maternal stress, Kysela, McDonald, Reddon, & Gobeil-Dwyer (1988) argued that because better educated parents seem to spend more time in positive interactions with their infants (Segal, 1985) or with their developmentally delayed children (Dunst & Trivette, 1988), they are likely to experience less parental stress due to improved developmental outcomes for the child as a partial result of the increased interactions.

Locus of Control. The attribution that an individual makes with regard to the source of control over events in one's life has been shown to be related to that individual's effectiveness in problem solving and to one's ability to cope with stress. When applied to parents and
parenting, locus of control pertains to the extent to which the parent believes that the child's behavior and development are amenable to influence resulting from the parent's efforts. The construct is closely affiliated with that of parental efficacy, as parents with external locus of control orientations perceive their child's behavior to be largely outside of the parent's control or influence (Harris & Nathan, 1973). Parents with an internal locus of control orientation tend to see their child's behavior as being heavily influenced, and subject to future influence, by the parent (Mouton & Tuma, 1988).

Having a sense of control over one aspect of one's life influences stress levels and control beliefs in other areas of life. Parents having a more general sense of control over the forces impinging on their lives tend to be better able to cope with the more particular stresses of parenting (Pearlin & Schooler, 1978). Olsen (1989) has more recently found parents having a strong sense of personal control to exhibit better mental health and to report less stress in parenting a teenager. The hypothesis that internality serves as a protective factor in reducing parental stress is supported by findings showing that the parental conviction of being able to exert a potent influence over one's children is the most effective psychological parental response to the stresses of parenting.
Pearlin & Schooler, 1978; Mouton & Tuma, 1988). This hypothesis is further supported by evidence of a positive relationship between scores on the Parental Locus of Control measure and the Parent Domain subscales of the Parenting Stress Index (PSI) (Mouton & Tuma, 1988). Parents who believe that they have little control or influence over their child experience higher levels of stress. Mouton & Tuma (1988) also found that mothers' perceived lack of control was associated with high levels of stress related to perceived difficulties regarding child temperamental characteristics. Thus, parents who believe that they are responsible and capable of influencing their children's behavior tend to experience lower levels of stress related to parenting, perceive their children to be less difficult, and feel more confident in their parenting skills.

Parental beliefs and attributions regarding sources of influence in their interactions with their children influence the manner in which parents choose to interact with their children and may, therefore, have an influence on the child's outcome. Olsen (1989) found that parents who believe that they lack a sense of control over their personal lives felt less able to control their teen-age children and were more likely to rely on authoritarian and authoritative measures to gain control. This may reach
extreme levels as parents who perceive their children to retain control over their own behavior rather than the parent are much more likely to be abusive (Bugental, Blue, & Cruzcosa, 1989). In contrast, parents having a greater sense of personal control also had more successful children who experienced relatively good mental health, and yet, these parents did not ascribe this success to their efforts (Olsen, 1989).

Parents of conduct disordered hyperactive children who have been shown to experience greater stress than parents of normal children may do so because they perceive the child's behavior and compliance to be unpredictable and uncontrollable. Thus, it may not only be the act of noncompliance that leads to stress, but the unpredictability of the child's response to demands for compliance that is stressful. The perception that one is not able to obtain or even predict compliance leads to an external perception of control over compliance-noncompliance and is particularly strong among mothers (Sobol, Ashbourne, Earn, & Cunningham, 1989).

Differences in parent-child interactions have been related to perceptions of control with internal parents being more likely to use suggestions in instructing their children, and external parents being more likely to use directions (Loeb, 1975). In addition, externals and
internals tend to exhibit different qualities of vocal assertiveness in response to manipulated child uncooperativeness. In a study that manipulated levels of child cooperation, child uncooperativeness affected only the behavior of the external parents as they increased the assertiveness of their neutral comments so that their interaction patterns mirrored those observed among mothers interacting with their own noncompliant children (Bugental, Caporael, & Shennum, 1980). The authors theorized that external parents alter the direction of their efforts toward completion of a task or some other setting event, rather than focusing on the child himself, a maneuver that may exacerbate child unresponsiveness. As the parent adopts an increasingly external perspective, the focus of attention is on external factors such as the completion of tasks, rather than remaining on the relationship they have with the child.

Other researchers have used volunteers to act as mothers in situations in which the amount of control experienced by the adult was manipulated. They found that mothers who perceived that the situation was becoming less controllable and more stressful increased the punitiveness of their interactions with the child dramatically (Mulhern & Passman, 1979; Vasta & Copitch, 1981). Furthermore, abusive mothers of difficult children who believe that
they have less control vis-a-vis the child tend to interact toward the child with dysphoric facial and vocal affect (Bugental, Blue, & Lewis, 1990). These authors found that parents lacking in an internal locus of control had a low threshold of affective reactivity and were likely to over-react to minor problems.

Such findings suggest that the perception that one cannot control or substantially influence one's child may lead to feelings of helplessness, stress, and a tendency to revert to more punitive and, possibly abusive, patterns of child management (Bugental, Blue, & Cruzcosa, 1989; Wolfe, 1987).

Just as perceptions of loss or lack of control may engender punitive and negative child-rearing approaches, perceptions of self-efficacy and control by a parent may induce more positive patterns of parent-child interactions. Implications for the long-term parent-child relationship are revealed in findings that parental internal locus of control is related, along with high levels of interpersonal trust and an active coping style, to high levels of warmth, acceptance, and helpfulness, and to low levels of disapproval used by parents in interactions with their children (Mondell & Tyler, 1981).

Long-term effects on the child of parental externality are largely unknown. Ollendick (1979) has suggested that
external locus of control parents are more likely to be inconsistent in their parenting attempts, possibly leading to negative effects for their children. According to him, when both parents exhibit externality, their children are more likely to exhibit anxiety, lower intelligence scores, lower academic achievement scores, and higher scores on measures of external locus of control.

**Knowledge of Behavioral Principles.** An increasing body of research and theory is developing regarding the influence of parental beliefs, attitudes and knowledge on parental functioning. Parental beliefs about child development (Newberger, 1980; Sameroff & Feil, 1985), cognitive development (Miller, 1988), and how to facilitate development of cognition (Johnson & Martin, 1985) and social cognition (Applegate, Burke, Burleson, Delia, & Kline, 1985) and their relationship to parent and child outcomes and behavior are being increasingly investigated. Furthermore, parental attitudes regarding the importance of obedience (Segal, 1985) and parental attributions regarding child behavior (Dix & Grusec, 1985) and child compliance (Sobol, Ashbourne, Earn, & Cunningham, 1989) are being studied with regard to their relationship with parental functioning.

For example, Segal (1985) found that parents who felt
that the parental role was one of education rather than one of discipline spent more time in parent-child activities. She also found that mothers in single-parent families stress obedience and competition more than mothers in two-parent families and that income and parent educational levels are related to attributions regarding child obedience much in the direction of Kohn's (1963) study. Dix & Grusec (1985) found that parents' attributions about the cause of their child's behavior underwent alterations in keeping with changes in the child's development and with changes in the parent's development. They also found that the parents' affective responses to the child's behavior were related to parental attributions regarding the causes of the child's behavior, although parental responses were not.

Sigel (1985) notes that beliefs and knowledge are posited to influence parental action and, therefore, parental and child functioning. The degree to which a belief or knowledge influences behavior, or its 'proximity' to that behavior, is dependent upon several factors. Most investigations of parental knowledge or beliefs are related to knowledge of underlying principles with little emphasis on how to actualize those principles in order to facilitate the child's development. One relative exception that pertains more closely to coping with, and influencing,
child behavior is the parent's understanding of child management principles. Such understanding and knowledge represents a system of knowledge in which there is a close fit between the content of beliefs and the actions they predict. Furthermore, they pertain to child behaviors that are most closely related to parental stress.

O'Dell, Tarler-Benlolo, and Flynn (1979) developed a measure of this knowledge of behavioral principles and found that high scores on the measure were unrelated to improved parenting techniques among parents of difficult children. McMahon, Forehand, & Griest (1981) later found that training in behavioral principles that was accompanied by hands-on training of such child-management skills and techniques as attends, contingent rewards, ignoring, assertive commands, and time-out resulted in parenting improvements that included increased knowledge of the behavioral principles, parental perceptions that their children were better behaved, and tendencies to use more contingent attention and rewards. It would seem that such knowledge might help parents feel more effective in influencing their children's behavior and thereby reduce stress. Unfortunately, no research exists that addresses the effectiveness of the knowledge of behavioral principles on stress reduction and coping for parents.
Parental Perceptions of the Child. Many studies have relied on parental referrals to clinics due to complaints of behavior problems with their children, or have used parental reports, questionnaires, or descriptions as the basis for classifying the child in one way or another. These methods actually measure the parental perceptions of the child and make classifications or diagnoses based upon those perceptions. Parental perceptions of the child are, however, influenced by a great many factors, several of which may be more salient than the child's actual temperament. The following review focuses on those studies that either directly address parental perceptions of the child as the researchers' purpose, or studies that relied only upon parental perceptions as the sole means for categorizing the children.

Mouton & Tuma (1988) looked at parental stress levels among parents of clinic versus non-clinic-referred children. Criteria for clinical status was primarily based upon parental responses to a child behavior checklist, the Eyberg Child Behavior Inventory, and actually represent parental perceptions of the child. Mothers who perceived a high degree of behavioral problems in their children experienced higher levels of stress than mothers perceiving no such problems. They also expressed a more external locus of control and less satisfaction in the parental role.
Webster-Stratton (1988) found that mothers who see their children as deviant using the Child Behavior Checklist and the Eyberg measure experience greater stress and used more commands and criticisms in interactions with their children.

Perceptions of behavioral difficulties might lead to parental stress through particular attribution processes. For example, mothers of ADHD children who perceive their children to exhibit difficult behavior and high levels of noncompliance see the child's compliance as unpredictable and somewhat uncontrollable, leading to the perception that they are not the source of the child's compliance. This external perception of control over compliance is particularly strong in mothers (Sobol, Ashbourne, Earn, & Cunningham, 1989). Furthermore, parental perceptions of behavioral severity in the areas of hyperactivity, aggressivity, delinquency, and immaturity are related to increases in feelings of stress and are inversely related to feelings of parental competence (Mash & Johnston, 1983). Perceptions of both internalizing and externalizing behavior in their children are related to increased feelings of dissatisfaction and incompetence in parents (Johnston & Mash, 1989). Mothers often relate parental stress to the quality of the mother-child interaction and accompany this stress with feelings of depression, social isolation,
self-blame, role restrictions, and lack of closeness to their child. These results are found with parents of hyperactive (Sandberg, Weiselberg, and Shaffer, 1980) and conduct-disordered children (Patterson, 1980). Perceptions of behavioral difficulty and difficult child temperament are related to both maternal stress and depression, both of which are attributed by the mother to the child's difficult temperament (Webster-Stratton & Hammond, 1988).

Patterson (1980) has argued that perceived child behavior problems may alter parental effectiveness and perceptions, and increase stress. Konstantareas & Homatidis (1989b) support this by finding that the more problematic an LD child was seen to be by the parent, the greater the level of parental stress. These authors propose that it is visibility, discomfort, and concern about societal norms, that seem to be most relevant to parental distress.

Acceptance of the perceived difficulty is also relevant as parents of children with expressive language delays exhibited higher levels of child-related stress than did mothers of normal children. These differences are accounted for by the mothers' difficulties in accepting the child's deficits (Caulfield, Fischel, DeBaryshe, and Whitehurst, 1989). Perceptions of child behavior as difficult, demanding, bothersome, distractible, aggressive, hyperactive, noncompliant, and immature, or behavior that
is seen by the parent as being highly visible, creating discomfort, or violating societal norms, are related to increased parental stress, feelings of parental incompetence and dissatisfaction, and to marital discord related to parenting issues.

All of the previously cited research leads to the question of how does stress bring about such alterations in parental perceptions. Wahler & Dumas (1989) argue that when parents are experiencing multiple sources of stress, they tend to refer much of this stress to child deviant behavior but are unable to substantiate the claim with adequately detailed descriptions of the child's behavior. They actually found that parents' reports were usually global descriptions of how the mothers' attempted to cope with their children's oppositional actions. Whereas less troubled mothers gave details on such encounters, multistressed mothers usually presented abstract summaries of what took place. (p. 123)

These mothers were troubled by the child's behavior, but tended to overlook the details of such behavior, or of the complexity of the ongoing family situation. They tend to provide simplistic judgments about the child's behavior based upon generalized categories and will respond with
a general set of inter-related responses.

Parents will differ in their level of baseline sophistication or the degree of complexity and specificity with which they perceive and respond to child behavior. Parents holding simplistic views regarding their own, and their child's, behavior will likely respond with a stereotyped set of closely related responses under conditions of even minimal levels of child-generated stress. Their attention will be generally inaccurate and deficient in providing accurate feedback regarding the source and nature of the behavior, reducing the effectiveness of their responses. Distressed parents will respond to their children in a trait-like manner with previous responses providing cues for subsequent behavior, rather than attending and responding to fluctuating situational cues (Wahler & Dumas, 1989).

Contextual Factors as Predictors of Parental Functioning

A number of contextual factors may serve to exacerbate or minimize parental stress and functioning. These include socioeconomic status, social support, and family size. Socioeconomic status is measured in a variety of ways. Although socioeconomic status measures are often discussed as if they are interchangeable, they are actually quite
diverse. Some, such as the Hollingshead Index, are comprised of a mathematical combination of occupational, financial, and educational information. Others, such as the Duncan, focus only on occupational prestige under the assumption that educational and financial factors are subsumed by one’s occupational position. Parental or family income is sometimes obtained as an independent measure. This review of literature will try to separate the combined-factor indices from those based on occupational status and from those based upon income.

Socioeconomic Status. In a recent review of research in which the SES indicators are not described, Kysela, McDonald, Reddon, and Gobeil-Dwyer (1988) note inconsistent findings as several studies have shown a relationship between socioeconomic status and parental stress whereas others show no such relationship. Low SES mothers have been found to report higher levels of stress related to child characteristics as reflected by Child Domain scores on the PSI (Arena, 1989). In a review pertaining to families with handicapped children, Gallagher, Beckman, & Cross (1983) described studies showing that lower-class families experience more severe, although not necessarily more frequent, stressful events than members of the middle-class. In certain cases, families with mid-range occupations experienced more stress than families with the highest
or lowest occupational categories.

Many measures of SES combine various factors into one figure. These may vary from inclusion of two to as many as five factors with occupation and education most often included. Dunst & Trivette (1988) found that mothers of higher socioeconomic status as measured by the Hollingshead 5-factor Index have been found to interact more often and more appropriately and pleasantly with their children than did lower SES mothers. Furthermore, higher SES mothers were also more contingent in their responsiveness, especially when responding to older children, to higher functioning children, and to children with physical handicaps. Higher SES mothers also were more engaging and elaborative in their interactions and were less likely to use imposing styles of interactions with their children (Dunst & Trivette, 1988).

Webster-Stratton & Hammond (1990) combined occupation and education into the Hollingshead 2-factor Index and found that SES combined with marital status to predict mothers' critical and negative interactions with their children. Single parents who are unemployed and with minimal education are most negative with their children.

The difficulties of low-SES parents may be multiply determined as Brown & Harris (1978), using a combined-factor index, found that stressful events were more likely to occur for lower-class than for middle-class mothers but
also found that the effects of these events were lessened
significantly if the mother had a close friend, relative,
or husband for support. Kohn (1963) related breakdown
from stress to one's resources for coping and notes that
adults in the lower classes are more likely to exhibit
breakdown symptoms in response to stress but also have
fewer community, financial, or psychological resources
available for coping. Wahler (1979) has more recently
found that isolation among single-parent and lower-class
families is a strong predictor of antisocial behavior among
children.

Work status may have differential effects on parental
stress as work usually means increased financial resources,
social interactions, and relief from the stress of
parenting, whereas work also leaves less time for parenting
and work may add to the stress by creating fatigue or
frustration of its own. Gallagher, et al. (1983) found
that mothers employed outside of the home had less stress
in coping with a physically handicapped child than did
nonworking mothers; the work may provide respite from
stressful caretaking duties. Working and nonworking mothers
are distressed by different aspects of parenting as
nonworking mothers focus on the issue of the immediacy
versus the long-range nature of a child's problem more
than working mothers (Weinberg & Richardson, 1981). On
the other hand, working mothers are more sensitive to issues
relating to the amount to which child-related problems
tend to restrict the adult from other adult activities.
Because they must divide their time between parenting and
careers, they become more sensitive to the amount of time
required by each child-related problem that interferes
with severely limited personal time (Weinberg & Richardson,
1981). In contrast, nonworking mothers who spend more
of their time with their children become more sensitive
to the necessity of an immediate response or solution to
a child's problem and are better able to discriminate
between immediate or long-range problems.

Occupational status also affects parents in other
ways. Kohn (1963) claimed that the nature of one's work
in general terms helps to influence one's attitudes about
such child-rearing issues as obedience and
self-determination. Working-class men whose jobs require
compliance to authority tend to stress obedience whereas
middle-class men whose jobs require self-direction and
independence, value these attributes in their children.

Satisfaction with one's job is also relevant as mothers
who are dissatisfied with their employment status have
children whose development is more limited in some way
than mothers who are more satisfied with their work
situation (Farel, 1980; Hock, 1980; Hoffman, 1961). Mothers
who dislike their employment situation display more severe
discipline and less affection toward their children.
(Hoffman, 1963) and express more child-rearing difficulties (Yarrow, Scott, Deleeuw, & Heinig, 1962).

Unemployment or dissatisfaction with one's occupation could result in an increase in general stress and frustration that is easily displaced toward the child within the context of discipline. Isolation engendered from unemployment, or lack of exposure to alternative and sophisticated ideas regarding child development and child-rearing are more likely to occur among the undereducated and underemployed. Reliance on measures aimed at increasing child compliance at the cost of furthering the child's cognitive or social development may lead to relatively poor child outcomes.

**Family Income.** Just as mothers from economically disadvantaged homes have less money available for coping with daily needs, they may also need to use more of their time and energy to maintain a household, leaving less time for relationship-building or personal growth activities that could be stress-reducing. Ramey, Mills, Campbell, & O'Brien (1975) note that mothers in such disadvantaged families have little time for quality interactions with their children. The effect of income on stress levels has not been investigated to date but would be presumed to aid coping by providing the ability to access professional help, acquire relevant information, obtain necessary
equipment or access to activities, and acquire babysitting or respite services. Mothers in economically disadvantaged homes may be at risk for greater stress, and for being less effective with their children, as they may need to expend much of their energy merely to maintain an intact household.

