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PREDICTING EMOTIONAL AND BEHAVIORAL DISTURBANCE IN TODDLERS

by

JANICE LEA GENEVRO

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

PSYCHOLOGY

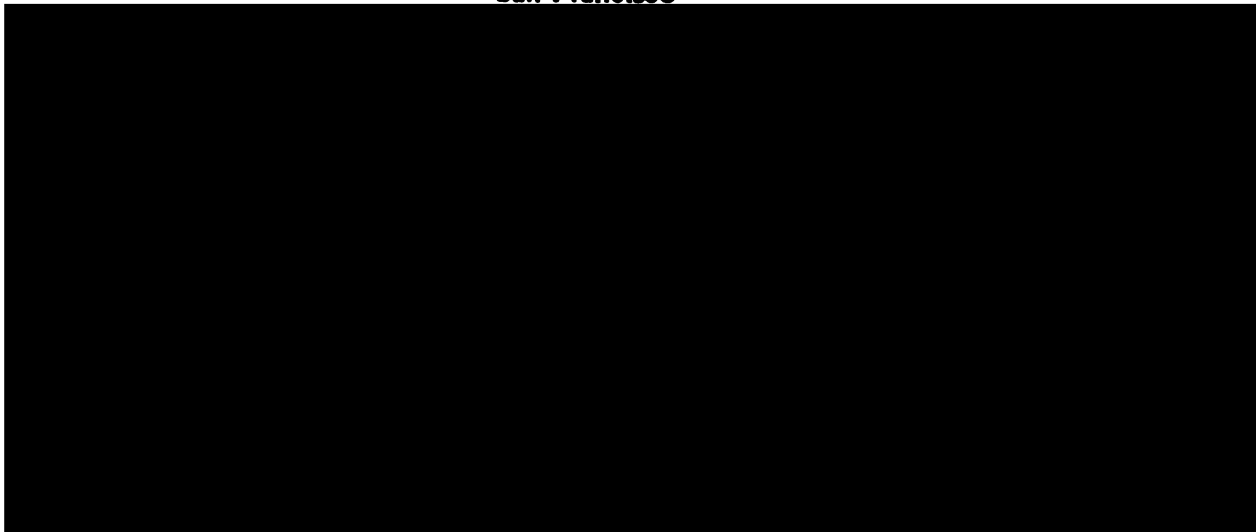
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This is dedicated to  
my parents, Ella Beatrice and George William Genevro,  
whose love of learning sparked my own.

## PREFACE

Many people have contributed to the successful completion of my graduate work. In particular, Daniel S. Weiss, Ph.D., chair of my dissertation committee, has been an exceptional teacher from whom I have learned not only how to conduct psychological research, but also how to think about theory and results. The expertise and guidance offered to me by the other members of my committee, Clifford Attkisson, Ph.D. and Alicia Lieberman, Ph.D., are gratefully acknowledged. Denise Watson Scatena, Ph.D., George Stone, Ph.D., and Nathan Zilberg, Ph.D. have influenced my professional development in important ways as well. Many thanks also to Barbara Gerbert, Ph.D. for her interest and support during my graduate training.

My family has remained enthusiastic in their support of me throughout this seemingly endless process, unwavering in the face of earthquakes, car theft, qualifying examinations, and a variety of other calamities. To George and Bea Genevro, Bill Genevro, Rosalie Genevro and Armand LeGardeur, and Laurie, Harry, and Tucker Cole, I offer my heartfelt gratitude. Please remind me as often as is necessary never to do anything like this again.

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The women who so generously shared their observations and perceptions as participants in this study have my respect and thanks. I am also grateful to the Graduate Division of the University of California, San Francisco for the Dissertation Research Award that made this study possible.

## Predicting Emotional and Behavioral Disturbance In Toddlers

Janice L. Genevro

The relative importance of risk factors for emotional and behavioral disturbance in toddlers was examined in a cross-sectional study. The risk factors studied were socioeconomic status (SES), stressful life events, maternal psychological distress, maternal interpersonal style, and maternal perceptions of having been accepted or rejected in childhood.

It was hypothesized that maternal psychological characteristics would be relatively more important risk factors for disturbance than would SES and the occurrence of stressful life events.

Subjects for the study were 93 predominantly middle-class women who rated their toddlers using the Child Behaviors Checklist/2-3 (CBCL). In addition, they provided demographic information, and completed the Brief Symptom Inventory, the Interpersonal Dependency Inventory, the Mother-Father-Peer-Scale, and a stressful life events inventory.

The hypothesis of the study was tested using hierarchical multiple regression techniques, and a split-sample replication design.

The study was limited in two important ways. The first was that mothers were the sole informants regarding the adjustment of their children. The possibility that the results were primarily a function of maternal response set should be addressed in a replication of the study using objective ratings of toddlers and their mothers. The second limitation was that there was little variability in the final sample in terms of SES; the hypothesis regarding the relative importance of

maternal psychological characteristics and SES could not be adequately tested, and the results of the study are generalizable only to middle-class families.

Even given these limitations, however, the results of the study provided useful information about the relative importance of different risk factors. It was found that specific maternal psychological characteristics that are theoretically important to the quality of the caregiver-toddler relationship, and to the successful resolution of developmentally salient issues, were relatively more important predictors of mothers' ratings of emotional and behavioral disturbance in toddlers in middle-class families than were SES and the occurrence of stressful life events; information about stressful life events and SES did not improve, in a substantive or statistically significant way, predictions of toddlers' CBCL scores based on mothers' symptoms of psychological distress and interpersonal style.

  
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Chair, Committee in Charge

  
\_\_\_\_\_  
Date

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## Chapter One

### THEORETICAL BACKGROUND

#### Introduction

The focus of the study presented here was on mothers' perceptions of symptoms of emotional and behavioral disturbances in very young children. The aim of the study was to assess the importance, relative to one another, of specific predictors of emotional and behavioral disturbance, with an emphasis on factors hypothesized to affect the quality of early relationships between caregivers and toddlers.

The nature of the association between early experiences and relationships and the psychological adjustment of young children has been the subject of intense debate, speculation, and investigation for some time. As Sroufe points out:

The hypothesis that individual personalities have their origins in early family experiences is not new. Numerous clinicians . . . have posited that core deficiencies in self derive from an early lack of nurturance and esteem within caregiving relationships (1990, p. 301).

The perspective that poor adaptation is linked to the quality of early experiences is presented most clearly by psychoanalytic theory and its derivations. The psychoanalytic paradigm has proven to be particularly influential in terms of understanding disturbance in early relationships as a risk factor in the later development of psychopathology (Hartup, 1989; Lewis & Miller, 1990). Classic psychoanalytic theory has been characterized as vague, however, and

postulates of psychoanalytic theory regarding the influence of early experience and relationships have not been easily tested empirically (Sroufe, 1990).

Recent work by many researchers, both of neoanalytic and other theoretical persuasions (see, e.g., Bowlby, 1988; Sroufe, 1989a, 1990; Rutter, 1983, 1989), has led to advances in the understanding of linkages between aspects of early experience and the development of psychopathology. This work supports the perspective that relationships between very young children and their caregivers are important influences on healthy development and the development of psychopathology. Many questions still exist, however, regarding the nature of the associations among early social interactions, family and caretaker characteristics, environmental characteristics, and behavioral and emotional disturbances in young children.

The "identification of variables that discriminate between individuals who are considered normal for their age and individuals who are considered deviant enough to need special help from mental health or educational professionals" (Achenbach, 1990, p. 6) is seen as an integral component of the developmental study of psychopathology. This study therefore falls squarely within the domain of developmental psychopathology. It was based on four premises that are derived from the study of development and psychopathology: 1) it is possible to identify emotional and behavioral disturbances in toddlers; 2) symptoms of emotional and behavioral disturbances have meaning as indicators of the quality of functioning, adaptation, and well-being of toddlers; 3) there are identifiable factors that predict symptoms of emotional and

behavioral disturbances in toddlers; and 4) characteristics of primary caregivers thought to be important for the quality of their relationships with very young children are particularly important risk factors for emotional and behavioral disturbances in toddlers.

In this chapter, support for these premises will be developed, as will a rationale for the specific age group of children selected and the risk factors studied. First, the paradigm of developmental psychopathology (see, e.g., Achenbach, 1982, 1990) will be used as a framework within which to summarize selected theories of development in early childhood. Developmental issues believed to be particularly salient for children aged 18 to 30 months will be discussed: 1) within the context of the development of psychopathology; and 2) as they apply to the selection of the age range of approximately 24 to 30 months as the focus of this study.

Next, Bowlby's theory of attachment and of individual developmental pathways (Bowlby, 1973, 1977, 1982, 1988) will be presented in detail, as it provides a comprehensive organizing structure for the examination of the processes and mechanisms by which early social interactions and the psychological characteristics of caregivers may be related to the development of disturbances in young children. The theory of development, personality, and the self-concept proposed by Sroufe (1979, 1989a, 1989b, 1990) then will be used to synthesize and summarize shared principles of attachment theory and an eclectic perspective on the development of psychopathology.

Epidemiologic information regarding emotional and behavioral disturbances in very young children will be presented next. The model

upon which this study is based will be introduced, and the specific risk factors chosen for study will be identified. Recent findings regarding the relationships between these risk factors and evidence of emotional and behavioral disturbances in young children will be presented.

Finally, the rationale for this study will be summarized and the research question and hypothesis of the study will be stated.

## Theories of Development, Psychopathology, and Personality

### Overview of Developmental Psychopathology

Developmental psychopathology is "the study of the origins and course of individual patterns of behavioral adaptation" (Sroufe & Rutter, 1984, p. 18). As such, it seeks to combine elements of the study of normal development in children, work that has been traditionally associated with developmental psychology, with the study of deviations or disturbances in children's adaptation, traditionally the domain of abnormal psychology or psychiatry (see, e.g., Sameroff, 1989).

The "macroparadigm" of developmental psychopathology (Achenbach, 1982) can subsume multiple perspectives and different emphases on particular aspects of the development of the child. For example, biological, cognitive, social learning, and psychoanalytic perspectives might be considered competing accounts of the nature of development. Within the framework of developmental psychopathology, these perspectives are seen as contributing complementary information about

the nature of development, and about the development of emotional and behavioral disturbances (Achenbach, 1982). With respect to the means by which these potentially disparate perspectives can be linked, Rutter and Garmezy argue that

[t]he process of development constitutes the crucial link between genetic determinants and environmental variables, between physiogenic and psychogenic causes, and between the residues of prior maturation or earlier experiences and the modulation of behavior by the circumstances of the present (1983, p. 776).

#### Adaptation as an Organizing Principle in Development

The concept of adaptation as an organizing principle in development is central to the paradigm of developmental psychopathology (see, e.g., Cicchetti, Toth, Bush, & Gillespie, 1988), in contrast to an emphasis on the stability of specific behaviors over time and the course of development. Sameroff maintains that

[a]daptive organization is based less on the maintenance of a stable set of behaviors than on the maintenance of a dynamic balance of emotional states that permits social interactions in settings where learning can take place. The etiology of behavioral pathology must be understood within these dynamic developmental systems. . . . The perspective taken by developmental psychopathology offers a powerful alternative to nondevelopmental approaches because principles of process are integrated into an understanding of behavioral deviancy. Whereas



traditional views have seen deviancy as categorically inherent in the individual, developmental views place deviancy in the dynamic relationship between the individual and the internal and external context (1989, p. 32).

Developmental psychopathology is concerned, therefore, with the ongoing, transactional relationship between intrapsychic processes and environmental circumstances, and the reflection of this relationship in the quality of individual adaptation. The process of development, and the issues and tasks that characterize different levels of development, form a critical organizing framework for the consideration of the quality of the relationship between the individual and the environment:

A developmental perspective on child psychopathology would emphasize (a) the transactional relationships between children's characteristics as individuals and the social contexts in which they function and (b) the different implications that various combinations of child and environment have at different developmental levels (Achenbach, 1978, p. 761).

### Developmentally Salient Issues

Another perspective that is shared by many theorists and researchers in developmental psychopathology is that children are placed at increased risk for the development of behavioral and emotional disturbances when the issues prominent during a particular stage of development are not successfully resolved. The unsuccessful or compromised resolution of stage-salient issues may result not only in

poor adjustment at the current level of development, but also leave the individual more vulnerable to maladjustment at subsequent stages of development.

Cicchetti et al. (1988), for example, characterize development "as a series of reorganizations around stage-salient tasks . . . . that require the child to coordinate cognition, affect, and behavior" (pp. 123-124). Successful reorganization and coordination by the child in relation to tasks that emerge with particular importance at different stages of development result in better adaptation; it is also through these processes that competence is developed (Cicchetti et al., 1988, p. 127).

Theorists have differentially emphasized aspects of the process of development and the importance of intrapsychic and environmental influences on that process. For example, A. Freud (1965), in her theory of multiple developmental lines, focuses on internal psychic structure and the development of ego defenses. Erikson (1963), on the other hand, emphasizes the resolution of sequential psychosocial crises in the process of development.

There is, however, substantial agreement among different theorists regarding the timing and nature of the developmental issues that are considered salient in infancy and toddlerhood (see, e.g., Cicchetti et al., 1988; Fraiberg, 1959; Garber, 1984; Maccoby, 1980; Sander, 1962; Sroufe & Rutter, 1984). Achenbach proposes that

[w]ithout reifying the stage constructs of any particular theory, it is convenient to summarize the period from birth to maturity in terms of ages at which major changes typically occur. One of the

most conspicuous transitional period occurs between the ages of 18 and 24 months, when children become highly mobile and begin mastering language. . . . Whatever the reason for the major advances in language and thought, they not only bring new status and new ways of relating to others, but also the potential for new problems and conflicts (1990, p. 8).

The period between 18 and 21 months is an important time in the development of children's representational skills as well as, or in combination with, their linguistic competence. Findings summarized by Corrigan (1983) indicate that a qualitative reorganization of the capacity to form and retrieve mental representations occurs for most children during this time, resulting in representational skills of increased complexity and stability.

The next period of development, between 24 and 30 months, is a time in which it is generally agreed that the process of individuation, and the consolidation of the child's sense of autonomy, are critically important. A particularly significant aspect of the period between 24 and 30 months is that the child is striving to internalize controls over his behavior and impulses, controls that have heretofore been the primary responsibility of caregiving adults in relationship with the child (e.g., Anders, 1989). The process of becoming self-regulating is a gradual one, with much back and forth in terms of the child's desire to exercise self-control, his capacity to do so, and his dependence on a caregiver to sensitively take control at appropriate times in a way that does not undermine his developing sense of autonomy.

Fraiberg offers the following description of a child in the

process of developing internal controls:

Thirty-month-old Julia finds herself alone in the kitchen while her mother is on the telephone. A bowl of eggs is on the table. An urge is experienced by Julia to make scrambled eggs. She reaches for the eggs, but now the claims of reality are experienced with equal strength. Her mother would not approve. The resulting conflict within the ego is experienced as "I want" and "No, you mustn't" and the case for both sides is presented and a decision arrived at with the moment. When Julia's mother returns to the kitchen, she finds her daughter cheerfully plopping eggs on the linoleum and scolding herself sharply for each plop, "NoNoNo. Mustn't dood it. NoNoNo. Mustn't dood it!" (1959, p. 135, emphasis in the original).

The central themes in descriptions of the child's maturation during the period of toddlerhood are those of growing autonomy and capacity for symbolic representation in language, behavior, and memory. In the period between 18 and 24 months, the development of an autonomous self has been identified as the most salient developmental issue; for children aged 24 to 30 months, further self-other differentiation and the development of symbolic representation are the primary developmental issues:

The toddler's emerging acquisition of a sense of self, which encompasses both affective and cognitive dimensions, is a significant developmental task. . . . [A] well-differentiated sense of self provides the toddler greater comprehension of personal functioning as a separate and independent entity. . . .

Caretaker sensitivity and ability to tolerate the toddler's strivings for autonomy, as well as the capacity to set age-appropriate limits, are integral to the successful resolution of this issue (Cicchetti et al., 1988, pp. 132-133).

### Relationships and Development

The resolution of the developmental issues salient to the stages of infancy and toddlerhood are typically accomplished by the child in relationship and interaction with a primary caretaker (cf. Bowlby, 1973; Erikson, 1963; Sander, 1962; Sroufe, 1989). One reason for this is that the parent is the young child's most highly valued point of contact with the "outerworld" (Erikson, 1980), or external environment:

During early childhood, the common pathway of [the regulation of development by the environment] is through the behavior of parental figures, and especially the primary caregiver, in their relationships with the infant. Thus early relationships become central to the development of normative and deviant infant adaptations (Sameroff, 1989, p. 28).

The process of development also involves repeated adjustments between the child and her parents as she develops the new skills and competencies associated with greater autonomy and capacity for symbolic representation. As Hartup (1989) points out, "one must recognize that the dialectics involving relationships and the forces of development involve two individuals, not one (e.g., the mother as well as the child). . . . Two individuals are developing within every relationship,

not one" (p. 121).

The quality of adaptation the child can achieve is affected by this process of reciprocal influence. Emde and Sameroff propose that when a family is not able to adapt to the changing behaviors of a toddler and old patterns of interaction persist, it is possible for relationships to become disturbed and for "behavioral difficulties [to] become apparent, usually in vegetative functions such as sleeping and feeding. Disorder results when behavioral problems spill over into other adaptive domains and constrict the normative activities of either child or parent" (1989, pp. 9-10).

The proposition that caregivers' sensitivity and reactions to the developmental issues salient to toddlers are critical to the child's healthy emotional and behavioral adaptation are shared by many developmental psychopathologists (e.g., Cicchetti et al., 1988; Trad, 1989). The reactions of mothers to toddlers' striving for individuation and autonomy have been characterized as particularly critical influences by Mahler and her associates (e.g., Mahler, 1979; Mahler, Pine, & Bergman, 1970). They propose that mothers may respond to the child's growing self-determination "as though [it] meant a loss of the child's symbiotic dependence on her, or [alternately] as a . . . gain in object relationship" (Mahler et al., 1970, p. 260). If a mother responds to the child's initiatives for autonomy with a sense of loss and seeks to maintain the child in a dependent position, the child's capacity for symbolic representation and for appropriate self-regulation may be compromised (Greenspan, 1981). On the other hand, situations may arise in which the child's affective response, for example, is beyond his

capacity for self-regulation. If the mother is unable, in such situations, to accommodate the child's need for dependence and assistance, he may experience a sense of rejection and shame (cf. Erikson, 1963).

#### Age Range of Focus in this Study

The age span between approximately 24 and 30 months was chosen as the focus of this study: 1) because of the importance of the period from 18 to 30 months in the development of a rudimentary self-organization with the capacity for symbolic representation in memory; and 2) because of the continuing importance of the primary caregiving relationship as the final common pathway of environmental influence on development at this time. A choice was made to shorten the age range of focus in the study from 18 to 30 months to approximately 24 to 30 months of age to make it more likely that mothers in the study and their toddlers would have begun to negotiate issues of autonomy in earnest. In addition, by this age, it is more likely that most of the children would have passed through the period of reorganization of the capacity for symbolic representation thought to occur in most children between 18 and 21 months (Corrigan, 1983). As has been outlined above, and was proposed some time ago by Freud, the qualities of the developmental process during this period seem particularly important in relation to the development of disturbances of self-regulation and of will (cf. also Erikson, 1980).

## Bowlby's Theory of Attachment and Developmental Pathways

### Introduction

Bowlby's theory of attachment is presented here in some detail as it provides a valuable framework within which to understand the means by which early relationships might affect individual development. Certain important elements of the theory, including the classification of child-caregiver relationships in terms security of attachment, are briefly described as they relate to a general understanding of the influence of relationships on development. These elements are not a focus of attention, however, as the quality of attachment relationships between mothers and toddlers in this study was not assessed.

Attachment theory, as presented by Bowlby (1969, 1973, 1977, 1982, 1988) and others (e.g., Ainsworth, 1985) is an example of a theory of normal and disturbed development in which critical emphasis is placed on the relationship between the child and the caregiver. Bowlby's theory is a means by which the tendency of individuals to form strong bonds of affection with specific other human beings can be conceptualized. It also provides a means of explaining the forms of emotional distress and personality disturbance, such as depression, anxiety, anger, and emotional detachment, that can occur directly as the result of the *disruption* or loss of attachment relationships (Bowlby, 1977). In *addition*, Bowlby's (1988) more recent conception of individual *developmental* pathways addresses the issue of multiple influences on the *quality* of development over the course of the developmental process.



## Basic Principles

As presented by Bowlby (1988), there are four basic tenets of attachment theory. These are:

1) Emotionally significant bonds between individuals have basic survival functions and therefore a primary status. 2) They can be understood by postulating cybernetic systems situated within the CNS [central nervous system] of each partner that have the effect of maintaining proximity or ready accessibility of each partner to the other. 3) In order for the systems to operate efficiently, each partner builds in his or her mind working models of self and of other and of the patterns of interaction that have developed between them. 4) Present knowledge requires that a theory of developmental pathways should replace theories that invoke specific phases of development in which it is postulated a person may become fixated and/or to which he or she may regress . . . The key hypothesis is that variations in the way [the bond of child to parent and the complementary bond of parent to child] develop and become organized during the infancy and childhood of different individuals are major determinants of whether a person grows up to be mentally healthy (p. 21).

These principles were derived in large measure from ethology and **control** theory (Bowlby, 1977). The assertion that the propensity to **form** strong affectional bonds is basic to human nature is fundamental to **Bowlby's** theory. Another key element of Bowlby's approach is that

relationships based on such bonds are not secondary to, nor merely the result, of other human needs, such as those for food and sex. Bowlby proposes that these relationships have an independent survival function, which is protection (Bowlby, 1988, p. 3). This understanding of the function of attachment relationships and their fundamental nature gives rise to the concept of the attachment behavioral system, which manifests itself in attachment behaviors (e.g., Ainsworth, 1985). Attachment behaviors are behaviors that keep the individual in the care- or protection-seeking role within range of the individual in the care-giving role.

Another critical principle of attachment theory derived from ethology is the conception of the child's use of the attachment figure as a secure base from which to explore her environment. This precept is based on the supposition that the urge to explore the environment, to play, and to interact with peers is also fundamental to human nature. Individuals who feel secure, it is proposed, will explore away from their attachment figure, while individuals who feel alarmed, anxious, tired, or in other ways insecure, will seek proximity with their attachment figure (Ainsworth, 1985; Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988).

As mentioned previously, Bowlby (1988) proposed that cognitively mediated attachment control systems exist that serve to maintain the individual's proximity to an attachment figure. Attachment control systems are used to maintain what Bowlby (1988, p. 3) has termed "environmental homeostasis". He also has argued that the attachment control system is constructed to promote survival in the environment to

which humans have become evolutionarily adapted, one in which infants and children have access to responsive caretakers (Bowlby, 1988). When these conditions do not predominate, the attachment system will not operate effectively. Failures of the attachment system are hypothesized to be stressful, and in some instances, traumatic to the child (Bowlby, 1988).

The third critical feature of attachment theory, the role of working models of self and other, is based on Bowlby's notion of the attachment control system, and the complementary caregiving role of parents. To function effectively, the attachment control system must have available as much information as possible regarding three specific factors: 1) the likely responses of the caregiver to the child's behavior; 2) the likely responses of the child to the caregiver's behavior; and 3) information about the proximity and accessibility of the caregiver (Bowlby, 1988, p. 4). This information is organized in the form of cognitive working models that simulate events in the external environment. Bowlby proposes that by the end of the first year of life, infants have developed cognitive capabilities and have acquired knowledge of their immediate environment to the extent that rudimentary working models of self and caregiver have begun to emerge. By the age of about five years, such models are thought to have developed to the point that the mother's interests, moods, and intentions can be taken into account by the child (Bowlby, 1988). When utilized in concert with a complementary model of self, the child is at this point "engaging in a complex intersubjective relationship with the mother, who . . . has her own working models both of her child and of herself" (Bowlby, 1988, p.

4). The power of these models is that they allow for the planning of behavior based on previous knowledge. Bowlby (1980) asserts that because these models are used constantly, the influence they exert on thoughts, affects, and behavior becomes routine, and is for the most part outside of awareness.

Although it is believed that children's working models do not achieve a substantial degree of sophistication until age five or so, patterns of interaction in attachment relationships that lead to the development and organization of the working models are thought to be established earlier in childhood (Bretherton, 1985; Main, Kaplan, & Cassidy, 1985).

#### Patterns of Attachment Behavior

Based in large measure on work by Ainsworth and her associates (e.g., Ainsworth et al., 1978), three major patterns of attachment behaviors present in early childhood have been identified. These patterns are secure attachment, avoidant attachment, and resistant attachment. The second and third types are also characterized as patterns of anxious attachment.

Bowlby (1988, p. 4) asserts that secure attachment is consistent with healthy development. This pattern of attachment behaviors is considered indicative of the child's confidence that her attachment figure will be available to her, and responsive in situations that are threatening or frightening.