Low income has often been thought of by researchers as an indicator of chronic stress and as having a detrimental impact on parental attitudes and functioning (Longfellow, Zelkowitz, & Saunders, 1982). Parents in disadvantaged families often do not have adequate time to engage in relationship-building activities with their children, for reasons provided earlier. Ramey, Mills, Campbell, & O'Brien (1975) noted that mothers in such disadvantaged families have little time for quality interactions with their children.

The child's clinical status may interact with contextual factors such as in a study by Konstantareas & Homatidis (1989a) which found that middle- and upper-SES mothers experienced increased stress in relation to their learning-disabled child's difficulties as compared to mothers of lower SES. Kohn's (1963) finding that parents with different occupations have different child-rearing styles and expectations suggest that parents with differing socioeconomic backgrounds may place differing values on compliance, competency, and independence. Higher SES
parents may value independence and achievement, goals that are difficult for learning-disabled children to attain. Parents who value compliance will likely be frustrated by impulsive, aggressive, and noncompliant behavior more than by academic failure.

The lack of time, energy and resources take on special relevance in families of children with special needs. Reisinger, Ora, & Frangia (1975) found that mothers of handicapped children in low-income families were less enthusiastic and efficient in acting as 'change agents' for their children. Although limited incomes might not present a consistently stressful environment for most children, it does appear that the negative effects of low income are experienced by the handicapped child and, to a lesser extent, by other children, due to its limiting effects on parental coping. As an example, parents with low incomes perceive themselves as having less personal control over their lives and this, in turn, limits their sense of parental control (Olsen, 1989). Given the previous discussion regarding the effects of parental external locus of control for children, it might be that it is the combination of low income and various other factors, including parental locus of control beliefs, that influence parental coping and child development.
**Parental Status.** Single mothers often find themselves parenting alone with the result that they must be the sole disciplinarian, sole provider, and primary adult role model and source of guidance and comfort for the child. A single parent cannot seek respite, support, or guidance from a spouse. On the other hand, a single parent does not need to seek approval, negotiate disciplinary plans, or cope with the behavior of another parent. Bradshaw & Lawton (1978) did not find single parents to experience more stress than dual parents. On the other hand, Beckman (1983) found that single mothers of handicapped children tend to experience more stress than married mothers.

In support of Beckman's findings, Beckman-Bell (1981) and Holroyd (1974) found that single-parenting is more stressful than dual-parenting. Holroyd found that single mothers of handicapped children saw themselves as having too many demands on their time, felt that their personal development was stifled, and that their family was not well integrated. Although single parents tend to be more socially isolated, to receive less social and emotional support, and to experience more life changes, (Weinraub & Wolf, 1983) they report more difficulties in coping only in the area of household management. In a study that followed children over the course of a year, Webster-Stratton & Hammond (1990) found that single-parent status and marital dissatisfaction predicted more negative
behaviors and more child deviance on home observations. Marital status and SES predicted maternal critical and negative behavior with their children a year later. Teacher reports at the year-end follow-up assessment indicated that marital status made the most significant contribution to the prediction of children's adjustment. When home observations and teacher reports of the child's behavior were combined, marital status was the best predictor of child deviance.

**Marital Relationship.** Poor marital relationships are likely to add to parental stress in at least two ways: first, by actively adding to stress through arguments, fights, and tension and, second, by resulting in a lack of support when trying to cope with children. Three forms of primary support are often noted. Spouses actively help with the practical tasks of maintaining a household by helping with chores, with finances, and with caretaking and disciplinary tasks. Spouses may also provide emotional support by listening to grievances, giving the parent time to relax, establishing a positive relationship with the child and generally reducing tension in the home, and by sharing advocacy roles with the parent. Finally, parents receive cognitive support and validation when the spouse agrees with the parent's perception of the child and with the primary goals and techniques of discipline or by
providing social expectations about what is appropriate behavior for parents (Belsky, 1984).

As noted earlier, single parents have virtually no support that falls within these three categories. They are required to perform all of the practical tasks of household maintenance, be the child's advocate and disciplinary agent, and seek out validation of their perceptions of the child and support for their efforts wherever they can find it. Many parents, usually mothers, remain the primary advocate and disciplinarian for the child and, although married, receive only nominal, indirect, or passive support from the spouse. Couples that engage in active collaboration in parenting, unlike the non-collaborative couples, tend to share disciplinary duties, advocacy roles, and relationship-building activities, vis-a-vis the child. They may be more likely to communicate about these issues and come to agreements.

The factor in marital relationships that may mediate parental stress might be the degree to which spousal support occurs and creates a sense of parental alliance or collaboration. Friedrich (1979) found that the most significant variable associated with reduced stress in families of handicapped children was the mother's feelings of security in the marital relationship. This security is threatened when the mother of a problem child experiences greater stress in relation to the child, perceives the
child as being a greater behavior problem than does the father (Johnson & Lobitz, 1974), and spends greater time and effort in managing the child's behavior (Konstantareas & Homatidis, 1989b) than the father. Attempts to enlist the husband's aid or support might then lead to arguments regarding discipline and child-rearing that could lead the mother to feel unsupported, ineffective, and depressed. The ensuing disruption in the marital relationship may remain isolated to issues pertaining to the child, and more specifically related to parenting and discipline, as found among parents of difficult children (Snyder, Klein, Gdowski, Faulstich, and LaCombe, 1988).

This differential involvement with the child may lead to different needs for marital support and differing perceptions of the quality of ongoing support. Guidubaldi & Cleminshaw (1985) found that fathers felt that they receive more support from their spouses than their wives do. Additionally, mothers of autistic children report a need for marital support, whereas fathers do not (Konstantareas & Homatidis, 1989b). It is interesting to note that mothers who are distressed due to marital disruption tend to perceive higher levels of deviance in their children whereas distressed fathers do not perceive their children any differently (Webster-Stratton, 1988). Additionally, mothers of developmentally disabled boys were found to receive less instrumental and emotional
support from their husbands than did mothers of normal boys. Furthermore, these fathers provided less instrumental support with regard to the target child but not with his siblings (Bristol, Gallagher, & Schopler, 1988). Further analysis revealed that optimal levels of support were unrelated to absolute measures, such as overall amounts of support, or whether the support was instrumental or emotional in nature. The best predictor of parental adaptation was the "harmony" between the offered support and the form of support needed at the time. Expressive support from the spouse was the best single predictor of overall quality of parenting. The finding regarding the "harmony" of support follows earlier claims that it is the "goodness-of-fit" between support desired and support offered that is important in alleviating stress (French, Rodgers, & Cobb, 1974).

Spousal support regarding parental issues may serve to mitigate the effects of difficulties related to parenting, whereas other forms of support may help to mitigate other sources of stress. Frank, Wagner, Olmsted, Laub, Freeark, Breitzer, & Peters (1989) use the label, Parenting Alliance, to refer to this mutual parental support. The quality of this alliance interacts with the child's characteristics differently for mothers and fathers in influencing levels of parental stress, perceptions of the child, and the relative sources of stress.
Characteristics of the child directly affect mothers' but not fathers' perceptions of stress. Also, whereas the quality of the parenting alliance was related only to child-related parental stress for mothers, for fathers the alliance was related to parenting stress arising from characteristics of the child and of the parent and his situation. This means that fathers in moderately strong parental alliances were most perceptive and responsive to their child's particular needs and behaviors. Fathers in poor parental alliances experienced high levels of stress which were unrelated to the child's difficulties. Apparently, fathers in very strong parental alliances experienced little child-related stress as the quality of the alliance protected them from difficulties in coping with their child (Frank, et al., 1989).

Support required by mothers is dependent upon such variables as child functioning and developmental status, and maternal factors such as psychological characteristics (e.g., locus of control beliefs, mental and emotional health, educational level, and knowledge of behavior change principles), as well as contextual factors such as social support, income, and occupational status. Spouses must match the form of support offered to the situational need. Emotional, or expressive, support may be more subtle, general, and provide more help in terms of emotional uplift and validation of parenting approaches. Instrumental support
is more situation-dependent, practical, and is dependent on timely presence. Mothers of handicapped, ill, or behaviorally difficult children may benefit from the latter whereas mothers of learning-disabled, depressed, anxious, or normal children may obtain greater benefit from a more balanced combination of support.

STATEMENT OF THE PROBLEM

A review of the literature shows that although a large number of studies continue to investigate the unidirectional effects of parental disciplinary styles on child outcomes, there is also a move toward increasing appreciation of the bi-directional and transactional nature of parent-child relationships and a greater awareness of the relative importance of multiple factors in determining parental functioning. Belsky (1984) has proposed that parental functioning is determined by a combination of child, parent, and contextual characteristics and a growing body of research has studied the effects of these three major factors on various forms of parental functioning. His (1984) description of parental stress as an important index of parental functioning has influenced its increasing use as an index of coping success among parents of handicapped, developmentally delayed, and attention deficit disordered children. The focus of the present study was the relative
influence of various factors from child, parent, and contextual domains in determining parental stress levels.

A number of child characteristics, including the child's intellectual and academic functioning, as well as clinical and developmental status, have been shown to affect such indices of parental functioning as parental stress and behavior. As examples, parents of ADHD, clinic-referred, and learning-disabled children have been found to experience greater stress than parents of normal children. More particularly, aggression, irritability, and noncompliance have been shown to be the most distressing child qualities. Parental characteristics have also been studied regarding their effects on parental functioning. Parental age has been shown to be negatively related to parental stress. Furthermore, sex of the parent is relevant. Mothers consistently exhibit higher levels of stress than fathers, particularly when raising difficult children. Educational level of the parent has been found to positively influence parents' general level of coping. An internal sense of control over personal events and a belief that one exerts a potent influence over one's children have also been negatively related to parental stress. Finally, parental knowledge of behavioral principles has been related to improved parental functioning.
Research has focused on the effects of several contextual variables including socioeconomic status, family composition, and marital stability on parental stress. Research has found that SES effects are complicated. For example, recent findings have indicated that SES may interact with the child's clinical status to determine parental functioning. Studies focusing on the effects of marital status and relationships have found that parents who receive spousal support and help in their parenting efforts tend to experience lower levels of stress than parents lacking such support. Finally, research has investigated the functioning of single mothers in comparison with the functioning of mothers who are married, generally among parents of difficult, disturbed, or handicapped children and have found that single status bodes ill for both the mother and for the child.

Previous research has shown that child, parent, and contextual characteristics are related to parental stress as an index of parental functioning. However, many of these studies have focused on only one or two of these determinants of parental functioning, and none have studied the influence of multiple factors from all three areas on the stress levels of parents and on their perception of psychopathology in their children for single mothers, married mothers, and married mothers whose husbands may be supportive but uninvolved. The present study
investigated the relative effects of various factors from each of the three areas in predicting stress related to the parental role as an indicator of parental functioning and coping. More specifically, it examined the relative contribution of child (e.g., age), parent (i.e., age, sex, education, locus of control, knowledge of behavioral principles as applied to children), and contextual (i.e., occupational prestige, family income, family size, parental alliance, marital status) characteristics in predicting parental stress among single mothers, married mothers whose husbands also participated in the project, and married mothers whose husbands did not participate in the project.

The major aims were:

1) To compare three groups of mothers of boys on measures of parental stress. The three groups include single mothers, married mothers whose husbands agreed to be involved in the study, and mothers whose husbands did not become involved in the study.

2) To determine the relative contributions of child, parent, and contextual characteristics toward total parental stress.

3) To determine the relative contributions of child, parent, and contextual characteristics toward child outcomes.

4) To compare differences between mothers and fathers on parental stress and various predictor variables.
The specific hypotheses are:

Hypotheses related to group differences:

H1: Single mothers will exhibit higher levels of stress than the other two groups, and mothers with uninvolved husbands may exhibit higher levels of stress than mothers with involved husbands.

H2: Single mothers will perceive higher levels of general psychopathology in their sons than will the other two groups of mothers.

H3: Mothers will exhibit higher levels of stress than their husbands.

Hypotheses related to predictors of parental stress:

H4: In accordance with Belsky's model, parental locus of control, perceptions of the child, and knowledge of behavioral child management principles will be the primary predictors of parental stress in all three groups. Additional predictive power will be added to the equation by contextual and child characteristics, in that order.

Hypotheses related to child outcome measures:

H5: Parental stress and perceptions of the child were postulated to be the primary predictors of child emotional and behavioral adjustment.

H6: Parental education and occupational status were expected to be primary predictors of child intellectual and academic outcomes, with parental stress and locus of control having secondary predictive power.
H7: Parental stress, and possibly perceptions of the child, were hypothesized to mediate the effects of child, parent, and contextual factors on child outcomes.

In addition, the present study explored group differences in the child characteristic of age; such parental characteristics as parental age, sex, education, locus of control and knowledge of behavioral principles; and the contextual characteristics of parental alliance, maternal education, maternal occupational prestige, and family income.
CHAPTER III

METHOD

Subjects

Subjects included 163 mothers and their sons and 69 fathers who agreed to participate in the study and returned all information. All subjects lived in a small-town midwestern community with the following racial composition: White - 96%, Black - 3%, American Indian - .1%, Asian - .2%, Other - .1%. All of the children attended public schools and were recruited through both city and county school systems. Initially, 265 children and their parents were recruited. Complete data were received and collected on 42 single mothers (Group 1) and on 69 married mothers and their husbands (Group 3). Group 2 was comprised of 52 married mothers whose husbands failed to respond or refused to participate.
Measures

Conners Parents Rating Scale  Parents' perceptions of their child were measured by asking the mothers to complete the Conners Parents Rating Scale (Conners, 1969; 1989). The CPRS is a 48-item behavior rating scale completed by the parents to give a description of the child. The items are in a Likert-format with responses ranging from 0 (not at all) to 3 (very much). Six scales are derived: Conduct Problems, Learning Problems, Psychosomatic Problems, Impulsivity-Hyperactivity, Anxiety, and Hyperactivity Index.

The Hyperactivity Index is a 10-item scale measuring primary and secondary symptoms of hyperactivity and is seen as being an index of general psychopathology. Item-total correlations on the CPRS range from .13 to .65 (Conners, 1989) and Sandberg, Wieselberg, & Shaffer (1980) report an alpha of .92 for the Hyperactivity Index. Test-retest reliability of the CPRS-48 has not been established, although test-retest reliability of a longer version, the CPRS-93, ranges from .40 for the Psychosomatic factor to .70 for the Immature-Inattentive and Hyperactive-Impulsive factors (Conners, 1989). Summed scores were compared to age-derived norms developed by Goyette, et al., (1978).
Conners Teachers Rating Scale. Teachers' perceptions of the child were measured with the Conners Teachers Rating Scale (Conners, 1969; 1989). The 39 items are in a Likert-format with responses scored from 0 (not at all) to 3 (very much). The form was completed by the child's teacher and described his behavior while at school. Trites, Blouin, & Laprade (1982) factor analyzed the CTRS and developed normative tables using T-scores with a mean of 50 and standard deviations of 10.

Seven scales are derived from this rating scale. Hyperactivity is a 17-item scale measuring symptoms of poor attention, impulsivity, and hyperactivity and having an alpha of .94. The Conduct Disorder scale is comprised of 13 items measuring aggressiveness, antisocial behavior, and acting out and has an alpha of .93. The Emotional Indulgent scale assesses emotional lability, demandingness, and negative or depressive mood with an alpha coefficient of .86. The Anxious-Passive scale measures anxiety, passivity, and shyness with an alpha of .76. The Asocial scale (alpha = .82) measures poor peer relations and the Daydream scale (alpha = .61) measures short attention, poor attendance, and daydreaming. All inter-item correlations within the individual factors were significant. Factors were found to correlate highly with congruent scales on previously developed and validated checklists. Finally, the Hyperactivity Index is comprised of those items having
the highest loadings with each of the factors and represents a measure of general pathology rather than of hyperactivity. Test-retest reliability for the CTRS-39 over a one-month period ranged from .72 to .91, and teachers' ratings on the Hyperactivity Index correlated .89 over a two-week period (Conners, 1989).

Peabody Picture Vocabulary Test - Revised. The PPVT-R (Dunn & Dunn, 1981) is a relatively brief test of intelligence that is positively correlated with overall intellectual functioning and was used to measure and control for intelligence. The child is given a display of four pictures and is to select the picture that has most to do with an orally presented word. Test-retest reliability for the PPVT-R has been established to be .82 for raw scores for immediate retest. Short-term stability for IQs is .72 and long-term stability is .59. The PPVT-R has median correlations of .70 with the PPVT and a median correlation of .71 with other vocabulary tests based on 55 correlations (Dunn & Dunn, 1981).

Wide Range Achievement Test - Revised. The WRAT-R (Jastak & Wilkinson, 1984) is a relatively brief achievement test assessing word recognition, mathematical computation, and spelling skills and was used as a measure of achievement. Standard scores and percentiles are derived
for three subtests: Reading, Spelling, and Arithmetic. Internal consistency figures for all ages across the three subtests range from .86 to .99. Concurrent validity has been established in a number of studies. As examples, WRAT Reading has been shown to correlate at an average of .87 with Reading Recognition of the Peabody Individual Achievement Test (PIAT), and .74 with Reading Comprehension of the PIAT. WRAT-R and PIAT Spelling subtests correlate at .75 and the Arithmetic subtests from both correlate at .66.

**Parenting Stress Index.** The 6th Form of the Parenting Stress Index (PSI) (Abidin, 1990) was used as a measure of parental functioning for the purposes of this study. The PSI consists of 101 items with responses ranging in a Likert format from 1 to 5. The PSI is comprised of 13 scales divided into a 6-scale Child Domain and a 7-scale Parent Domain. The first six scale scores are summed to give the Child Domain Score and measure parental perceptions of characteristics of the child. The remaining seven scales, which are summed to provide the Parent Domain Score, measure parental and situational characteristics that contribute to increased stress. The Child Domain and Parent Domain Scores are then summed to produce the Total Score. All 3 scores were derived for the present study.
The Total Score represents a measure of the overall stress being experienced by the parent and has a reliability coefficient of .95. The Child Domain Score represents the extent to which the child has qualities that make it difficult for the parents to fulfill their parental roles and has an alpha of .89.

Parents earning high Parent Domain (alpha = .93) scores are likely to be experiencing high levels of stress arising from difficulties related to various aspects of their situation and psychological functioning.

Abidin (1990) reviews a number of studies that provide construct and concurrent validity as the PSI has been found to be positively related to several measures of anxiety, to be related to negative behavior in hyperactive sibling dyads, and to be negatively related to levels of parental self-esteem. The PSI has been shown to be able to discriminate abusive from nonabusive parents, parents of mentally retarded from parents of normal children, and parents of hyperactive from parents of normal children.

**Parental Locus of Control Scale.** The Parental Locus of Control Scale (PLOCS) was used as a measure of parental psychological characteristics. It is a 47-item scale utilizing a 5-point Likert format ranging from strongly agree (1) to strongly disagree (5) (Campis, Lyman, & Prentice-Dunn, 1986). Item 17 was removed from the
analyses in accordance with the author's recommendations as it has been found to substantially reduce the reliability of its member scale. The PLOC has a total scale reliability coefficient of .92.

The overall scale was found to be significantly related to a general measure of locus of control. Discriminant validity was established as the PLOC was able to discriminate between parents of clinic versus non-clinic children with parents of clinic children being more external in their orientation. A later study by Mouton & Tuma (1988) found that the PLOC was significantly and positively related to a scale of parenting satisfaction (Guidubaldi & Cleminshaw, 1985) and to the Parenting Stress Index (Abidin, 1990) and was able to discriminate between parents of problem children and parents of normal children.

Knowledge of Behavioral Principles as Applied to Children. The KBPAC (O'Dell, Tarler-Benlolo, & Flynn, 1979) is a 50-item multiple-choice instrument that was used to give a measure of the parents' knowledge of particular techniques that are effective in managing children's behavior. Data based on the original sample resulted in a mean of 24.4 with a standard deviation of 11.75 and standard error of measurement of .97. Kuder-Richardson reliability coefficient equals .94 and the split-half correlation was .93. Higher scores on the
KBPAC have been related to more effective and positive parenting behavior (McMahon, Forehand, & Griest, 1981). Split-half forms were used in this study and were randomly assigned.

**Parenting Alliance Scale.** The Parenting Alliance Scale (Frank, Jacobson, & Avery, 1988) is a 31 item scale measuring how much a parent respects his or her spouse's parenting abilities, feels supported in his or her parenting attempts by his or her spouse, and believes that the spouse does his or her share of the parenting. Items are in a Likert-format with responses ranging from Strongly Disagree (1) to Strongly Agree (5). Test-retest reliability (r = .86) and internal reliability (alpha > 90) are adequate (Frank, et al., 1989) and the measure has been shown to account for more variance in parental confidence and control than a global measure of marital satisfaction.

**Socioeconomic Status.** The socioeconomic index used in this study was developed by Duncan (1961) and underwent subsequent revisions to match changes in the 1960 and 1970 census categories (Featherman & Hauser, 1977; Stevens & Featherman, 1981) and, more recently, in the 1980 census categories (Stevens & Cho, 1985). A review of socioeconomic indices resulted in recommendations to use the Duncan measure of occupational prestige as a measure of
socioeconomic status (Mueller & Parcells, 1981). Information regarding occupation, income, and education were collected in a brief questionnaire.

**Education Codes.** Mothers and fathers were asked to provide information regarding their highest attained level of education. Educational attainment was encoded as follows: 1 = Grades 1 - 8; 2 = Grades 9 - 11; 3 = Grade 12 (graduated); 4 = 1 - 3 years of college; 5 = BA/BS Degree; 6 = MA/MS Degree; and 7 = PhD/MD Degree.

**Family Income Codes.** Mothers and fathers were asked to provide data regarding their combined incomes. They were to choose a code corresponding to a range of incomes. Discrepancies were coded in accordance with father's response. Father's responses were chosen as in cases in which only one parent worked, it was usually the father, and simply for purposes of consistency. Family incomes were encoded as follows: 1 = <$10,000; 2 = $10,000 - $20,000; 3 = $20,000 - $30,000; 4 = $30,000 - $40,000; 5 = $40,000 - $50,000; and 6 = $50,000 or more.
Procedures

Recruitment Procedure. Children and their parents were selected and contacted through the schools. Permission to work in the schools was first obtained from the superintendent of the school system, and then from each school's principal. The schools were asked to give letters describing the study and requesting parental permission to all boys 7 - 9 years and 11 - 13 years of age. The children were addressed personally by the investigator who explained the procedures and answered questions. The letters stated that the boys would be given two tests and that a packet of questionnaires relating to parental attitudes would be sent to the parents. Once permission was received, questionnaires were sent to the parents to complete. Teachers were asked to complete a CTRS for each boy.

Testing Procedure. Parents were sent separate packages with instructions to complete the tests individually. Each package included the following: A brief questionnaire gathering demographic information, The Parenting Stress Index, The Parental Locus of Control Scale, The Knowledge of Behavioral Principles as Applied to Children scale, The Parental Alliance Questionnaire, and The Parent Affective Response Measure - an instrument
developed for this study. Mothers also received the CPRS. A single question regarding the parent's race was optional and too few respondents answered it so that exact racial composition of the sample is not available. Parents were asked to complete each packet independently (i.e., without discussion) and a stamped and pre-addressed envelope were supplied for the return of the packages. Order of the tests and questionnaires were randomized. Each packet and form was numbered with a subject identification number which was randomly assigned so that group membership was unknown to the scorer of the tests or to the caller. Parents were called two weeks after receiving the packages and were given the opportunity to ask questions regarding completion of the forms. Parents who had not returned the completed packages within a week after the initial call were given a second call to offer further help.

Data Analysis

Prior to testing the main hypotheses of the study, group differences of the child outcome measures were assessed. Group differences for PPVT-R IQ scores were assessed via a univariate analysis of variance (ANOVA) and group differences for the achievement test scores were assessed using a multivariate analysis of variance (MANOVA) with Reading, Spelling and Arithmetic subtest scores used
as the dependent variables. A MANOVA was also run on the Conners Teachers Rating Scale (CTRS) subtest scores to assess group differences in teacher perceptions of the child's adjustment. These scales included Hyperactivity, Conduct Disorder, Emotional Indulgent, Anxious-Passive, Asocial, Daydream, and Hyperactivity Index. The Hyperactivity Index was subsequently used as the child outcome measure reflecting behavioral adjustment.

Group differences of the child, parent, and contextual predictor variables were also assessed. Group differences in child's age were assessed using an ANOVA. A MANOVA was used to assess group differences in parental perceptions of the child, a parent characteristic, with the subtest scores of the Conners Parents Rating Scale (CPRS) as the dependent variables (Conduct Problems, Learning Problems, Psychosomatic Problems, Impulsivity-Hyperactivity, Anxiety, and Hyperactivity Index). The Hyperactivity Index was subsequently used as a global measure of the mother's perception of the child.

Group differences in maternal age and education were assessed using ANOVAs. A series of ANOVAs were used to analyze the following scores denoting parent characteristics: Parental Locus of Control total score and Knowledge of Behavioral Principles as Applied to Children total scores.
Group differences in contextual variables were also assessed as part of the preliminary analyses. An ANOVA assessed the group differences in parental support using total scores on the Parental Alliance Scale for Groups 2 and 3 as the dependent variables. These included groups of mothers with uninvolved and involved husbands, respectively. ANOVAs were also used to assess group differences in family size with number of children in the home as the dependent variable. Group differences in family income were assessed using an ANOVA. Group differences in maternal occupational status were assessed using Duncan Socioeconomic Index numbers based upon occupational prestige of maternal occupation when categorized according to categories taken from the 1970 census as the dependent variable.

MANOVAs resulting in significant group differences were followed by individual univariate analyses of variance. All post hoc analyses of significant group effects were completed using Tukey's Studentized Range Test.

The first major hypothesis referring to group differences of maternal parental stress measures, was first assessed using a MANOVA with the Child Domain and Parent Domain scores of the Parenting Stress Index as dependent variables. Subsequent ANOVAs on variables found to have group effects were performed and were followed by Tukey post hoc analyses for a more detailed analysis of the nature
of the group effect. Also, the total score of the Parental Affective Response Measure was used as a dependent variable in an ANOVA assessing group differences in a separate measure of parental stress. Post hoc Tukey analyses further assessed the nature of the group differences.

The second major hypothesis was tested using four separate stepwise multiple regression analyses with PSI Total Score, PSI Child Domain Score, PSI Parent Domain Score, and the PARM Total Score as criterion variables and variables representing child (child's age), parent (age, education, perception of the child, locus of control, and knowledge of behavioral principles), and contextual variables (family size, birthorder, occupational status, family income, parental alliance) as predictor variables. Hierarchical analyses were not used for two reasons. First, although a theoretical reason for placing parental variables first and contextual variables second in the equation exists based upon Belsky's (1984) arguments, no sound theoretical guidelines predicted placement of the individual variables in the equations. Second, ordering of the variables was based upon their interrelationships as presented in a correlation matrix and seemed to follow the general expectations based upon Belsky's theoretical views. A subsequent series of hierarchical regressions were run using the argument that parental perceptions of their child and of their own effectiveness vis-a-vis the child would
be the greatest predictors of parental stress, resulted in regression equations that were essentially the same as those obtained from the stepwise models.

Relative contributions of child, parent and contextual factors toward child outcomes were assessed using stepwise multiple regression analyses in which the ordering of predictor variables in the equations were based upon interrelationships found among the variables on the correlation matrix. PPVT-R IQ scores, WRAT-R subtest scores, and the Hyperactivity Index score of the CTRS were used as criterion variables in the analyses. Again, stepwise models were used as there were no a priori assumptions made regarding relative influences of the variables. Parental stress measures were included in the equations when appropriate.

The fourth aim of the study, that of investigating sex differences in parental stress levels, and in other parental measures, was accomplished by using a t-test on the difference scores obtained by subtracting the father's score from the mother's score on each variable. Variables thus assessed included occupational status, age, educational level, locus of control, knowledge of behavioral principles, parental support, parental experience of child-related stress, parental experience of other sources of stress, total parental stress, and parental affective response.
The general goal of this study was to investigate the factors that predict parental stress in mothers and fathers of boys. Initially, the parental stress levels of single, married and unsupported, and married and supported mothers were compared. Then, the relative contributions of child, parental, and contextual factors in determining parental stress were assessed. Parental stress as a mediating factor in determining child outcomes was also investigated. Finally, differences between mothers and fathers on parental stress and other parent and contextual measures were assessed.

Preliminary Analyses

Group differences in child's age were assessed in order to assure that this would not account for group differences in parental stress. A univariate analysis of variance indicated that there was no age effect. The
mean age for this sample of boys was 8 years, 9 months (SD = 18.87) and ranged from 7 years, 0 months to 13 years, 0 months.

Tests of the Central Hypotheses

The hypothesis that parental status represented by paternal involvement in this study would significantly affect the variable of interest was tested by a multivariate analysis of variance (MANOVA). Possible group effects on a second variable were assessed by a univariate analysis of variance (ANOVA). If there was a significant group effect from the MANOVA individual ANOVAs were performed. Post hoc mean comparisons were made using Tukey's Studentized Range Test for group means. Group differences were also assessed by determining clinically significant cut-off scores and using Chi-Square analysis of relative frequencies of scores above and below the cut-off scores. Differences between mothers' and fathers' responses on the variables of interest were assessed using a series of t-tests on differences between the mothers' and fathers' scores on the variables. Relationships between the relevant variables were assessed by Pearson correlations. Relative contributions of child, parent, and contextual factors in determining parental stress and child outcomes were
assessed using stepwise multiple regression analyses. Subsequent hierarchical regression analyses were also performed with entry of variables determined by general guidelines provided by the model.

**Group Differences**

**Child Outcome: Intelligence and Achievement.** An ANOVA found a group effect on children's intelligence, $F(2, 162) = 6.67, p<.002$, as measured by the Peabody Picture Vocabulary Test - Revised (PPVT-R). A post hoc analysis using Tukey's Studentized Range Test indicated that sons of single mothers had lower intelligence test scores than sons of mothers whose husbands also participated in the study (see Table 2 for means). Because of this significant group difference, PPVT-R scores were used as a covariate in subsequent analyses.

A MANOVA computed on WRAT-R scores revealed no significant overall group effect. Univariate analyses indicated, however, a group effect for Arithmetic, $F(2, 162) = 3.96, p<.02$. Sons of single mothers had significantly lower Arithmetic scores than sons of mothers in the couples group. A subsequent analysis of covariance (ANCOVA) with PPVT-R scores as a covariate failed to confirm this group effect.
<table>
<thead>
<tr>
<th></th>
<th>Groups (Mothers)</th>
<th>Fathers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Means (SD)</td>
<td>Means (SD)</td>
</tr>
<tr>
<td><strong>Child Variable</strong></td>
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<td></td>
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<tr>
<td>Age (Mths.)</td>
<td>107.40 (12.27)^a</td>
<td>109.06 (20.75)^a</td>
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<tr>
<td><strong>Parent Variables</strong></td>
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<td></td>
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<tr>
<td>Age (Mths.)</td>
<td>420.95 (70.18)^ab</td>
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<tr>
<td>Education</td>
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<td>3.48 (.94)^ab</td>
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<tr>
<td>Locus of Control</td>
<td>116.69 (12.34)^a</td>
<td>116.50 (13.58)^a</td>
</tr>
<tr>
<td>Knowledge of Behavior Principles</td>
<td>8.00 (3.48)^a</td>
<td>8.42 (3.64)^a</td>
</tr>
<tr>
<td>Perception of Child</td>
<td>59.38 (16.67)^a</td>
<td>56.29 (12.29)^a</td>
</tr>
<tr>
<td><strong>Context Variables</strong></td>
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<td></td>
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<td>3.65 (1.49)^b</td>
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<td>Parental Alliance</td>
<td>--- ---</td>
<td>96.65 (31.40)^a</td>
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<tr>
<td>Number of Children</td>
<td>2.71 (1.31)^a</td>
<td>2.69 (.96)^a</td>
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**NOTE:** Means with the same letter are not significantly different using Tukey's Studentized Range Test.
Table 2

Group and Sex Means and Standard Deviations: Stress and Outcome Measures

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<td>(n=42)</td>
<td>(n=52)</td>
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<tr>
<td></td>
<td>Means (SD)</td>
<td>Means (SD)</td>
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<tr>
<td><strong>Parental Stress</strong></td>
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<tr>
<td>PSI Total Stress</td>
<td>247.90 (48.93)</td>
<td>236.79 (40.46)</td>
</tr>
<tr>
<td>PSI Child Domain</td>
<td>114.90 (29.80)</td>
<td>108.06 (20.70)</td>
</tr>
<tr>
<td>PSI Parent Domain</td>
<td>133.71 (22.34)</td>
<td>128.92 (23.44)</td>
</tr>
<tr>
<td>Affective Response</td>
<td>31.19 (10.21)</td>
<td>28.63 (9.94)</td>
</tr>
</tbody>
</table>

**Child Outcome**

|                      |                  |          |          |          |
| PPVT-R IQ            | 93.83 (20.06)    | 99.85 (16.18) | 105.97 (15.92) | --       |
| Reading Achieve.     | 91.90 (20.49)    | 94.13 (14.48) | 98.45 (17.52)  | --       |
| Spelling Achieve.    | 87.79 (16.51)    | 92.04 (14.42) | 94.22 (16.47)  | --       |
| Arithmetic Achieve.  | 91.40 (14.98)    | 96.40 (12.76) | 99.00 (13.84)  | --       |
| Teacher's Perception of Child | 55.33 (11.07) | 50.96 (9.80)  | 50.84 (11.20)  | --       |

**NOTE:** Means with the same letter are not significantly different using Tukey's Studentized Range Test
Child Outcome: Teachers' Perceptions of the Child.

Group differences in teachers' perceptions of the children were evaluated by computing a MANOVA on the Conners Teachers Rating Scale scores (CTRS). This test revealed a significant group effect, Wilk's Lambda $F(14, 308) = 1.78, p<.04$. However, univariate analyses indicated only nonsignificant trends on a general indicator of childhood psychopathology, the Hyperactivity Index, $F(2, 162) = 2.67, p<.07$, and on a measure of poor peer relationships, the Asocial scale, $F(2, 162) = 2.53, p<.08$ (see Table 4 for means).

The possibility that group differences might exist in the numbers of children meeting the criteria for clinical status on the CTRS was assessed using a Chi-Square analysis of numbers of children in each group falling above and below the clinical cut-off scores. A T-score of 70 or above is considered as the criteria for clinical status on the CTRS. A Chi-Square analysis performed on the frequencies of children above and below this score on the CTRS Hyperactivity Index revealed no significant group differences (Table 5).