The other two patterns are characterized by Bowlby (1988, p. 4) as

predictive of disturbed development. The more common of the two patterns of anxious attachment is avoidant attachment. This pattern of attachment behaviors is taken as an indication that the child expects not to be responded to sensitively when assistance or reassurance is sought, but to be rejected. Bowlby has hypothesized that children whose attachment behaviors fit into this pattern try to find ways to live without support or affection from others; these attempts may be manifested as extreme self-reliance, caring for others to an extent that is detrimental to the well-being of the self, some combination of these, or alternately, delinquent behavior (Bowlby, 1988, p. 4).

Resistant attachment (Bowlby, 1988), the second pattern of anxious attachment behaviors, is thought to indicate uncertainty on the part of the child regarding the availability and responsiveness of his attachment figure. This uncertainty, hypothesized to be the result of the attachment figure being available at some times but not others, is thought to lead to anxiety about exploring the world. Attachment behaviors of this pattern have been characterized as increasing the likelihood that the child will engage in a role reversal with a parent in which the child assumes the role of caregiver (Bowlby, 1988).

Researchers have subsequently identified an additional category of anxious attachment, characterized as "insecure-controlling" (Cassidy, 1988; Main & Cassidy, 1988). This pattern of attachment behaviors is *observed* less frequently than the other patterns of anxious attachment, *and* less is known about qualities of caregiving that might lead to this *pattern* of attachment behavior.

## Developmental Pathways

The quality of the attachment relationship, as indicated by a pattern of attachment behaviors, sets the individual on a unique developmental pathway (Bowlby, 1988). The direction and meaning of the pathway at any particular point is determined by the interaction between the individual's personality as it has developed up to that point, and the current environment. Patterns of attachment are also seen by Bowlby (1988) as indicators of the degree of an individual's resilience or vulnerability to stressful events that might occur during the course of her life. Behaviors indicative of anxious attachment relationships are seen as indicators of early family conditions that make it more likely that the developmental pathway will follow a deviant or unhealthy course. It is also possible, however, that later events, such as the formation of a supportive relationship, may exert a salutary effect on adaptation and redirect the course of development toward greater health.

Bowlby (1988) and others (e.g., Ainsworth, 1985) reject the Freudian concept of a universal pathway of development, with the possibility of regression and fixation at specific stages of development. Ainsworth describes the alternate conception of individual pathways:

Initially, the pathways are close together and an individual has access to a large proportion of them, but the one that is chosen at birth depends on the way in which the genetic potentialities inherent in the genome have interacted in the prenatal environment to structure development. This principle holds throughout life;

whenever there is a "choice point" of remaining on the same pathway or diverging from it, the "choice" is determined by the interaction between the internal organization that the individual has already developed and the environment in which he now finds himself. Meanwhile, in the course of development the internal organization of the person is constantly subject to transformation in the light of experience, whether this be in the direction of consolidation or change (1985, pp. 786-787).

Rutter (1989) also has proposed a model of developmental pathways from childhood experience to adult adjustment that seeks to explain continuities and discontinuities in development, and individual vulnerabilities and resiliencies, as a result of the combined influence of personal and environmental characteristics. Rutter's model differs from Bowlby's in emphasis on different influences on development, but is very similar in its conceptualization of the individual's selective shaping of his own experience.

Bowlby, like Rutter, does not propose that early experiences completely determine later mental health and functioning. He does suggest that they have critical direct effects on the early direction of the individual's developmental pathway, and both direct and indirect effects on the long-term course of the individual's adaptation (Bowlby, 1988).

### Internal Working Models

Internal working models of attachment relationships are

hypothesized to be one critical mechanism by which the past, including early relationship experiences and their consequences, influences adjustment in subsequent stages of development (e.g., Ainsworth, 1985; Erickson, Sroufe, & Egeland, 1985; Matas, Arend, & Sroufe, 1978).

Main et al. (1985) define internal working models of attachment as [a] set of conscious and/or unconscious rules for the organization of information relevant to attachment and for obtaining or limiting access to that information, that is, to information regarding attachment-related experiences, feelings, and ideations (p. 67).

They argue that individual differences in the quality of attachment relationships can be conceptualized as individual differences in mental representations of the self in relation to attachment. Patterns of attachment thus can be understood as indicating types of internal working models that direct feelings and behavior as well as attention, memory, and cognition related to attachment (Main et al., 1985).

Ainsworth (1985) and Bowlby (1973) have proposed that internal working models predispose individuals to selectively seek out or avoid specific types of environments and people, and that these models therefore may serve defensive functions as well as affecting the direction of the individual developmental pathway. As mentioned above, Main and her colleagues also suggest that internal working models may serve defensive functions in terms of the limitation of conscious access to certain types of information or affective experience.

Differences in internal working models are thought to be related to patterns of nonverbal behavior, as well as to patterns of language



and structures of mind. In infants and young toddlers who have not yet developed the capacity to communicate by language, the internal working model of the attachment relationship must be inferred from observed behavior. In adults, however, aspects of memories of attachment relationships in childhood, and behavior in current attachment relationships both have been taken as evidence of a particular type of working model (Main et al., 1985).

The use of memories as indicators of internal working models of attachment is complicated by the possibility that memories may be distorted, or that affects associated with specific memories may not be consciously accessible (cf. Fraiberg, et al., 1975). As noted above, it has been theorized that working models of attachment may serve defensive functions, limiting access to the awareness of painful affects associated with experiences in emotionally significant relationships. The defensive function of working models could result in the denial of difficulties in early relationships, or in the defensive idealization of parents (see, e.g., Ricks, 1985). The assessment of working models, to be accurate, therefore must address the potential for denial or defensive idealization, along with other types of distortion.

The approach of Main and her colleagues (1985) to this potential problem has been to identify characteristics of the organization of attachment-related language, thought, and memory that serve as indicators of the security of attachment represented in adults' working models.

For example, readiness of recall; ease of discussion of attachment-related issues; lack of idealization of parents or of past

experiences; and facility in the integration of positive and negative aspects of expression and feelings are aspects of internal models in adults that are characterized as secure (Main et al. , 1985, p. 91, 96).

Particularly salient aspects of the attachment-related thoughts and memories expressed by adults whose working models were characterized as insecure by Main and her colleagues (1985) include contradictions and inconsistencies in the organization of information, and a lack of integration of information regarding negative experiences.

Rather than disregarding the memories and thoughts of adults as invalid indicators of working models of attachment, Main and her colleagues, therefore, have sought to identify characteristics of the organization of thought and language that indicate underlying qualities of the internal working models guiding their storage and retrieval (Main et al., 1985, p. 77).

These precepts have served as a foundation for the study of working models of attachment in adults as well as children. Main and her colleagues (Main et al., 1985; Main & Cassidy, 1988) have proposed that four patterns of organization of attachment-related beliefs, feelings, and behaviors can be identified in adults. The secure pattern refers to an organization of beliefs, feelings, and behaviors in which attachment relationships are valued and seen as influential on personality. In addition, these parents were found to be objective in their descriptions of particular relationships. Parents identified as insecure with respect to attachment lacked these three qualities. Three types of insecure patterns of attachment were identified: 1) parents dismissing of attachment relationships; 2) parents preoccupied with

dependency on their own parents; and 3) parents whose mourning for attachment figures lost early in life had not been resolved (Main et al., 1985, p. 91).

Main and her colleagues (Main et al., 1985; Main & Cassidy, 1988) have found that the security of adults' working models of attachment is related to the security of their children's relationships with them, as assessed when the children were 12 months old and six years old. These findings support the proposition that working models of attachment in adults influence their perceptions and behavior in current parent-child attachment relationships.

Using methods of assessing adults that differed from Main and her colleagues, other researchers (e.g., Kobak & Sceery, 1988; West & Sheldon, 1988; West, Sheldon, & Reiffer, 1987) have also found that internal working models of attachment influence current attachment relationships and the regulation of affect. In addition, Ricks (1985) has demonstrated that mothers' perceptions of qualities of their early relationships with their parents, qualities that are theorized to be important elements of working models of attachment, are related to the quality of their infants' attachment relationships with them.

One of the most critical aspects of Bowlby's work, and the related work of others (e.g., Ainsworth, 1985; Bretherton, 1985; Main et al., 1985), has been the conceptualization and identification of mental representations of the self, of emotionally valued others, and of interpersonal behaviors that develop within the context of early relationships. The premise that these mental representations, or working models, guide behavior and affect later relationships is an

important link to other theories of the development of personality and the self-concept.

Another particularly significant aspect of Bowlby's work on attachment and the importance of early relationships in development has been that it has been possible to empirically test important tenets of attachment theory. A significant result of this empirical work has been the refinement of the theory, and the integration of principles of attachment theory into theories of development more broadly defined.

### Development, Personality, and the Self

#### Sroufe's Organizational Perspective on Development and the Self

Sroufe (1990) has emphasized the concordance between critical aspects of attachment theory and his organizational perspective on the self and development. Drawing on work by Bowlby, Sander (e.g., 1975), and Stern (e.g., 1985), among others, Sroufe maintains that

[t]he emerging self . . . is an abstracted history of experiences with behavioral/state regulation and their affective products. Recognition of others as part of that regulation, recognition of one's actions as effective or ineffective in eliciting care, and, finally, recognition of the self as the origin of experience are all part of the self system. At their core, the complementary working models of self and world have to do with expectations concerning the maintenance of basic regulation and positive affect even in the face of environmental challenge. The core of self

lies in patterns of behavioral/affective regulation, which give continuity to experience despite development and environmental change (1990, p. 292).

Bowlby (e.g., 1969) and other theorists (e.g., Ainsworth, 1985; Bretherton, 1985) have stressed the importance of the caregiver-child relationship in the development of a sense of "felt security", an emphasis echoed by Hartup (1989) in his discussion of the importance of social relationships in development.

This emphasis is also consistent with the thinking of Campos (e.g., Campos, Campos, & Barrett, 1989) and Kopp (e.g., Kopp, 1989), who have theorized a critical role for relationships in the regulation of emotions, and in the development of the capacity for the self-regulation of affective arousal.

Therefore, another critical point at which attachment theory and other recent theories of the importance of early relationships in the development of personality and psychopathology can be integrated is with respect to the regulation of affect.

Sroufe proposes, as well, that close relationships have a central function over the life course in the regulation of arousal or affect; for very young children, regulation occurs within the context of their relationships with caregivers (1989, p. 107).

An emphasis on the developmental importance of relationships in affective regulation has been incorporated by Sroufe into his perspective on the progression in the regulation of arousal from the caregiving relationship to the internal organization of the individual:

The particular nature of an emerging self system should be

qualitatively reminiscent of the dyadic organization (relationship) that gave rise to it. A dyadic system characterized by smooth regulation of affect and maintenance of behavioral organization in the face of stress should lead to a similarly effective self system. . . . As an active organization, the emerging self system should influence later adaptation of the child, especially with regard to social orientation, expectations concerning others, and self in relation to others. Continuity of the self system, despite developmental change, is virtually assured because of the active way in which the child engages, selects, and interprets the environment. What began as an environment/organism organization becomes a self/environment organization (Sroufe, 1990, p. 293).

#### Summary

In considering attachment theory, working models, and the influence of early experiences on later adaptation, it is useful to consider the features that Sroufe (1979) has proposed distinguish an eclectic perspective on development. These are: 1) a focus on adaptation; 2) a view of the person as a coherent whole; 3) a central role for affective constructs and emotion in the organization of behavior; 4) a focus on individual differences; and 5) development as a series of reorganizations. A sixth feature, the critical importance of relationships in adaptation, in the development of the person as a coherent whole, in the regulation of affect, in the development of

individual differences, and in negotiating the serial reorganizations of development, can be added based on Sroufe's more recent work:

[T]he dyadic infant-caregiver organization precedes and gives rise to the organization that is the self. The self-organization, in turn, has significance for ongoing adaptation and experience, including later social behavior. Distortions in self-organization are influenced by distortions in prior dyadic organization, and subsequent problems in individual behavior or organization (adaptation) are most clearly manifest in distorted social relationships. The self is a social creation, and it is defined, maintained, and transformed with reference to others. For these reasons, social relations are viewed as having fundamental importance in both normal and pathological development (Sroufe, 1989b, p. 71).

Working models of the self and other, and of the self and other in relationship, are therefore conceptualized by Bowlby (e.g., 1988), Sroufe (e.g., 1990), and others (e.g., Main et al., 1985) to be the means by which the individual organizes relationship experiences. Working models are also thought to be a mechanism by which early relationship experiences directly and indirectly continue to influence the quality of individual adaptation over the course of development (cf. Hartup, 1989).

The conceptions of development, the self, and psychopathology presented above form the theoretical foundation of this study. There are several critical premises that are part of this foundation: 1) Toddlers are placed at risk for emotional and behavioral disturbance

when the development of their fledgling self-organization (working model of self) is not supported; 2) Toddlers are at risk for disturbance if the dyadic relationships in which they are partners do not adequately support their development in two particularly important areas: a) the development of internal representations of self as care-worthy and others as dependable care providers, and b) the development of appropriate capacities for self-regulation of affect and arousal; 3) Caregivers' capacities to promote the healthy development of young children within the context of the caregiving relationship are related to the caregivers' working models of self and relationships, working models that are to some degree the product of caregivers' own early experiences and relationships; and 4) That serious disturbance in the toddler-caregiver relationship is hypothesized to be reflected in poor adaptation by the child, and manifested in symptoms of emotional and/or behavioral disturbance in the toddler (cf. Anders, 1989; Sameroff & Emde, 1989).

## Emotional and Behavioral Disturbances in Children

### Aged Two to Three Years

#### Conceptualization

The conceptualization and measurement of emotional and behavioral disturbances in very young children is an enterprise that is itself still young. Theoretical assumptions regarding the types of disturbances and disorders that can occur in children have changed in



the past 25 to 30 years (cf. Kazdin, 1989a). Current thinking that it is possible for young children to become depressed, and that it is possible to diagnose dysthymia and major depression in children (cf. Kashani et al., 1981; Kazdin, 1989a, 1989b; Kovacs, 1989), is an example of a fairly recent major shift in the conceptualization of disturbances in childhood.

Much of the work done in the past in the area of childhood disturbance has been a reflection of adult-centered, biomedically oriented conceptions of disorder, i.e., that the etiology, symptoms, and expression of disorders would likely be the same in children as in adults (Garber, 1984; Kovacs, 1989; Sameroff & Seifer, 1990). It has been suggested that this approach has hampered efforts to appropriately assess disturbance in children, as well as hindering attempts to study the epidemiology of childhood emotional and behavioral disorders (Garber, 1984).

Issues regarding the measurement of psychopathology in children are discussed further in Chapter 2, in the section entitled Emotional and Behavioral Disturbance.

### Prevalence

It has been difficult to develop estimates of the prevalence of psychopathology in toddlers not only because of difficulties in assessment, but also because so few very young children actually receive mental health services (Achenbach et al., 1987). One estimate (Earls, 1980) of the prevalence of behavior problems in three-year-old children,

derived from a study of all children of this age living in a demarcated rural area in the United States, indicates that the rate for behavioral problems, including disorders that are considered mild, was 24%. The estimated prevalence rate for moderate and severe behavioral problems was 11%. These prevalence rates were slightly less than those obtained in a study of three-year-old children living in London (see Earls, 1980).

In comparison, recent estimates indicate that from 15% to 19% of children in the United States suffer from emotional or behavioral problems that warrant treatment (e.g., Anderson, Williams, McGee, & Silva, 1987; Brandenburg, Friedman, & Silver, 1990; Tuma, 1989). These estimates are for children up to the age of 18 years.

Even if one considers only the most conservative of these prevalence estimates, indications are that at least 10% of children of preschool age experience emotional and behavioral problems that are moderate to severe in nature. These estimates represent a public mental health problem of substantial scope and concern (cf. National Advisory Mental Health Council, 1990). This is especially true when the potential effects of early disturbances on the quality of later adaptation, in the absence of appropriate intervention, are considered.

#### Conceptual and Methodological Models Guiding This Study

Research that addresses the nature of concurrent relationships among factors thought to affect psychological adjustment at specific

stages in the course of development has been characterized as an essential component of empirical work in developmental psychopathology (Achenbach, 1990). Although the nature of relationships, over time, among factors that contribute to the development of psychopathology may be best depicted by transactional models, it is possible that at specific points in time the relationships among specific risk factors and an outcome of greater or lesser disturbance can be appropriately modeled in linear fashion. In addition, cross-sectional studies can be utilized to address questions about the relative importance of different risk and predictive factors at specific stages of development.

The general model guiding this research is one in which the relationships among characteristics of the child and the environment are depicted as having transactional, nonlinear influences on each other over time. The relationships among specific characteristics of the environment and the quality of the child's adaptation at a specific point in time, however, are depicted as linear (cf. Bates, Maslin, & Frankel, 1985).

#### Linear Risk-Factor Model

This model upon which this study is based is an example of the general type described by Garnezy, Masten, & Tellegen (1984) as a compensatory factors model, in which factors are thought to be linearly and additively related to a specified outcome. The characterization of a model of this type as a compensatory factors model seems based on a semantic choice; risk factors can be characterized as combining in this

manner as well. This study was designed based on a risk factors approach rather than a compensatory factors approach, or a vulnerability or diathesis-stress model. It is based on the concept of risk as an indication of the degree of probability of a specific undesirable outcome (cf. Richters & Weintraub, 1990).

It is also based on the premise that risk factor research may benefit by combining the concepts of . . . two lines of research (child risk factor research with life stress research) in order to examine the proportion of variance explained by each of the various risk factors. Such an approach could help to better define groups at risk, examine the salience of the various risk factors for the general population, and develop prevention models for populations other than the children of parents with major psychopathology (Jensen, Bloedau, DeGroot, Ussery, & Davis, 1990, p. 53).

#### Risk Factors Selected for Study

The specific risk factors selected for study here were determined by theory and by the foci of previous empirical research on very young children (reviewed below). There are five classes of risk factors included in the model: 1) family socioeconomic status; 2) occurrence of stressful life events; 3) maternal relationship history; 4) maternal interpersonal style; and 5) maternal psychological distress.

One predictive factor that was not included in this cross-sectional study was the quality of the toddler's adaptation at previous

stages of development. Previous adjustment is theoretically important, and has been identified empirically as a meaningful predictor of adjustment at later points in time. For example, Egeland and Sroufe and their associates (Egeland & Sroufe, 1981; Erickson et al., 1985) and others (e.g., Lewis, Feiring, McGuffog, & Jaskir, 1984) have presented evidence of an association between early attachment patterns and later behavior problems and psychopathology. Findings are not consistent across studies, however. Examination of differences between anxiously attached children who later developed behavioral problems and those who did not indicate that the risk factors included in this study were important influences on the development of later psychopathology (cf. Ainsworth, 1985; Erickson et al., 1985; Lewis et al., 1984).

A fair amount of research has been conducted examining predictors of psychopathology in children; relatively little of this empirical work has focused on toddlers. In presenting information about the risk factors selected for this model, the few studies of toddlers are presented. Research examining risk factors and predictors of disturbance in infants and older children is also cited where directly pertinent to this study.

#### Socioeconomic Status.

Socioeconomic status (SES) has been frequently identified as an important covariate of psychological distress and disturbance in adults (e.g., McLoyd, 1990; Turner & Noh, 1983). It is also a characteristic of the family and environment that has been identified as being related

to psychopathology in children, both as a concurrent correlate (e.g., Lewis, et al., 1984; Erickson et al., 1985) and as a predictor of later disturbance (e.g., Goodyer, Kolvin, & Gatzanis, 1987).

The mechanism by which SES is hypothesized to exert an influence on the development of behavioral and emotional disturbances in young children is often not explicitly stated in studies in which this variable is included as a covariate, predictor, or explanatory factor. When this question has been addressed, the frequently changing circumstances experienced by children living in poor socioeconomic conditions have been identified as one possible mechanism by which SES influences adjustment. For example, Sroufe (1979) reports that a sample of low SES children being followed longitudinally

experience noticeably fluctuating environmental circumstances, with life situations changing markedly both toward and away from stability. There are changes in residency, parents' job status, health, substitute care, parents' drug dependency, and perhaps most important, living group membership. People move out and they move in. Separations are common. These fluctuating circumstances appear linked to the child's quality of adaptation (p. 840).

This approach suggests a link between low SES and the clustering of stressful events, with this link leading to poorer adaptation in children living in such circumstances.

Another perspective on the influence of SES on child outcomes suggests that maternal education (e.g., Jensen et al., 1990; Sameroff & Seifer, 1983; Walker, Downey, & Bergman, 1989) and attitudes toward childrearing (e.g., Tulkin & Cohler, 1973) may be mechanisms by which

SES indirectly affects the adjustment of young children.

Tulkin and Cohler (1973), for example, reported that "[a]ttitudes of middle-class mothers reflected more moderated control of aggressive impulses, greater encouragement of reciprocity, greater acceptance of emotional complexities involved in childrearing, and greater comfort in perceiving a baby's physical needs" than did lower-class mothers (p. 100).

One of the most explicit and detailed considerations of the effects of economic deprivation on socioemotional development in children has been developed by McLoyd (1990). In her discussion of the impact of economic hardship on black families and children, she suggests that:

(a) poverty and economic loss diminish the capacity for supportive, consistent, and involved parenting and render parents more vulnerable to the debilitating effects of negative life events, (b) a major mediator of the link between economic hardship and parenting behavior is psychological distress deriving from an excess of negative life events, undesirable chronic conditions, and the absence and disruption of marital bonds, [and] (c) economic hardship adversely affects children's socioemotional functioning in part through its impact on the parent's behavior toward the child (p. 311).

In addressing the question of how the relationship between low SES, high levels of life stress, and psychological impairment may affect the quality of care parents are able to provide, McLoyd asserts that economically deprived individuals are more likely to experience mental

health problems as a consequence of stressful life events. This conclusion is based on findings "that the positive relation between life-change scores and impairment is strongest in the lower class" (McLoyd, 1990, p. 320). McLoyd proposes that these differences in responsiveness to stress may be attributable to differences among the social classes in the availability of social and economic resources, and the high frequency and chronicity of stressful events in the lives of poor people (1990, p. 320).

McLoyd asserts that the psychological distress experienced by parents as a consequence of economic deprivation, in general, results in less nurturant and supportive parenting behavior. She points out, however, that even in samples of economically deprived individuals, differences exist in the way parents treat their children. These differences may in turn be attributable to disparate levels of psychological distress:

[E]conomically disadvantaged black and white mothers . . . who were more distressed psychologically perceived their parenting as more difficult, were less nurturant of their children, and discussed money matters and personal problems with their children more frequently than mothers reporting less psychological distress (McLoyd, 1990, p. 327).

Consistent with McLoyd's conceptualization of the nature of the relationship between SES and poor outcomes in children, considerable variation exists in the quality of adaptation of children raised in low SES environments. Longitudinal studies by Werner (e.g., 1989), for example, on resilience in high-risk children, suggest that there are



factors such as having established a bond with one primary caregiver and finding emotional support outside their families that may moderate or compensate for the risks associated with poverty.

Such findings also support Richters and Weintraub's analysis (1990) of the effects of SES on the adaptation of children:

[S]ocial class conveys no information about specific proximal experiences to which children within a given level of social class are exposed. In addition, there is considerable evidence indicating that specific measures of . . . proximal environmental variables predict significantly more variance in child functioning than do more general measures of environment such as social class (p. 83).

Richters and Weintraub (1990) and McLoyd (1990) therefore offer the hypothesis that it is not social class as such that affects children's adjustment. They propose, rather, that the effects of social class are exerted through proximal influences, such as the quality of parenting experienced by a child and other factors such as parental marital discord. These proximal factors, therefore, must be investigated to understand the nature of the relationship between SES and children's adaptation.

Few studies to date, however, have taken the approach of investigating the relative importance of SES, as defined by variables such as income, education, and occupational status, versus the importance of the proximal influences identified above, in relation to adaptation in children. Most researchers have chosen to have examine the effects of SES as a general measure of a collection of possibly

related influences, or to control for the effects of SES while examining the relationships of other types of variables with adaptation in children.

One example of a study of school-age children was conducted by Masten et al. (1988). They studied 205 children of diverse socioeconomic status who were aged 8 to 13 at the time of the study. Masten and her colleagues hypothesized that low SES could be a vulnerability factor and high SES a protective factor in relation to competence in circumstances of high stress. They found that SES was modestly and significantly correlated with measures of competence, but that it did not explain significant additional variation in any measure of competence when variance attributable to child's gender, IQ, and quality of parenting experienced was accounted for. The authors did find a significant interaction between SES and stressful life events in relation to one of their measures of competence. This interaction, which accounted for 3% of the variance in the model, indicated that economically disadvantaged children experiencing high levels of stress were the most disruptive in their classrooms, as rated by teachers and peers. These results supported the authors' conception of a bipolar, protective factor/vulnerability factor model of SES and life stress in relation to competence.

Studies of younger children have produced somewhat divergent results. Data from a four year longitudinal study of psychiatrically ill mothers and their infants reported by Sameroff and Seifer (1990) indicates that SES accounted for about 10% of the variation in a measure of the children's socioemotional competence.