Parental Stress. The principal hypothesis of group differences in parental stress levels was evaluated by performing a MANOVA on the mothers' Child Domain (MPSIC)
Table 3

ANOVA on Child Outcome, Parental Stress, and Predictor Variables

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<th>MS</th>
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<td>590.12</td>
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<tr>
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<tr>
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<td>24355.27</td>
<td>12177.63</td>
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<tr>
<td>Education</td>
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<td>6.46</td>
<td>3.23</td>
<td>3.50*</td>
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<tr>
<td>Locus of Control</td>
<td>(2,162)</td>
<td>72.16</td>
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<td>.18</td>
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<td>Knowledge of Behavior Principles</td>
<td>(2,162)</td>
<td>215.06</td>
<td>107.53</td>
<td>7.50***</td>
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<td>Perception of Child</td>
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<td>381.93</td>
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<td>Affective Response</td>
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<td>639.56</td>
<td>319.78</td>
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<td>3929.47</td>
<td>1964.73</td>
<td>6.67**</td>
</tr>
<tr>
<td>WRAT-R Reading</td>
<td>(2,162)</td>
<td>1237.90</td>
<td>618.95</td>
<td>2.03</td>
</tr>
<tr>
<td>WRAT-R Spelling</td>
<td>(2,162)</td>
<td>1082.30</td>
<td>541.15</td>
<td>2.15</td>
</tr>
<tr>
<td>WRAT-R Arithmetic</td>
<td>(2,162)</td>
<td>1508.85</td>
<td>754.42</td>
<td>2.96*</td>
</tr>
<tr>
<td>Teacher's Perception of Child</td>
<td>(2,162)</td>
<td>615.28</td>
<td>307.64</td>
<td>2.67</td>
</tr>
</tbody>
</table>

*p<.05
**p<.01
***p<.001
****p<.0001
<table>
<thead>
<tr>
<th>Parent Scales</th>
<th>1 (n=42)</th>
<th>2 (n=52)</th>
<th>3 (n=69)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conduct Problem</strong></td>
<td>62.62 (16.81)</td>
<td>56.17 (13.12)</td>
<td>56.25 (14.61)</td>
</tr>
<tr>
<td><strong>Learning Problem</strong></td>
<td>61.33 (16.76)</td>
<td>57.19 (15.91)</td>
<td>56.32 (16.81)</td>
</tr>
<tr>
<td><strong>Psychosomatic</strong></td>
<td>57.91 (15.48)</td>
<td>58.08 (15.52)</td>
<td>57.33 (15.00)</td>
</tr>
<tr>
<td><strong>Impulsivity-Hyperactivity</strong></td>
<td>58.69 (15.44)</td>
<td>56.58 (12.36)</td>
<td>55.25 (12.84)</td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td>57.52 (15.09)</td>
<td>52.65 (10.63)</td>
<td>55.03 (10.94)</td>
</tr>
<tr>
<td><strong>Hyperactivity Index</strong></td>
<td>59.38 (16.67)</td>
<td>56.29 (12.29)</td>
<td>55.67 (13.64)</td>
</tr>
<tr>
<td><strong>Teacher Scales</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hyperactivity</strong></td>
<td>52.76 (9.59)</td>
<td>48.94 (9.06)</td>
<td>49.88 (10.87)</td>
</tr>
<tr>
<td><strong>Conduct Problem</strong></td>
<td>50.19 (9.57)</td>
<td>48.19 (8.00)</td>
<td>50.32 (11.82)</td>
</tr>
<tr>
<td><strong>Emotional Indulgent</strong></td>
<td>52.52 (9.68)</td>
<td>50.54 (8.18)</td>
<td>51.54 (11.64)</td>
</tr>
<tr>
<td><strong>Anxious Passive</strong></td>
<td>52.14 (8.93)</td>
<td>50.08 (9.21)</td>
<td>48.90 (9.09)</td>
</tr>
<tr>
<td><strong>Asocial</strong></td>
<td>48.81 (8.74)</td>
<td>45.75 (3.96)</td>
<td>49.03 (10.55)</td>
</tr>
<tr>
<td><strong>Daydream</strong></td>
<td>51.83 (9.45)</td>
<td>50.48 (9.76)</td>
<td>49.22 (10.22)</td>
</tr>
<tr>
<td><strong>Hyperactivity Index</strong></td>
<td>55.33 (11.07)</td>
<td>50.96 (9.80)</td>
<td>50.84 (11.20)</td>
</tr>
</tbody>
</table>
and Parent Domain (MPSIP) scores. The results revealed a nonsignificant trend for the overall test of group effect, Wilk's Lambda, $F(4, 318) = 1.99, p<.09$. Univariate analyses revealed a significant group effect only for MPSIP, $F(2, 162) = 3.49, p<.03$. A Tukey's Studentized Range Test of group means (Table 2) indicated that single mothers experienced greater levels of stress arising from personal and contextual sources as measured on the Parenting Stress Index than did mothers in the couples group. A subsequent MANCOVA which covaried out the effects of the child's intelligence resulted in a nonsignificant overall group effect.

An ANOVA computed on the total scores from the Parental Affective Response Measure (PARM) indicated a nonsignificant trend toward group effects on the mothers' scores, $F(2, 162) = 2.87, p<.06$ (Table 4).

Chi-Square analyses of the frequencies of mothers producing scores on the Child Domain, Parent Domain, or Total Parenting Stress Index that are equal or greater than the clinical cut-off scores suggested by Abidin (1990) were run in order to determine whether any particular group had a larger than expected number of mothers experiencing severe stress. Table 5 indicates the cut-off scores for the three scales and reveals that there were no significant differences in the numbers of mothers experiencing severe
Table 5

Group-by-Clinical Status Chi-Squares on Stress, and on Parent and Teacher Perceptions of the Child

<table>
<thead>
<tr>
<th>Variable</th>
<th>Criteria for Group 1</th>
<th>Criteria for Group 2</th>
<th>$^2$(df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Stress</td>
<td>X&gt;267</td>
<td>X&lt;266</td>
<td>1.97(2)</td>
</tr>
<tr>
<td>Child Domain</td>
<td>X&gt;122</td>
<td>X&lt;121</td>
<td>3.22(2)</td>
</tr>
<tr>
<td>Parent Domain</td>
<td>X&gt;153</td>
<td>X&lt;152</td>
<td>1.97(2)</td>
</tr>
<tr>
<td>Parent's Perception of Child</td>
<td>X&gt;70</td>
<td>X&lt;69</td>
<td>3.49(2)</td>
</tr>
<tr>
<td>Teacher's Perception of Child</td>
<td>X&gt;70</td>
<td>X&lt;69</td>
<td>2.96(2)</td>
</tr>
</tbody>
</table>
stress in any of the three groups.

Fathers in Group 3 also completed the PSI and produced results comparable to those of their wives. A series of t-tests run on the paired differences between the mothers' and fathers' scores revealed no sex effect. In addition, fathers expressed similar levels of affective responses to the rigors of parenting as measured on the PARM (Table 6).

Parent Characteristics. An ANOVA computed on maternal age scores revealed a significant group effect for age, \( F(2, 162) = 3.19, p<.05 \). Post hoc mean comparisons further revealed that mothers in the mothers-only group were significantly younger than those in the couples group (see Table 1 for group means). The overall mean age for mothers was 35 years, 0 months (SD = 62.58) and ranged from 23 years, 11 months to 51 years, 9 months. Fathers in Group 3 averaged 38 years, 5 months (SD = 68.78) and ranged from 27 years, 2 months to 59 years, 10 months. A t-test computed on the paired differences between the mothers' and fathers' age scores for Group 3 revealed a significant sex difference in age (\( t = -4.72, p<.0001 \)). The negative sign indicates that the fathers had the higher scores and were older than their wives (Table 6).
Table 6

Differences Between Mothers and Fathers on Parent/Context Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Means</th>
<th>Difference</th>
<th>t-Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Months)</td>
<td>432.12</td>
<td>460.90</td>
<td>-4.72***</td>
</tr>
<tr>
<td>Education</td>
<td>3.77</td>
<td>3.77</td>
<td>0.00</td>
</tr>
<tr>
<td>Occupational Status</td>
<td>36.55</td>
<td>38.76</td>
<td>-0.70</td>
</tr>
<tr>
<td>Locus of Control</td>
<td>115.25</td>
<td>112.67</td>
<td>1.30</td>
</tr>
<tr>
<td>Knowledge of Behavior Principles</td>
<td>10.54</td>
<td>8.13</td>
<td>4.14***</td>
</tr>
<tr>
<td>Spousal Support</td>
<td>95.58</td>
<td>101.39</td>
<td>-2.59*</td>
</tr>
<tr>
<td>Total Stress</td>
<td>227.90</td>
<td>226.90</td>
<td>0.18</td>
</tr>
<tr>
<td>Child Domain</td>
<td>105.90</td>
<td>107.80</td>
<td>-0.75</td>
</tr>
<tr>
<td>Parent Domain</td>
<td>122.00</td>
<td>119.10</td>
<td>0.80</td>
</tr>
<tr>
<td>Affective Response</td>
<td>26.28</td>
<td>24.96</td>
<td>1.13</td>
</tr>
</tbody>
</table>

*p<.05  
****p<.0001
Overall mean maternal educational level was 3.55 (SD = .98) according to the coding system adopted for this study. This indicated that most of the mothers in this study had graduated from high school. Fifty-five percent of the mothers had attained a high school diploma or lower in education. An additional 28.8% had some additional college and another 11.7% had a Bachelor's degree. Finally, 4.3% had attained a Master's Degree but none had attained a PhD. An ANOVA run on educational code scores indicated a group effect, F(2, 162) = 3.50, p<.05. Post hoc mean comparisons using Tukey's Studentized Range Test showed that mothers in the couples group had more education than mothers in the single mothers group (see Table 1). As an example of the nature of this discrepancy, whereas only 36% of the single mothers, and 40% of the mothers in the mothers-only group, had at least some post-high-school education, 54% of the mothers in the couples group had achieved this level of education. In addition, whereas 17% of single mothers had not graduated from high-school, only 8% of the mothers in the mothers-only group, and 6% of the mothers in the couples group, had not graduated from high-school. Fathers had the same mean education score as mothers in Group 3. Comparisons of the distribution of educational attainment for mothers and fathers in Group 3 indicate that 68% of the fathers had attained at least
some post-high-school education, compared to 54% for the mothers. Also, whereas no mothers had attained doctoral degrees, 5.8% of the men had.

An ANOVA computed on maternal Parental Locus of Control Scale (PLOC) total scores failed to reveal a group effect for this variable (see Table 1 for group means). These mean scores fall between the mean scores of a group of parents experiencing no parenting problems (M = 110.60) and a group of parents experiencing difficulties in parenting (M = 122.11) obtained during the development of the test (Campis, et al., 1986). Fathers in the couples group showed no difference from their wives in their perceptions of the source of parental control and influence, according to a t-test computed on paired differences in maternal and paternal PLOC scores for Group 3 couples.

Group effects for maternal knowledge of behavioral principles were found following an ANOVA computed on total scores of the Knowledge of Behavioral Principles as Applied to Children (KBPAC) instrument, $F(2, 162) = 7.50$, $p<.001$. A post hoc means comparison indicated that mothers in the supported couples group exhibited greater behavioral knowledge than did mothers in either of the other two groups (Table 1). Fathers in the couples group were found to have lower scores than their wives following computation of a t-test on paired differences on the KBPAC ($t = 4.14,$
Maternal perception of the child was treated as a parental characteristic and was measured using maternal responses to the Conners Parents Rating Scale (CPRS). A MANOVA revealed no overall test of group effect. All subscale scores in all three groups were higher than the standard mean score of 50. The Conduct Problem and the Learning Problem scales for Group 1 are more than one standard deviation above the mean for these scales with several other scales approaching a similar level. The Hyperactivity Index was used in subsequent analyses as an index of the mother's perception of her son's adjustment. Sex differences on this variable are unavailable as fathers did not complete this instrument.

Contextual Characteristics. The families in this study had an average of 2.63 (SD = 1.04) children and an ANOVA revealed no group effects for number of children (see Table 1). Forty-five percent of the boys were first-born children. Second- and third-born children comprised 36% and 13% of the sample, respectively.

An ANOVA on Family Income codes indicated significant group effects for income, $F(2, 162) = 21.94, p < .0001$, with single mothers making less than either of the other groups (Table 1). The average income was $12,100 for single-parent
families; $26,500 for the mother-only families; and $29,300 for the couples families. The overall mean family income for this sample was $24,000 (SD = 1.53).

An ANOVA computed on maternal Duncan Socioeconomic Index scores (MSEI) revealed a significant group effect, $F(2, 162) = 4.01, p<.05$. Tukey analyses indicated that mothers in the couples group were in significantly more prestigious occupations than were single mothers (see Table 1 for group means). The overall mean SEI score for mothers was 31.86 (SD = 18.50). Fathers in the couples group were found to have similar levels of occupational prestige as their wives following the nonsignificant results of a t-test computed on the difference scores between the mothers' and fathers' SEI scores.

An ANOVA computed on Parental Alliance Scale (PAS) total scores from mothers in the mothers-only and couples groups revealed no significant group effect. It is interesting to note that the variability of this measure in the mothers-only group is much greater than in the couples group, even though the means remain very similar. A t-test computed on the paired differences between the mothers' and fathers' PAS scores in the couples group showed a significant group effect ($t = -2.59, p<.05$). The negative sign indicates that mothers produced lower scores and perceived less support from their spouses (Table 6) than
did the fathers.

**Intercorrelations**

The intercorrelations to be discussed are contained on Tables 7, 8 and 9. Table 7 reports the intercorrelations of the maternal stress and child outcome scores. Table 8 contains intercorrelations of the child, parent, and contextual predictors, maternal stress scores, and the child outcome scores. Finally, Table 9 contains the intercorrelations of the child, parent, and contextual predictor scores. Due to the large number of correlations, only those observed at $p < .01$ or greater were considered to be significant. Prior to discussing relationships between maternal stress and child outcome variables, or between predictor and maternal stress variables, relationships among the child outcome variables will be presented, followed by a presentation of the relationships among the maternal stress variables.

**Child Outcome Scores.** The IQ and academic achievement scores are positively correlated ($p < .0001$) (Table 7). The achievement scores are also positively and significantly intercorrelated ($p < .0001$). The strongest relationship is between Reading and Spelling whereas the relationship
between Spelling and Arithmetic is the weakest, while the relationship between Reading and Arithmetic falls between the other two.

Teachers' perceptions of the child's adjustment are negatively related to the child's IQ score ($p<.001$), indicating that lower intelligence is related to teacher perceptions of greater maladjustment in the child (Table 7). A significant negative relationship was also observed between both the children's Reading and Arithmetic scores and the teachers' perceptions of the children's adjustment ($p<.01$). Although the correlation between the teachers' perceptions and Spelling was also negative, it did not reach significance.

**Parental Stress Scores.** The correlation between the Parent and Child Domains of the PSI given in the test manual (Abidin, 1990) is lower ($r = .61$) than that obtained in the present study ($r = .71$). The Parent and the Child Domain correlations with the Total score of which they are a part are very high ($p<.0001$) and identical to each other. Correlations between the Parent Affective Response Measure and the PSI Domain scores are positive ($p<.0001$) and are higher than the correlations between the Parent and Child Domain scores on the PSI. The PARM has its strongest relationship with the PSI Total Stress score
Table 7

Intercorrelations of Maternal Stress and Child Outcome Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Child Domain</th>
<th>Parent Domain</th>
<th>Affective Response</th>
<th>PPVT-R IQ</th>
<th>Reading</th>
<th>Spelling</th>
<th>Arithmetic</th>
<th>Teacher's Hyperactivity Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Stress</td>
<td>.923***</td>
<td>.923***</td>
<td>.874***</td>
<td>-.308***</td>
<td>-.358***</td>
<td>-.266**</td>
<td>-.311***</td>
<td>.434***</td>
</tr>
<tr>
<td>Child Domain</td>
<td>.709***</td>
<td>.830***</td>
<td>-.321***</td>
<td>-.315***</td>
<td>-.314***</td>
<td>-.304***</td>
<td>-.463***</td>
<td>.463***</td>
</tr>
<tr>
<td>Parent Domain</td>
<td>.782***</td>
<td>-.248*</td>
<td>-.266**</td>
<td>-.186</td>
<td>-.260**</td>
<td>.340***</td>
<td>.340***</td>
<td>.340***</td>
</tr>
<tr>
<td>Affective Response</td>
<td>-.261**</td>
<td>-.302***</td>
<td>-.224*</td>
<td>-.276**</td>
<td>-.276**</td>
<td>.512***</td>
<td>.512***</td>
<td>.512***</td>
</tr>
<tr>
<td>PPVT-R IQ</td>
<td>.591***</td>
<td>.574***</td>
<td>.537***</td>
<td>.644***</td>
<td>-.208*</td>
<td>-.208*</td>
<td>-.208*</td>
<td>-.208*</td>
</tr>
<tr>
<td>Reading</td>
<td>.816***</td>
<td>.554***</td>
<td>.554***</td>
<td>.554***</td>
<td>-.194</td>
<td>-.194</td>
<td>-.194</td>
<td>-.194</td>
</tr>
<tr>
<td>Spelling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arithmetic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .01
**p < .001
***p < .0001
and its weakest relationship with the Parent Domain score.

**Maternal Stress and Child Outcomes.** The parental stress measures all have similar relationships with the various child outcome measures. Table 7 indicates that all measures of stress are negatively, and significantly, related to the child's IQ, suggesting that parents of intelligent children experience less stress in parenting. Higher correlations are obtained between IQ and both the Child Domain and the Total Stress scores ($p<.0001$) than between IQ and the Parent Domain score ($p<.01$) or between IQ and the Parent Affective Response Measure ($p<.001$). Reading achievement is negatively correlated to Total Stress, Child Domain, and PARM scores ($p<.0001$) and to the Parent Domain ($p<.001$) as well showing that parents with lower levels of stress have children who score high on reading achievement. Spelling skills are negatively related to Total Stress scores ($p<.001$), Child Domain ($p<.0001$), and PARM scores ($p<.01$). There is a lack of a significant relationship between Spelling achievement and the Parent Domain score of the PSI. There seems to be a trend toward stronger relationships between Reading achievement and the Parental Stress measures and for the Child Domain to have higher relationships with each of the IQ and achievement measures.
The Teacher's Perception of the Child's adjustment was positively related to each stress measure (p<.0001), indicating that children who are seen by their teacher as being deviant or poorly adjusted in the classroom in the direction of exhibiting hyperactivity, aggression, or defiance, have parents who are experiencing elevated levels of stress in coping with the child (Table 7). This relationship is strongest with the measure of Parental Affective Response and weakest with the Parent Domain.

**Predictor, Maternal Stress and Child Outcome Variables.**

The intercorrelations of predictor variables, maternal stress variables, and child outcome measures are presented on Table 8. Child's age was found to be unrelated to any parental stress variables, although trends were in the expected positive direction for relationships with Total stress (p<.05), Child Domain (p<.04), and Parental Affective Responses (p<.03) indicating a slight tendency for parents of older children to experience greater stress.

Mother's age, education, and occupational status were all unrelated to parental stress variables (Table 8). Maternal locus of control was significantly related to all four of the parental stress measures in a positive direction (p<.0001). Since higher scores on the PLOC refer to a more external locus, this means that mothers perceiving
the locus of control to be external to themselves tended to experience higher levels of stress in parenting. The strongest association is between locus of control and the PSI Total Stress. The weakest relationship was with the Child Domain score. Knowledge of Behavioral Principles was unrelated to parental stress. On the other hand, the mother's Perception of the Child was positively related to all four stress measures ($p<.0001$) and was most highly related to the Child Domain score. The relationship of lowest magnitude was between the mother's perception of the child and the Parent Domain.

Correlations between contextual and stress scores are also provided on Table 8. The size of the family was not related to any of the stress measures. Family income was negatively related to Total Stress ($p<.01$), and showed an even higher negative relationship with the Parent Domain and the Parent's Affective Response scores ($p<.01$). The highest relationships are between income and the Parent Domain. Thus, stress levels increased as income decreased. Parental support, or support from one's spouse in the area of parenting, was also found to be consistently, and negatively, related to parental stress. The strongest relationships were with Total stress ($r = -.41$, $p<.0001$) and the Parent Domain ($r = -.41$, $p<.0001$). The relationship between the Parental Alliance and the mother's affective
<table>
<thead>
<tr>
<th>Variables</th>
<th>Total Stress</th>
<th>Child Domain</th>
<th>Parent Domain</th>
<th>Affective Response</th>
<th>PPVT-R IQ</th>
<th>Reading</th>
<th>Spelling</th>
<th>Arithmet</th>
<th>Teachers Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td>.156</td>
<td>.163</td>
<td>.127</td>
<td>.172</td>
<td>-.107</td>
<td>.103</td>
<td>.093</td>
<td>.086</td>
<td>.133</td>
</tr>
<tr>
<td>Mother's Age</td>
<td>-.084</td>
<td>-.040</td>
<td>-.117</td>
<td>-.050</td>
<td>.069</td>
<td>.008</td>
<td>-.002</td>
<td>.136</td>
<td>-.090</td>
</tr>
<tr>
<td>Mother's Education</td>
<td>-.171</td>
<td>-.116</td>
<td>-.199</td>
<td>-.151</td>
<td>.317***</td>
<td>.258***</td>
<td>.217*</td>
<td>.157</td>
<td>-.054</td>
</tr>
<tr>
<td>Mother's Occupation</td>
<td>-.069</td>
<td>.002</td>
<td>-.117</td>
<td>-.029</td>
<td>.219*</td>
<td>.198</td>
<td>.170</td>
<td>.227*</td>
<td>.074</td>
</tr>
<tr>
<td>Locus of Control</td>
<td>.701***</td>
<td>.625***</td>
<td>.663***</td>
<td>.690***</td>
<td>-.231*</td>
<td>-.278**</td>
<td>-.182</td>
<td>-.210*</td>
<td>.254*</td>
</tr>
<tr>
<td>Behavioral Knowledge</td>
<td>.056</td>
<td>.094</td>
<td>.012</td>
<td>.028</td>
<td>.323***</td>
<td>.286**</td>
<td>.293**</td>
<td>.277**</td>
<td>.013</td>
</tr>
<tr>
<td>Perception of Child</td>
<td>.666***</td>
<td>.734***</td>
<td>.480***</td>
<td>.687***</td>
<td>-.250*</td>
<td>-.279**</td>
<td>-.175</td>
<td>-.280**</td>
<td>.580***</td>
</tr>
<tr>
<td>Family Size</td>
<td>-.026</td>
<td>-.063</td>
<td>.019</td>
<td>-.074</td>
<td>-.117</td>
<td>.001</td>
<td>-.032</td>
<td>-.060</td>
<td>-.096</td>
</tr>
<tr>
<td>Family Income</td>
<td>-.202*</td>
<td>-.147</td>
<td>-.239*</td>
<td>-.212*</td>
<td>.157</td>
<td>.085</td>
<td>.100</td>
<td>.244</td>
<td>-.073</td>
</tr>
</tbody>
</table>

*p<.01
**p<.001
***p<.0001
responses to stress (PARM) was slightly weaker ($r = -.36$, $p < .0001$) and was weakest with the Child Domain ($r = -.33$, $p < .0002$).

**Child, Parent and Contextual Variables.** Correlations among the predictor variables are shown on Table 9. Child's age was not significantly related to any of the parental or contextual variables, although a positive trend was noted to exist between child's age and parental locus of control ($p < .06$) suggesting that parents of older children may perceive the source of control in parenting to lie outside themselves.

Maternal age was positively related to maternal educational level ($p < .01$) indicating that older mothers tended to be better educated. Maternal education was also positively related to knowledge of behavioral principles ($p < .0001$) indicating that mothers who were better educated also tended to exhibit greater knowledge of behavioral and learning principles. Maternal locus of control was positively related to the mother's perception of the child ($p < .0001$), indicating that mothers with external perceptions of control tended to perceive their children as more maladjusted.

Correlations among contextual variables are shown on Table 9. Maternal occupation was positively related
Table 9

Intercorrelations of Predictor Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mother Age</th>
<th>Mother Education</th>
<th>Mother Occupation</th>
<th>Locus of Control</th>
<th>Behavioral Knowledge</th>
<th>Perception of Child</th>
<th>Family Size</th>
<th>Family Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Age</td>
<td>.134</td>
<td>.051</td>
<td>-.024</td>
<td>.146</td>
<td>.034</td>
<td>.111</td>
<td>.176</td>
<td>-.002</td>
</tr>
<tr>
<td>Mother Age</td>
<td>.239*</td>
<td>.131</td>
<td>.053</td>
<td>.185</td>
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<td>.016</td>
<td>.208*</td>
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<td>-.040</td>
<td>.442***</td>
<td>-.128</td>
<td>-.032</td>
<td>.459***</td>
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<tr>
<td>Mother Occupation</td>
<td>-.019</td>
<td>.370***</td>
<td>-.004</td>
<td>-.155</td>
<td>.419***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locus of Control</td>
<td>.055</td>
<td>.403***</td>
<td>.021</td>
<td>-.012</td>
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<td></td>
<td></td>
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<tr>
<td>Behavioral Knowledge</td>
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<td></td>
<td>.051</td>
<td></td>
<td>.327***</td>
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<td></td>
</tr>
<tr>
<td>Perception of Child</td>
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<td></td>
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<td></td>
<td></td>
<td>-.138</td>
<td>-.190</td>
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<tr>
<td>Family Size</td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*p<.01  
**p<.001  
***p<.0001
to family income ($p < .0001$) indicating that mothers with more prestigious occupations also tended to live in families making more money. Maternal occupation was not significantly related to family size. Neither was family size significantly related to family income. There was a nonsignificant trend toward a negative relationship between Parent Alliance and family income ($r = -16, p < .07$) suggesting that mothers in couples with lower incomes may experience less support in parenting from their husbands.

Correlations among scores for parent and contextual variables are shown on Table 9. None of the parent variables were related to the size of the family. Parental Alliance scores were negatively related to locus of control for mothers ($r = -.33, p < .001$) and to perception of the child scores ($r = -25, p < .01$) for mothers in the mothers-only and couples groups. Support from the spouse in parenting issues is found to increase as locus of control becomes more internal and as the child is perceived to be more well-adjusted. Family income was positively related to maternal age ($p < .01$), education ($p < .0001$), occupational status ($p < .0001$), and knowledge of behavioral principles ($p < .0001$). Mothers who have higher levels of education exhibit greater knowledge of child management principles. Also, they have more prestigious jobs and their families have higher incomes.
Regression Analyses

The results of stepwise multiple regression analyses using child outcome variables as the dependent variables are presented first and are included on Table 10. Stepwise multiple regression analyses for the entire sample using maternal stress variables as the dependent variables and in which the Parent Alliance variable is omitted are presented second and are represented on Table 11. Following these, hierarchical multiple regression analyses on maternal stress variables for the entire sample in which the Parent Alliance variable is omitted are presented on Table 12. Finally, stepwise multiple regression analyses on maternal stress measures for Groups 2 and 3 in which the Parent Alliance scores are included where appropriate are presented on Table 13.

Stepwise multiple regression analyses were chosen initially because, although the model being explored suggests general guidelines regarding entry of variables into the regression equations, that is, placing parent variables first, followed by contextual and child variables, specific guidelines are lacking. Hierarchical multiple regression analyses were subsequently attempted based upon best guesses of the ordering of variables into the equations.
Predictors of Child Outcome. Variables considered as predictors of child outcomes included the child, parent, and contextual characteristics and the parental stress scores. Child outcome measures included the child's IQ, Reading, Spelling, and Arithmetic achievement scores, and the Hyperactivity Index from the Conners Teacher's Rating Scales. Results of stepwise multiple regressions involving these variables are shown on Table 10. Only scores meeting the .15 level of significance were entered into each equation.

A stepwise multiple regression was performed on the Child's IQ scores resulting in a two-variable equation. Maternal Knowledge of Behavioral Principles was entered and retained first, accounting for 10.4% of the variance, and was followed by the Child Domain Stress scores, accounting for an additional 12.4% of the variance. This equation accounted for 22.9% of the variance of the child's intelligence.

A stepwise multiple regression run on Reading achievement indicated that Reading achievement was predicted by a two-factor equation initiated by the Child Domain scores, accounting for 14.8% of the variance, and completed by the Maternal Knowledge of Behavioral Principles, accounting for an additional 10.4% of the variance,
Table 10

Predictors of Child Outcomes Measures:
Stepwise Multiple Regression (n=163).

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictor Variable</th>
<th>Partial $R^2$</th>
<th>Model $R^2$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT-R IQ</td>
<td>Knowledge of Behavior Principles</td>
<td>.104</td>
<td>.104</td>
<td>18.70****</td>
</tr>
<tr>
<td></td>
<td>Child Domain Stress</td>
<td>.124</td>
<td>.229</td>
<td>25.89****</td>
</tr>
<tr>
<td>Reading Achievement</td>
<td>Child Domain Stress</td>
<td>.148</td>
<td>.148</td>
<td>28.03****</td>
</tr>
<tr>
<td></td>
<td>Knowledge of Behavior Principles</td>
<td>.104</td>
<td>.253</td>
<td>22.35****</td>
</tr>
<tr>
<td>Spelling Achievement</td>
<td>Child Domain Stress</td>
<td>.099</td>
<td>.099</td>
<td>17.60****</td>
</tr>
<tr>
<td></td>
<td>Knowledge of Behavior Principles</td>
<td>.105</td>
<td>.203</td>
<td>21.01****</td>
</tr>
<tr>
<td>Arithmetic Achievement</td>
<td>Total Stress</td>
<td>.097</td>
<td>.097</td>
<td>17.27****</td>
</tr>
<tr>
<td></td>
<td>Knowledge of Behavior Principles</td>
<td>.087</td>
<td>.184</td>
<td>16.99****</td>
</tr>
<tr>
<td>Teacher's Perception of Child</td>
<td>Parent's Perception of Child</td>
<td>.337</td>
<td>.337</td>
<td>81.75****</td>
</tr>
<tr>
<td></td>
<td>Parent's Affective Response</td>
<td>.024</td>
<td>.361</td>
<td>6.03*</td>
</tr>
</tbody>
</table>

*p<.05
**p<.01
***p<.001
****p<.0001
resulting in an equation accounting for 25.3% of the variance in Reading achievement.

Stepwise multiple regressions run on Spelling achievement scores also resulted in a two-variable equation initiated by the Child Domain variable which accounted for 9.9% of the variance, and completed by the Maternal Knowledge of Behavioral Principles variable, accounting for an additional 10.5% of the variance. The equation accounted for 20% of the variance in Spelling achievement.

Stepwise multiple regressions performed using Arithmetic achievement as the criterion variable indicated that Arithmetic achievement was predicted by a very different two-factor equation. The first variable in the equation, PSI Total Stress, accounted for 9.7% of the variance. Mother's Knowledge of Behavioral Principles, as the second variable in the equation, accounted for another 8.7% of the variance. Taken together these variables accounted for 18% of the variance in Arithmetic achievement.

The Teacher's Perception of the Child is a measure of the child's emotional and behavioral adjustment. A total of 36% of the variance of this measure is accounted for by the two-factor stepwise multiple regression equation consisting initially of Maternal Perception of the Child, which accounted for 33.7% of the variance and, secondly,
by the Parent's Affective Response measure, which accounted for an additional 2.4% of the variance.

A brief look at Table 10 indicates that each outcome measure is predicted by a regression equation that includes a variable representing some aspect of maternal stress. The intelligence and achievement measures are also predicted by Maternal Knowledge of Behavioral Principles, in each case predicting approximately 10% of the dependent variable variance. The stress variables are also restricted in the range of their predictive abilities, from 10% for the achievement measures to 12% for the intelligence measure. Contextual factors add only to the predictive equation for the child's IQ and only 2% in that equation.

Predictors of Maternal Stress: Belsky (1984) predicted that parent psychological factors would have the most power in predicting parental functioning, with contextual factors being of secondary importance, and child characteristics having the least predictive power in the equation. The correlation matrix suggested strong correlations that were congruent with Belsky's argument. Stepwise multiple regressions were run on the four stress measures and on the child outcome measures. Variables were entered in the order of their correlations with the criterion variable. When several variables with high correlations were,
themselves, intercorrelated, the variable with the highest apparent ratio of correlation to the criterion versus correlation to the other predictors was chosen. The results matched those obtained when the variables were subsequently entered into a hierarchical regression analysis in the approximate order that the Belsky model would predict.

Belsky's (1984) model suggests entering parent psychological variables first into the hierarchical equations predicting parental stress. The Mother's Perception of the Child was first among these as it seems to relate most clearly to the presumed behavioral sources of stress. Maternal Locus of Control was entered second as previous research has suggested that it has a powerful relationship to parenting behavior and sense of competence. Knowledge of Behavioral Principles was entered third due to its presumed ability to reduce stress and, therefore, to be negatively related to it. Contextual variables were then considered with Family Income entered next in the equations. Parental Alliance was entered before Family Income in the regressions run separately on Groups 2 and 3.

As noted, stepwise regressions were run initially based upon the correlations as a way of testing the model without a priori assumptions. The results for the entire sample of mothers are shown in Table 11.
was not entered for any of the regressions run on the entire sample of mothers. Separate regressions had to be run on the 121 mothers in Groups 2 and 3 in order to investigate the predictive influence of spousal support using the Parental Alliance Scale as this measure was not available for the 42 single mothers of Group 1.

Table 11 includes the variables in the order in which they are ultimately entered in the regression equation, the percentage of variance accounted for by each variable controlling for all other variables in the model (i.e., the squared semipartial correlation), followed by the total percentage of variance accounted for by all predictors in the equation and, finally, the F value. Maternal Locus of Control was the primary predictor of PSI Total Stress, accounting for 49.1% of the variance. Maternal Perception of the Child, as the second predictor, accounted for an additional 17.6% of the variance and Income, as the third predictor, accounted for another 1.2% of the variance. The final equation predicted almost 68% of the variance of the Total Stress Score. No further variables were significant predictors at the .05 level.

Four significant predictors of the Child Domain Score were found in a stepwise multiple regression, with Maternal Perception of the Child accounting for 53.9% of the variance. Maternal Locus of Control added another 13%
of the variance. The child's Spelling Achievement score accounted for another 2.1% of the variance and Mother's Behavioral Knowledge added a final .9% of the variance to the equation. The final regression equation predicted 69.9% of the variance in Child Domain Scores.

Stress as measured by the Parent Domain scores is predicted by a combination of three variables. Maternal Locus of Control enters the stepwise multiple regression equation first, accounting for 43.9% of the variance. Maternal Perception of the Child enters second adding only 5.4% more. Finally, Family Income adds 3.5% more so that the final three-variable equation accounts for 52.9% of the variance of stress arising from non-child-related sources.

The Parent Affective Response is an attempt to derive a measure of parental emotional response to stressors arising from parenting, rather than to measure such cognitive responses as attributions, expectations, or beliefs. The multiple regression equation was expected to be slightly different than for the other stress measures. The first entry into the equation is Maternal Locus of Control, accounting for 47.6% of the variance. Maternal Perception of the Child adds an additional 20%. The Teacher's Perception of the Child accounts for an additional 1.6% and Family Income adds 1.5% to result in a multiple
Table 11

Predictors of Maternal Stress:
Stepwise Multiple Regressions on Stress Measures

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictor Variables</th>
<th>Partial R²</th>
<th>Model R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI Total</td>
<td>Locus of Control</td>
<td>.491</td>
<td>.491</td>
<td>155.23****</td>
</tr>
<tr>
<td></td>
<td>Perception of Child</td>
<td>.176</td>
<td>.667</td>
<td>84.39****</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>.012</td>
<td>.679</td>
<td>6.16*</td>
</tr>
<tr>
<td>PSI Child Domain</td>
<td>Perception of Child</td>
<td>.539</td>
<td>.539</td>
<td>188.56****</td>
</tr>
<tr>
<td></td>
<td>Locus of Control</td>
<td>.130</td>
<td>.669</td>
<td>62.64****</td>
</tr>
<tr>
<td></td>
<td>Child's Spelling</td>
<td>.021</td>
<td>.690</td>
<td>10.79***</td>
</tr>
<tr>
<td></td>
<td>Knowledge of Behavior</td>
<td>.009</td>
<td>.699</td>
<td>4.52*</td>
</tr>
<tr>
<td>Parent Domain</td>
<td>Locus of Control</td>
<td>.439</td>
<td>.439</td>
<td>126.03****</td>
</tr>
<tr>
<td></td>
<td>Perception of Child</td>
<td>.054</td>
<td>.494</td>
<td>17.19****</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>.035</td>
<td>.529</td>
<td>11.94***</td>
</tr>
<tr>
<td>Parent's Affective</td>
<td>Locus of Control</td>
<td>.476</td>
<td>.476</td>
<td>145.99****</td>
</tr>
<tr>
<td>Response</td>
<td>Perception of Child</td>
<td>.200</td>
<td>.676</td>
<td>98.75****</td>
</tr>
<tr>
<td></td>
<td>Teacher's Perception of</td>
<td>.016</td>
<td>.692</td>
<td>8.20***</td>
</tr>
<tr>
<td></td>
<td>Child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>.015</td>
<td>.706</td>
<td>7.97**</td>
</tr>
</tbody>
</table>

N=163
*p<.05
**p<.01
***p<.001
****p<.0001
regression equation that accounts for 70.6% of the variance of the parent's affective response to the demands of parenting.

Predictors of Maternal Stress - A Theoretical Approach. Hierarchical regression analyses were performed in order to further test the fit of the Belsky (1984) model to the data. The variables selected for the stepwise analyses were selected based upon the magnitude of their correlations with the dependent variables and this largely happened to match the variables that would have been selected according to the model. As noted earlier, the ordering of specific variables was not clearly defined by the model and represents educated guesses based upon previous research.

The model suggests entering parent psychological variables first, followed by contextual, and then child, variables. No help is provided in trying to order contextual variables that seem of greater relevance than certain parent psychological variable, as an example, or in ordering variables within a source. Maternal Locus of Control was entered first in the equation predicting Total Stress scores as this psychological variable seems to account for a large part of the variance in parental functioning in previous research. Parental Perceptions
of the Child was entered next for very similar reasons as these variables seem to be of equal predictive importance from a theoretical standpoint. These were the initial variables entered in the four multiple regression analyses due to their theoretical importance in determining parental stress.

Knowledge of Behavior Principles was entered as the third variable in the equation predicting Total Stress only because it represents parent psychological functioning. Little information is available regarding this variable and seems to be equivocal. However, it was assumed that knowledge of such principles should offer coping strategies that might have an impact in protecting the parent from stress. Income was entered fourth as this seemed to be a very important contextual variable that might outweigh the remaining parental factors in providing a general 'setting' that has pervasive effects on parental functioning. Maternal educational level and occupational status were entered next as the former was assumed to represent a range of coping abilities and the potential to acquire new skills whereas the latter was viewed as being a potential source of additional stress as well as having stress-alleviating properties. Finally, the child's IQ was entered last as the model predicts that child variables are of least significance and child intelligence
seemed to best capture a general sense of the child's overall developmental status.