Drotar and Sturm (1989) studied 58 preschool children with an early history of non-organic failure to thrive. These investigators found that three variables chosen to represent SES (income, maternal IQ, and maternal education) accounted for 24% of the variation in ratings of the quality of the home environment, including maternal responsiveness and acceptance of the child.

In one of the few studies of preschool-age children drawn both from the general population and from a clinical population, Achenbach et al. (1987) found that SES accounted for 4% of the variation in toddlers' total emotional and behavioral problem scores apart from that accounted for by other characteristics such as referral status and sex.

Findings from studies investigating the relationship between SES and a variety of outcomes in children therefore indicate that estimates of the magnitude of the relationship between SES and adjustment in children vary somewhat. This variation can be attributed to several factors, including differences in the way SES is conceptualized and measured. In general, however, SES (broadly defined) appears to account for relatively modest amounts of variation (e.g., 4% - 10%; Achenbach et al., 1987; Jensen et al., 1990; Sameroff & Seifer, 1990) in measures of adaptation in children, and moderate amounts (e.g., 24%; Drotar & Sturm, 1989) in environmental characteristics thought to affect adaptation.

#### Stressful Life Events.

Stressful life events have been a major focus of research on adaptation and well-being in children (e.g., Beautrais, Fergusson, &

Shannon, 1982; Garmezy et al., 1984; Goodyer, 1990; Rutter, 1983) for some time. The occurrence of stressful life events has been cited as an important risk factor with respect to many undesirable outcomes, including changes from secure to anxious attachment classification in infants (e.g., Vaughn, Egeland, & Sroufe, 1979), lesser competence in school-age children (e.g., Garmezy et al., 1984), and psychopathology in school-age children (e.g., Goodyer, Kolvin, & Gatzanis, 1985, 1987). There have been several on-going difficulties with research in this area, however, that make it difficult to draw firm conclusions about the effects of stressful life events on the quality of adaptation in young children.

One difficulty with research in this area has been that there has been relatively little explicit delineation by investigators of the nature of events thought to be stressful to very young children, or the means by which stressful events are thought to affect their adaptation.

In the original work done by Coddington (1972a, 1972b) developing life events inventories for use in studies of health outcomes in children, items were selected based on the degree to which the events were rated by professionals as requiring social readjustment on the part of the child. This was consistent with the approach used by Holmes and Rahe (1967) in their investigations of the stressful life events on adults. This approach, however, did not fully address several important questions regarding the putative effects of stress on very young children. In addition to the fundamental question of what stress is (which is still a thorny question as regards the study of stress in adults), these questions include: 1) whether and how to distinguish

between direct and indirect effects of events on children; 2) the degree to which readjustment on the part of the child is required when the quality and continuity of the caregiving available to the child is not disrupted as the result of the occurrence of "stressful" events; and 3) the issue of the ways in which children's responses to stress may be the same or different from the responses of adults.

Life events inventories used in research with young children are typically filled out by a parent, and reflect events that happened to the child, to the respondent, and to other members of the family. Events that can happen to the child directly (e.g., a change of daycare setting or provider) are mixed with events that happen to other family members (e.g., parent loses job). This approach therefore incorporates items that may have a direct effect on the child, as well events that are thought to have indirect effects through their impact on other members of the family.

From this perspective, the possibility that the distress or unavailability of emotionally valued others is what is actually stressful to the young child is not denied, it is just entangled with other types of potential effects. For example, in a situation in which an event occurs that is distressing to an adult in the family (such as temporary unemployment), but the adult is still able to be emotionally available and provide the care the child needs, it is not clear whether there would be any untoward effects on the child. The approach of simply measuring the occurrence of "stressful" events, without contrasting the occurrence of events with other potential effects on children's adaptation, makes it impossible to distinguish, for example,

the direct effects of events themselves from the potential effects of disruptions of the child's valued relationships.

An important point with respect to the distinction between the response of the caregiver and the response of the child to the occurrence of events has been made by Garrison and Earls (1983). They argue that it cannot be assumed that because one knows the impact that stressful events have had on a mother, one also knows what the impact of those same events on a young child have been. Garrison and Earls have also observed that the social mechanisms by which stressful events in a family would result in disturbed behavior in a child remain unclear, although numerous mediating and moderating mechanisms have been suggested. These include the temperament of the child, parent-child interaction, maternal psychopathology, and disrupted attachment bonds, among others (Garrison & Earls, 1983, p. 449).

An exception to the general lack of clarity described above regarding the nature and effects of stress on young children has been the identification, by some investigators, as most stressful those events that comprise threats to the child's individual security. This type of event includes the loss or unavailability of emotionally valued others (cf. Garnezy, 1983; see also Bifulco, Brown, & Harris, 1987; Bowlby, 1980). This approach must also be tempered, however, with an understanding of what readjustments on the part of the child are actually required following the occurrence of a potentially stressful event.

The work of Brown and Harris and their colleagues (e.g., Bifulco et al., 1987; Brown, Harris, & Copeland, 1977) is illustrative in this

regard. These investigators found that a specific stressor in childhood (loss of mother before age 17 by death or separation) was associated with increased rates of clinical depression in adulthood in women. What they also found, however, was that it was a lack of adequate parental care following the loss that accounted for the increase in rates of depression. This finding highlights the importance of clearly conceptualizing and articulating processes of influence in the investigation of the effects of stress on children.

The results of a prospective study of stress and behavioral pathology in 732 school-age children conducted by Gersten, Langner, Eisenberg, and Simcha-Fagan (1977) support a process-oriented approach to the study of stress and outcomes in children. They found that it was long-standing difficulties, such as economic disadvantage, marital discord, punitive parents, or a chronically physically or mentally ill mother, that were " . . . the crucial dimension of life stress with potential etiological significance for psychological disturbance" in the children they studied (Gersten et al., 1977, p. 241).

Evidence supporting a model in which the effects of stressful life events are less critical than the influence of more long-term processes is also found in a study conducted by Fergusson, Horwood, and Shannon (1984). Fergusson and his colleagues investigated the relationships among life stress, maternal psychiatric distress, and disturbances in children in a sample of 1123 children and their mothers. This sample had been previously prospectively studied for three years, beginning when the children were aged one year, and a positive relationship was found between the occurrence of stressful life events and utilization of

health care services (Beautrais et al., 1982). In this subsequent study, conducted when the children were five years old, Fergusson et al. (1984) found significant correlations between stressful life events scores and mothers' ratings of children's problems ( $r = .14$ ), and between mothers' self-reported symptoms of depression and ratings of children's problems ( $r = .28$ ). They also found, however, that the relationship between maternal depression and children's problem scores was relatively more important than the relationship between life events and children's problem scores: The relationship between life events scores and children's problem scores was not significant when the variation in children's problem scores attributable to maternal depression was accounted for first.

These findings are consistent with recent theoretical speculation (cf. McLoyd, 1990) regarding the importance of parental distress as a mediator of the effects of life circumstances on the adaptation of children. Very few studies, however, have been conducted examining the relative importance of different predictors of disturbance in children of any age, and none have been found that address this question in toddlers. The studies of toddlers and preschool-age children that do exist suggest that maternal characteristics are important factors in understanding differences in children's adaptation under objectively similar stressful living conditions.

Pianta, Egeland, and Sroufe (1990), for example, studied a sample of 133 first-born children and their mothers. These mothers were described as highly stressed because of their life circumstances, which included being of low SES and low educational attainment, and having low



levels of social support. When the competence of the children was assessed during their preschool years, the results indicated that there were differences in mothers' characteristics, even in the presence of high levels of stress, that were associated with greater or lesser competence in their children. Mothers of competent boys were found to be more emotionally responsive and supportive in interactions with their sons than mothers of less competent boys, who were characterized by a lack of respect for their sons' autonomy, and a lack of structure and limit-setting. Mothers of competent boys were also found, in general, to have more positive relationships with men. Mothers of competent girls were characterized as being better educated, more intelligent, and emotionally more mature and stable than mothers of less competent girls, who were found to be anxious, depressed, and socially restrained (Pianta et al., 1990, p. 229). For both boys and girls, although the patterns were different, the effects of putative stress were not uniform. Pianta and his colleagues (1990) contend that the findings of this study are consistent with the premise that mothers' working models of self, other, and relationships affect their interactions with their children, and thus their children's adaptation.

These results are similar to those reported by Erickson et al. (1985) from a study of socially and economically deprived, and therefore stressed, children drawn from the same sample described above. In this study, the focus of inquiry was the relationship between quality of attachment in infancy and the quality of the child's adjustment at preschool age.

Results from the Erickson et al. study that are of particular

interest relate to cases in which children who were rated as being securely attached in infancy were rated as having behavior problems as preschoolers, and cases in which children identified as anxiously attached in infancy were rated as behaviorally normal at 42 months of age.

Erickson et al. (1985) found that securely attached infants who had behavior problems at age 42 months expressed less affection toward their mothers, and were more avoidant of them, in laboratory sessions involving the mothers teaching the children a new task, than did securely attached children with no behavior problems. Mothers of the securely attached children with behavior problems provided less encouragement and support to their children in laboratory sessions involving problem-solving tasks than did mothers of securely attached children without behavior problems (p. 157).

In contrast,

mothers of anxiously attached children who did not have behavior problems were more respectful of the child's autonomy; were more supportive; provided clearer structure and firm, consistent limits; were less hostile; provided clear, well-timed instruction; and seemed confident that they could work with the child in [the teaching-task] situation (Erickson et al., 1985, p. 157).

The researchers speculated that the mothers of the securely attached children who had behavior problems as preschoolers were less able to help their children successfully "negotiate subsequent stages of development" than were mothers of securely attached children who did not develop behavior problems (Erickson et al., 1985, p. 164).

On the other hand, "the anxiously attached children without behavior problems came from homes . . . [that] provided the stimulation necessary to foster health development" (Erickson et al., 1985, p. 165). Mothers of these children were more emotionally available, and more respectful of their children's autonomy, than were mothers of anxiously attached children with behavior problems.

These results suggest that maternal capacities to support the resolution of stage-salient issues are related to the quality of children's adjustment at particular stages of development.

A study of 72 toddlers reported by Garrison and Earls (1983) provides some additional descriptive evidence that supports a model of stressful events exerting indirect effects on children through their impact on mothers. Using a life events interview, they found that 20% of the mothers in their sample "reported that the general effect of events occurring during the past twelve mo [sic] had made them feel less close and more impatient with their 2-yr-olds [sic]" (Garrison & Earls, 1983, p. 444).

One difficulty in interpreting the results of studies of the relationship between stressful events and adaptation in children has been that data on the effects of stressful life events are not always reported in ways that make it easy to ascertain the unique contribution of such effects to differences in behavioral disturbances in very young children. For example, Bates et al. (1985), in a study of behavioral difficulties in three-year-olds, report the combined effects of life events, SES, and marital satisfaction on adjustment in children, but not their unique effects.

In addition, Lewis et al., (1984), in a study that is often cited as providing evidence of the importance of considering exposure to stressful life events in predicting psychopathology from early attachment classification, also reported their findings in a way that makes it difficult to ascertain the unique effects of stressful events. They conducted a study of 113 six-year old middle-class children for whom ratings of attachment security had been obtained during infancy. The number of life stress events mothers reported at the assessment conducted six years later was one of the variables that best discriminated male children with psychopathology at age six from those without. However, Lewis et al. provided no information about the simple relationship between life events and psychopathology, and no quantitative information about the size of the effect uniquely attributable to life events in the discriminant function analysis they performed. The magnitude of the relationship between life events and the presence of symptoms of psychopathology therefore cannot be ascertained from Lewis et al.'s report.

Evidence from studies in which the direct effects of stressful life events are reported leads to the tentative conclusion, however, that the occurrence of discrete stressful life events is modestly ( $r = .14$ , Beautrais et al., 1982) to moderately (11% of variance explained, Jensen et al., 1990) related to behavioral problems in school-age children.

### Maternal Relationship History and Interpersonal Relational Style.

Three types of information suggest that mothers' internal working models of relationships, as expressed in their perceptions of their early relationships with their own mothers and in interpersonal relational style, may affect their relationships with their own children.

The first type of information comes from theoretical models that predict intergenerational continuity in the behavior of caregivers, and in the general quality of interpersonal relationships (e.g., Belsky, 1984; Bowlby, 1980; West & Sheldon, 1988). Information of this type has been reviewed Chapter One.

The second type of information is derived from clinical observations of parents and children and is exemplified by the work of Fraiberg and her colleagues in the field of infant-parent psychotherapy (e.g., Fraiberg, Adelson, & Shapiro, 1975). Based on their work with many families in an infant mental health program, Fraiberg et al. (1975) suggest that in all families, the unremembered pasts of the parents influence their relationships with their children. Only in some families, however, do "ghosts" from the parental past "take up residence and conduct the rehearsal of the family tragedy from a tattered script" (Fraiberg et al., 1975, p. 388). Fraiberg and her colleagues suggest that the repression and isolation of painful affects associated with childhood experiences constitutes the mechanism by which the parental past may be reenacted with the next generation (Fraiberg et al., 1975,

p. 420).

The third type of information comes from empirical studies. Of particular interest are the few studies of maternal developmental history, interpersonal behaviors, and adaptation in young children.

Main et al. (1985) studied 40 mothers, fathers, and six-year-old children from predominately upper-middle class families. The quality of each child's attachment to each of his or her parents had been assessed in infancy; the nature of parents' working models of attachment was assessed five years later using the Adult Attachment Interview (George, Kaplan, & Main, 1984, cited by Main et al., 1985). Parents were classified as secure or insecure with respect to attachment (see Bowlby's Theory, Chapter One). Main and her colleagues found a very strong positive relationship between the security of infants' attachment to their mothers, and "security implicit in the mother's working model of self" assessed five years later (Main et al., 1985, p. 99). Main and Cassidy (1988) also reported that the quality of attachment of six-year-olds in relation to their mothers was highly predicted by attachment to mother as an infant.

Main and her colleagues maintain that these studies affirm the presumption that "the parent's representation of his or her own life history shapes the way in which the infant is conceptualized, and concomitantly, the way in which the infant is treated" (Main et al., 1985, p. 97).

In another investigation of parental representations of their early experiences and their relationships with their own children, Birigen (1990) studied 37 mothers of children aged 11-19 months.

Mothers were selected into this study from a larger group of volunteers based on their extreme scores on the parental subscales of the Mother-Father-Peer Scale (Epstein, unpublished document). These scales assess the degree to which individuals feel that they were accepted or rejected by their parents in childhood. Twenty of the mothers comprised an "accepted" group and 17 women were in an "unaccepted" group. Global ratings of the harmony of interaction between the mothers and their infants were made in their homes, and the sample was split into two groups (harmonious interaction vs. inharmonious interaction) based on these ratings. Birigen (1990) reported a match rate of 84% between mothers' recall of being accepted or unaccepted and the harmony/disharmony split. Birigen also found that mothers' perceptions of acceptance were modestly correlated ( $r = .30$ ) with their perceptions of their children's responsiveness to them. This finding is consistent with Bowlby's (1980) theory, and with the findings of Main and her colleagues (Main & Cassidy, 1988; Main et al., 1985) regarding the importance of working models of attachment as guides of behavior in parent-child interactions.

Ricks (1985) also reported finding a relationship between maternal perceptions of parental acceptance, using the same instrument as Birigen (1990), and the quality of infant-mother relationships. She studied 28 middle-class mother-infant dyads and found very large group differences in maternal acceptance scores for mothers of securely attached infants in comparison to mothers of anxiously attached infants; mothers of anxiously attached infants felt less accepted by their parents (Ricks, 1985). In fact, Ricks reported that there were very few cases of

overlapping scores for mothers of anxiously attached infants and securely attached infants on the Maternal Acceptance subscale (1985, p. 221).

In a follow-up study of 44 mothers and their preschool-age children (20 of whom participated in the study just described), Ricks (1985) found that children who had been rated as secure in infancy were rated as having more positive emotions as preschoolers. Ratings of children's emotions were also correlated with concurrently rated maternal behaviors, such that higher ratings on a scale of positive emotional expression were positively related to maternal support and pleasure in interaction with the child. Ricks (1985) also found that the incidence of stressful events in the period between the assessment of these children as infants and preschoolers was significantly negatively correlated with the rating of children's emotions; children in families in which many stressful events occurred had higher negative emotion ratings.

These findings are consistent with the work of Crowell and Feldman (1988; Crowell, Feldman, & Ginsberg, 1988). Crowell and her colleagues studied a sample of 64 mothers and their preschool-aged children, who were in one of three groups: 1) clinically referred children with behavior problems; 2) clinically referred children with behavior problems who were also developmentally delayed; and 3) a matched non-clinic comparison group. Mothers' internal working models of relationships were assessed using the Adult Attachment Interview developed by Main and her colleagues. These working models were characterized as secure, detached, or preoccupied (Crowell & Feldman,



1988). They found that more mothers of clinic-referred children were classified as detached or preoccupied than were mothers of children in the comparison group. They also found that children's group status, as well as the mothers' internal working models of attachment, were related to patterns of mother-child behavior:

Our results support the suggestion made by Main et al. (1985) that a mother's internal model of relationships selectively and qualitatively affects her responsiveness and sensitivity to her child. Mothers classified as secure functioned best overall. They showed warmth and supportiveness during a challenging activity and gave clear, helpful assistance that encouraged learning and mastery in their children. Mothers in the detached category were less emotionally supportive and helpful to their children. In assisting their children, they most often had a controlling, task-focused style that tended to be cool and remote, perhaps reflecting their childhood descriptions of being pushed toward independence. . . . Mothers in the preoccupied group also were not helpful and supportive to their children. They often had difficulty giving directions and suggestions to their children. . . [they] were at times warm and gentle, but at other times appeared angry, coercive, or puzzled. This inconsistent style was reminiscent of the reported behavior of their own parents" (Crowell & Feldman, 1988, p. 1283).

Children's behavior toward their mothers was also found to be related to mother's internal working models of relationships. In most cases, the children's behavior matched that of their mothers, in that

children of secure mothers were found to be the most affectionate and the most positive in affect. Children of detached mothers were anxious and appeared to be blunted in affect, and children of preoccupied mothers were the most non-compliant, angry, and controlling (Crowell & Feldman, 1988, p. 1283). These investigators found that variables describing qualities of the interpersonal and emotional dimensions of dyadic behavior best distinguished the attachment classifications of the mothers (Crowell & Feldman, 1988).

In an investigation of cross-generational patterns in childrearing from a slightly different perspective, Egeland, Jacobvitz, and Sroufe (1988) examined the factors that differentiated mothers who had been abused as children, and who themselves maltreated their preschool-age children, from mothers who were abused but did not treat their children in an abusive manner. They found that

[a]bused mothers who were able to break the abusive cycle were significantly more likely to have received emotional support from a nonabusive adult during childhood, participated in therapy during any period of their lives, and to have had a nonabusive and more stable, emotionally supportive, and satisfying relationship with a mate. Abused mothers who reenacted their maltreatment with their own children experience significantly more life stress and were more anxious, dependent, immature, and depressed (Egeland et al., 1988, p. 1080).

These findings are consistent with a concept of developmental pathways in which negative early experiences need not completely determine the nature of internal working models of the self, other, and

relationships, nor the quality of adaptation that an individual achieves over time. They also underscore the potential salutary effects of supportive emotional relationships outside of the family of origin, including psychotherapeutic relationships (cf. Ricks, 1985; Werner, 1989), and the critical importance of the quality of maternal psychological adjustment as an influence on the adaptation of children (cf. McLoyd, 1990).

The three types of information presented here are not unrelated and have informed one another. Each is consistent with a conception of internal working models of the self, other, and relationships that filter experience and guide behavior, especially in affectively important relationships. Taken together, this evidence suggests that one would expect associations of fairly sizeable magnitude between measures of mothers' perceptions of their relationships with their own mothers in childhood, patterns of attachment-related thoughts, feelings, and behaviors, and the quality of adaptation in children.

#### Maternal Psychological Distress.

Although much of the research done examining the relationship between maternal psychopathology and child adjustment has focused on the effects of schizophrenia and major affective disorders, there is evidence that general psychiatric impairment and/or distress also put children at risk for the development of emotional and behavioral disturbance (cf. Downey & Coyne, 1990; Tuma, 1989).

Research that has been conducted with preschool and school-age

children has demonstrated strong, positive relationships between maternal psychopathology and the occurrence of emotional and behavioral disturbances (for reviews, see Beardslee, Bemporad, Keller, & Klerman, 1983; Downey & Coyne, 1990; Keitner & Miller, 1990; Orvaschel, Weissman, & Kidd, 1980).

There are three primary types of studies that have been conducted that are pertinent to the question of the effects of parental psychopathology on adaptation in children. These are studies of the children of psychiatrically ill parents, of children who themselves are emotionally and/or behaviorally disturbed, and studies of the childhood histories of adults with psychiatric disturbances (Orvaschel et al., 1980). In general, the results of these three types of studies investigating the relationship between parental depression and outcomes in children support two findings: 1) an increased frequency of depression and other psychopathology in children of depressed parents; and 2) home environments of children with a depressed parent are characteristically disruptive, hostile, and rejecting, attributes that were found to characterize also the home environments of depressed children and those of children who became depressed as adults (Keitner & Miller, 1990; Orvaschel et al., 1980).

Studies of school-age children of psychiatrically ill parents have consistently shown a strong relationship between parental psychopathology and disorders in children (e.g., Orvaschel, Weissman, Padian, & Lowe, 1981; Radke-Yarrow & Sherman, 1990). Keitner and Miller (1990) report that data from studies of family functioning and major depression indicate that the "rates of major depression in the children

of parents with affective disorder range from 23% to 38%"; rates of depressive disorder in children in control families range from 11% to 24% (p. 1131). Weissman and colleagues (1987) reported findings of similar magnitude.

Studies have also consistently identified factors that discriminate school-age children with emotional and behavioral disorders from children who do not have such disorders. For example, in addition to children who have a parent with a psychiatric disorder, boys, and children who live in urban rather than rural areas, are more likely to be identified as having emotional and behavioral disturbances (see, e.g., Kazdin, 1989a, p. 180).

An example of a study that confirmed previous findings regarding risk factors for disturbance in school-age children was conducted by Williams, Anderson, McGee, and Silva (1990). They studied 792 11-year-old children, and found that the risk factors that best discriminated the 90 children identified as being emotionally or behaviorally disturbed were sex, maternal depression, marital status of parents, and reading problems. Mothers who identified their children as having problems were characterized by higher physical and psychiatric symptom scores and lower verbal ability than mothers who did not identify their children as having problems (Williams et al., 1990).

Most research on the relationship between parental psychopathology and the quality of adjustment of preschool children has been of the first type identified above; that is, it has been conducted on children identified as being at risk because of parental diagnosis. The findings of such studies have been very similar to those reported for school-age

children.

Sameroff and Seifer (1983) reported findings from the Rochester Longitudinal Study of children of psychiatrically disturbed and normal mothers. The children had been followed from birth to four years of age. Mothers in the study were divided into four groups based on a diagnosis of schizophrenia, neurotic depression, personality disorder, or no mental illness.

In an earlier report on the study (Seifer, Sameroff, & Jones, 1981, cited by Sameroff & Seifer, 1983), findings were presented that indicated that by 30 months of age, children of mentally ill mothers differed from children of parents with no mental illness. Children of mentally ill mothers were more timid, less cooperative, more fearful, more depressed, and they engaged in more bizarre behaviors. Similar differences between children of low SES and children of higher SES were also found at this age. By the time the children were four years old, however, many of the differences between children of differing SES were less pronounced. The four year old children of mentally ill mothers, however, continued to show the same patterns of behavior and the same deficits in relation to children of mothers with no mental illness (Sameroff & Seifer, 1983, p. 1258).

Sameroff and Seifer (1983) also reported evaluations of the relationships of the severity and chronicity of maternal mental illness, independent of diagnostic group, with a variety of outcomes in the children. They found that severity and chronicity were consistently better predictors of outcome than diagnosis. Of most importance for this study was the finding that greater severity and chronicity of

maternal mental illness was associated with much poorer adaptive behavior scores in children.

Severity and chronicity, in combination with anxiety, were also the measures that best predicted the social and emotional competence of the children studied. When these three variables representing maternal mental illness were entered first in a hierarchical multiple regression analysis predicting competence, they explained 16% of the variance in the outcome variable. When entered at the last step, after family social status, life stress, and a variable representing the flexibility/rigidity of parental attitudes, beliefs, and values regarding childrearing, maternal mental illness explained 8% of the variance in competence. Maternal mental illness was the only dimension that explained significant unique variance when the variance attributable to the other dimensions had been accounted for (Sameroff & Seifer, 1983).

Studies conducted by Radke-Yarrow and her colleagues at the National Institute of Mental Health (Davenport, Zahn-Waxler, Adland, & Mayfield, 1984; Gaensbauer, Harmon, Cytryn, & McKnew, 1984; Radke-Yarrow, Cummings, Kuczynski, & Chapman, 1985; Zahn-Waxler, McKnew, Cummings, Davenport, & Radke-Yarrow, 1984) have also found evidence of the powerful effects of parental affective disorder on the adaptation of preschool-age children.

Radke-Yarrow et al. (1985) studied attachment relationships in 99 mothers and their preschool-age children. These mothers were divided into four groups on the basis of diagnosis: 14 mothers were diagnosed as bipolar depressive, 42 with major unipolar depression, 12 with minor

depression, and 31 with no history of affective disturbance. Radke-Yarrow and her colleagues found that the frequency of insecure attachment relationships was higher in families with major affective disorders than in families in which the mother had no affective disorder or only minor depression. They also found that children of mothers with bipolar disorder were more likely to be insecurely attached than were children with unipolar depression. Using stepwise regression techniques, they found that mother's diagnosis was the best predictor of quality of attachment, followed by the severity of the worst depressive episode experienced by the mother (Radke-Yarrow et al., 1985).

These investigators also reported that mothers of securely attached children expressed positive affect more frequently and negative affect less frequently than mothers of insecurely attached infants:

regardless of diagnosis, mothers' negative affective expression in interaction is associated with insecure attachment. Amount of exposure to disturbed affect was also associated with increased probability of a poor mother-child relationship (Radke-Yarrow et al., 1985, p. 91).

These findings are very similar to those reported by Gaensbauer et al. (1984), Davenport et al. (1984), and Zahn-Waxler et al. (1984) in their studies of seven children of manic-depressive parents and matched samples of children of parents with no history of affective disorder.

Mothers in the index families were more overprotective, yet less attentive to their children's health needs than control mothers. In addition, they were less active with their children, more unhappy, tense and ineffective, and reported more negative affect toward their children



(Davenport et al., 1984, p. 230).

The children of the manic-depressive parents were more likely to be insecurely attached as infants; they also showed "a generalized disturbance in their capacities to adaptively regulate their emotions involving a number of different affects and different contexts" (Gaensbauer et al., 1984, p. 338).

By the time these children were two years old, they were experiencing social and emotional problems that were described as "similar to the interpersonal problems of their manic-depressive parents" (Zahn-Waxler et al., 1984, p. 236). The index children also had higher mean levels of symptoms of disturbance than did normal control children. These symptoms included excessive shyness and dependency, temper tantrums, poor impulse control, hyperactivity, and inappropriate affect. Zahn-Waxler and her colleagues found that the behavior problems of these children were most evident in two areas: 1) interpersonal relationships; and 2) the handling of affects, especially negative affects such as anger or distress (Zahn-Waxler et al., 1984, pp. 238-239).

These findings are similar to those reported in other studies of the two-year-old children of depressed mothers (e.g., Cox, Puckering, Pound, & Mills, 1987) and of young clinic-referred children (Webster-Stratton & Hammond, 1988).

In one of the few investigations of a sample of preschool children drawn from the general population, Bates, Maslin, and Frankel (1985) conducted a prospective study of predictors of emotional and behavior disturbances in 120 preschoolers. The children were studied from the

time they were infants to age 36 months. A wide variety of measures and methods was used in the study. Those that are most germane to this discussion were mothers' ratings of infant temperament, toddlers' behavior problems, and of their own personality characteristics; and assessment of attachment quality when the children were 13 months old; behavioral observations of the children.

Bates et al. found that security of attachment predicted specific elements of maternal-child interaction, such as lower levels of negative control (e.g., prohibition, scolding) when the children were 24 months old. Security of attachment in infancy was, for the most part, unrelated to mothers' ratings of their children's behavior problems at 36 months, however. They also found that most of the behavioral observation measures did not significantly predict disturbances in the children.

The best predictor of mother's ratings of children's behavior problems was mothers' ratings of infant temperament. Bates et al. acknowledge that

this could be attributed to consistency in the subjective aspect of maternal perception alone. However, on the basis of the pattern of results . . . and supplemental analyses concerning possible influences due to maternal personality, we would argue that the predictiveness of the early mother reports has substantive meaning. First, mother reports of negative, fearful reactions to novelty predicted only the Anxious [behavioral problems] scale, consistent with the content of the outcome scale; and reports of early activity management problems predicted only

the acting-out behavior problems, also consistent with scale content (1985, p. 179).

Bates et al. also suggested that the pattern of relationships they obtained between infant difficultness, ratings on the Anxious scale of the behavior problems checklist, and maternal self-reported anxiety, defensiveness, and social desirability supported the hypothesis "that anxious mothers are more likely to have anxious children (for both environmental and genetic reasons)" (1985, p. 179).

The third type of study identified above has also produced results supporting the importance of individuals' perceptions of early relationships and environments in relation to the development of psychopathology (e.g., Lyons-Ruth, Zoll, Connell, & Gruenbaum, 1986; Perris, 1988).

Crook, Raskin, & Eliot (1981), for example, in a study of 714 hospitalized depressed patients and 387 normal adults, found that depressed and normal subjects differed in their reports of parental behavior:

The reported behaviors that characterize the mothers of depressed patients are those reflecting rejection of the child and control through such psychologically damaging techniques as derision, debasement, withdrawal of affection, and manipulation through guilt and anxiety (pp. 955-956).

The retrospective nature of these data preclude any causal inferences. In addition, the interpretation of the findings must be limited because there are no objective data with which to compare these memory-based reports.

Even with these limitations, however, the findings are valuable for two reasons. First, they support a general conceptual model of the importance of specific early experiences in relation to the quality of later adaptation. Second, they suggest that exposure to parental psychiatric distress, with related disturbances in interpersonal interactions, is one means by which cross-generational continuity in the quality of parent-child relationships is maintained.

Models of the means by which maternal psychopathology might influence the adaptation of the young children have been most well developed for maternal depression (see Downey & Coyne, 1990; Richters & Weintraub, 1990; Tronick & Gianino, 1986). Two basic models describing the relationship of maternal depression to child behavioral problems that incorporate elements of most other models have been suggested by Goodyer (1990):

The first is related specifically to past experience of [mothers'] own parenting and suggests that in some way this interferes in the quality of child care. The second is that being unsupported in their own lives in the present interferes with child care. In both cases the suggestion is that one mediating factor is maternal mental state . . . The mechanisms are therefore suggestive of a link between past experience, present maternal adversity, depression in mothers and behaviour problems in children (p. 170).

Based on evidence from the different types of studies reviewed here, it is anticipated that the relationship between maternal symptoms of psychological distress and child adjustment will be low to moderate in a sample drawn from the general population.

## Summary

The research presented here lends credence to the proposition that mothers' symptoms of psychological distress, the nature of their internalized representations of self in relation to valued others, and their perceptions of specific qualities of their early relationships with their own primary caretakers, will be related to their interactions with their toddlers. These interactions, in turn, are hypothesized to be critically important in the development of the toddler's working models of self and other, and in the child's successful resolution of the salient developmental issues of individuation and autonomy in the context of his relationship with a primary caregiver.

These empirical findings, combined with an understanding of the child's relationship with his primary caregiver as the final common pathway of the influence of the environment, also support the idea that the influence of such factors as family socioeconomic status and the occurrence of stressful life events will be relatively less important in predicting emotional and behavioral disturbance than will the maternal characteristics described above (cf., Belsky, 1984; Bowlby, 1988; Richters & Weintraub, 1990; Sameroff, 1989; Sroufe, 1990).

## Study Purpose and Rationale

The purpose of this study was to evaluate the relative importance of factors that have been identified as increasing the risk that toddlers would be identified as having symptoms of emotional or behavioral disturbances. The study was based on the premises that 1) the unsuccessful resolution of stage-salient developmental issues can result in poor adaption in young children; and 2) that compromised adaption, if serious enough, will be reflected in symptoms of emotional and behavioral disturbance. In addition, the study was based on the supposition that stage-salient issues for toddlers are resolved within the context of the relationship between the child and his or her primary caregivers. Therefore, it is hypothesized that characteristics of the primary caregiver that have been demonstrated to be related to the quality of caregiver-toddler relationships will be particularly important risk factors for the compromised resolution of developmentally important issues and the concomitant development of emotional and behavioral disturbance.

## Research Question

The research question addressed by this study was whether maternal psychological characteristics are relatively more important predictors of emotional and behavioral disturbance in toddlers than are family SES

and the occurrence of stressful life events.

The hypothesis of the study was that the maternal psychological characteristics of 1) recollection of her mother as rejecting of her in childhood; 2) either a dependent or assertively autonomous orientation in interpersonal style; and 3) symptoms of psychological distress would be relatively more important predictors of emotional and behavioral disturbances in toddlers aged 24 to 30 months than would family SES and stressful life events. It was specifically predicted that maternal psychological characteristics would explain 20% of the variance in toddlers' emotional behavioral disturbance scores beyond the 14% accounted for by family SES and stressful life events scores. It was also predicted that family SES and stressful life events scores would not account for significant variance (9% or less) beyond the 25% (or more) of the variance in toddlers' disturbance scores accounted for by the maternal psychological variables. These predictions of specific amounts of variance are based on the findings of the few previous studies of risk factors for emotional and behavioral disturbances in toddlers, and on extrapolations from research conducted with older children. They also take into consideration expected intercorrelations of the maternal psychological characteristics, and of SES and the occurrence of stressful life events.

Two of these predictions were considered to be most critical to the premises of the study: 1) The increment in variance accounted for by maternal psychological characteristics after controlling for stressful events and socioeconomic status; and 2) The differential in variance accounted for when the order of the entry of the two sets of

variables were reversed. The first represents the degree to which maternal psychological characteristics are related to ratings of toddlers' emotional and behavioral problems when the effects of socioeconomic status and stressful life events are controlled. The difference in variance accounted for reflects the degree to which the variance in ratings of toddlers' problems is jointly explained by stressful life events, SES, and maternal psychological characteristics.

The extent to which maternal psychological characteristics explain substantial variance beyond that accounted for by SES and stressful life events, and SES and stressful life events account for little variance beyond that explained by maternal psychological characteristics, maternal psychological characteristics can be considered more important predictors of ratings of toddlers' emotional and behavioral problems.



## Chapter Two

### METHODS

#### Subjects

Subjects for the study were 93 women living in eight counties in the greater San Francisco Bay Area. Subjects agreed to complete a set of pencil and paper measures regarding the behavior of their toddlers, and specific family and personal characteristics. Participants were reimbursed \$10.00 each for completing the questionnaires, and were also entered in a drawing for three \$50.00 gift certificates for children's toys and clothing as an additional form of reimbursement.

#### Descriptive Information

Mothers participating in the study ranged in age from 23 to 51 years ( $M = 33.59$ ,  $SD = 5.39$ ); their ages at the birth of their first child ranged from 17 to 46 ( $M = 29.55$ ,  $SD = 5.95$ ). Most of the subjects were Caucasian ( $n = 70^1$ ); other ethnicities represented included Asian ( $n = 12$ ), African-American ( $n = 6$ ), Hispanic ( $n = 3$ ), and other ( $n = 2$ ).

The majority of the mothers were married or living with a partner ( $n = 84$ ). Only a few participants ( $n = 9$ ) reported being never married, or separated or divorced and not currently living with a partner. The number of children of women participating in the study ranged from one

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<sup>1</sup>As the total number of subjects was close to 100, percentages are omitted here as the information they provide is redundant.

to nine ( $M = 1.80$ ,  $SD = 1.27$ ); 54.8% of the subjects had only one child.

The subjects were well-educated, with 66 having at least a college degree, and an additional 19 having had at least some college. Of the remainder of the subjects, 4 had obtained a high school diploma, and 4 had less than a high school education. Spouses and partners of the subjects were also well-educated; the median level of education for spouses was receipt of a college degree.

Women described their family income for 1989 using nine categories of income increasing from zero in increments of \$6,000. The range was from less than \$6,000.00 to more than \$48,000. Forty-one subjects reported family incomes for 1989 of greater than \$48,000, while only 17 women reported family incomes of \$24,000 per year or less (median = \$42,001 to \$48,000).

The number of hours per week that mothers reported working outside the home ranged from zero to 60 ( $M = 15.88$ ,  $SD = 17.88$ ); 45.2% of mothers did not work outside of the home. Subjects reported that their spouses/partners worked an average of 43.31 hours per week outside of the home ( $SD = 17.69$ , range 0 to 120<sup>2</sup>).

The ages of the toddlers whose behaviors were rated by their mothers ranged from 24 to 33 months ( $M = 27.25$ ,  $SD = 2.31$ ). More than half of the toddlers were male ( $n = 52$ ), and 61 were either first-born or only children. The toddlers were cared for primarily by their mothers or other family members; 46% spent zero hours per week in day care or preschool. The mean number of hours spent in preschool, daycare, or babysitting at home by children who used such services was

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<sup>2</sup>The 120 hour work week was reported for a spouse who was a medical intern.

22.93 (SD = 16.62, range 1 to 52).

Five of the toddlers were described by their mothers as having some type of disability. The types of disability reported, with one child in each category, were: asthma; autistic tendencies; exophthalmia; speech and language delay; and ITP viral syndrome.

### Power Analysis

A power analysis was conducted to determine the total number of subjects needed for a test of the main hypothesis using hierarchical multiple regression techniques. Several different factors were considered in planning the power analysis. Of primary interest were 1) the increment in variance accounted for by maternal psychological characteristics after controlling for stressful events and socioeconomic status, and 2) the differential in variance accounted for when the order of the entry of the variables into the analysis was reversed. Additional considerations were the planned split-half replication of the test of the hypothesis of the study, a focus on predicted effect sizes rather than solely on tests of statistical significance, and practical limitations of funding for recruitment.

### Parameters.

Parameters for the power analysis were established as follows: power of .80; alpha of .05; Model II error; six independent variables; increment of variance at the second step of the analysis = 20%; total

amount of variance accounted for by the model = 34%. This increment is the amount of variance it was hypothesized that the set of maternal psychological characteristics would account for after controlling for stressful events and socioeconomic status. This increment was chosen as the primary increment for evaluation as it represents the most conservative test, in this study design, of the relationship between the set maternal psychological characteristics and ratings of emotional and behavioral disturbances. The increment in variance accounted for by the stressful events and SES variables after the effects of the maternal psychological characteristics were controlled was not used in the power analysis. This was because the statistical significance of this increment was not as critical to the hypothesis of the study as was the diminution of the amount of variance attributable to this set when the order of entry of the variables into the analysis was switched.

#### Number of Subjects.

The number of subjects needed for the study based on this analysis was 48. The power for the test of the maximum hypothesized increment attributable to stressful events and socioeconomic status after controlling for maternal psychological characteristics (9%), based on this sample size, is .60. Although somewhat low (Cohen & Cohen, 1983), this level of power was acceptable given that the significance of this increment was not as critical to the test of the study hypothesis as were the two factors of primary interest mentioned above.

The number of subjects determined by this power analysis was

doubled to give the number of subjects (96) needed to perform a split-half replication of tests of the hypothesis of the study.

Subjects were divided into two subsamples using a random numbers table (see Procedures section) after the total number of subjects needed for the study had returned their questionnaire packets to the investigator.

### Recruitment

Subjects for this study were recruited under approvals from the Committee on Human Research at the University of California, San Francisco, and the Human Subjects Protection Committee of the Alameda County Health Services Agency, which serve as the Institutional Review Boards for their respective institutions.

#### Recruitment by Advertisement and Announcements.

There were several means by which subjects were recruited into the study. The first of these was placement of announcements and advertisements in several Bay Area publications. These publications included one of the area's two major daily newspapers, a major weekly alternative publication, a monthly publication designed specifically for parents of young children, and a weekly campus newspaper. In addition, flyers describing the study were posted on two university campuses and in businesses catering to parents of young children. These publications, institutions, and organizations are listed in Appendix A.

The information provided in these announcements, advertisements, and flyers was very much the same: The study, including information about the reimbursement offered, was described and interested individuals were advised to contact the investigator by telephone.

#### Additional Sources of Subjects.

Subjects were also recruited from the clientele of an area health clinic run by the Alameda Health Services Agency in Oakland. These subjects were recruited in three ways: 1) by posting flyers in the waiting areas of the clinic, 2) by the provision of information about the study by visiting nurses to prospective participants, and 3) by on-site recruitment in clinic waiting areas by the investigator.

A final source of subjects for the study was word-of-mouth advertising of the study by participants.

#### Response to Recruitment.

Of the 123 women who contacted the investigator and who advised her that they met the study criteria, 100% requested study packets. Of these, 83% (102) were returned. Of this number, nine were not included in the study analyses, eight because the children were of inappropriate ages, and one because the questionnaires had been completed in an obviously random manner.

## Variables and Measures

### Demographic Data

Basic demographic information was gathered from participants (see Appendix B).

### Socioeconomic Status

Several different means of calculating socioeconomic status (SES) have been used or recommended for use in psychological research (see Mueller & Parcel, 1981 for a review). Many of these previously utilized methods rely on the use of the husband's occupation and education level to categorize family SES.

The original selection of the variables to be used to represent the family SES of the women participating in this study was guided by: 1) the decision to include single mothers in the study, thereby negating the possibility of using spouse's occupation as an indicator of SES; and 2) theoretical speculations (see above) that maternal education level may be a critical element of SES in terms of influence on the behavioral and emotional adaptation of children.

Two variables were selected, therefore, as general measures of SES. The first was mother's level of education, which was treated as an ordinal variable and ranged in this sample from 3 (some senior high school) to 7 (some graduate school). The second was family gross income

for 1989; this variable was also used as an ordinal variable and ranged from 1 (\$0 - less than \$6,000) to 9 (greater than \$48,000).

### Stressful Life Events

As discussed in Chapter One in the section entitled Stressful Life Events, the study of the effects of stressful events on adaptation in young children has been hampered by a lack of clarity in the conceptualization of what is stressful for young children, and how children's responses to stress may differ from the responses of adults. Measurement of stressful events in very young children's lives has depended on reports by an adult (usually the child's mother) of events that happen to the child, to the respondent, and to other family members. This makes it difficult to disentangle what it is that distresses very young children -- events that happen to them directly, or events that "indirectly" affect them when emotionally valued adults are distressed to such an extent that their caregiving capacities are affected.

In addition to these specific concerns, general concerns also exist in relation to the most appropriate means by which to assess and score the occurrence of life events and the degree to which they are stressful (e.g., Dohrenwend, Dohrenwend, Dodson, & Shrout, 1984; Dohrenwend & Shrout, 1985; Lazarus, DeLongis, Folkman, & Gruen, 1985; Marziali & Pilkonis, 1986). Much of this debate has focused on the potential confounding of scores on measures of stressful life events and measures of psychiatric symptomatology.



Other questions have been raised about the utility of using a priori derived weights intended to indicate the importance of events rather than having subjects indicate their subjective perception of the importance of specific events. There is empirical evidence that supports: 1) the separation of the assessment of the occurrence of events from the assessment of the subjective distress experienced as a consequence of those events (e.g., Gersten et al., 1977; Marziali & Pilkonis, 1986; see also Pianta et al., 1990); and 2) the use of unweighted frequency scores rather than weighted scores (e.g., Beautrais et al., 1982; Masten et al., 1988).

In addition, there has been much debate about the use of positive versus negative events as predictors of illness, psychiatric disturbance, and other outcomes. Empirical evidence indicates negative events and ambiguous events most powerfully predict maladaptation and pathology (e.g., Gersten et al., 1977; Rowlinson & Felner, 1988; Masten et al., 1988).

Some investigators also strongly advocate the use of semi-structured interviews about the occurrence of life events as a supplement to (e.g., Garmezy & Tellegen, 1984) or in place of (e.g., Brown & Harris, 1989; Pianta et al., 1990) a life events questionnaire, arguing that interviews provide a more reliable means of measuring stressful life events and their impact. The design of this study precluded the use of such an interview.

The occurrence of stressful life events therefore was measured in this study using the Life Events Questionnaire (LEQ), a survey of life events that was designed originally by Coddington (1971a; 1971b) and

modified for use with families in a long-term study of competence and stress resistance in children (Garmezy & Tellegen, 1984; Garmezy, et al., 1984; Masten et al., 1988). The LEQ is a self-report measure to be completed by the mothers participating the study. It provides information about events that happen to the toddler, to the respondent, and to other members of their family, that can be summed into a count of the stressful events that occurred in the 12 months prior to the completion of the questionnaire. Garmezy & Tellegen report moderate 12-month stability estimates for the LEQ ( $r = .60$  and  $.53$ ) in two samples of families of school age children.

As this questionnaire was used by Garmezy and colleagues with the parents of older children, it was altered by the current investigator for use with parents of toddlers by changing the wording to indicate the toddler as the target child. Also, following Masten et al. (1988) and others, it was decided to use unweighted rather than weighted event sum scores in this study, and to use only the negative and ambiguous items on the LEQ (as identified by Garmezy and colleagues, 1984). The form of the LEQ used in this study therefore consisted of 34 items.

The LEQ was chosen as the measure of stressful life events for this study for three primary reasons: 1) it was adapted for use in research in developmental psychopathology, and has been successfully used in research in this area; 2) it is very similar to the quantitative measure of stressful life events used by Lewis et al. (1984) in a study which, as previously mentioned, is frequently cited as providing evidence of the importance of life stress events in the development of psychopathology in young children; and 3) use of this

measure will make it possible to compare the occurrence of discrete events that are putatively stressful to the child with the effects of maternal distress (which is conceptualized here as a potent, direct stressor for the child), as risk factors for emotional and behavioral disturbance in toddlers.

To be consistent with previous research using measures such as the LEQ, the sum of indications of whether or not events occurred was chosen as the measure of stressful events. This quantitative variable can range in value from zero to 34.

### Maternal Psychological Distress

Maternal psychological distress was measured in two ways in this study.

The first was by calculating the Global Severity Index (GSI) of the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982) for each subject. A self-report measure, the BSI is a shortened form of the Symptom Checklist-90 (Derogatis, Lipman & Covi, 1973). The BSI consists of 53 items that are scored on a five point scale of distress ranging from zero ("not at all distressed") to four ("extremely distressed"). Subjects were asked to respond to the items based on their experiences in the seven days prior to and including the day they completed the inventory.

The BSI can be scored into nine primary symptom dimensions and three global indices, including the GSI. The GSI is the mean of BSI item responses, can range in value from zero to four, and is

characterized by Derogatis and Spencer (1982) as the most sensitive of the global indices. GSI scores can be converted to standardized (T) scores and used to determine "caseness" of individual respondents, with norms developed separately for males and females and for psychiatric patients and non-patients.

Derogatis and Spencer (1982) assert that

[p]sychological distress or psychopathology falls somewhere in between highly trait-mediated enduring characteristics such as intelligence and rapidly fluctuating "state" manifestations like mood. Once established, symptoms tend to endure for moderate to substantial periods of time if untreated (p. 23).

One would thus expect fairly high concordance between measures of symptoms conducted over moderate periods of time (see also Gersten et al., 1977). Supporting this, Derogatis and Spencer (1982) report a test-retest correlation for the GSI of .90 over a two-week period in a sample of 60 individuals. Estimates of item equivalence (Cronbach's alpha) were not reported for the GSI.

Information on the validity of the BSI in relation to the MMPI presented by Derogatis and Spencer (1982, pp. 25-26) indicates that there is good convergence between the two measures. They also report findings of other investigators that provide evidence of the predictive validity of the BSI when used in a variety of community settings (see, e.g., Kremer & Atkinson, 1981, cited by Derogatis & Spencer, 1982), and assert that the BSI has been demonstrated "to be an acceptable brief alternative to the SCL-90-R" (Derogatis & Spencer, 1982, p. 30). The BSI has also been used previously in studies of subjective response to

stressful life events in non-patient samples (e.g., Marziali & Pilkonis, 1986).

The second measure of psychological distress consisted of subjects' estimates of the highest level of stress-related distress they had experienced over the past 12 months. These estimates were obtained by asking subjects to indicate on an analog "thermometer" (see Appendix B), with values ranging from zero to 100, how distressed they felt by the events listed on the LEQ and other events of a similar nature that had happened in the past 12 months.

#### Interpersonal/Relational Style

The Interpersonal Dependency Inventory (IDI; Hirschfeld et al., 1977) was used to measure elements of the interpersonal styles of subjects.

The IDI was developed on the basis of specific principles of attachment theory, object relations theory, and the social learning theory of depression, with reference to findings that an excess of interpersonal dependency had "been strongly implicated in the psychogenesis of depression, alcoholism, and other emotional disorders" (Hirschfeld et al., 1977).

Interpersonal dependency, according to Hirschfeld et al. (1977) refers to a complex of thoughts, beliefs, feelings, and behaviors which revolve around the need to associate closely with, interact with, and rely upon valued other people . . . . This complex of thoughts, beliefs, feelings, and behaviors is an element in normal

adult personality structure and is not in and of itself pathological (p. 610).