The results of the multiple regression analysis using Total Stress as the dependent variable are identical to those produced by the stepwise analysis. Locus of Control was the primary predictor, accounting for 49.1% of the variance, and Maternal Perception of the Child entered second, accounting for another 17.6%. Finally, Income entered third, accounting for an additional 1.2% of the variance, resulting in an equation that accounted for a total variance of 67.9%.

Maternal Locus of Control and Perceptions of the Child were entered as the first two variables in an equation predicting the Child Domain scores for reason given earlier. Knowledge of Behavioral Principles was then entered as it seemed that such knowledge would have its greatest influence on stress experienced in trying to cope directly with the child's behavior. Child's IQ was the final variable entered as all other variables were presumed to be of minor influence in comparison to these factors in predicting child-related stress.

Locus of Control was the primary predictor in predicting Child Domain scores in accounting for an initial 53.9% of the variance. Maternal Perception of the Child accounted for another 13% of the variance and the child's
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictor Variable</th>
<th>Partial R²</th>
<th>Model R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI Total</td>
<td>Locus of Control</td>
<td>.491</td>
<td>.491</td>
<td>155.23****</td>
</tr>
<tr>
<td></td>
<td>Mother's Perception of Child</td>
<td>.176</td>
<td>.667</td>
<td>84.39****</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>.012</td>
<td>.679</td>
<td>6.16*</td>
</tr>
<tr>
<td>PSI Child Domain</td>
<td>Mother's Perception of Child</td>
<td>.539</td>
<td>.539</td>
<td>188.56****</td>
</tr>
<tr>
<td></td>
<td>Locus of Control</td>
<td>.130</td>
<td>.669</td>
<td>62.64****</td>
</tr>
<tr>
<td></td>
<td>Child's IQ</td>
<td>.008</td>
<td>.677</td>
<td>4.01*</td>
</tr>
<tr>
<td>PSI Parent Domain</td>
<td>Locus of Control</td>
<td>.439</td>
<td>.439</td>
<td>126.03****</td>
</tr>
<tr>
<td></td>
<td>Mother's Perception of Child</td>
<td>.054</td>
<td>.494</td>
<td>17.19****</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>.035</td>
<td>.529</td>
<td>11.94***</td>
</tr>
<tr>
<td>Affective Response</td>
<td>Locus of Control</td>
<td>.476</td>
<td>.476</td>
<td>145.99****</td>
</tr>
<tr>
<td></td>
<td>Mother's Perception of Child</td>
<td>.200</td>
<td>.676</td>
<td>98.75****</td>
</tr>
<tr>
<td></td>
<td>Teacher's Perception of Child</td>
<td>.016</td>
<td>.692</td>
<td>8.20**</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>.015</td>
<td>.706</td>
<td>7.97**</td>
</tr>
</tbody>
</table>

*p < .05
**p < .01
***p < .001
IQ scores accounted for a final .8% of the variance. The total variance accounted for by this equation was 67.7%.

Locus of Control and Perceptions of the Child were again the initial variables entered into the analysis in predicting the Parent Domain scores. Income was entered third as this was assumed to relate most closely to situational sources of stress as are measured by the Parent Domain scores. Maternal education and occupational status were then entered as they also capture major elements of the parents' environmental and personal context. Locus of Control again was the primary predictor in accounting for 43.9% of the variance. Maternal Perceptions of the Child subsequently accounted for an additional 5.4%, and Income accounted for a final 3.5%, of the variance. This equation accounted for 52.9% of the total variance of the Parent Domain scores.

The maternal Affective Response Measure was developed to measure the emotional components of parental stress. The items are heavily focused on emotional responses to actual child behavior or competencies. It was thus assumed that perceptions and attributions regarding the child's behavior would primarily influence scores on this measure. The teacher's Perceptions of the Child variable was entered after the Locus of Control and maternal Perceptions of the Child variables as this was felt to represent either
validation or contradiction of the mother's perceptions of the child. The child's IQ was then entered as it reflected developmental status. Income was then presumed to represent the contextual variables. Maternal education and occupational status were assumed to provide further predictive power as these are variables that might be related to contextual sources of stress and abilities to create less stressful environmental contexts.

Maternal Locus of Control was, again, the primary predictor, accounting for 47.6% of the variance, and maternal Perceptions of the Child was second, accounting for an additional 20%. The Teacher's Perceptions of the Child entered as the third predictor, accounting for another 1.6% of the variance, and Income was the fourth significant predictor of parental affective stress responses, accounting for a final 1.5% of the variance. Total variance accounted for by this equation was 70.6%

Predictors of Maternal Stress - Couples. Separate stepwise multiple regressions were run on the stress variables for the 121 mothers of the Couples and Mother-only groups in order to determine the influence of spousal support as measured by the Parental Alliance Scale on parental stress and are presented on Table 13.

This subgroup of the total sample produced slightly
modified regression equations due to a combination of the addition of the Parental Alliance variable into the equations and to the reduced sample size. A stepwise multiple regression analysis with the PSI Total Stress scores as the dependent variable results in a three-variable regression equation that accounts for 71.7% of the total variance. The first variable entered, maternal Locus of Control, accounts for an initial 54.2% of the variance. Maternal Perception of the Child enters second and accounts for an additional 16.1% of the variance. The final entry, Parental Alliance, accounts for another 1.4% of the variance.

The changes in the multiple regression altered the equation predicting the PSI Child Domain by limiting the equation to three variables that account for a larger percentage of the variability. Maternal Perception of the Child remains the first entry, accounting for 54.3% of the variance, and maternal Locus of Control enters second, accounting for an additional 18.5% of the variance. The third variable entered into the equation, Spelling achievement, accounts for 1.2% of the variance. This combination of variables accounts for 74% of the variance.

The addition of the Parental Alliance variable resulted in a very different set of predictors for the Parental Domain source of stress. The first two predictors entered
Table 13

Predictors of Parental Stress - Couples:
Stepwise Multiple Regressions Including Parental Alliance

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Predictor Variable</th>
<th>Partial R²</th>
<th>Model R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI Total</td>
<td>Locus of Control</td>
<td>.542</td>
<td>.542</td>
<td>140.60****</td>
</tr>
<tr>
<td></td>
<td>Perception of Child</td>
<td>.161</td>
<td>.703</td>
<td>64.00****</td>
</tr>
<tr>
<td></td>
<td>Parental Alliance</td>
<td>.014</td>
<td>.717</td>
<td>7.36*</td>
</tr>
<tr>
<td>PSI Child Domain</td>
<td>Perception of Child</td>
<td>.543</td>
<td>.543</td>
<td>141.24****</td>
</tr>
<tr>
<td></td>
<td>Locus of Control</td>
<td>.185</td>
<td>.728</td>
<td>80.28****</td>
</tr>
<tr>
<td></td>
<td>Spelling Achievement</td>
<td>.012</td>
<td>.740</td>
<td>5.44*</td>
</tr>
<tr>
<td>PSI Parent Domain</td>
<td>Locus of Control</td>
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<td>.451</td>
<td>97.73****</td>
</tr>
<tr>
<td></td>
<td>Perception of Child</td>
<td>.051</td>
<td>.502</td>
<td>12.14***</td>
</tr>
<tr>
<td></td>
<td>Parental Alliance</td>
<td>.029</td>
<td>.531</td>
<td>7.26**</td>
</tr>
<tr>
<td></td>
<td>Mother's Age</td>
<td>.022</td>
<td>.554</td>
<td>5.84*</td>
</tr>
<tr>
<td>Affective Response</td>
<td>Locus of Control</td>
<td>.493</td>
<td>.493</td>
<td>115.87****</td>
</tr>
<tr>
<td></td>
<td>Perception of Child</td>
<td>.192</td>
<td>.686</td>
<td>72.09****</td>
</tr>
</tbody>
</table>

N=121 Only couples were included in this analysis.
*p<.05
**p<.01
***p<.001
****p<.0001
into the stepwise multiple regression equation remain the same and with a slight loss of predictive power. As with the total sample, Maternal Locus of Control enters first and accounts for 45.1% of the variance. The second variable entered, Maternal Perception of the Child, accounts for another 5.1%. Parental Alliance then enters as the third predictor, followed by Mother's Age, accounting for an additional 2.9% and 2.2% of the variance respectively. The regression equation made up of these four variables accounts for 55.4% of the variance of parental stress arising from non-child sources.

The Parental Affective Response criterion is predicted by a regression equation comprised of the same two variables that initiate the equation for the entire sample of mothers. Their relative predictive powers increase as the semi-partial correlations are altered, and no other variables significantly added to the equation. Maternal Locus of Control is the first entry and accounts for 49.3% of the variance and maternal Perception of the Child enters second, accounting for another 19.2% of the variance. This multiple regression equation accounts for 68.6% of the total variance of the Parent Affective Response.

Hierarchical analyses were not run on the 121 cases comprising the married parents. The stepwise analyses indicated that parental support added significantly to
predictive equations predicting total and contextual sources of stress, in keeping with the overall model.

**Summary** Multivariate analyses of variance and covariance failed to support the hypothesis of group differences in maternal stress as a function of parental status.

The results supported the Belsky (1984) model in finding that such parent psychological characteristics as locus of control, perceptions of the child's adjustment, and maternal knowledge of behavioral principles were primary determinants of parental stress. Contextual factors such as income and spousal support, and child factors such as Spelling achievement and teacher's perceptions of the child also added to the prediction of various stress measures.

Parental stress was shown to mediate between child, parent, and contextual factors and child outcomes. Furthermore, all other primary or secondary predictors of child outcomes were parent psychological variables as knowledge of behavioral principles added substantially to the prediction of the child's IQ and of each of the academic achievement scores. The mother's perception of the child added substantially to the prediction of the teacher's perception of the child's behavioral adjustment.

These results are discussed in the next section in light of past research and future directions.
CHAPTER V

DISCUSSION

Group Differences

Parental Status. The hypothesis that parental stress levels would vary as a function of parenting status was not supported. Although trends were in the expected direction, with single mothers showing higher scores than the mothers in the couples group on the Parent Domain of the Parenting Stress Index and on the PARM, the group differences did not reach an acceptable level of significance. Furthermore, the finding that the trend disappeared when PPVT-R scores were used as a covariate suggests that any possible group difference in parental stress was related to a group difference in child's nonverbal intelligence. Group differences found in the children's intelligence indicated that children of single mothers had the lowest IQ scores. Single mothers also tended to have higher stress scores, although not to a significant extent.
Children's intelligence may act as a subtle, but pervasive, source of stress as it is so closely related to academic and behavioral performance. Children with limited intellectual abilities tend to have greater difficulty in performing well academically. School-age children receive a large sense of their identity and self-esteem from feedback received regarding academic achievement. Poor academic achievement leads to negative interactions with teachers and parents resulting in increased frustration and rebellious behavior. Additionally, children with lower intelligence may have greater difficulty in judgment and in problem-solving reasoning so that they have greater difficulty in knowing how to follow rules or to make their parents happy.

It should also be noted that just as lower intelligence in children may influence stress levels in mothers, higher levels of chronic stress in mothers might have some impact on the cognitive development of children, as suggested by the results of the multiple regression on children's IQ scores. The levels of stress reflected in the PSI scores are usually seen to reflect longstanding stress. The effects of stress on short-term parent-child interactions are generally negative and often result in behavioral difficulty and noncompliance on the part of the child. Chronic parental stress is likely to have greater effects on child development, possibly even cognitive development.
Groups also did not differ in the numbers of mothers meeting or exceeding the clinical cutoff scores on the Parenting Stress measures, further supporting the lack of group effect on parental stress. The lack of group differences may partly be explained by the use of a non-clinical population which likely reduced the variability of the scores. A sample derived from a clinical population might be expected to have a wider range of stress scores with scores for those parents experiencing multiple stressors, such as single parenthood, lower incomes, and less prestigious occupations, being more extreme and adding greater variance, possibly serving to magnify any group differences that might exist.

The assumption was made that involvement of the fathers in responding to the study paralleled the clinical situation of father involvement in treatment which has been related to compliance with program demands (Dumas & Albin, 1986). Single mothers were seen as representing a complete lack of spousal involvement and support which has been found to be related to poor treatment outcomes (Webster-Stratton, 1985; Wahler, 1980; Dumas & Wahler, 1983). Previous research had also indicated that intact marriages predicted positive treatment outcomes for child difficulties (Strain, Young, & Horowitz, 1981) suggesting that there is something about dual-parenting that benefits parent and child functioning.
Results did not show that paternal involvement alleviated maternal stress. Paternal responsiveness and collaboration in a research project may therefore be a poor and very indirect measure of true collaboration and support in parenting as it does not relate to actual collaboration in direct discipline or training with regard to the child and is therefore unrelated to maternal stress levels.

Child Outcomes. The results of the present study show that whereas parental stress did not vary with parental status, child outcomes, particularly intelligence and behavioral adjustment, are affected by parental status. Sons of single mothers produce lower intelligence test scores on the PPVT-R than sons of collaboratively involved couples. This finding supports previous research indicating that children in single-parent families are at risk developmentally and behaviorally (Biller, 1981). Trends indicating that children in the couples groups tended to be better adjusted and more sociable are also consistent with previous research suggesting better adjustment among children in two-parent families.

Parent Characteristics. Mothers of the mothers-only group, in which husbands were not involved in the study, were younger than the mothers in the couples group. There
was also a nonsignificant trend for these mothers to be younger than the single mothers. Many of the single mothers were divorced or legally separated and, so, had previously been married for some time. It may be that the group with unsupported-mothers responding represented a group of relatively young mothers whose husbands were involved in beginning careers or whose husbands have not settled into a comfortable working relationship with them.

Educational status also differed as a function of parental status with the mothers in the couples group having higher levels of education than single mothers. This group difference was not attributable to age effects. A majority of the mothers whose husbands collaboratively responded to the research had achieved some post-high-school education whereas only slightly more than a third of the single mothers had with comparable ages achieved this level of education.

Mothers did not differ across the three groups in their perceptions or beliefs regarding the source of control or parental influence. Maternal perceptions regarding control loci are unrelated to presence or absence of a husband or levels of husband involvement as conceptualized in this study.

Mothers also did not differ across groups in their perceptions of their sons' behavioral adjustment. Thus, parental status is unrelated to parental stress, parental
locus of control, or perceptions of child adjustment.

A group effect was found for the mothers' knowledge of child management principles. Mothers who enjoy the collaborative involvement of their husbands exhibited greater knowledge of behavioral principles than mothers in either of the other groups. Mothers in the couples group may have been more knowledgeable regarding learning principles as they also had higher levels of education which may have made them more aware of the availability of such information and they might be better able to interpret and understand the information that they found.

**Contextual Variables.** Parental status accounts for differences in occupational status and family income across the three groups. Mothers in the couples group had more prestigious jobs than single mothers and, although the difference is not significant, a look at Table 1 indicates that the mothers in the couples group tended to have more prestigious jobs than mothers in the mothers-only group as well. Furthermore, mothers with husbands (Groups 2 & 3) have significantly higher levels of family income than single mothers. Mothers with husbands who are actively involved in parenting tended to experience a number of advantages, including better education, greater knowledge of child management principles, and better jobs. Higher income levels were also noted for these groups as they
generally had both parents earning income. Although it appears that socioeconomic advantages were not significantly related to lower parental stress levels, it may be that the single mothers in this sample were not experiencing heightened stress levels as are often found among clinic populations.

The "pile-up" effect noted by Webster-Stratton (1990) may not have been sufficient to create group differences. Single-parent status, lower income, and lower educational and occupational status are factors that did not combine to create differential levels of stress. In a normal population, child behavior may be benign enough to limit the effects of previously mentioned personal and contextual stressors. Furthermore, that these parents responded voluntarily to a research project suggests that they represent non-isolated, non-"insular" mothers, (Wahler, 1980) and may represent a group about which little is known.

It is understandable that mothers with higher educational levels would have greater knowledge of behavioral ideas as measured by the chosen instrument as the items are requesting advanced knowledge of such principles and are presented in a multiple choice format in which more than one response could be an appropriate response. This test may not be the best measure of parental understanding of appropriate child management approaches for different problems as it only addresses parenting issues
from a behavioral perspective and ignores other, equally valid, theoretical alternatives.

Mothers in groups 2 & 3 did not differ on a measure of parenting collaboration. Parental Alliance scores were essentially the same for the two groups. This further suggests that the division of the sample into three groups based upon father presence and involvement as an attempt to look at the effects of paternal involvement or maternal parenting status vis-a-vis parental support is inappropriate. Paternal involvement in a research project does not adequately tap potential differences in husbands' support of their wives' parenting efforts.

Mother-Father Differences. The 69 mother-father pairs in the couples group differed on relatively few variables. They had equivalent levels of educational attainment and occupational prestige, which may mean that they had either met in the context of similar educational or occupational settings, or had followed similar goals. Their perceptions of the source of control in parenting were highly similar.

The finding that fathers did not differ from mothers in their experience of stress contradicts previous findings of higher stress levels among mothers for mothers of learning-disabled (Konstantareas & Homatidis, 1989a) or behaviorally disturbed children (Breen & Barkley, 1988; Mash & Johnston, 1983). It may be that mothers and fathers
of non-clinic children do not differ in stress levels and that such differences are part of the overall problem that results in referral because the father's lack of stress may increase the mother's feelings of incompetence or at least serve to remove a potential source of validation of her feelings.

Fathers were found to be older in this sample and to have significantly less knowledge of behavioral principles. This is not surprising. Since the child advocacy and disciplinary role is still reserved for the mother (Konstantareas & Homatidis, 1989a) in this culture, mothers may acquire more knowledge of behavioral principles in preparation for the parental and/or in the course of role enactment.

Fathers also tended to feel more supported in their parental roles than did the mothers, in support of earlier findings (Guidubaldi & Cleminshaw, 1985). This may have occurred for several reasons. Given that mothers are the primary caretakers and child advocates, they are likely to do most of the work of parenting, reflecting the fathers' accurate picture of maternal effort and support. Furthermore, the mothers' greater knowledge of child management suggests that mothers are the better informed members of the parenting duo and therefore may more likely make the major decisions regarding the children. Finally, mothers may also be more sensitive to their husbands' needs
for support, and are better able to adequately provide such help. Fathers may not be as sensitive in recognizing their wives' need for support and they may lack the skills to provide such support effectively, given that they seem to lack knowledge of child management techniques.