The IDI consists of 48 items that can be scored into three scales. These scales are Emotional Reliance on Another Person, Assertion of Autonomy, and Lack of Social Self-Confidence. The two scales chosen for use in this study were Emotional Reliance on Another Person and Assertion of Autonomy. These scales were chosen because of their specific content and derivation from attachment theory and object relations theory; the Lack of Social Self-Confidence scale was designed to reflect dependence and social learning theory almost exclusively (Hirschfeld et al, 1977) and thus was considered not to be as theoretically relevant to this study as were the other two scales.

The Emotional Reliance on Another Person scale was developed to assess the extent to which an individual wishes for and seeks contact with specific valued others, and dreads separation or loss of these others. The Assertion of Autonomy Scale was designed to assess the degree to which an individual: 1) tends to deny the importance or desirability of either dependency or attachment; and 2) is indifferent to the approval or evaluations of others (Hirschfeld et al., 1977, p. 617). Extreme high values on each of these scales thus would indicate a complex of beliefs, feelings, and behaviors that could be characterized as indicative of problematic internal working models of the self and attachment relationships.

The Emotional Reliance on Another Person scale is composed of 18 items; the Assertion of Autonomy scale comprises 14 items. Subjects are instructed to read the items and to decide whether each is

characteristic of their attitudes, feelings, or behavior, and then to endorse the rating point that best describes their usual way of acting or feeling. Anchors for the rating scale for IDI items range from one ("not characteristic of me") to four ("very characteristic of me") with no neutral midpoint. Scale scores are calculated by summing responses for the items comprising the scale. There are no reflected items in either of the scales used for this study.

Hirschfeld et al. (1977) report split-half reliability estimates for the scales of .86 and .76 for Emotional Reliance on Another Person and Assertion of Autonomy, respectively, in a cross-validation sample of 121 normal individuals, and .85 and .84, respectively, in another cross-validation sample of 66 psychiatric outpatients. They also report a correlation of  $-.23$  between the two IDI scales used in this study (Hirschfeld et al., 1977), supporting the conceptual distinction between scores on the two scales.

Support for the validity of the IDI is provided by: 1) the capacity of the Emotional Reliance on Another Scale to distinguish between psychiatric patients and normal individuals (Hirschfeld et al., 1977); and 2) the use of the inventory in a study of personality and depression reported by Hirschfeld, Klerman, Clayton, & Keller (1983). In this study, 26 female recovered depressives, and 134 of their first-degree female relatives who had also completely recovered from a primary nonbipolar major depressive disorder, were found to be more emotionally reliant than 272 first-degree female relatives without current or past psychiatric illness. In neither study did psychiatric patients differ from never-ill individuals in scores on the Assertion of Autonomy scale

(Hirschfeld et al., 1977; Hirschfeld et al., 1983). These findings lend some support to theoretical speculation that there are identifiable patterns of beliefs, feelings, and behaviors about attachment and dependency that are related to psychological well-being.

Total scores for the Emotional Reliance on Another Person scale and the Assertion of Autonomy scale will be used as the quantitative variables representing interpersonal style. These scores can range from 18 to 72 for the Emotional Reliance on Another Person scale, and 14 to 56 for the Assertion of Autonomy scale.

#### Maternal Perceptions of Acceptance in Childhood

Mothers' perceptions of having been accepted or rejected by their own mothers in childhood were measured using the Maternal Acceptance-Rejection subscale of the Mother-Father-Peer (MFP) Scale (Epstein, 1983; see Appendix B). The MFP Scale is an unpublished, self-report measure that includes separate subscales assessing the dimensions of acceptance-rejection by mother, father, and peers; independence-overprotection by mother and father; and the defensive idealization of mother and father. It is a Likert-format scale, with item ratings ranging from one (strongly disagree with statement) to five (strongly agree with statement) with a neutral midpoint.

The Maternal Acceptance-Rejection scale consists of 10 items and is calculated by reversing the scoring on reflected items and summing the item responses. Epstein (1983) reported an average reliability



coefficient of .91<sup>3</sup> for the Maternal Acceptance-Rejection scale based on samples ranging in size from 266 to 286 subjects. No information on the reliability of the Defensive Idealization scale is currently available (Epstein, personal communication).

The MFP has been used in previous research on the association between maternal relationship history and infant attachment (e.g., Ricks, 1985), with results indicating very large and significant mean differences between mothers of securely attached infants and mothers of anxiously attached infants.

The Maternal Acceptance score, used in this study as the quantitative variable representing maternal perception of her relationship as a child with her mother, can range in value from 10 to 50.

#### Emotional and Behavioral Disturbance

There has been relatively little work done in the classification and measurement of disturbances in children relative to the work that has been done in the area of adult disorders. Within the field of children's mental health, relatively little work has been devoted specifically to children of preschool age. Given these limitations, the information that is available about the classification and measurement of disorders in children in general is summarized, with a focus on recent efforts to assess very young children.

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<sup>3</sup>Epstein does not specify the type of reliability of which this is an estimate.

One critical issue in the classification of childhood psychopathology from the perspective of developmental psychopathology is that "the evaluation and classification of dysfunction and disorder should be conducted relative to what is the expected adaptation for the particular age and phase-appropriate developmental task" (Garber, 1984, p. 37; see also Sameroff & Seifer, 1990). As mentioned previously, this represents a major departure from approaches in the past that focused on disturbances as disease-like entities (see below), the manifestation and diagnosis of which would be unaffected by children's expected level of adaptation.

There has been an increase in recent years in work on the assessment of psychological disorders in school-age children and adolescents (for reviews, see Kazdin, 1989a; Quay, Routh, & Shapiro, 1987). One result of this work has been the publication of clinically derived diagnostic systems (e.g., DSM-III-R, American Psychiatric Association, 1987) for children that are based on similar guidelines for adults. These diagnostic guidelines have been criticized as being unreliable (e.g., Achenbach, 1982) and not sensitive to developmental differences in patterns of behavior or in normative behaviors (e.g., Tuma, 1989). Some of the DSM-III-R diagnostic classifications (e.g., avoidant disorder and oppositional disorder) have also been criticized as not empirically supported (Cantwell & Baker, 1988). Finally, this approach to the diagnosis of disturbances in children of preschool age has not been considered productive, in part because of its failure to meet the developmental relevance criterion (Garber, 1984) stated above.

Effort also has been invested in developing the means to assess

infants in terms of specific behaviors, and in terms of specific aspects of their relationships with caregivers, that are thought to be indicative of overall quality of adjustment. This approach is based on the theoretical position that emotional and behavioral disturbances in very young children are properties of the relationship between the child and the caregiver, rather than disease entities that reside primarily in the child. Anders (1989), for example, has proposed that

[g]iven the limited psychological autonomy of infants before three years of age . . . it is unlikely that psychopathology can be sustained in an individual infant. It seems improbable also that an infant's disturbance is caused solely by an adult's disorder, since, in the absence of the infant, the adult's distress may disappear. Moreover, a disturbance in an infant may be present in relation to one parent and not the other. The conclusion is inescapable: most psychological and behavioral syndromes of infancy disturbance occur in the context of relationships (p. 125).

Sameroff and Seifer (1990) have further defined relationship disorders as "major disturbances in the process by which individual parents and children develop affective bonds, communication patterns, and social interaction patterns that impact on the child's development of generalized competent behavior" (p. 63).

The Strange Situation Procedure, developed by Ainsworth and her colleagues (Ainsworth et al., 1978) to assess the quality of attachment relationships, is perhaps the best example of a relationship approach to assessment that is currently in use with infants and their parents. The

Strange Situation Procedure, in its original form, is most validly used with children aged 12 to 18 months (e.g., Ainsworth, 1985; Lieberman, 1977).

A gap has existed, therefore, with respect to the assessment of emotional and behavioral disturbances in children aged two to three years. The relative paucity of attempts to develop reliable, valid assessment tools for use with children of this age group has been attributed to several factors. These include the small amount of research focused on disturbances in this age period, problems in defining and establishing criteria for the assessment of disorders in two- and three-year-olds, and the lack of a differentiated understanding of the nature of disorders in this period (Achenbach, Edelbrock, & Howell, 1987, p. 630).

A major advance in the assessment of disturbances in this age group has been the development of empirically based dimensional scales of psychopathology (Kazdin, 1989a). The Child Behavior Check List for Ages 2-3 (CBCL/2-3; Achenbach et al., 1987; McConaughy & Achenbach, 1988) extends to the toddler age group previously developed empirically based procedures of assessment that have been used with older children. The CBCL/2-3 satisfies the criterion of sensitivity to developmental phase and age level. It also reliably discriminates between children who have been referred for clinical services and those who have not (Achenbach et al., 1987).

Syndromes of emotional and behavioral disturbances assessed by the CBCL/2-3 include two broad-band syndromes, internalizing and externalizing, and six narrow-band, or problem syndromes, including

social withdrawal, depressed, and aggressive (Achenbach et al., 1987, p. 646). The two broad-band syndromes correspond to syndromes identified in older children; the existence of the general syndromes of internalizing, or overcontrolled disorder, and externalizing, or under controlled disorder, is one point of agreement in research on child psychopathology (Kazdin, 1989a).

In describing these syndromes, Achenbach maintains that [m]ost features of the undercontrolled and the overcontrolled disorders are not intrinsically pathognomic but are extreme versions of characteristics that many children show at some point in their development. The versions that are extreme enough to warrant professional help may not reflect a specific disease state so much as relatively extreme standing on multiple variables that collectively impair adaptive development (1990, p. 7).

A total problem score on the CBCL/2-3 can also be calculated in addition the problem and syndrome scores mentioned above. The CBCL/2-3 therefore offers the possibility of locating children on an overall continuum of adjustment, as well as on several different syndrome dimensions, rather than simply within a dichotomous diagnostic classification system.

Symptoms of emotional and behavioral disturbance in the toddlers of mothers participating in the study were therefore assessed using the CBCL/2-3 (Achenbach et al., 1987; McConaughy & Achenbach, 1988). It is a 99-item checklist that requires only fifth-grade reading skills to complete and can be filled out in about 10 minutes (Achenbach et al., 1987, p. 632). Instructions for completing the checklist ask the rater

to indicate whether items are "not true of the child" (scored 0), "somewhat or sometimes true of the child" (scored 1), or "very true or often true of the child" (scored 2) now or were so in the past two months.

As mentioned previously, the CBCL/2-3 is an extension of empirically based assessment procedures used with older children. Scales for the six narrow-band or problem syndromes (social withdrawal, depressed, sleep problems, somatic problems, aggressive, and destructive), the two broad-band syndromes (internalizing and externalizing), and a total problem score were developed based on scores obtained in a sample of 273 children drawn from the general population. Achenbach et al. (1987) report a mean test-retest reliability coefficient of .87, a one year stability coefficient of .69, and a predictive validity coefficient with scores on the Child Behavior Check List (CBCL) for older children of .63 at age 4. They also report that children referred for mental health services scored significantly higher on all CBCL/2-3 scales than did children who had never been referred.

Neither age nor ethnicity were found to be related to CBCL/2-3 scale scores, but family SES was found to be significantly negatively related to all but two of the scales. No sex differences in CBCL/2-3 scale scores were found for non-referred children. In the clinically referred subsample, boys had higher scores than girls on only one scale (Sleep Problems). Achenbach et al. report that evaluation of the relationships of the CBCL/2-3 with measures of development suggests that, on the whole, the CBCL/2-3 assesses behavioral and emotional problems unrelated to variance in developmental level (1987, p. 646).

Selection of Informant Regarding Toddlers' Behavioral and Emotional Adjustment.

Because the direct observation of mothers and toddlers was not possible in this study, the selection of whom to use as informants regarding toddlers' emotional and behavioral adjustment in this study was problematic for several reasons. The primary issue involved was maximizing the validity of the ratings to be used: Subsidiary issues that were encompassed by this included the question of possible "halo effects" on ratings if mothers' ratings of their toddlers as well as themselves were used; and the question of whether to use more than one rater, with attendant problems of securing raters for the children who were equally familiar with them, and in equivalent role relationships.

The question of the validity of parents', and more specifically, mothers' ratings on behavior problem checklists for children has been assessed in several ways.

One particularly well-designed study was conducted by Friedlander, Weiss, & Traylor (1986). They found that after controlling for the systematic effects of maternal depression and child gender on CBCL ratings for school-age children, mothers' ratings continued to distinguish children who had been clinic-referred from those who had not.

Jensen and his colleagues (e.g., Jensen, Traylor, Xenakis, & Davis, 1988; Jensen et al., 1990) have also investigated the relationship between parental psychopathology and the validity of

ratings of children's problems. They argue that

although [moderate] correlations may suggest a distortion or bias in parents' reports of their children based on their own symptoms, an equally plausible explanation is that parents' and childrens' symptoms are in fact related (through either genetic or environmental factors) (Jensen et al., 1988, p. 446).

This view is supported by a study in which Jensen et al. (1990) obtained CBCL ratings of school-age children from both parents, as well as the parents' self-ratings on the Hopkins Symptom Checklist (HSCL). They found that parental psychopathology was strongly related to ratings of children's behavior problems. They also found, however, that a strong relationship between parental psychopathology and CBCL ratings existed when the opposite parent's HSCL score was used to predict CBCL ratings by the other parent (Jensen et al., 1990, p. 55).

Another types of information that indicate that ratings by parents validly reflect, at least to some degree, the behavioral problems of their children include findings that parents' ratings are the best predictor of childrens' referral status (cf. Achenbach, 1979; Bates et al., 1985).

Parents are also typically the individuals with the most information about the behavior of their children in a variety of contexts; Achenbach (1979) and Jensen et al. (1988) have suggested that the familiarity of the rater with the child, and with the scope of behaviors to be rated, are important factors to consider.

For example, Achenbach et al. (1987) reported a mean inter-parent correlation across all scales of the CBCL/2-3 of .47 for parents of two-



year-olds, and of .57 for parents of three-year-olds. Achenbach and his colleagues report that mothers tended to score all scales higher than fathers, and suggest the possibility that differences in these reports reflect mothers' greater involvement with their two-year-old children's problems (1987, p. 645).

The cross-situational validity of ratings is also a concern. Lewis et al. (1984), for example, found that mothers' ratings on the CBCL were modestly, but significantly correlated with teachers' ratings on similar subscales of a behavior rating scale designed for classroom use. The correlations ranged from .38 to .55, providing only limited support for the convergence of the two types of ratings.

In a study in which mothers of clinic-referred and non-clinic toddlers completed a precursor of the CBCL/2-3 and were directly observed in interaction with their children, Crowell et al. (1988) found substantial concordance between mothers' ratings of behaviors and behaviors observed in a laboratory setting for both groups of children.

These findings, taken together, provide limited support of the validity of mothers' ratings on the CBCL/2-3. Without independent confirmation of toddlers' behaviors in interaction with their mothers, however, questions regarding the validity of the reports obtained from their mothers remain largely unanswered.

The considerations noted above related to interobserver reliability mitigated against simply combining ratings from multiple observers of the children. Therefore, given the practical limitations that existed in conducting this study, and which precluded the use of objective observers, a decision was made to use only mothers' ratings of

their toddlers on the CBCL/2-3 as the best available assessment of the toddlers' emotional and behavioral disturbances.

#### Scoring.

As no specific predictions were made regarding relationships between the independent variables in this study and types or syndromes of emotional and behavioral disturbance in toddlers, the Total Problem Scale of the CBCL/2-3 was used as the dependent variable in analyses testing the major hypothesis. The Total Problem Score is a quantitative variable that can range in value from zero to 198.

#### Procedure

##### Recruitment

Subjects were recruited into this study from September 6, 1990 to January 8, 1991. Interested mothers who learned of the study from flyers, advertisements, announcements, or other participants, and who contacted the investigator by telephone were provided with more detailed information about what participation in the study entailed. Potential participants were also screened over the telephone for inclusion in the study based on the criteria of being able to read and write in English and having a child of the appropriate age. Study packets containing questionnaires, information on how to complete them, payment information forms, and stamped addressed envelopes to return to the investigator were then mailed to potential participants. These packets also

contained information sheets (see Appendix B), similar to consent forms, that described the potential risks and benefits of the study.

Completion of the study materials and their return to the investigator was taken as evidence of informed consent on the part of the subject.

The procedures by which participation in the study was initiated by prospective participants who learned of the study from the visiting nurses or from flyers at the area health clinic was the same as the process described above. Potential participants at the clinic who requested further information about the study directly from the investigator while she was on-site were provided that information, as well as given study packets, if requested.

Each subject was reimbursed \$10.00 by check after returning her completed study materials to the investigator. The drawing for the three \$50.00 gift certificates was held, and the selected participants notified, after all of the subjects in the study had returned their materials.

#### Split-Half Replication

As this was a correlational rather than experimental study, it was designed in such a way that a split-half replication of tests of the major hypothesis could be conducted. This design is not the classic double cross-validation design described by Norman (1965) for application to scale development. The split-sample replication design does make it possible, however, to investigate the possibility that findings are the result of unusual sample characteristics, and therefore

unlikely to be replicable.

The total sample was divided into two subsamples (Group 1,  $n = 47$ ; Group 2,  $n = 46$ ) using a random numbers table. Descriptive information on the two subsamples is presented in Table 1.

### Missing Data

Different methods for dealing with missing data were utilized depending on the variable for which data were missing. One subject did not respond to the question regarding family income for 1989; income level for this family was estimated based on the occupation of the mother and her partner<sup>4</sup>. Two subjects did not indicate the degree of distress they experienced as the result of the occurrence of stressful events in the past 12 months. The mean degree of distress score for the subsample of which each of these subjects was part was used as that subject's degree of distress score. Seven subjects were missing data on one Interpersonal Dependency Inventory (IDI) item; for each of these subjects, a mean IDI item score was calculated and rounded to the nearest integer. This integer was then used as the subject's score on the missing item. There were no other missing data on variables used in this study.

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<sup>4</sup>The subject was employed full-time as a manager; her spouse was employed full-time in a technical position.

## Predictor Variables

The independent variables to be used in this study were divided into sets, representing two types of hypothesized influences on adaptation in young children, based on theory, the empirical findings of previous studies, and methodological considerations. The first set contained the stressful events variable, and the two variables used to assess SES, maternal education and family income. This will be referred to as the set of environmental characteristics. The second set, maternal psychological characteristics, was composed of the two variables representing maternal psychological distress, mothers' perceptions of having been accepted or rejected in childhood, and the two variables representing elements of maternal interpersonal style.

One concern in planning the study analyses was that multicollinearity can detrimentally affect the stability of the partial coefficients associated with variables simultaneously analyzed in a multiple regression format (Cohen & Cohen, 1983). It was anticipated that the variables in each of the sets described above would be intercorrelated. Therefore, a decision was made to use the sets of conceptually coherent predictor variables in the main analyses. The relationships of each of these sets with the outcome variable will be the primary focus of the presentation and discussion of the results of the study. The relationships between the individual predictor variables and the outcome variable are of secondary importance, and will be evaluate post hoc.

## Analyses

Analyses of the data for this study were carried out using CRUNCH statistical software (CRUNCH Software Corporation, 1987).

Table 1

Descriptive Statistics for Demographic Characteristics

Variable	Subsample 1 <sup>a</sup> n = 47	Subsample 2 <sup>a</sup> n = 46
<b>Marital Status</b>		
Married	38 (81) <sup>b</sup>	41 (89)
Never Married	5 (11)	1 (2)
Living Together	3 (6)	2 (4)
Separated	1 (2)	2 (4)
<b>Ethnicity</b>		
Caucasian	36 (77)	34 (74)
Asian	5 (11)	7 (15)
African-American	3 (6)	3 (7)
Hispanic	2 (4)	1 (2)
Native American		1 (2)
Other	1 (2)	
<b>Maternal Education</b>		
Some senior high	2 (4)	2 (4)
High school grad	1 (2)	3 (7)
Some college	12 (26)	7 (15)
College degree	15 (32)	16 (35)
Graduate school	17 (36)	18 (39)
<b>Family's Total Gross Income, 1989</b>		
\$0,000 to \$6K	1 (2)	1 (2)
\$6,001 to \$12K	2 (4)	1 (2)
\$12,001 to \$18K	1 (2)	3 (7)
\$18,001 to \$24K	3 (6)	5 (11)
\$24,001 to \$30K	4 (9)	4 (9)
\$30,001 to \$36K	4 (9)	6 (13)
\$36,001 to \$42K	8 (17)	5 (11)
\$42,001 to \$48K	3 (6)	1 (2)
above \$48,000	21 (45)	20 (43)
<b>Mother's Age (in years)</b>		
Mean	33.59	33.59
SD	4.84	5.96
Range	25-44	23-51

<sup>a</sup>No significant differences were found between subsamples; continuous variables were tested using independent groups  $t$ -tests, nominal variables were tested using Chi-square.

<sup>b</sup>Numbers in parentheses indicate percentages.

Table 1, continued

Variable	Subsample 1 <sup>a</sup> n = 47	Subsample 2 <sup>a</sup> n = 46
<b>Mother's Age at Birth of First Child</b>		
Mean	29.35	29.76
SD	5.91	6.04
Range	17-41	21-46
<b>Number of Children</b>		
Median	1	1
Mean	1.79	1.80
SD	1.37	1.19 <sup>c</sup>
Range	1-9	1-6
<b>Gender of Toddler</b>		
Female	18 (38) <sup>b</sup>	23 (50)
Male	29 (62)	23 (50)
<b>Age of Toddler (in months)</b>		
Mean	27.51	26.98
SD	2.26	2.36
Range	24-32	24-33
<b>Birth Order of Toddler</b>		
Only or First	30 (64)	31 (67)
Second or Later	17 (36)	15 (33)

<sup>a</sup>No significant differences were found between subsamples; continuous variables were tested using independent groups  $t$ -tests, nominal variables were tested using Chi-square.

<sup>b</sup>Numbers in parentheses indicate percentages.

<sup>c</sup>Chi-square also performed.



## Chapter Three

### RESULTS

The results of the analyses will be presented in the following order. First, results of the preliminary analyses conducted in the two subsamples will be presented. These analyses include descriptive and correlational analyses relevant to the selection of variables for use in the study, and tests of differences between the two subsamples. Next, the correlations between the study variables and analyses evaluating their similarity in the two subsamples are presented. The two hierarchical multiple regression analyses conducted in each subsample testing the hypothesis of the study are then presented, along with results of analyses evaluating the replication of the tests of the hypothesis of the study. Post hoc analyses examining the unique relationships between each predictor variable and the outcome variable when the effects of the other variables in the same set are controlled are presented. Finally, the results of analyses conducted using the total sample, including two multiple regression analyses and several post hoc analyses, will be presented.

## Preliminary Analyses

### Study Variables

The names and descriptions of the dependent variable and sets of predictor variables are presented in Table 2. Descriptive statistics and internal consistency estimates for the predictor and dependent variables are presented in Table 3. Bivariate correlations between the study variables are presented in Table 4 for Subsample 1 and in Table 5 for Subsample 2. Aspects of the descriptive analyses and correlational analyses that are relevant to the selection of the variables used in the main analyses will be briefly presented.

### Descriptive and Correlational Analyses

#### Internal Consistency.

Estimates of the internal consistency of the measures of psychological characteristics and symptoms in the two subsamples were calculated by computing Cronbach's alpha for each measure. The standardized alpha coefficients are presented in Table 3. These coefficients ranged from .67 (IDI Assertion of Autonomy scale, Subsample 2) to .95 (CBCL Total Score, Subsample 1). The internal consistency coefficients obtained in these subsamples are high (with the exception

of the IDI Assertion of Autonomy scale in subsample 2) and are consistent with internal consistency estimates that have been reported previously for each measure. High internal consistency estimates provide evidence of good scale homogeneity, thereby indicating that the items of which a scale is composed tap the same underlying construct. The estimates obtained in these subsamples provide evidence of the adequate scale homogeneity of the measures used in this study. Internal consistency estimates provide no information about the stability of scores; it was not possible, however, to obtain estimates of test-retest reliability in this cross-sectional study.

#### Socioeconomic Status.

Two variables, maternal education and family income, were used to assess socioeconomic status. The distributions of both of the variables were significantly negatively skewed in each subsample. In addition, there were pronounced ceiling effects in the distributions of each variable, and relatively little variability, as was described in Chapter Two. The consequences of these findings in terms of tests of the hypothesis of the study and the interpretation of results are discussed in Chapter Four.

Although the possibility of combining these two variables into one composite index of SES was considered, each was retained as a separate indicator of SES rather than being combined into one composite index for two reasons. The first was that the effects of each variable separately were of theoretical interest, given findings and speculation regarding

Table 2

Study Variables

I. Dependent Variable

CBCL: Child Behavior Checklist/2-3 Total Problem Score

II. Predictor Variables

A. Environmental Characteristics

STRESSFUL EVENTS: Sum of negative or ambiguous events occurring to respondent, toddler, or other family members in the past 12 months.

EDUCATION: Mothers' highest level of education attained.

INCOME: Family gross income, 1989.

B. Maternal Psychological Characteristics

GENERAL DISTRESS: Global Severity Index of the Brief Symptom Inventory.

EVENT DISTRESS: Mothers's subjective ratings of distress specifically related to the occurrence of stressful events.

AUTONOMY: Assertion of Autonomy Scale of the Interpersonal Dependency Inventory.

RELIANCE: Emotional Reliance on Another Person Scale of the Interpersonal Dependency Inventory.

ACCEPTANCE: Maternal Acceptance subscale of the Mother-Father-Peer Scale.

Table 3  
Descriptive Statistics

Variable	Subsample 1 <sup>a</sup> n = 47	Subsample 2 <sup>a</sup> n = 46
<b>CBCL/2-3 Total Problem Score</b>		
Mean	38.66	40.00
SD	20.47	19.41
Range	9-91	7-79
Cronbach's alpha	.95	.92
<b>Number of Stressful Life Events</b>		
Mean	4.77	4.63
SD	3.47	2.75
Range	0-17	0-12
<b>Brief Symptom Inventory</b>		
Global Severity Index		
Mean	.50	.56
SD	.39	.44
Range	0-1.98	0-1.91
Cronbach's alpha	.94	.94
<b>Subjective Distress Score</b>		
Mean	48.85	55.57
SD	24.68	27.92
Range	0-100	4-100
<b>Interpersonal Dependency Inventory</b>		
Assertion of Autonomy Scale		
Mean	28.06	27.44
SD	6.34	5.32
Range	16-48	16-39
Cronbach's alpha	.79	.67
<b>Interpersonal Dependency Inventory</b>		
Emotional Reliance on Another Person Scale		
Mean	41.81	42.26
SD	8.75	8.90
Range	24-58	23-60
Cronbach's alpha	.80	.82
<b>Mother-Father-Peer Scale</b>		
Maternal Acceptance Scale		
Mean	38.06	38.35
SD	10.15	9.30
Range	13-50	19-50
Cronbach's alpha	.92	.89

<sup>a</sup>No significant differences were found between subsamples using independent groups  $t$  - tests.

the effects of maternal education (see Chapter One). Secondly, the correlations between education and income were small ( $r = .25$ , Subsample 2) and moderate ( $r = .49$ , Subsample 1); the sizes of these relationships were not large enough to necessitate compositing the variables on the basis of concerns about multicollinearity.

#### Psychological Distress.

As was the case with the variables used to represent SES, there were both theoretical and empirical reasons to retain both variables representing maternal psychological distress for use in the study analyses rather than creating a composite index of distress. Retaining these two variables makes it possible to determine whether the distress mothers report that is specifically related to the occurrence of stressful events is more important in predicting toddlers' problems than is general distress, and vice versa. This is an important consideration given the assumptions underlying the inclusion of events that happen to individuals other than the child on life stress inventories, i.e., that such events may affect children because of the distress they cause others.

As was the case with the SES variables, the correlations between the general distress and event distress indices were not large enough ( $r = .53$  in Subsample 1 and  $.42$  in Subsample 2) to necessitate being combined into a composite on the basis of concerns about multicollinearity. Both variables were therefore retained for use in analyses as indicators of maternal psychological distress, rather than

combining them into a composite index.

### Tests of Subsample Differences

Analyses were conducted to determine whether the two subsamples were significantly different in terms of demographic characteristics or the major study variables. Potential differences in the distribution of qualitative demographic characteristics (e.g., marital status, ethnicity, gender of toddler, birth order of the target child) by group were tested using Chi-square analyses; no significant subsample differences were found. Potential differences in quantitative study variables were evaluated using independent groups  $t$ -tests. Again, no significant differences between the two subsamples were found (see Tables 1 and 3).

### Main Analyses

#### Bivariate Relationships

Correlations between the study variables are presented in Table 4 for Subsample 1 and in Table 5 for Subsample 2.

#### General Findings

Most of the correlations in each of the subsamples were in the direction, and of the magnitude, expected based on theorized

relationships between the variables and results from other studies. For example, the occurrence of stressful events was positively and significantly related to maternal reports of psychological distress, and moderately positively related to CBCL scores. Maternal psychological characteristics, such as General Distress, Event Distress, and Reliance, were, as expected, moderately correlated. Also as expected, Education and Income were negatively related to the distress variables.

Exceptions to these general findings are presented separately for each subsample. Tests of possible differences in the correlations obtained in the two subsamples will also be presented.

#### Unexpected Findings

In Subsample 1, the only real deviation from expectations was the magnitude of the relationship between Reliance and CBCL ( $r = .15$ ), which was lower than anticipated, and not statistically significant.

In Subsample 2, however, there were more discrepancies between the expected and observed relationships. The most surprising of these was that the relationships between stressful events and education ( $r = .11$ ), and income and CBCL ( $r = .11$ ) were positive rather than negative. These correlations were small and not significantly different from zero; no substantive conclusions can be drawn from these findings. Another surprising finding was that Acceptance and CBCL were uncorrelated ( $r = .00$ ); this was unexpected based on the magnitudes of the relationships between Acceptance and other measures of adaptation in children reported by other investigators



Table 4

Correlations

	<u>SUBSAMPLE 1</u> (n = 47)							
	1	2	3	4	5	6	7	8
1. STRESSFUL EVENTS								
2. EDUCATION	-.28*							
3. INCOME	-.38**	.49***						
4. GENERAL DISTRESS	.72***	-.30*	-.15					
5. EVENT DISTRESS	.56***	-.16	-.22	.53***				
6. AUTONOMY	.07	-.25	-.14	.04	.15			
7. RELIANCE	.33*	-.01	-.02	.51***	.36**	-.17		
8. ACCEPTANCE	-.37*	.26	.12	-.33*	-.31*	-.15	-.43**	
9. CBCL	.36**	-.12	-.20	.42**	.16	.26	.15	-.21

\* p ≤ .05  
 \*\* p < .01  
 \*\*\* p < .001

Table 5

Correlations

	<u>SUBSAMPLE 2</u> (n = 46)							
	1	2	3	4	5	6	7	8
1. STRESSFUL EVENTS								
2. EDUCATION	.11							
3. INCOME	-.18	.25						
4. GENERAL DISTRESS	.41**	-.36**	-.24					
5. EVENT DISTRESS	.41**	-.08	-.32*	.42**				
6. AUTONOMY	.05	.01	.16	.08	-.09			
7. RELIANCE	-.04	-.20	.03	.50***	.22	.08		
8. ACCEPTANCE	-.05	-.14	.09	.14	-.13	-.01	-.01	
9. CBCL	.28	-.20	.11	.51***	.20	.30*	.46**	.00

\* p ≤ .05  
 \*\* p < .01  
 \*\*\* p < .001

### Tests of Differences

Differences in the magnitudes of selected correlations obtained in the two subsamples were tested using Fisher's  $r$  to  $z$  transformation (Cohen & Cohen, 1983). If a correlation was statistically significant in one subsample and not in the other, a test of the difference between the correlations was performed. Those correlations tested involved primarily the stressful events, education, autonomy, reliance, and acceptance variables. These results are presented in Table 6. Of the 5 pairs of correlations tested, only one was significantly different in the two subsamples. This was the correlation between Reliance and Acceptance. In Subsample 1, the correlation was  $-.43$ , in Subsample 2,  $r = -.01$ .

Therefore although there were some deviations from the results expected, the bivariate relationships obtained were generally consistent with the relationships expected, and with one exception, not different in the two subsamples.

### Tests of the Hypothesis of the Study

#### Subsample Analyses

The main hypothesis of the study was tested by conducting two hierarchical multiple regression analyses in each subsample. In the first analysis, the significance of the increment in variance in CBCL

Table 6

Tests of Differences Between Correlations in Two Subsamples

Variables	Subsample 1 (n = 47)		Subsample 2 (n = 46)		<u>z<sup>a</sup></u>
	r	z'	r	z'	
Stressful Events with Education	.28	.288	.11	.11	.55
Stressful Events with Reliance	.33	.343	-.04	.04	1.42
Stressful Events with Acceptance	-.37	.388	-.05	.05	1.58
Reliance with Acceptance	-.43	.46	-.01	.01	1.96*
Reliance with CBCL	.15	.151	.46	.497	1.62

$$z = \frac{z_1' - z_2'}{\sqrt{\frac{1}{(n_1 - 3)} + \frac{1}{(n_2 - 3)}}}$$

\* p = .05

scores accounted for by the set of variables representing maternal psychological characteristics over and above that accounted for by stressful events and SES was tested by entering the set of environmental characteristics first, and then entering the set of maternal psychological characteristics.

In the second analysis, the order of entry of the two sets of variables into the analysis was reversed, thereby testing the increment in variance accounted for by the set of environmental characteristics above and above the variance accounted for by the set of maternal characteristics. The results of these analyses are presented in Table 7 for Subsample 1 and Table 8 for Subsample 2.

The significance of the results is presented and evaluated in terms of the variance explained by each of the sets of variables used in the analyses, rather than in terms of the significance of the partial coefficients associated with each independent variable. This approach was used for two reasons.

The first is that the composition of the sets was determined a priori based on theory and the findings of previous studies, with the expectation that the elements of each set would be at least modestly intercorrelated. As stated previously, some multicollinearity, with attendant "highly unstable partial coefficients for independent variables" (Cohen & Cohen, p. 116) would thus be expected. This is the second reason for presenting findings regarding sets of variables as they relate to the dependent variable, rather than interpreting the partial coefficients of the individual elements of the sets in relation to the outcome variable.

The question of the unique effects of each independent variable in relation to the outcome variable, with the effects of the other variables in its set partialled, is addressed in the section entitled Post-Hoc Analyses.

#### Subsample 1.

In Subsample 1, the environmental characteristics, when entered first, accounted for 13.6% of the variance in CBCL scores ( $p = .08$ ). The set of maternal psychological characteristics accounted for an increment in variance explained of 16.2% ( $p = .14$ ). Predictions made a priori regarding the amounts of variance that would be explained by entering the sets of variables into the analysis in this order were 14% for the environmental characteristics and 20% for the maternal psychological characteristics.

With the order of entry of the sets of variables reversed, the variance accounted for by the maternal psychological characteristics at the first step was 25.5% ( $p = .03$ ). When entered at the second step, the environmental variables accounted for 4.4% of the variance in CBCL scores, an increment that was not statistically significant. It was predicted that the set of maternal psychological characteristics, entered first, would predict at least 25% of the variation in CBCL scores, and that environmental characteristics would account for 9% or less.

Table 7

Results of Hierarchical MRC Analyses Testing Main Hypothesis

SUBSAMPLE 1  
(n = 47)

Dependent Variable - CBCL/2-3 Total Problem Score

ANALYSIS 1:

Test of Increment in R<sup>2</sup>  
Attributable to Maternal Psychological Characteristics

<u>Step</u>	<u>Variables</u>	<u>β</u>	<u>Set df</u>	<u>Set Increment in R<sup>2</sup></u>	<u>F<sup>a</sup></u>
1	STRESSFUL EVENTS	.34	3,38 <sup>a</sup>	13.6%	2.46
	EDUCATION	.01			
	INCOME	-.08			
2	GENERAL DISTRESS	.49	5,38	16.2%	1.76
	EVENT DISTRESS	-.21			
	AUTONOMY	.27			
	RELIANCE	-.05			
	ACCEPTANCE	-.10			

ANALYSIS 2:

Test of Increment in R<sup>2</sup>  
Attributable to Stressful Events and SES

<u>Step</u>	<u>Variables</u>	<u>β</u>	<u>Set df</u>	<u>Set Increment in R<sup>2</sup></u>	<u>F<sup>a</sup></u>
1	GENERAL DISTRESS	.48	3,38 <sup>a</sup>	25.5%	2.76*
	EVENT DISTRESS	-.15			
	AUTONOMY	.24			
	RELIANCE	-.03			
	ACCEPTANCE	-.08			
2	STRESSFUL EVENTS	.07	3,38	4.4%	.79
	EDUCATION	.20			
	INCOME	-.19			

<sup>a</sup> Using error term from last step of analysis (Model II error term).  
\* p ≤ .05

### Subsample 2.

In Subsample 2, in the first analysis, the set of environmental characteristics explained 19% ( $p = .01$ ) of the variance in toddlers' total CBCL scores. At the last step of the analysis, the set of maternal psychological characteristics accounted for an increment in variance explained of 26% ( $p = .01$ ). Predicted increments in variance accounted for, as mentioned previously, were 14% (environmental characteristics) and 20% (maternal psychological characteristics) for this order of entry into the analysis.

In the second analysis, maternal psychological characteristics accounted for 38.6% ( $p = .001$ ) of the variance in CBCL scores. The increment in variance attributable to the set of environmental characteristics when entered at the last step of the analysis was 6.4%, a non-significant increment. Predicted increments for this order of entry of the sets of variables were at least 25% for the maternal psychological characteristics and 9% or less for the set of environmental characteristics.

### Summary of Hypothesis-Testing Analyses

#### Subsample 1.

The amount of variance in toddlers' total CBCL/2-3 scores that was explained by maternal psychological characteristics after controlling for the set of environmental variables was slightly less than had been predicted in subsample 1 (16.2% vs. 20%). In addition, the total amount



Table 8

Results of Hierarchical MRC Analyses Testing Main Hypothesis

SUBSAMPLE 2  
(n = 46)

Dependent Variable = CBCL/2-3 Total Problem Score

ANALYSIS 1: Test of Increment in R<sup>2</sup>  
Attributable to Maternal Psychological Characteristics

Step	Variables	$\beta$	Set df	Set Increment in R <sup>2</sup>	F <sup>a</sup>
1	STRESSFUL EVENTS	.36	3,37 <sup>a</sup>	19.0%	4.26**
	EDUCATION	-.30			
	INCOME	.26			
2	GENERAL DISTRESS	.28	5,37	26.0%	3.50**
	EVENT DISTRESS	.00			
	AUTONOMY	.21			
	RELIANCE	.28			
	ACCEPTANCE	-.06			

ANALYSIS 2: Test of Increment in R<sup>2</sup>  
Attributable to Stressful Events and SES

Step	Variables	$\beta$	Set df	Set Increment in R <sup>2</sup>	F <sup>a</sup>
1	GENERAL DISTRESS	.37	5,37 <sup>a</sup>	38.6%	5.19***
	EVENT DISTRESS	.00			
	AUTONOMY	.25			
	RELIANCE	.26			
	ACCEPTANCE	-.05			
2	STRESSFUL EVENTS	.22	3,37	6.4%	1.44
	EDUCATION	-.13			
	INCOME	.22			

<sup>a</sup> Using error term from last step of analysis (Model II error term).

\*\* p ≤ .01

\*\*\* p ≤ .001

of variance accounted for by the sets of variables together was somewhat less than had been expected (29.8% vs. 34%).

Of most interest, however, was the finding that the differential in the variance accounted for by the two sets of variables when their order of entry was switched was greater than had been anticipated. It was predicted that the amount of variation accounted for by the set of environmental variables would drop from 14% when this set was entered first, to 9% after controlling for maternal psychological characteristics (a difference of 5%). The actual differential was 9.2% (from 13.6 % to 4.4%). In addition, when expressed as a proportion of the total variance accounted for, the differential in subsample 1 (.31) was larger than was predicted (.15).

#### Subsample 2.

In subsample 2, the total amount of variation accounted for by the sets of variables in combination was 45%, which was more than was predicted. The amount of variation accounted for by the set of environmental variables when entered first into the analysis was slightly larger than had been predicted (19% vs. 14%). This was true of the set of maternal psychological characteristics when entered at the first step (38.6% vs. 25%) as well. When the set of maternal psychological characteristics was entered after controlling for the demographic characteristics, it again accounted for more variation than had been predicted (26% vs 20%). The increment in variance accounted for by the set of environmental variables after controlling for maternal

psychological characteristics (6.4%) was less than had been predicted, however.

As was the case in subsample 1, the differential (12.6%) in the amount of variance accounted for by the set of environmental characteristics when the order of entry of the sets of variables into the analysis was reversed was larger than had been predicted (5%). When expressed as a proportion of the total variation explained, the actual differential (.28) was very close to that obtained in subsample 1 (.31).

One difference in the results obtained in the two subsamples was that in Subsample 1, neither increment in variance accounted for in Analysis 1 (environmental characteristics entered into the analysis first) was significant. In Subsample 2, however, both increments in Analysis 1 were significant. Possible reasons for this discrepancy in findings are discussed in Chapter Four.

#### Evaluation of the Replication of Tests of the Study Hypothesis

In order to determine whether the results of the test of the hypothesis were similar in the two subsamples, the results of the replication of hypothesis testing analyses were evaluated in two ways.

##### Cross-Validation Analyses.

The results obtained in Subsample 2 were more robust. Therefore, the increments in variance accounted for at each step of the two hierarchical analyses in this subsample were used to estimate the

results that would be expected if the same analyses were conducted in the population, or in an independent sample from the same population (Cohen & Cohen, 1983, p. 114). These cross-validation estimates were then compared to the results actually obtained in Subsample 1.<sup>5</sup>

The magnitude of the increments in variance accounted for at each step of both hierarchical analyses in Subsample 1 were greater than were the cross-validation estimates obtained from Subsample 2. These results are presented in Table 9.

The similarity of the results was also evaluated by comparing the population variance accounted for, as estimated by the shrunken  $R^2$  for each step of the analyses in Subsample 1, to the cross-validation estimates from Subsample 2. These estimates from the two subsamples were virtually identical<sup>6</sup>, indicating that the results of the analyses in the two subsamples were similar. The results of these comparisons are also presented in Table 9.

#### Tests of Differences in the Multiple Correlations.

As an additional check on the similarity of the results obtained in the two subsamples, the multiple correlations associated with each

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<sup>5</sup>Some of the cross-validation estimates obtained were negative; as the percentage of variance accounted for can never be negative, these estimates indicate that the amount of variance one would expect to be accounted for in an independent sample would be zero.

<sup>6</sup>The one exception was the estimate for the amount of variation accounted for by the set of maternal psychological characteristics when entered at the first step of the analysis (Analysis 2, Step 1). The difference between the amounts of variance estimated by the cross-validation correction in Subsample 2 and the shrunken  $R^2$  estimate in Subsample 1 was not significant, however, when tested using Fisher's  $r$  to  $z$  transformation.

Table 9

Cross-Validation Estimates

	Analysis 1		Analysis 2	
	Step 1	Step 2	Step 1	Step 2
<b>Subsample 2</b>				
IR <sup>2a</sup>	.190	.260	.386	.064
$\hat{R}^{2b}$	.077	.065	.236	-.084 <sup>d</sup>
<b>Subsample 1</b>				
IR <sup>2a</sup>	.136	.162	.255	.044
R <sup>2c</sup>	.075	.052	.164	-.031 <sup>d</sup>

<sup>a</sup>Increment in R<sup>2</sup>.

<sup>b</sup>Population R<sup>2</sup> estimated by cross-validation correction of IR<sup>2</sup>.

<sup>c</sup>Population R<sup>2</sup> estimation ("shrunk R<sup>2</sup>").

<sup>d</sup>As percentages of variance accounted for cannot be negative, a negative value indicates an estimate of 0% variance in the population.

Table 10

Tests of Differences in Multiple  $R_s$  obtained in the Two Subsamples

	Subsample 1 ( $n = 47$ )		Subsample 2 ( $n = 46$ )		$z^a$
	$R$	$z'$	$R$	$z'$	
ANALYSIS 1					
Step 1	.37	.388	.44	.472	.393
Step 2	.40	.424	.51	.563	.650
ANALYSIS 2					
Step 1	.50	.549	.62	.725	.822
Step 2	.21	.213	.25	.255	.196
TOTAL <sup>b</sup>	.55	.618	.67	.811	.902

$$z = \frac{z_1' - z_2'}{\sqrt{\frac{1}{(n_1 - 3)} + \frac{1}{(n_2 - 3)}}}$$

<sup>b</sup> The total amount of variation explained is the same for both analyses in each subsample.

step of the hierarchical analyses in the two subsamples were compared using the Fisher  $r$  to  $z$  transformation. For example, the multiple correlation between the set of environmental characteristics and CBCL scores at step one of the first analysis in Subsample 1 was compared to the corresponding multiple correlation in subsample 2. There were no significant differences between the multiple correlations in the two subsamples. These results are presented in Table 10.

Some divergence of the findings in the two subsamples would be expected because of the relatively small number of subjects in each, with concomitantly greater effects of outlying values. At first glance, the results of these analyses do appear discrepant in terms of the amounts of variance accounted for in the two subsamples. In the event, however, the comparison of the findings in the subsamples indicate that the results were strikingly similar.

### Post Hoc Analyses

A series of hierarchical multiple regression analyses was conducted for the purpose of evaluating the unique relationships between each predictor variable and the outcome variable, with the effects of the other variables in the same set controlled. The generic structure of these analyses for the set of environmental characteristics was that CBCL was the dependent variable; two of the three variables making up this set were entered into the hierarchical analysis at the first step, and the variable being evaluated was entered at the second step. For the set of maternal psychological characteristics, four of the five

variables were entered at the first step, and then the variable of interest was entered into the analysis.

The results of these analyses in both subsamples are presented in Table 11.

Results of the analyses of the set of environmental characteristics revealed that education and income performed somewhat differently in relation to the outcome variable in the two subsamples. In Subsample 1, each of these variables uniquely accounted for less than one-half of one percent of the variance in CBCL scores when the effects of the other variables in the set were controlled. In Subsample 2, however, each of these variables performed somewhat better in relation to the CBCL variable when the effects of the other variables were controlled, than would have been expected on the basis of the simple correlations between each of them and CBCL. The only variable that contributed significantly or substantively to the prediction of CBCL scores in Subsample 1 was Stressful Events; in Subsample 2, each variable accounted for a significant increment in variance when the effects of the other variables were controlled.

The results of the analyses of the variables in the set of maternal psychological characteristics also were somewhat different in the two subsamples. In Subsample 1, Reliance and Acceptance each uniquely accounted for less than one-half of one percent of the variance in CBCL scores, and Event Distress accounted for only 1.5% of the variance. In this subsample, the only variable that accounted for a



Table 11

Results of Hierarchical Multiple Regression Tests of the Unique Variance in CBCL Accounted for by Individual Set Elements

	Subsample 1 (n = 47)		Subsample 2 (n = 46)	
	R <sup>2</sup> Prior to Entry <sup>a</sup>	IR <sup>2b</sup>	R <sup>2</sup> Prior to Entry <sup>a</sup>	IR <sup>2b</sup>
<b>ENVIRONMENTAL CHARACTERISTICS</b>				
Education	13.59%	.01%	10.60%	8.38%*
Income	13.20%	.40%	13.15%	5.83%
Stressful Events	3.97%	9.64%*	6.75%	12.23%**
<b>MATERNAL PSYCHOLOGICAL CHARACTERISTICS</b>				
Reliance	25.39%	.06%	33.70%	4.87%
Acceptance	24.97%	.49%	38.39%	.19%
Event Distress	23.92%	1.53%	38.57%	.00%
Autonomy	25.46%	5.20%	32.49%	6.09%*
General Distress	11.70%	13.75%**	30.27%	8.30%*

<sup>a</sup> Variance accounted for by other variables in the set.

<sup>b</sup> Increment in variance when this variable added.

\* p ≤ .05

\*\* p ≤ .01

significant increment in variance with the effects of the other variables controlled was General Distress.

In Subsample 2, Autonomy and General Distress accounted for significant increments in variance with the effects of the other variables controlled; the amount of variance accounted for by Autonomy in this subsample (6.09%) was only slightly more than in Subsample 1 (5.20%), but the difference was enough to make the increment significant in Subsample 2. The amounts of variance uniquely accounted for by Reliance (4.87%), Acceptance (.19%), and Event Distress (.00%) in Subsample 2 were not significant.

The variables that performed most consistently across the subsamples were Stressful Events, General Distress, and Autonomy. Education, Income, and Reliance did not perform consistently in the two subsamples, a result that is consistent with the simple correlations obtained.

#### Analyses in the Total Sample

The analyses conducted in the two subsamples were also performed in the total sample. The primary justification for conducting these analyses using the total sample is that the results will be more stable, and therefore more likely to be replicable.

## Descriptive Information and Bivariate Relationships

Descriptive statistics for measures used in the study, and information on norms for measures for which this is available, are presented in Table 12. Correlations between study variables are presented in Table 13.

### Bivariate Relationships

The simple correlations between the study variables in the total sample were, for the most part, as was expected. For example, the maternal interpersonal style variables (Autonomy and Reliance) were not correlated with each other, and only Reliance was significantly positively correlated with the maternal distress variables. Reliance, Autonomy, and General Distress were all significantly positively related to toddlers' CBCL scores, which were also positively and significantly correlated with the occurrence of stressful events.

The small magnitude of the relationship between Acceptance and CBCL ( $r = -.11$ ), and between Education and Income and CBCL ( $r_s = -.16$  and  $-.05$ , respectively) were not anticipated prior to the study, and constitute the major discrepancies from expectations regarding the relationships between study variables.