**Intercorrelations**

**Child Outcomes.** As might be expected, children's intelligence and achievement scores are positively interrelated. Furthermore, the child's intellectual functioning is negatively related to behavioral adjustment as perceived by the teacher. Reading and Arithmetic achievement are also negatively related to the teacher's perceptions of the child. Children of limited intellect, or who exhibit academic delays, are more likely to be seen by their teacher as being behaviorally maladjusted. Spelling achievement also showed a nonsignificant trend toward a similar relationship with teachers' perceptions of the child. The relationship between child's IQ and teachers' perceptions is the strongest, suggesting that it is the more pervasive developmental status that is related to perceptions of maladjustment rather than specific academic delays or deficits.
Parental Stress. The various parental stress measures were all highly and positively interrelated. In fact, the positive relationship between the Child and Parent Domains of the PSI was higher than obtained on earlier studies described by the author in the test manual (Abidin, 1990). Non-clinic samples may produce lower variability on these measures and actually represent a more homogenous population with regard to parental stress than clinic samples. Both Domains were highly and identically related to the Total score, which is to be expected as they comprise the Total score.

It is interesting that the measure developed for this study in order to provide a more precise measure of the parents' stress-related affective responses to various aspects of parenting was more highly related to both Domain scores than these were to each other. It was also highly related to the overall stress score. This suggests that it may measure aspects of child characteristics as well as of parent psychological and contextual characteristics measured separately by the Child and Parent Domains. The PARM's high correlations with measures of child-related sources of stress and contextual/parental sources of stress suggest that it may be a valid, and brief, alternative in screening for parental stress.
Parental Stress and Child Outcomes. The negative relationships of all parental stress measures with the child's IQ indicate that limited intellectual functioning in the child is experienced as stressful by the parents. Child's intellectual functioning is most strongly related to child-related sources of parental stress that usually refer to frustrated parental expectations regarding child behavior, temperamental qualities, and developmental skills.

It appears that intellectual functioning may underlie a number of difficulties experienced by children and their parents, including limiting academic functioning. Some forms of academic difficulty are more distressing for parents than others. Reading appears to be the most distressing of the academic areas for parents. Reading may be given more importance in determining how a child will progress through school as it is increasingly important in the higher grades and pervades all subject areas. Spelling and Arithmetic, although still important to parents, do not seem to be associated with as much stress when the child is having difficulty. It might also be that Reading deficits are more difficult to identify and remediate, thereby leading to frustration, whereas Spelling and Arithmetic are often taught by repetition, practice, and rote memorization.
The positive relationships between the child's behavioral adjustment and parental stress indicates the importance for parents of the child's behavior in school. The strength of these relationships are higher than that found between the child's intellectual/academic functioning and parental stress. This supports previous research indicating that it is the child's behavioral characteristics, rather than intellectual or academic abilities, that are most highly related to parental distress (Johnston & Mash, 1989; Konstantareas & Homatidis, 1989b; Mash & Johnston, 1983b).

The relationship between the child's behavioral adjustment and parental stress levels is strongest with the PARM indicating that child aggression and noncompliance lead to affective responses that are very distressing for the parent. The strong relationship between the PARM and the PSI Child Domain indicates that much of this stress is related to child temperamental qualities. The lower relationship with the Parent Domain suggests that teachers' perceptions of the child's behavior are not as strongly related to parent psychological or contextual sources of stress. Perceptions of child behavioral functioning, regardless of source of the perception, are more highly related to maternal affective stress responses and to child-related sources of parental stress rather than to measures of personal or contextual sources of stress.
Child, Parent and Contextual Variables. The child's age was unrelated to all other parent or contextual variables. The intercorrelations indicated that older mothers are generally better educated, have more prestigious occupations, and have greater knowledge of behavioral principles. These mothers are likely to have gained such knowledge through the course of their education or, at least, are more aware of how to acquire such information regarding discipline, appreciate its importance, and acknowledge its potential usefulness.

The relationship between maternal locus of control perceptions and perceptions of child adjustment indicates that mothers who perceive control of the child's behavior to arise from some source outside of themselves also are more likely to see their child as being more deviant and difficult (Bugental, Blue, & Lewis, 1990; Mouton & Tuma, 1988; Mash & Johnston, 1983).

Relationships between parent and contextual factors indicate that mothers who felt that they were receiving support in the parental role from their spouse tended to exhibit a more internal sense of control as a parent. Likewise, mothers receiving little support from their husbands tended to believe that they were not the major source of control or influence over their child. It is difficult to tell whether the support helps to engender
an internal perspective regarding control issues, or whether mothers who see themselves as having control and influence over child-rearing issues do not see themselves as requiring much support and are therefore more content with what they receive. When they feel the need for support, they may also be more competent in eliciting it from their husbands. Conversely, mothers with an external locus of control may expect more support from their husbands and are more likely to thereby experience a deficit in support.

Mothers who receive support and help from their husbands also are more likely to perceive their children as being less difficult. Conversely, mothers who perceive their children to be difficult or maladjusted are more likely to feel that they are not being adequately supported in their efforts by their husbands (Webster-Stratton, 1988). It might be that husbands are willing to help in the role of parenting if they are working with a child that is perceived to be well-adjusted, but are not willing to do so when the child is difficult or non-compliant, as has been found in previous research (Bristol, Gallagher, & Schopler, 1988).

In addition, mothers with external perceptions of control were also noted to perceive their children to be more difficult. Thus, mothers who perceive their children to be difficult are likely to believe that they have no control or influence over the child and are more likely
to feel that they are receiving inadequate help and support from their husbands. These mothers might be seeing their children as being more deviant than their husbands see them (Johnson & Lobitz, 1974), leading to differing levels of stress and possibly contradictory attribution processes regarding locus of control, sources of compliance, or effective coping styles. This is a situation in which the mother might be expected to feel helpless and distressed in her efforts to help her child.

Finally, it has already been shown that mothers with higher education tended to be older and to have a greater knowledge of child management principles. These factors of age, better education, and greater knowledge do not seem to help alleviate stress for these mothers. Only higher income levels help them to reduce their stress. Presumably, this is due to their ability to pay for professional help in case of difficulties, and to pay for respite in the form of baby-sitters. Stress-reducing entertainment is more readily available to this group as well.

Theoretical Implications

**Predicting Child Outcomes.** Children's intellectual functioning is influenced by a large number of factors and, itself, influences surrounding factors in a
transactional manner. The results of this study indicated that the major predictors of the child's intellectual functioning were the mother's knowledge of child management principles and her experience of stress arising from qualities and characteristics of the child. Maternal understanding of learning principles may have helped mothers to provide a stimulating environment and to interact with their sons in a fashion that maximized the child's learning and cognitive development. Children with lower intellectual abilities are perceived as more stress-inducing by their parents and have parents lacking in an understanding of learning principles. This stress may interfere with the mother's ability to optimally intervene in order to help the child to learn. She may understand that her child is lacking in abilities and she may be frustrated in not having the knowledge or skills to facilitate her child's cognitive development.

Reading abilities of children are predicted by both parental child-related stress and knowledge of behavioral principles. Again, maternal child-related stress may interfere with the mother's ability to provide effective teaching opportunities or, her lack of knowledge regarding learning principles may prohibit her from being able to provide optimal learning opportunities for the child.
Spelling achievement is predicted by maternal child-related stress and knowledge of behavioral principles in much the same way as Reading. The manner in which such factors might operate is likely to be similar.

Arithmetic achievement, interestingly, is predicted primarily by the mother's overall experience of stress and, secondarily, by her knowledge of behavioral principles. It is unclear why overall maternal stress was more predictive of arithmetic ability and child-related stress was more predictive of reading when the pattern of correlations appear to be the same in each case.

The child's emotional and behavioral adjustment as perceived by the child's teacher is predicted primarily by the mother's perception of the child and secondarily by the mother's emotional response to the role of parenting. Children who were seen by their teachers as being difficult and non-compliant were also seen as being difficult by their mothers. Furthermore, their mothers tended to experience greater levels of emotional distress. Although the child's behavior may actually be difficult at home, it has become clear that it is the mother's perception of the child and reaction to that perception that determines her interactions with the child. Child misbehavior may be perceived negatively and, when accompanied by emotional over-reactions, results in inconsistency and interaction patterns characterized by
coerciveness, negativity, and attempts to control the child (Webster-Stratton, 1988; Patterson, 1980). Some form or measure of maternal stress in relation to parenting her son serves as a predictor of the child's outcome status in each outcome measure used. Maternal stress is the only factor that consistently predicts child outcomes, although in different ways for different outcome measures. Maternal stress may interfere with, and diminish, the mother's ability to focus her attention and concentrate on the educational or disciplinary task at hand (Patterson, 1980). Stress alters the mother's attentional abilities. Under stress, the mother's ability to focus on situation-specific characteristics of the child's behavior is impaired (Wahler & Dumas, 1989). Instead of responding differentially to complex arrays of situational cues, the parent begins to respond to generalized, internally held category beliefs regarding the child. These will often include such negative category labels as "bad," "lazy," or "defiant." Such labels give little useful information but act as cues trigering upper-limit control responses.

Parents, particularly abusive parents, tend to rely on such generalistic approaches much of the time. Other parents may only revert to such approaches under stress. Regression to this approach is facilitated if it has worked to limit child behavior in the past and if the child's negative behavior is a current source of stress. Negative
and controlling responses will be cued from a response-
class repertoire (Wahler & Dumas, 1989) of closely-related
and stereotypic behaviors. Chronic stress, or fluctuating
levels of stress over time, may result in fluctuating levels
of parental responses, resulting in inconsistency and
indiscriminate responding (Dumas & Wahler, 1985) further,
and rapidly, exacerbating child defiance or noncompliance.

Maternal distress is likely to lead to irritability
and negative interactions with the child, which lead to
ineffective parental problem solving and, subsequently,
to further irritability (Forgatch, 1989). This then leads
to rebellious acting out on the part of the child and the
initiation, or maintenance, of a coercive interaction
pattern with the mother (Patterson, 1982; Hammen, et al.,
1990).

Predicting Maternal Stress. Although Belsky's (1984)
model makes several general suggestions regarding factors
that predict parental stress and their relative predictive
powers, it does not specify the order of these variables
within each general area of influence. For example, he
claims that parent psychological factors are of primary
predictive power but does not clearly state which
psychological characteristics are most important. He also
does not make any claims regarding which psychological
factors might be most relevant. Stress has been presumed
to index parental functioning and to act as a parent variable serving to predict child outcomes (Abidin, 1990; Webster-Stratton, 1990).

The results of the multiple regression analyses strongly supported this model. Overall parental stress was predicted by a combination of the mother's perception of the locus of parental control, her perceptions of the child's adjustment, and family income, in that order. Total stress was thus predicted by two parent psychological variables and by a contextual variable, in the order predicted by the model. Maternal perceptions of control accounted for almost half of the variance of maternal overall stress indicating that the mother's perception of her effectiveness as a parent is the single most important predictor of her experience of stress arising from multiple sources.

Mothers' perceptions of the child added significant, although much less, predictive power. Mothers who perceived themselves to be lacking in control of their sons and who perceived their sons to be poorly adjusted had the greatest levels of stress. Family income adds a small amount to the predictive equation suggesting that limited income only adds slightly to the stress. On the other hand, mothers who perceive themselves to retain control and effectiveness, and who perceive their sons to be well-adjusted and make an adequate income will experience
the least amount of overall stress as a parent.

Measures of more specific sources of stress may be predicted by a different set of predictors or by a different ordering of the former set. For example, child-related maternal stress is strongly predicted by the mother's perception of the child's behavioral adjustment. Mothers perceiving their children to be poorly adjusted experienced the greatest amount of child-related stress. Maternal perceptions of external control and influence as a parent added significantly to the prediction of maternal child-related stress. The child's Spelling achievement and the mother's knowledge of behavioral principles add significant, but much lesser amounts of predictive power to produce a set of factors that predict almost 70% of the child-related stress variance. Mothers who believe that they retain control and influence, who feel effective as parents, and who perceive their child to be well-adjusted, experience minimal stress as parents. Knowledge of behavioral techniques and higher levels of spelling abilities in the child also help to limit stress for these mothers.

It is interesting that it is the mothers' perceptions of their children that predict stress and that a more objective representation of the child's adjustment, in the form of the teachers' perceptions, is not predictive of maternal stress arising from characteristics of the
child. On the other hand, it appears that maternal perceptions, whether of the child, of the mother, or of some aspect of the relationship between the two, that determines parental functioning and parental stress. In addition, measures derived from the same source tend to be more highly correlated, which may account for the higher relationship between the mother's perception of the child scores and the stress scores than between the teachers' scores and the parental stress scores.

Stress arising from situational and personal psychological factors is predicted by three factors that together account for almost 53% of the variance. Mothers who perceive themselves to retain control and influence as parents experienced less stress arising from relatively non-child-related sources. Just as parents who believe they have control over other areas of their lives tend to perceive themselves to have control and influence as parents (Olsen, 1989; Pearlin & Schooler, 1978), they may also see themselves as retaining control and influence over their own psychological functioning and over aspects of the family context. Their perceptions of the child's adjustment add a sizable amount of predictive power and family income adds a little more. The result is an equation indicating that mothers who perceive themselves to retain control as parents, who perceive their sons to be well-adjusted, and whose families have a good income experience
minimal levels of stress.

Maternal affective responses to the stresses of parenting were predicted by the mother's perceptions of control and, secondarily, by the mother's perceptions of the child's adjustment. The teacher's perceptions of the child's adjustment and family income add a little more predictive power to the equation. Thus, mothers who experience a great deal of emotional distress in the form of depression, anxiety, and worry, tend to perceive themselves to lack control over their sons, see their sons as being maladjusted, have sons who are seen by their teachers as being maladjusted, and have limited incomes.

This measure is important as symptoms of distress may act as cues that elicit a range of attributional processes. In the context of parenting, anxiety, frustration, and anger are likely to be attributed to external negative causes, i.e. the child, and the child's behavior is likely to be attributed to internal causes within the child, in keeping with the fundamental attribution error. Perceptions that the child engaged in misconduct over which he had control will lead to a negative emotion, and perceptions that the mechanisms leading to the misbehavior are stable and internal to the child may heighten the negative emotion (Dix & Grusec, 1985).
The emotion experienced is related to the parent's attribution regarding the location of control in the situation. Parents making external attributions are likely to experience negative emotions that further reduce their ability to cope by disrupting their problem-solving abilities. They continue to react emotionally and negatively. Their attention alternates such that they may overfocus on irrelevant or negative details (Wahler & Dumas, 1989), and may engage in interactions aimed at task completion rather than relationship enhancement (Bugental, et al., 1980) resulting in increased child non-compliance that further validates the perception of lacking the source of control over the child's behavior.

The mother then comes to label the child with a category label that implies globality, stability, and forces internal to the child, and presumably over which he has control, and over which she lacks control. The mother then comes to anticipate deviant behavior in an on-going fashion (Mash & Johnston, 1990; Balkwell & Halverson, 1980). Anticipation of negative behavior over which there is little control then results in stereotypically negative, upper-limit control (Bell, 1979) responses that are often not responsive to salient situational details (Wahler & Dumas, 1989). These responses are inner-generated according to inner perceptions and attributions (Mash & Johnston, 1990) and are not guided by a sophisticated appraisal of the
complexities of the situation (Wahler & Dumas, 1989). A distressed parent and child then mutually influence each other in a reciprocal and negative fashion that may evolve into a coercive pattern of interactions (Patterson, 1982).

Predicting Maternal Stress - A Theoretical Approach.
The results of the hierarchical multiple regressions in which variables were entered into the equations according to general theoretical guidelines, were very similar to the results of the stepwise multiple regressions in which the variables were entered according to the patterns of intercorrelations among the variables.

The only difference obtained was in the equation predicting the Child Domain. The stepwise procedure included the child's Spelling achievement scores and maternal knowledge of behavioral principles as significant predictors, whereas the hierarchical approach included the child's IQ as a significant predictor. The predictive power of these variables, after the influences of maternal locus of control and perceptions of the child are accounted for, are minimal. Theoretically, the child's intellectual functioning would seem to be more influential in predicting stress. However, its influence appears to be mediated by the child's Spelling achievement, which is a more readily observable entity. Although maternal knowledge of behavioral principles was entered into each equation of
the hierarchical regression analysis, only a nonsignificant trend was found.

The extreme similarity of results of the stepwise analyses that were based upon the data, and the hierarchical analyses that were based upon theory, reflect the accuracy of the theory and the closeness of the match between the data and the Belsky model.

**Predictors of Maternal Stress - Couples.** Parental Alliance, the perception that one's spouse is helpful and supportive in sharing the parental role, was included in multiple regressions of scores from the mothers in the mothers-only and couples group. It was found to add significantly in predicting Total stress scores and Parent Domain scores. Maternal locus of control and maternal perceptions of the child's adjustment remained the primary predictors of all measures of stress for mothers currently having husbands. Parental support and help from the husband provides a little more protection from the stresses of parenting, but not a sizable amount. Also, mother's age enters as a significant, although small, predictor of the Parent Domain scores as older mothers experience less stress.

Overall, the predictions of the Belsky model were supported as maternal stress was predicted more substantially by parent psychological factors than by all
others. Furthermore, maternal stress mediated these, and contextual factors, in predicting child outcomes. It appears that other parent psychological factors are important in predicting stress and child outcomes, as maternal perceptions of the child in combination with maternal stress, predicts child adjustment and independently predicts child outcomes.

Maternal knowledge of behavioral principles, also in combination with maternal stress, predicts the various child intelligence and academic achievement outcomes suggesting independent influence for behavioral knowledge on intelligence and academic achievement outcomes and for maternal perceptions of the child on child behavioral adjustment outcomes.

Clinical Implications. The results of this study have several implications for clinicians. It first provides insight into how maternal stress develops and influences developmental incomes. Secondly, it suggests a method of intervention for those mothers suffering from stress.

The present study suggests that such stress is most likely to develop when a mother with an external locus of control perceives her child as engaging in inappropriate behavior. Such a mother is likely to see the child as having proportionately more control over the behavior than she has. Furthermore, she may see that control as being
internal to the child in the form of personality or temperamental traits that are then perceived to be extremely difficult to alter or influence.

The current study suggests that such stress is most likely to develop when a mother with an external locus of control perceives the child to be engaging in inappropriate behavior. Low income and a nonsupportive husband may be factors that add marginally to the stress. Clinicians have traditionally tried to train such mothers in child management skills in hopes of helping them to gain control over the child, or have focused on altering the family system assuming that by removing parental inconsistencies and arguments that lead to tension and family disruptions, parental control over the child's behavior will improve. However, training in child management skills alone will not significantly reduce her stress. Her stress will make future therapeutic attempts difficult as stress affects her mood, perceptions of the child, and parenting behavior.