Table 12

Descriptive Statistics and Norms

Measure	Total Sample (N = 93)		Non-patient Norms		Clinical Norms	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
CBCL/2-3 Total Problem Score	39.23	19.85	40.60 <sup>a</sup>	19.50 <sup>a</sup>	70.50 <sup>a</sup>	27.20 <sup>a</sup>
BSI Global Severity Index	.53	.41	.30 <sup>b</sup>	.31 <sup>b</sup>	1.32 <sup>b</sup>	.72 <sup>b</sup>
IDI Assertion of Autonomy	27.75	5.83	29.40 <sup>c</sup>	5.70 <sup>c</sup>	27.60 <sup>c</sup>	6.60 <sup>c</sup>
IDI Emotional Reliance on Another Person	42.03	8.78	39.70 <sup>c</sup>	7.70 <sup>c</sup>	43.30 <sup>c</sup>	8.90 <sup>c</sup>
MFP Acceptance	38.20	9.69	40.40 <sup>d</sup>	9.39 <sup>d</sup>		

<sup>a</sup>From McConaughy & Achenbach (1987). Normal sample N = 273; Clinical sample N = 96.

<sup>b</sup>From Derogatis & Spencer (1982). Normal sample N = 719; Clinical (outpatient) sample N = 1002.

<sup>c</sup>From Hirschfeld et al. (1983). Normal sample N = 132; Clinical sample (recovered patients) N = 26).

<sup>d</sup>From Epstein (unpublished data, 1983). Normal sample N = 284.

Table 13

Correlations

	TOTAL SAMPLE (N = 93)							
	1	2	3	4	5	6	7	8
1. STRESSFUL EVENTS								
2. EDUCATION	-.10							
3. INCOME	-.29**	.36***						
4. GENERAL DISTRESS	.56***	-.33**	-.21*					
5. EVENT DISTRESS	.48***	-.11	-.28**	.48***				
6. AUTONOMY	.06	-.13	.00	.05	.03			
7. RELIANCE	.17	-.11	.00	.51***	.29**	-.06		
8. ACCEPTANCE	-.23**	.06	.10	-.09	-.22**	-.09	-.23**	
9. CBCL	.33**	-.16	-.05	.47***	.18	.27**	.31**	-.11

\*  
\*\* p ≤ .05  
\*\*\* p ≤ .01  
p ≤ .001

### Tests of the Major Hypothesis

The results of the hierarchical multiple regression analyses conducted using the total sample are presented in Table 14.

In the first analysis, the environmental variables were entered into the analysis at the first step and accounted for 13% of the variance in toddlers' CBCL scores ( $p = .002$ ). The set of maternal psychological characteristics, when entered at the second step, accounted for an additional 17.7% of the variance in CBCL scores ( $p = .002$ ). As mentioned previously, it was predicted that environmental characteristics would explain 14% of the variance in CBCL scores, and maternal psychological characteristics an additional 20%, when entered into the analysis in this order.

In the second analysis, the set of maternal psychological characteristics was entered into the analysis first and accounted for 29.6% of the variance in CBCL scores ( $p = .000$ ). At the second step of this analysis, the set of environmental characteristics explained an additional 1.1% of the variance, an increment that was not significant. Predictions for this order of entry of the sets of variables into the analysis were that maternal psychological characteristics would account for 25% of the variance in CBCL scores, and the set of environmental characteristics an additional 9%.

The total amount of variance in toddlers' CBCL/2-3 Total Problem

Table 14

Results of Hierarchical MRC Analyses Testing Main Hypothesis

TOTAL SAMPLE  
(N = 93)

Dependent Variable = CBCL/2-3 Total Problem Score

ANALYSIS 1: Test of Increment in R<sup>2</sup>  
Attributable to Maternal Psychological Characteristics

<u>Step</u>	<u>Variables</u>	<u><math>\beta</math></u>	<u>Set df</u>	<u>Set Increment in R<sup>2</sup></u>	<u>F<sup>a</sup></u>
1	STRESSFUL EVENTS	.34	3,84 <sup>a</sup>	13%	5.29**
	EDUCATION	-.16			
	INCOME	.11			
2	GENERAL DISTRESS	.36	5,84 <sup>a</sup>	17.7%	4.29**
	EVENT DISTRESS	-.10			
	AUTONOMY	.25			
	RELIANCE	.14			
	ACCEPTANCE	-.02			

ANALYSIS 2: Test of Increment in R<sup>2</sup>  
Attributable to Stressful Events and SES

<u>Step</u>	<u>Variables</u>	<u><math>\beta</math></u>	<u>Set df</u>	<u>Set Increment in R<sup>2</sup></u>	<u>F<sup>a</sup></u>
1	GENERAL DISTRESS	.43	5,84 <sup>a</sup>	29.6%	7.19***
	EVENT DISTRESS	-.07			
	AUTONOMY	.25			
	RELIANCE	.11			
	ACCEPTANCE	-.04			
3	STRESSFUL EVENTS	.14	3,84 <sup>a</sup>	1.1%	.46
	EDUCATION	.00			
	INCOME	.04			

<sup>a</sup> Using error term at last step of the analysis (Model II error term).

\*\* p ≤ .01

\*\*\* p ≤ .001

scores explained by both sets of variables was 30.7%. This was slightly less than the 34% or the variance that had been predicted. The decrement in the amount of variance accounted for by the set of environmental variables when the order of the entry of the variables into the analysis was reversed was, however, greater than was predicted (11.9% vs. 5%). In addition, when expressed as a proportion of the total variance accounted for, this differential was more than twice what was predicted (.38 vs. .15).

### Post Hoc Analyses

In order to further elucidate the relationships between the environmental characteristics and maternal psychological characteristics and mothers' ratings of their toddlers' emotional and behavioral problems, several post hoc analyses were conducted.

### Hierarchical Tests of Unique Contributions of Set Elements

The first series of hierarchical multiple regression analyses was the same as was conducted in both subsamples. In these analyses, the degree to which the individual variables explained variance in CBCL scores beyond that accounted for by the other variables in the same set was assessed. The structure of these analyses has been described above.

In the analyses of the set of environmental characteristics, only Stressful Events accounted for a significant increment in variance when the effects of the other variables were controlled. Education accounted



for 2.26% of the variance with the effects of the other variables controlled, and Income accounted for only .96%; this is not surprising given the restricted range of the Income and Education variables.

In the set of maternal psychological characteristics, three of the variables, Reliance, Event Distress and Acceptance, accounted for increments of less than 1% of the variance after the effects of the other variables had been partialled. The other two variables, General Distress and Autonomy, each accounted for significant increments in variance when the effects of the other variables were controlled. These results are presented in Table 15.

#### Tests of Group Differences

Next, analyses were conducted with the aim of more completely understanding the psychological characteristics that differentiate mothers of toddlers with high CBCL/2-3 Total Problem Scores from other mothers in the sample. Two groups within the total sample were differentiated. The first consisted of subjects who rated their toddlers as having symptoms of emotional and behavioral disturbance to an extent that warrants clinical attention (CBCL/2-3 Total Problem Scores greater than or equal to 63; McConaughy & Achenbach, 1988). This group included nine subjects, or approximately 10% of the sample. This is consistent with the clinical cut-off score having been determined to be at the 90th percentile in the normative sample (McConaughy &

Table 15

Results of Hierarchical Multiple Regression Tests of Unique Variance in  
CBCL Scores Accounted for by Individual Set Elements in the Total Sample

	Total Sample (N = 93)	
	<u>R<sup>2</sup> Prior to Entry<sup>a</sup></u>	<u>IR<sup>2</sup>b</u>
ENVIRONMENTAL CHARACTERISTICS		
Income	12.11%	.96%
Education	10.82%	2.26%
Stressful Events	2.48%	10.59%**
MATERNAL PSYCHOLOGICAL CHARACTERISTICS		
Acceptance	29.46%	.16%
Event Distress	29.24%	.39%
Reliance	28.72%	.91%
Autonomy	23.28%	6.34%**
General Distress	18.49%	11.13%***

<sup>a</sup> Variance accounted for by other variables in the set.

<sup>b</sup> Increment in variance when this variable added.

\*\* p ≤ .01

\*\*\* p ≤ .001

Achenbach, 1988). The second group, of subjects whose toddlers' CBCL/2-3 Total Problem scores were less than 63, therefore consisted of 84 subjects.

Potential differences between these two groups on qualitative demographic variables were evaluated using the Chi-square statistic.

Possible differences on quantitative variables were tested using the Mann-Whitney mean rank test. This test is equivalent to the Wilcoxon rank sum test (Remington & Schork, 1985), and is used to test the hypothesis that two independent samples are drawn from populations with equivalent distributions. It is a non-parametric test, and therefore suitable for use in situations in which sample variances are likely to be unequal, as is the case with tests of differences in the two groups described above. Ranks based on scores on the measure comprising the dependent variable are assigned to each observation and the Mann-Whitney U statistic is calculated based on the difference in the mean ranks for the two groups. This statistic is converted to a z score, and the significance of the difference in mean ranks is assessed by locating this score on a standard normal distribution.

Potential differences were first evaluated for selected demographic variables and all of the independent variables used in the tests of the main hypothesis. The two groups of subjects were not significantly different in terms of marital status, ethnicity, number of children, age, age at birth of first child, or gender or birth order of the toddler. The mean ranks for the two groups also were not significantly different for number of stressful events, degree of distress related to the occurrence of stressful events, income,

education, perceptions of acceptance by their own mothers in childhood, or emotional reliance on another person.

The mean ranks of the two groups were significantly different on the measures of assertion of autonomy and symptoms of general distress. These results are presented in Table 16.

In order to examine, in an exploratory way, whether the groups differed in terms of the types of symptoms of psychological distress they reported, specific symptom dimensions of the BSI were selected for analysis. These symptom dimensions were selected based on the hypothesized relevance of the content areas of the dimensions to the quality of caregiver-toddler relationships. The dimensions selected were Depression, Anxiety, Hostility, and Psychoticism.

The conceptualization of the Depression and Anxiety dimensions by Derogatis and Spencer (1982) are straightforward; the Hostility and Psychoticism dimensions are somewhat less so. Briefly, the Hostility dimension "indicates thoughts, feelings, or actions that are characteristics [sic] of the negative affective state of anger. The selection of items [for this dimension] includes all three modes of manifestation and reflects qualities such as aggression, irritability, rage, and resentment (Derogatis & Spencer, 1982). The dimension of Psychoticism was developed to represent this construct as continuous in nature, providing a "graduated continuum from mild interpersonal alienation to dramatic evidence of psychosis" (Derogatis & Spencer, 1982, p. 15).

The mean ranks of the two groups were significantly different on three of these dimensions: Anxiety, Hostility, and Psychoticism. In

Table 16

Mann-Whitney Tests of Differences Between Two Groups

Variable	Clinical CBCL/2-3 Group ( $n = 9$ )	Normal CBCL/2-3 Group ( $n = 84$ )
<b>Brief Symptom Inventory</b>		
Global Severity Index		
	<u>M</u> .83	.50
	<u>SD</u> .54	.39
	<u>Mean Rank</u> 63.56 <sup>a</sup>	45.23
Depression		
	<u>M</u> .89	.57
	<u>SD</u> .67	.58
	<u>Mean Rank</u> 60.11 <sup>a</sup>	45.60
Anxiety		
	<u>M</u> .96	.52
	<u>SD</u> .71	.52
	<u>Mean Rank</u> 64.22 <sup>a</sup>	45.16
Hostility		
	<u>M</u> 1.47	.69
	<u>SD</u> 1.05	.55
	<u>Mean Rank</u> 66.22 <sup>a</sup>	44.94
Psychoticism		
	<u>M</u> .73	.30
	<u>SD</u> .73	.36
	<u>Mean Rank</u> 64.50 <sup>a</sup>	45.13
<b>Interpersonal Dependency Inventory</b>		
Assertion of Autonomy		
	<u>M</u> 31.78	27.32
	<u>SD</u> 5.54	5.73
	<u>Mean Rank</u> 66.33 <sup>a</sup>	44.93
Emotional Reliance on Another Person		
	<u>M</u> 46.32	41.58
	<u>SD</u> 4.89	9.00
	<u>Mean Rank</u> 62.00 <sup>b</sup>	45.39

<sup>a</sup>  $p = .12$ <sup>b</sup>  $p = .08$ <sup>\*</sup>  $p \leq .05$

each case, mother of toddlers with CBCL scores in the clinical range had significantly higher scores than mothers of toddlers with CBCL scores in the normal range. Unexpectedly, the difference in the mean ranks of the two groups on the Depression dimension was not statistically significant. These results are also presented in Table 16.

No further analyses were conducted.

## Chapter Four

### DISCUSSION AND CONCLUSIONS

#### Discussion

#### Introduction

The premises that form the theoretical backdrop for this study will be recapitulated. The results of the hierarchical multiple regression analyses testing the hypothesis of the study in the subsamples will be discussed, and explained in relation to the premises of the study. The results of analyses conducted in total sample are more stable than those conducted in the two subsamples; these results will be more fully interpreted in light of the theoretical foundations of the study. The limitations of the study will be addressed. Finally, the implications of the study and directions for future research will be presented.

#### Theoretical Premises

Four major concepts form the theoretical underpinnings of this study. The first is that toddlers are at risk for emotional and behavioral disturbances when the emotionally significant relationships in which they are partners do not adequately support their development in two critical areas: a) The development of internal working models of the self as care-worthy and others as dependable and sensitive providers of care; and b) The development of age-appropriate capacities for the self-regulation of affect and arousal. The second is that the

adequacy of caregiving relationships in promoting the healthy development of very young children is linked to caregivers' working models of self and relationships, and to their capacities for the regulation of affect. The third concept is that serious disturbance in the toddler-primary caregiver relationship will be reflected a) in compromised adaptation by the child in the areas of self-regulation and the development of the self-concept; and b) manifested in symptoms of emotional and behavioral disturbance. The final critical precept follows from these three concepts, and from an understanding of the toddler's relationship with a primary caregiver as the final common pathway of the influence of the environment on the child. It is that specific psychological characteristics of the primary caregiver, characteristics thought to affect the quality of the caregiver-toddler relationship and therefore the quality of the child's adaptation, are exceedingly important risk factors for emotional and behavioral disturbances in toddlers.

#### Tests of the Main Hypothesis in the Two Subsamples

The primary finding of the analyses in the two subsamples was that the two sets of variables representing environmental characteristics and maternal psychological characteristics performed much as expected in relation to each other, and in relation to ratings of disturbance in toddlers.

It was found that information regarding maternal psychological characteristics explained substantial and significant variance in



mothers' ratings of their toddlers' problems beyond the variance accounted for by environmental characteristics in Subsample 2; this increment was not statistically significant in Subsample 1. The set of environmental characteristics did not account for significant variance in toddlers' CBCL/2-3 Total Problem scores beyond that explained by the set of maternal psychological characteristics.

Differences in the amounts of variance accounted for in the two subsamples seem, at first glance, substantial. These differences, as mentioned in Chapter Three, were actually less than would be expected based on the cross-validation correction recommended by Cohen & Cohen (1983) for the estimation of the amount of variation that would be explained by applying the same regression model to data from an independent sample from the same population.

In addition, the difference in variance accounted for by the sets of variables when their order of entry was reversed, when expressed as a proportion of the total variance accounted for by the model in each subsample, was very similar. With the exception of the finding in Subsample 1 that neither the set of environmental variables or the set of maternal psychological characteristics accounted for significant increments in variance explained, the results were comparable in the two subsamples.

One explanation for the lack of significant findings in Subsample 1 is low power. Power for a test of the significance of an increment in variance of the magnitude of the increment associated with the set of maternal psychological characteristics after controlling for environmental characteristics was only .61, given the number of subjects

in the sample and the number of variables in the analysis. If the relationships among the variables, as represented by the amounts of variance explained by the different sets, were maintained, an additional 12 subjects would be needed to achieve power of .80 for the test of the increment described above.

When the results obtained in Subsample 1 are considered from the perspective of the magnitude of the effects associated with the sets of variables, the findings are actually fairly close to what had been predicted. Had the increment been significant, the comparability of the samples would have been enhanced; these results, however, do not vitiate the major findings of the study.

These results, as predicted, showed that maternal psychological characteristics are relatively more important predictors of ratings of toddlers' problems than were environmental characteristics. This finding is consistent with theoretical models that have emphasized the importance of proximal influences, such as parental psychological distress, as risk factors for poor adaptation in children (e.g., Jensen et al., 1990; McLoyd, 1990; Richters & Weintraub, 1990). The results also support the premise that characteristics of caregivers hypothesized to be associated with individual differences in patterns of interpersonal interaction and affect regulation, and therefore with the quality of caregiver-toddler relationships (cf. Sroufe, 1990), are related to the quality of adaptation achieved by very young children.

## Results of Analyses Using the Total Sample

### Introduction.

Descriptive information about the total sample first will be discussed briefly in comparison to descriptions of normative samples on measures for which this information is available. Selected bivariate relationships will be briefly addressed. The results of the hierarchical multiple regression analyses testing the hypothesis of the study will be interpreted in relation to the conceptual foundation of the study. Findings of the post hoc analyses will be discussed in relation to the planned analyses and theoretical premises of the study.

### Descriptive Information.

Examination of the means and standard deviations obtained in this sample and in normative samples on measures of psychological characteristics indicate that, in general, the sample is similar to normative non-clinical samples. The women who participated in this study did not differ, on the average, from non-patient normative samples in terms of interpersonal style or their perceptions of acceptance by their mothers in childhood. In addition, the mean ratings of their toddlers' problems by mothers in this sample did not differ from the non-patient norms reported for the CBCL/2-3. The proportion of toddlers (.10) in this sample with CBCL/2-3 Total Problem scores higher than the

clinical cut-off score (McConaughy & Achenbach, 1988) was also what would be expected in a sample drawn from a non-clinical population. The one aspect in which this sample was slightly different from non-patient norms was with regard to symptoms of psychological distress. The mean severity of symptoms reported by women in this sample was slightly higher than norms reported for non-clinical samples, but was still substantially lower than norms reported for psychiatric outpatients.

These findings indicate that the sample of mothers participating in this study was not greatly dissimilar, in terms of the characteristics described above, from other samples drawn from the general population. In addition, the descriptions of their toddlers were similar to those obtained in non-clinical samples. As mentioned previously, however, the women comprising this sample were primarily highly educated and of middle to upper-middle incomes. The sample is therefore not demographically representative of the general population. The ramifications of this in terms of the generalizability of the findings of the study will be discussed in the Limitations section.

#### Bivariate Relationships.

Relationships between the study variables showed that mothers who rated their toddlers as having numerous problems also reported the occurrence of many stressful events, high levels of distress, and high levels of interpersonal reliance and autonomy.

The few exceptions to a priori expectations regarding the nature of the relationships between the study variables involved the variables

representing SES and subjects' perceptions of being accepted by their own mothers in childhood (Acceptance) and mothers' ratings of their toddlers' problems.

Neither maternal level of education nor family income were significantly related to toddlers' problem scores. This, although unexpected, was not entirely a surprise given the homogeneity of the sample in terms of SES.

Mothers' scores on the Maternal Acceptance subscale (Acceptance) of the MFP were not significantly correlated with toddlers' CBCL/2-3 Total Problem scores. Based on previous work using the MFP (e.g., Ricks, 1985), it had been anticipated that maternal acceptance scores would be highly and significantly negatively related to toddlers' CBCL scores. These findings are more fully discussed in the Post Hoc Analyses section.

#### Evaluation of the Relative Importance of Risk Factors.

The results of analyses conducted using the total sample will reflect, of course, the findings in the two subsamples. Given this, it was not surprising that maternal psychological characteristics explained a substantial and significant amount of variance in toddlers' CBCL scores after controlling for the relationship between the set of environmental variables and CBCL scores (17.7%), but the reverse was not true. The set of environmental characteristics explained only 1.1% of the variance in toddlers' CBCL/2-3 Total Problem scores beyond the 29.6% of variance explained by maternal psychological characteristics. These

results are very similar to predictions made a priori about the sizes of the effects attributable to maternal psychological characteristics and environmental characteristics in relation to toddlers' CBCL scores.

Another way in which the performance of these sets of variables in relation to one another, and to the dependent variable, can be understood is by examining the difference between the amount of variation accounted for by the set of environmental variables when entered first into the analysis and the amount of variation explained when this set was entered second. In the total sample, this difference was 11.9%, dropping from 13% to 1.1%. This means that almost all of the variation in toddlers' CBCL scores apparently explained by environmental characteristics is actually shared between the set of environmental characteristics and the set of maternal psychological characteristics.

If these results are taken together, they indicate that differences in SES and in the occurrence of stressful events (in a primarily middle-class sample) do not contribute to the prediction of the risk for emotional and behavioral disorders in toddlers (as rated by their mothers) when considered in conjunction with maternal psychological characteristics.

Accordingly, the hypothesis that maternal psychological characteristics are relatively more important risk factors for emotional and behavioral disturbances in toddlers than are environmental characteristics was supported, in this primarily middle-class sample, by the analyses conducted in the total sample. Information about the occurrence of stressful events, and about differences in maternal education and family income, did not improve the identification of

toddlers at risk for emotional and behavioral disturbances in this sample. The limitations of these findings will be addressed in a subsequent section.

### Post Hoc Analyses

#### Hierarchical Analyses of Set Elements.

The results of the series of hierarchical multiple regression analyses conducted to examine the relationships between each of the independent variables and the dependent variable with the effects of the other variables in the same set controlled were essentially the same as the correlational analyses. The two maternal psychological variables that were not significantly correlated with toddlers' CBCL scores, Event Distress and Acceptance, explained less than one-half of one percent of the variance in CBCL scores when the effects of the other maternal psychological characteristics were controlled.

It was unexpected that mothers' scores on the Acceptance measure would be unrelated to toddlers' CBCL scores, either at the bivariate level or when controlling for the effects of other maternal psychological characteristics. As stated previously, it had been anticipated that Acceptance would explain a fairly large amount of variance in a measure of adaptation in toddlers.

There are several possible explanations for these unexpected findings. One is that although the Acceptance scale apparently assesses maternal qualities that are related to security of attachment (Ricks,

1985) and dyadic harmony (Birigen, 1990) in mothers' relationships with younger children, these qualities are not related to adaptation, as measured by the CBCL, in slightly older children.

Another possibility is that mothers in this study who perceived themselves as having been rejected by their mothers have in some way resolved these experiences (cf. Main et al., 1985; Ricks, 1985), and are treating their child differently than they themselves were treated. This possibility is supported by unsolicited written comments returned to the investigator by a small number of participants. These comments indicated that the subjects had been maltreated as children, but had subsequently resolved their feelings about those experiences, and were consciously seeking to behave differently with their children.

An additional possible explanation of these unexpected findings is related to differences in the methods used in previous research using the MFP scale and the methods used in this study. Birigen (1990), for example, used an extreme groups design in a study of the relationship between maternal perceptions of acceptance or rejection and qualities of the mother-child relationship. The use of Acceptance scores in a quantitative, rather than qualitative, fashion may have contributed to the discrepancy in the findings obtained in this study and those obtained in other research. The unexpected findings obtained using this measure also may be attributable to the psychometric properties of the measure; a conclusive explanation cannot be offered without additional investigation.



### Tests of Group Differences.

Mothers who rated their children as having CBCL/2-3 Total Problem scores in the clinical range differed from other mothers in the sample in several ways. They had higher General Distress scores as measured by the Global Severity Index of the BSI. Selected symptom dimensions of the BSI on which these mothers had higher scores were Anxiety, Hostility, and Psychoticism; the two groups of mothers did not differ in terms of reported symptoms of depression. Taken together, these results indicate that mothers who rated their toddlers as having numerous problems also reported that they experienced anger and other negative affective states, along with some degree of interpersonal alienation more intensely than did the other mothers in the study. Mothers of toddlers with CBCL scores in the clinical range also had higher scores on the Assertion of Autonomy scale of the Interpersonal Dependency Inventory. High scores on this scale indicate denial of attachments to others, and less endorsement of the value and importance of close relationships.

### Working Models and Affective Regulation

The findings discussed briefly above will be further interpreted as they relate to 1) conceptions of internal working models, and 2) the

dyadic regulation of affect as a precursor to the development by the toddler of the capacity for self-regulation of affect and arousal.

It was proposed earlier that Bowlby's (e.g., 1988) concept of internal working models, as articulated and extended by Main (e.g., Main et al., 1985) and others (e.g., Bretherton, 1985), describes a means by which early relationships could influence adaptation over time and development, and across generations.

Working models are thought to influence the processing and organization of information and affects related to attachment, and the experience of attachment-related affect. Adults' working models of attachment are expressed in behavior, as well as in thoughts, feelings, and memories. The nature of individuals' working models are also hypothesized to be expressed in the coherence of their behavior, thoughts, feelings, and memories related to attachment (cf., Main et al., 1985). This coherence can be also be conceived of as a representation of the regulatory adequacy of the working models. The organization of information related to attachment relationships is expressed by young children primarily in their behavior (cf., Ainsworth et al., 1978); it would be expected therefore, that disruptions in emotionally significant relationships would be reflected primarily in the behavior of very young children.

In addition, theorists (e.g., Ainsworth, 1985; Bowlby, 1969; Campos et al., 1989; Sroufe, 1989) have emphasized the importance of emotionally significant relationships in the regulation of affect. Sroufe (e.g., 1990), in particular, has underscored the role of dyadic regulatory processes in the development of the core organization of the

self.

Based in part on the premises briefly stated above, attachment theory and other theories of personality hold that attachment orientation and psychological adjustment are likely to be related (cf. Bowlby, 1988; Sroufe, 1990).

In most other studies in non-clinical samples in which mothers' interpersonal styles, or attachment orientations, have been assessed, the potential interrelationships of psychological distress and relational style have not been investigated. The possibility that it is maternal psychological distress that is driving observed relationships between attachment style and the quality of the child's adaptation has therefore not been adequately addressed in non-clinical samples.

The results of this study show that general psychological distress and mothers' reports of an interpersonal style of extreme reliance on another person (Reliance) are related. Mothers who describe their toddlers as having emotional and behavioral problems that fall within the clinical range do not differ, on the average, in terms of Reliance; they do report, however, significantly higher levels of distress. This provides some support for the proposition that, in the case of mothers who are highly reliant on another person, psychological distress is the more important characteristic in relation to toddlers' adaptation as perceived by their mothers.

Another meaningful finding of this study was that mothers' scores on the Assertion of Autonomy scale were significantly related only to their ratings of toddlers' problems. The demonstration of an association between maternal self-reports of an interpersonal style that

can be characterized as dismissing of emotional attachments (Hirschfeld et al., 1977), and ratings of poor emotional and behavioral adaptation in toddlers is important for several reasons. The most important is that the findings are consistent with the theoretical premise that specific aspects of maternal relationship orientation are related to the quality of children's adaptation at a specific stage of development.

The findings of the post hoc analyses of group differences are also important in understanding the relationship between maternal characteristics and toddler's problems. Although Autonomy and General Distress were not correlated with each other in the total sample, the results of the test of group differences show that mothers of toddlers with CBCL scores in the clinical range have Autonomy scores and General Distress scores that are higher, on the average, than mothers of toddlers with CBCL scores in the normal range. Therefore, it appears that high Autonomy scores and high levels of psychological distress are associated in a group of mothers who report that their children have many problems.

These results, taken together with the results of the analyses of the unique effects of the individual predictor variables, indicate that the variables that are most important in relation to mothers' ratings of their toddlers problems are the interpersonal style variable of Autonomy, and psychological distress. They are the only two of the maternal psychological characteristics that accounted for significant variance in CBCL scores in the total sample when the effects of the other variables in this set were controlled. In addition, these were the only two of the original study variables that differentiated mothers

of toddlers with CBCL scores in the clinical range from mothers of toddlers with CBCL scores in the normal range. Further investigation of the relationships among the interpersonal style variables, psychological distress, and the adjustment of children at this stage of development seems warranted.

One additional point is germane here. Relatively little is known about the influence of the quality of the caregiver-toddler relationship on the working models of the caregiver, or on the caregiver's capacity to adaptively regulate affect. This type of reciprocal influence has been identified as being critical to the quality of adaptation that can be achieved by the caregiver-toddler dyad (e.g., Emde & Sameroff, 1989). What is the influence of caregivers' interactions with emotionally valued recipients of care, and of the responses of those interactional partners, on the organization and quality of caregivers' working models? In order to more fully understand the nature of relationships among maternal interpersonal style, psychological distress, and the adaptation of very young children, it seems that it would be important to more fully understand what the effects of caretaking are on caregivers' psychological capacities.

### Limitations

The conclusions that can be drawn from this study must be limited in two critical ways that are related to the external validity of the study.

The major drawback of this study is that mothers were utilized as

the only informants regarding the behavior of their toddlers. A second set of limitations is related to the fact that despite concerted efforts to recruit mothers of all levels of education and income, the final self-selected sample was composed predominantly of well-educated, middle to upper-middle income women. These two limitations are discussed in more detail below.

#### Mothers as Sole Informants.

As discussed in Chapter Two, the decision of whom to use as informants regarding the emotional and behavioral adaptation of toddlers is problematic. On the one hand, the use of mothers as informants makes sense from several perspectives: 1) Parents' ratings of their children's behavior are better predictors of clinical status than are ratings made by other observers (cf. Achenbach, 1979); 2) Parents have been characterized as the informants with the most comprehensive knowledge regarding the behavior of their children (Achenbach, 1979; Jensen et al., 1990), and mothers have been characterized as being typically more aware of toddlers' problem behaviors than fathers (Achenbach et al., 1987); and 3) If one accepts the premise that mothers' perceptions of their children guide their interactions with them (cf. Main et al., 1985), then mothers' ratings are an important source of information about the nature of the mother-toddler relationship in their own right. The difficulty is that when mothers are the sole informant regarding 1) the behaviors of their toddlers, and 2) their own psychological characteristics, the possibility exists that

any observed relationships between toddler behavior and maternal characteristics may be the result of the psychological "blind spots" of the mother.

On the other hand, problems with the use of multiple ratings mitigate against simply combining ratings made by multiple observers. These problems include the relatively low level of interobserver agreement regarding toddlers' behavior problems when behavior is observed in different contexts, or by individuals who are not equally well acquainted with the child (Jensen et al. , 1990). In addition, if one wishes to study single mothers and their toddlers as well women with partners, problems arise in the recruitment of raters for each child with whom they are in identical role relationships.

Evidence from other studies (e.g., Bates et al., 1985; Friedlander et al., 1986; Jensen et al., 1990), as mentioned previously, indicates that mothers' perceptions of their children are not simply reflections of the psychiatric status of the mother.

The difficulties described above can be obviated, in large measure, by the use of trained, objective observers to rate maternal-toddler interactions over time and in different situations. Practical considerations precluded the use of such techniques in this research. Although there is evidence in this study, as well as in previous studies, that there is valid variance in mothers' ratings of their children's behavioral and emotional difficulties that is not related to the mothers' own symptoms of psychological distress or personality characteristics, the findings of this study need to be replicated using the type of observers described above.

### Sample Homogeneity.

The homogeneity of the socioeconomic characteristics of subjects in this sample limits the study in two ways.

First, the hypothesis regarding the importance of SES in relation to maternal psychological characteristics as risk factors for emotional and behavioral problems in toddlers could not be adequately tested because of the lack of variation in maternal education and family income. These two variables alone did account for a very small amount of the variance in CBCL scores controlled. The amount of variance explained was 2.5%, which is similar to the 4% of variance in CBCL scores that other investigators have reported to be uniquely attributable to SES, in a sample drawn from the general population (Achenbach et al., 1987). It would be imprudent, however, to draw conclusions about the relative importance of SES and maternal psychological characteristics as predictors of emotional and behavioral disturbances in toddlers based on findings in a sample in which there is little variation in SES.

The second major limitation is that because of the nature of the sample, the findings of the study can be generalized only to middle and upper-middle-class families. The concordance of the results of the study with theoretical models of the relationship of maternal psychological characteristics and emotional and behavioral disturbances in economically deprived children (cf. McLoyd, 1990; Richters & Weintraub, 1990) makes it tempting to overgeneralize the findings.



Generalization to mothers and toddlers of all socioeconomic circumstances is not warranted, however.

### Conclusions

Even given the previously discussed limitations of the external validity of these findings, the study did provide useful information regarding the relative importance of different risk factors for emotional and behavioral disturbance in toddlers in several ways.

First, it was found that specific maternal psychological characteristics are relatively more important predictors of mothers' ratings of emotional and behavioral disturbance in toddlers in middle-class families than environmental characteristics. Information about stressful events, maternal education, and family income, did not improve, in a substantive or statistically significant way, predictions of toddlers' CBCL scores based on mothers' symptoms of psychological distress and interpersonal style.

The findings of the study regarding the relationship between stressful events and adaptation in young children are less limited than are the findings regarding SES, and are important for several reasons. The study of stressful events in relation to the quality of adaptation in young children has been, in large measure, based on the premise that the responses of very young children to stressful life events can be evaluated and understood in ways that are similar to the means by which the responses of adults are evaluated. The results of this study support an alternate conception. They support the view that research on

the relationship between stress and maladaptive outcomes may need to be approached differently for children than it is for adults, "since the actual nurturing environment and the psychological health of the caregiver may be more salient to children's psychological functioning" than phenomena such as coping that have been identified as being important for adults (Jensen et al., 1990, p. 51). In keeping with a developmental perspective on psychopathology, it may be time to explicitly approach the study of stress from a developmental perspective. This perspective could lead to the productive reframing of questions about the nature and effects of stress in childhood. In particular, it seems that it would be productive to investigate whether, and how, what is distressing to children changes during the course of development.

Second, no other research on mothers and toddlers has been found in which the specific combination of characteristics addressed in this study has been investigated in a non-clinical sample. The specific developmental focus of the combination of variables selected for use in the study also sets it apart from other studies of risk factors for emotional and behavioral disturbance in very young children. Maternal psychological characteristics hypothesized to affect the capacity of the caregiving relationship to support 1) the development of toddlers' self-regulatory capacities; and 2) their working models of self and relationships were found to be important risk factors for emotional and behavioral disturbances in toddlers.

Because the interpretation and generalizability of the results of this study are limited by all of the factors mentioned above, it is

critical that the study be replicated using additional methods of assessing the characteristics of mothers, toddlers, and their relationships that do not rely solely on mothers' perceptions of their children and themselves. In addition, it is important that this study be replicated with a sample that is truly representative of the general population so that hypotheses regarding the relative importance of socioeconomic status and maternal psychological characteristics in relation to toddlers' adaptation can be adequately tested. Replication of the study in a clinical sample would also provide useful additional information about whether the nature of the relationships among variables used in this study would be maintained in cases of more serious disturbance.

Based on the results of this study, it seems reasonable to suggest that a shift of focus is warranted with regard to the issue of the relationship between stress and adaptation in very young children. It appears that the occurrence of the discrete stressful events that are typically included in life events measures for use with children is not, per se, what affects emotional and behavioral adaptation in toddlers.

The adaptation of middle-class toddlers, as assessed by their mothers, instead seems to be most related to specific maternal psychological characteristics. These qualities, in turn, have been characterized as being related to the quality of the "dyadic organization" (Sroufe, 1990), and to the capacity of the caregiving relationship to support the child's developing sense of self and capacity for self-regulation.

Further investigation of the behavioral correlates of these

characteristics, of the on-going processes by which they influence the nature of caregiver-toddler interactions and the adaptation of caregivers and toddlers, and of stress reframed within a developmental perspective, seem likely to be generative directions for future research.

Promising additional areas of investigation include the further elucidation of the relationships among maternal interpersonal style and psychological distress and the adaptation of toddlers. Investigation of the ways in which the quality of the caregiver-toddler relationship, and the adaptation of the toddler, affect the working models and psychological adaptation of caregivers is another promising and important avenue of research that would build on the findings of this study.

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APPENDIX A

Subject Recruitment

Advertisements and Announcements

Bay Area Parents' Press

San Francisco Examiner

San Francisco Bay Guardian

University of California, San Francisco Synapse

Posters and Flyers

Children's Toy and Clothing Stores (e.g., Toys 'R' Us):

Colma

San Francisco

Richmond

Walnut Creek

College and University Campuses:

University of California, Berkeley

University of California, San Francisco

Clinics and Public Agencies:

Eastern Health Center, Oakland

APPENDIX B

Unpublished Measures

**MOTHER/TODDLER STUDY**

**PERSONAL INFORMATION**

Directions: Please provide the information requested below. Use checkmarks where appropriate.

1. Today's date:    \_\_\_/\_\_\_/\_\_\_  
                          mo day yr

2. Your birthdate:  \_\_\_/\_\_\_/\_\_\_  
                          mo day yr

3. Ethnicity:       \_\_\_ Asian                   \_\_\_ Black                   \_\_\_ Caucasian  
   (optional)       \_\_\_ Hispanic               \_\_\_ Native American       \_\_\_ Other

4. Marital Status:  
   \_\_\_ never married    \_\_\_ living together    \_\_\_ married  
   \_\_\_ separated       \_\_\_ divorced           \_\_\_ widowed

5. Number of children:    \_\_\_\_\_

6. Ages of each of your children:  
   \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_

7. Toddler's information (this is the child you will be answering questions about):  
Birthdate:   \_\_\_/\_\_\_/\_\_\_                   Sex:   \_\_\_ Female       \_\_\_ Male  
                  mo day yr

8. Hours per week that toddler is cared for by someone other than you or your spouse/partner:  
   \_\_\_\_\_ day care            \_\_\_\_\_ preschool            \_\_\_\_\_ babysitting in your home  
   hours                            hours                            hours



PERSONAL INFORMATION, continued

9. Your education: (check highest level)

- |   |   |
|---|---|
| <input type="checkbox"/> some grade school (grades 1-6)     | <input type="checkbox"/> some college         |
| <input type="checkbox"/> junior high completed (grades 7-9) | <input type="checkbox"/> college degree       |
| <input type="checkbox"/> some senior high (grades 10-11)    | <input type="checkbox"/> some graduate school |
| <input type="checkbox"/> high school diploma                |   |

10. Your usual type of work, even if you aren't working now (Please be specific, for example, auto mechanic, high school teacher, homemaker, retail clerk, bank teller):

---

If you work outside the home, please indicate the number of hours per week: \_\_\_\_\_

11. If applicable, your spouse's education:

- |   |   |
|---|---|
| <input type="checkbox"/> some grade school (grades 1-6)     | <input type="checkbox"/> some college         |
| <input type="checkbox"/> junior high completed (grades 7-9) | <input type="checkbox"/> college degree       |
| <input type="checkbox"/> some senior high (grades 10-11)    | <input type="checkbox"/> some graduate school |
| <input type="checkbox"/> high school diploma                |   |

12. If applicable, your spouse's usual type of work, even if he isn't working right now (Please be specific):

---

If your spouse works outside the home, please indicate the number of hours per week:

\_\_\_\_\_

13. Your family's total gross income for 1989 (please check only one):

- |  |  |
|--|--|
| <input type="checkbox"/> \$ 0 - 6,000      | <input type="checkbox"/> \$30,001 - 36,000 |
| <input type="checkbox"/> \$ 6,001 - 12,000 | <input type="checkbox"/> \$36,001 - 42,000 |
| <input type="checkbox"/> \$12,001 - 18,000 | <input type="checkbox"/> \$42,001 - 48,000 |
| <input type="checkbox"/> \$18,001 - 24,000 | <input type="checkbox"/> above \$48,000    |
| <input type="checkbox"/> \$24,001 - 30,000 |  |

QUESTIONNAIRE FOR MOTHERS -- PERCEPTIONS OF YOUR CHILDHOOD

Please indicate how well the following statements describe your relationship with your mother when you were a child by circling the number that most clearly indicates how much you agree or disagree with the statement.

- | 1<br>Strongly<br>Disagree                                    | 2<br>Somewhat<br>Disagree | 3<br>Uncertain | 4<br>Somewhat<br>Agree | 5<br>Strongly<br>Agree |    |   |
|--|---------------------------|----------------|------------------------|------------------------|----|---|
| <u>WHEN I WAS A CHILD, MY MOTHER</u> (or mother substitute): |                           |                |                        |                        |    |   |
| 1  | 2                         | 3              | 4                      | 5                      | A. | encouraged me to make my own decisions.   |
| 1  | 2                         | 3              | 4                      | 5                      | B. | helped me learn to be independent.  |
| 1  | 2                         | 3              | 4                      | 5                      | C. | felt that she had to fight my battles for me when I had a disagreement with a teacher or friend.                        |
| 1  | 2                         | 3              | 4                      | 5                      | D. | was close to a perfect parent.  |
| 1  | 2                         | 3              | 4                      | 5                      | E. | was overprotective of me.   |
| 1  | 2                         | 3              | 4                      | 5                      | F. | encouraged me to do things for myself.  |
| 1  | 2                         | 3              | 4                      | 5                      | G. | encouraged me to try things my way.   |
| 1  | 2                         | 3              | 4                      | 5                      | H. | had not a single fault that I can think of.   |
| 1  | 2                         | 3              | 4                      | 5                      | I. | did not let me do things that other kids my age were allowed to do.   |
| 1  | 2                         | 3              | 4                      | 5                      | J. | sometimes disapproved of specific things that I did, but never gave me the impression that she disliked me as a person. |
| 1  | 2                         | 3              | 4                      | 5                      | K. | enjoyed being with me.  |
| 1  | 2                         | 3              | 4                      | 5                      | L. | was an ideal person in every way.   |
| 1  | 2                         | 3              | 4                      | 5                      | M. | was someone I found very difficult to please.   |
| 1  | 2                         | 3              | 4                      | 5                      | N. | usually supported me when I wanted to do new and exciting things.   |
| 1  | 2                         | 3              | 4                      | 5                      | O. | worried too much that I would hurt myself or get sick.  |
| 1  | 2                         | 3              | 4                      | 5                      | P. | was never angry with me.  |
| 1  | 2                         | 3              | 4                      | 5                      | Q. | was often rude to me.   |
| 1  | 2                         | 3              | 4                      | 5                      | R. | rarely did things with me.  |

PERCEPTIONS OF YOUR CHILDHOOD, continued

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Uncertain	Somewhat Agree	Strongly Agree

WHEN I WAS A CHILD, MY MOTHER (or mother substitute):

- |           |     |  |
|-----------|-----|--|
| 1 2 3 4 5 | S.  | didn't like to have me around the house.   |
| 1 2 3 4 5 | T.  | and I never disagreed.   |
| 1 2 3 4 5 | U.  | would often do things for me that I could do for myself.   |
| 1 2 3 4 5 | V.  | let me handle my own money.  |
| 1 2 3 4 5 | W.  | could always be depended upon when I really needed her help and trust.                                     |
| 1 2 3 4 5 | X.  | gave me the best upbringing anyone could ever have.  |
| 1 2 3 4 5 | Y.  | did not want me to grow up.  |
| 1 2 3 4 5 | Z.  | tried to make me feel better when I was unhappy.   |
| 1 2 3 4 5 | AA. | encouraged me to express my own opinion.   |
| 1 2 3 4 5 | BB. | never disappointed me.   |
| 1 2 3 4 5 | CC. | made me feel that I was a burden to her.   |
| 1 2 3 4 5 | DD. | gave me the feeling that she liked me as I was; she didn't feel she had to make me over into someone else. |

**LIFE EVENTS QUESTIONNAIRE**

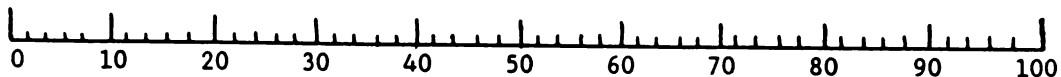
**Directions:** Here is a list of events that are considered disruptive or stressful by many people. Please read this list carefully, and indicate how many times each of these events occurred in your family within the past 12 months by writing down the appropriate number for each event. If an event did not occur, please put a zero (0) for that event.

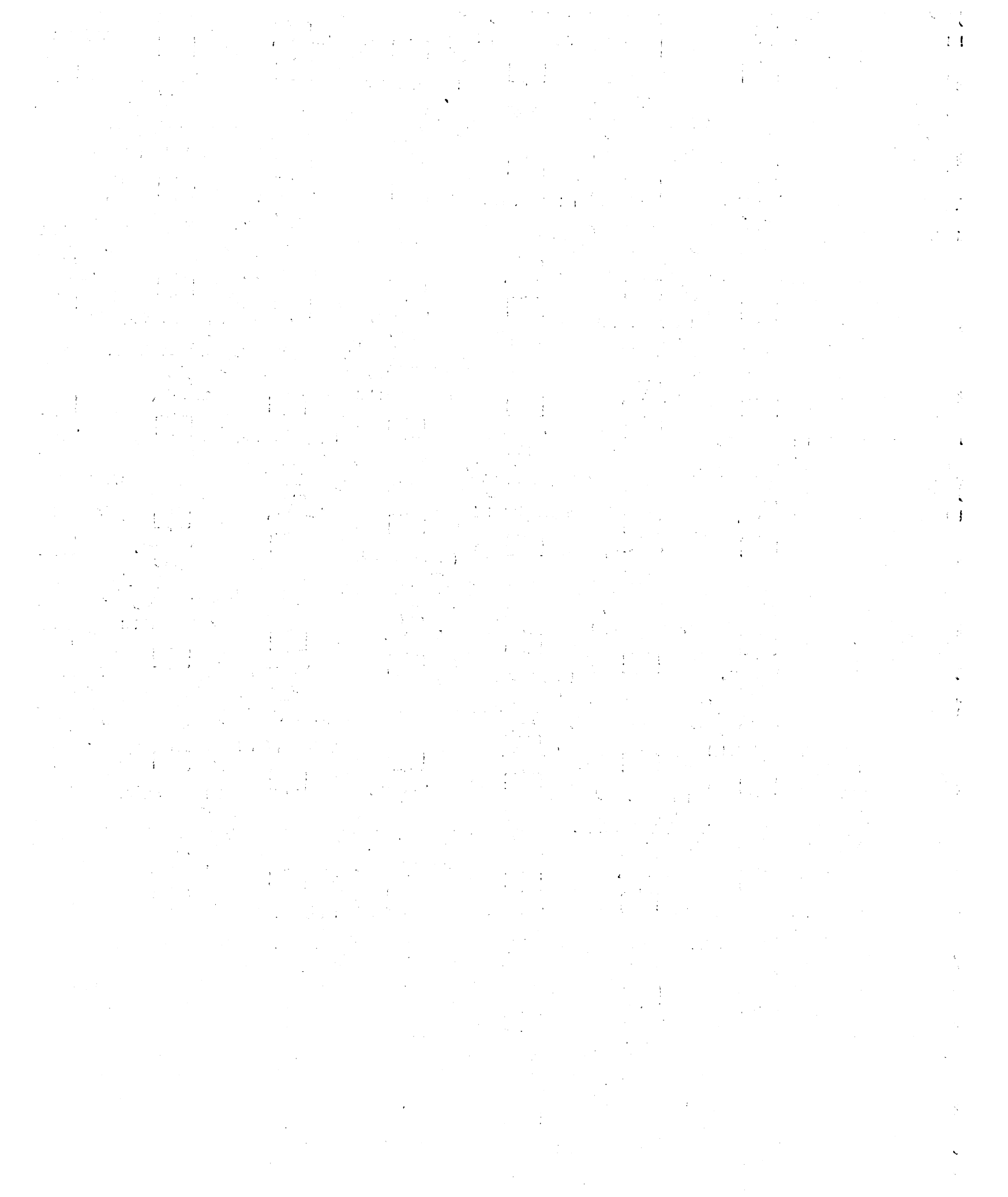
Number of times  
event happened  
in the past  
12 months

EVENT

- |       |   |
|-------|---|
| _____ | 1) Your family moved to a new school district.  |
| _____ | 2) Your spouse/partner was away from home more due to his job.  |
| _____ | 3) You began to work outside the home.  |
| _____ | 4) There was a change in your family's financial status.  |
| _____ | 5) You or your spouse/partner were hospitalized.  |
| _____ | 6) Your toddler was hospitalized.   |
| _____ | 7) One of your children other than your toddler was hospitalized.   |
| _____ | 8) Your toddler was in a serious accident.  |
| _____ | 9) Your toddler acquired a physical handicap.   |
| _____ | 10) Your toddler had special treatment related to a congenital physical handicap.   |
| _____ | 11) Your spouse/partner died.   |
| _____ | 12) One of your toddler's grandparents died.  |
| _____ | 13) One of your children other than your toddler died.  |
| _____ | 14) A close friend of your family died.   |
| _____ | 15) You had a baby.   |
| _____ | 16) An adult joined your family.  |
| _____ | 17) There was a change in the acceptance of your toddler by his/her peers.  |
| _____ | 18) Your toddler's pet died.  |
| _____ | 19) One of your children other than your toddler left home.   |
| _____ | 20) You and your spouse divorced.   |
| _____ | 21) You and your spouse/partner separated.  |
| _____ | 22) Your toddler gained a new stepparent.   |
| _____ | 23) There was an increase in parent-toddler arguments.  |
| _____ | 24) There was an increase in arguments between you and your spouse/partner.   |
| _____ | 25) One of your older children became pregnant or gave birth.   |
| _____ | 26) You or your spouse/partner lost your job.   |
| _____ | 27) You or your spouse/partner served a minor jail sentence.  |
| _____ | 28) You or your spouse/partner served a major jail sentence.  |
| _____ | 29) Your family was evicted.  |
| _____ | 30) One of your children was involved with drugs/alcohol.   |
| _____ | 31) You or your spouse/partner was involved with drugs/alcohol.   |
| _____ | 32) Funds for your family were cut off by a government agency.  |
| _____ | 33) Your toddler's day care situation changed.  |
| _____ | 34) You or your spouse/partner suffered from an episode of depression or other mental distress that lasted more than two weeks. |

Thinking about the list above, and other events of the same kind, how stressed would you say you were in the past 12 months by events like these? Please indicate this by marking the line below at the number that indicates how stressed you felt. Zero indicates feeling not at all stressed, and 100 indicates feeling as stressed as you can possibly imagine.





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