Alterations in parental functioning due to stress occur in several ways. Parental attention under stress is likely to be selectively oriented toward negative aspects of the child's past and current behavior (Fischer, 1990; Jouriles, Murphy, & O'Leary, 1989) and cannot take into account or discriminate relevant details of ongoing situations (Wahler & Dumas, 1989). Furthermore, the parent
is likely to make negative attributions regarding the behavior (Patterson, 1982). The threshold for calmly enduring negative child behavior is also reduced and affective reactivity may be increased (Fischer, 1990; Mash & Johnston, 1990). Vigilance may increase as the parent becomes mentally 'set' in anticipation of future negative behavior (Balkwell & Halverson, 1980). Negative mood may further result in an increase in commanding and critical behavior toward the child (Forehand & McMahon, 1981) which increases the likelihood of further noncompliance (Bugental, et al., 1980). Evolution of a coercive interaction pattern (Patterson, 1982) leads to increased child aggressiveness (Patterson, 1989) and may lead to increased externalization of parental locus of control, increased negative perceptions of child adjustment and, as indicated by the current findings, increased stress.

Mothers experiencing a great deal of stress in the parental role are likely to seek help from their husbands first. Fathers, however, experience less stress than mothers and have less skill and knowledge with regard to child management issues so that they either do not help, or help in an ineffective fashion. Also, fathers may lack the sensitivity to recognize that help is being sought and what the nature of that support is expected to be. Once the father has recognized the need to support his wife, he may lack the skills to do so adequately.
Traditional child therapy is often not effective in such cases because the child may not be deviant. Family therapy will not deal with the central issues as family interactions may not be disrupted, or because manipulation of systems of interactions may not adequately address the central issue of maternal stress as spousal support helps only little. Traditional parent training may not be effective because the mother does not believe that she is capable of being the source of control, she has made attributions placing the source of control external to herself, and her levels of stress and depression are altering her perceptions and exaggerating her responses so that she over-reacts to the child's behavior, labels neutral behavior as negative, and can not remain calm and assertive in her disciplinary approaches to the child. The results of this study suggest that administration of the Parental Locus of Control Scale, the Guidubaldi-Cleminshaw Parent Satisfaction Scale (Guidubaldi & Cleminshaw, 1985), or other measures of parenting satisfaction may help the clinician to assess important parental attitudes.

This study, and recent research, indicates that therapy in such situations must be multi-faceted. A diagnosis of the child must always rely on information from multiple sources as the distressed parent will provide negatively exaggerated data. Parental stress will need to be assessed
first in order to help in the diagnosis of the situation and to help in formulating a therapeutic approach. Parents who are extremely distressed may require individual therapy aimed at helping them to cope with their own depression and distress (Fischer, 1990).

Parent training will also need to be multifaceted and will need to include a stress-management component (Egan, 1983), education regarding child development, information and practice in behavioral principles as applied to the particular situation, marital therapy aimed at improving parental supportive communications, and educational feedback regarding the results of the assessment so that the parents can become aware of any developmental, academic, temperamental, behavioral, or emotional problems that are occurring with their child.

The current findings indicate that stress management must address maternal and paternal perceptions regarding locus of control and of the child. The stress management component will need to focus on cognitions regarding locus of control attributions, attributions regarding compliance, and beliefs regarding child intentionality. These cognitions determine how the parent will interact with the child and how the results of such interaction will be perceived. Parents will need to concentrate on control of their own emotions and on relationship-enhancing interactions with the child. They will need to recognize
that becoming overly focused on having the child engage in task completion interactions will increase frustration and opposition on the part of the child. This will be perceived by the parent as threatening, resulting in altered perceptions and negative reactions. Parents can be made aware of this process in order to prevent it.

Stress management will also need to focus on providing child management information that is directly related to the problems experienced by the family and the child's temperament and developmental status. Knowledge of various techniques that are usually effective will provide a wide repertoire of skills that can be called upon and will help to prevent feelings of helplessness and incompetence. Parents will need to be trained in attending and surveillance so that they can adjust their responses to situational cues and alterations in the child's behavior (Wahler & Dumas, 1989; Forehand & McMahon, 1981).

Management of stress will also need to include more traditional relaxation training and cognitive approaches so that parents can learn to plan ahead, relax and stay calm in the face of an assaultive child, and can be assertive in stating their expectations. Efforts should also focus on improving supportive communications between spopuses so that they can provide each other with both emotional and instrumental support.

Focusing on parent stress management helps to redirect
the focus of attention away from the child and places the burden for change on the parent. Certain child difficulties may need to be addressed by use of medication, individual or group therapy. Use of medications will need to take parental characteristics into account as parents with an external locus of control may overly rely on the medication, or the therapist, to produce and maintain positive changes in their child.

Directions for Future Research

Research on the effects on child outcomes of parental stress, depression, parent-child interactions, child temperament, and marital functioning will need to be more comprehensive. Only recently have researchers attempted to address the transactional influences that each of these areas has on the others. The development of coercive or negative interaction patterns has been related to a combination of difficult child temperament and maternal stress but multiple influences seem to be at work in determining how such interaction patterns evolve over time. The mechanisms by which stress affects parental functioning and behavior toward the child need to be further explored. Alterations in emotional reactivity (Bugental, et al., 1990) or in focus of attention toward distal events and irrelevant details (Wahler & Dumas, 1989) lead to inconsistent responses directed toward the child.
Alternative measures of stress are needed as most measures used have been self-reports, paper-and-pencil measures completed by the parents. Unfortunately, most outcome measures are also based upon reports delivered by the parents. Not only does this result in high correlations between similar measurement formats, but also between measures derived from the same source. Physiological measures (Gottman & Katz, 1989), observational measures, and descriptive measures provided by significant others would help in providing alternative indicators of stress.

Just as multi-method and multi-source measures are needed to measure parental stress, they are also needed to measure child behavior and adjustment. Behavioral observations in multiple settings and in interaction with different adults and peers, peer nomination measures, and child self-report measures could complement parent and teacher rating scales to reduce the problem of method and source error.

The Parenting Stress Index and the Questionnaire on Resources and Stress (Holroyd, 1974) are currently the best parental stress measures available. They both have limitations, however. The PSI is only useful for children under the age of 10 or 11, although it can be used to some extent for older children. Parents of older children find it to be difficult as it refers to activities of a younger
child. Also, the PSI is not appropriate for step-parents as it makes frequent references to infancy and past behaviors exhibited by the child. The QRS is a lengthy questionnaire that is aimed at assessing stress experienced by parents of handicapped children. Both instruments provide multiple scales and are well-researched. An instrument seems to be needed for parents and step-parents of normal children who are pubescent or post-pubescent.

The current research study was cross-sectional in design, as have been most studies of parenting stress and child outcomes. Longitudinal studies are greatly needed as age-differences may be too easily confounded with cohort differences for both parents and children. Longitudinal studies can address the development of the child, of the parent, and of the family as each negotiates various developmental tasks.

Limitations of the Study. A number of important problems limit generalization of the results of this study. Comparisons with a sizable clinic population was not possible but is indicated as a direction for future research. Given that a family is seeking help, different mechanisms may begin to predict parental stress and mother-father differences may appear.
This study was also unable to address child age differences more fully due to difficulties in obtaining adequate numbers of older boys. A further possible problem involves the 'stretching' of the PSI to apply to 13-year-old-boys. The PSI is meant to be used with parents of 10 years or younger. Also, step-parents have great difficulty in completing the PSI as several items refer to the child's infancy. Several parents asked questions regarding these issues and were told to respond to the best of their knowledge in each case.

More objective measures of the child's characteristics would have added a great deal to the study. No truly objective measure of the child's adjustment was collected. Much of the research about parental stress has had difficulties in confounding parent perceptions of the child's behavior and adjustment and the child's actual behavior and adjustment by using behavior rating scales as measures of child adjustment. This confound, in this study, may apply to the teacher's perceptions of the child measure as this was assumed to be a more objective measure of actual child adjustment. There are several difficulties in making this assumption. First, it does not take into account the teacher's level of stress and its effect on her perceptions. Also, method error may have had an effect on the results to some extent as the CTRS and CPRS are very similar instruments.
The current study was able to investigate predictors for each separate outcome variable individually but was unable to investigate the full range of possible interrelationships between the variables, including between the outcome variables. Multiple regression analyses represent rather limited approaches to studying such interrelationships when dealing with multiple outcome variables and possible mediating variables. Structural equation modeling approaches have become increasingly popular and are being used with increasing frequency in studies of this nature.

Finally, even though a wide range of income, occupational prestige levels, and educational backgrounds were reflected in this sample, the very method of data collection limited this range somewhat. All data was collected from the parents via questionnaires and checklists. Some of the material required a rather sophisticated level of reading comprehension and verbal reasoning, particularly the initial letter describing the original plan of the study, and the instrument measuring knowledge of behavioral principles.

As an aside, it is interesting to note that several parents made comments expressing concern that the questionnaires overly focused on negative issues. There seemed to be a tendency for this to occur for parents with minimal stress and well-adjusted children. These parents
seemed to be asking for an opportunity to report the positive experiences and emotions that they have experienced in raising their children. Instruments reflecting such positive activities, emotions, and relationships certainly are needed so that these exceptionally positive families are better represented. One parent's report that watching her son develop was a 'daily celebration' reflects a level of involvement and contentedness that is rarely captured in a paper-and-pencil questionnaire.

Summary and Conclusions This study was an attempt to investigate the determinants of parental functioning and child outcomes. General assumptions were derived from a model developed by Jay Belsky (1984). Since the time that article was published, a number of models of parental functioning have been proposed. Most focus on parental functioning as a predictor of child outcomes (Wolfe, 1987; Baldwin & Skinner, 1989; Webster-Stratton, 1990) and Abidin (1990) particularly emphasizes the effects of parental stress on parental functioning whereas Belsky (1984) sees parental stress as an index of parental functioning. Recent research is increasingly incorporating stress arising from parent-child interactions into the model (Hammen, Burge, & Stansbury, 1990; Mash & Johnston, 1990). All of these models agree on the centrality of parental functioning in determining child outcomes. Additional sources of stress
or 'buffers' are often included, depending upon the author's theoretical viewpoint or line of research.

Boys between the ages of 7 and 13, inclusive, were sought for this study. A sample of 163 boys and their mothers, as well as 69 fathers, was obtained. The boys were given a brief intelligence test and academic achievement test. Mothers were asked to complete a series of questionnaires and checklists that were identical to a series completed by the fathers except that mothers were also asked to complete a standardized behavior rating scale. Teachers also completed a behavior rating scale. Whereas the children were administered the tests at school, the parent responses were received by mail.

The current findings strongly support the Belsky (1984) model in which child, parent, and contextual factors are posited as determining parental functioning. Furthermore, the finding that maternal stress was predicted by parental locus of control and perceptions of the child confirms Belsky's hypothesis that parent psychological influences would be of greatest influence. The strength of this prediction was impressive. All other predictive factors added only minimally to the predictive power, although the ordering of these additional factors also supported the theoretical predictions that contextual factors would be of secondary importance, followed by child factors.
The central role played by parental cognitions regarding issues of control and perceptions of their sons indicate the importance of investigating parental beliefs, attributions, perceptions, and other cognitions. Structural-developmental researchers may find an orderly progression in the development of parental understanding of children, compliance, and the parent-child relationship. Newberger's development of the parental awareness construct falls along these lines. Theories of induction, reflection-enhancement approaches, and parents' beliefs about how children learn are all being explored. New directions could be taken to integrate the various theories. Just as developmental psychopathology addresses abnormalities as normal development gone awry, family dysfunction may come to be seen as systemic development gone awry as parents and their families have difficulties in negotiating normal developmental tasks of parenting, many of which have yet to be identified.

Belsky's (1984) view that parental functioning and stress (Abidin, 1990) mediate the influence of child, parent and contextual influences on child development was also supported as some measure of parental stress was involved in predicting each of the child outcome measures. Other parent psychological variables added independently to the prediction of the outcome measures, with knowledge of behavior principles helping to predict child's intelligence.
and academic achievement and parental perceptions of the child helping to predict teacher's perceptions of child adjustment.

Parental support also adds some small predictive power in dual-parent families, although this may be more relevant in a clinic population. The study supports the theoretical importance of parental cognitions in determining parental and child functioning and suggests that a constructivist perspective might be an appropriate theoretical approach to investigating and clinically intervening in parent-child relations.

Clinical implications for improving the therapy effectiveness through assessment and management of parental stress were presented.
APPENDIX A

MEASURES
PLEASE NOTE

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158-184, Appendix A
186-195, Appendix B

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APPENDIX B

INSTRUCTIONS TO SUBJECTS
APPENDIX C

SUBJECT RECRUITMENT INFORMATION
Dear Parents or Guardians,

Educators and researchers are increasingly interested in the attitudes and experiences that parents have with regard to child-rearing. Over the course of the school year, we at The Ohio State University will be conducting a study to examine the manner in which parental beliefs, attitudes, and feelings of support are related to specific child characteristics. More specifically, we will explore the influence of child characteristics, parent characteristics, and family support and resources on how parents feel about parenting. Child characteristics will include school behavior, verbal intelligence, academic skills, and age. Parent characteristics will include parents' feelings of being in control of events and their knowledge about child rearing. Family supports and resources will include parental educational and occupational status and cooperation between the parents in their child-rearing efforts. At this time we will be including only boys in the study.

We are writing to request your participation and that of your son whose age falls within 7 through 9 or 11 through 13 years of age. Participation will involve the following: within a few days after the permission forms are returned mothers will be asked to complete a brief questionnaire describing your son's behavior at home. Your son's teacher will then be asked to complete a similar questionnaire and your son will then be given a test of verbal intelligence and a test of academic achievement. Finally, identical packets of questionnaires dealing with parental characteristics and family supports and resources will be sent separately to you and to your spouse to be completed and returned.

Your participation will involve approximately fifteen minutes to complete the initial questionnaire and further involvement by you and your spouse will involve approximately one to two hours to complete the packet of questionnaires. Your son's participation will involve a session lasting approximately 45 minutes. He will be seen in his school and, with his teacher's assistance, the session will be scheduled so as to minimize interference with your son's studies.
All results will be kept confidential. No identifying information will be recorded. Scores will not be reported to the teacher or entered in any of the files kept in school. The only information that will be made available is how groups as a whole responded and this information will be shared with the teachers and parents of the children who participate. If you would like for your son's teacher to be given his intelligence and academic achievement test scores, a separate place is reserved on the consent form for your signature. You are under no obligation to give such permission. Lastly, your participation is entirely voluntary, and you or your child have the right to withdraw consent and discontinue participation at any time.

Your consent would be greatly appreciated. We realize that this is asking a great deal of busy persons such as yourselves, but we hope that you realize the potential importance and helpfulness of the results of this study. The information gained through this research will help to increase our understanding of those factors that have the greatest influence on parents' experiences with regard to raising their children. Please read and sign the form attached and ask your child to return it to his teacher. If you have any questions, please contact Don McIntire, a doctoral candidate who will be in charge of collecting the information. He can be reached by mail at the Department of Psychology, 1885 Neil Avenue Mall; The Ohio State University; Columbus, Ohio, 43210, or by phone locally at (614) 387-4369. We hope that you will agree to participate and look forward to receiving your written consent.

Thank you.

Felicisima Serafica, Ph.D
Hello. My name is ______________ and I want to tell you about a project that some of you may be asked to help me with. This project will include you and your parents. Kids who are in the project will be given two tests by me or by another student from Ohio State University. These tests are similar to the material and tests that you take in your class and will take less than an hour. Your parents will also be asked to complete a number of questionnaires that ask them for their feelings about parenting. The forms that I will be asking you to take home today describe this project for your parents and let them know what they and you will be asked to do. The forms will also ask for your parents' permission to include you and them in this project.

If you or your parents do not want to take part in the project, you do not have to. If your parents agree to take part in the beginning but decide later that they cannot continue, that is fine. If you decide at any time that you do not want to take the tests, you may stop. We will be sure that you do not miss any important quizzes, tests, or special events.

Do you have any questions? Your teacher will give you the papers to take home. Please ask your parents to look them over and return them as soon as possible.

Thank you.
Several boys from your classes, and their parents, will be asked to participate in a research project investigating the factors that influence parental feelings about raising their children. Your involvement is requested as well. Every effort will be made to minimize the amount of your time that will be requested. Your involvement will be limited to completing a behavior rating scale describing the behavior of each boy. Each checklist takes approximately five to ten minutes to complete. Boys who meet the criteria required for inclusion in the study, based upon their scores on both the parent's and teacher's responses to the rating scales, will be given an individual test of verbal intelligence and a test of academic achievement. This testing will remove the boy from the class for less than an hour and we will try to schedule this testing session so that it interferes as little as possible with classroom procedures.

Please give the introductory letter and consent form to each boy listed and ask him to take it home and give it to his mother to read. The letter will ask her to return the form with her child. Please send signed consent forms to the office. You may be asked to complete rating scales for a few of the boys who return consent forms. Please send them to the office or give them to the student who is testing the children.

Information regarding the results of this study will be made available to participating parents and teachers. Furthermore, if parental permission is given, you may have access to the results of the child's performance on the test of verbal intelligence and academic achievement. We greatly appreciate your help and involvement in this study and hope that you are not greatly inconvenienced. If you have any questions or feedback, please feel free to call Don Mcintire at 387-4369, or leave a message with the office.

Gratefully yours,

Felícisima Serafica, Ph.D.
CONSENT FOR PARTICIPATION IN
SOCIAL AND BEHAVIORAL RESEARCH

I consent to participating in (and my child's participation in) research entitled:

CHILDREN WITH ATTENTION DEFICIT DISORDER: PREDICTORS OF PARENTAL STRESS

Felicisima C. Serafica, Ph.D. or his/her authorized representative has (Principal Investigator)
explained the purpose of the study, the procedures to be followed, and the expected duration of my (and my child's) participation. Possible benefits of the study have been described as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Further, I understand that I and my child are free to withdraw consent at any time and to discontinue participation in the study without prejudice to me or my child.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: __________________________ Signed: __________________________ (Participant)

Signed: __________________________ Signed: __________________________ (Person Authorized to Consent for Participant - If Required)

I would like the results of my child's intelligence and academic achievement test scores to be made available to my child's teacher.

Signed: __________________________ (Person Authorized to Consent)

Witness: __________________________
Dear Parent,

If you have agreed to take part in this study, please provide the following information so that we can be sure to mail the questionnaires to the proper address.

Your son’s name: _______________________________________

Your son’s birthdate: ________________________________

Address: ___________________________________________

                            Street             Apt. #

                            City             State       Zip

Telephone: __________________________________________
REFERENCES


