THE DEVELOPMENT OF A TECHNIQUE FOR ASSESSING THE STRESSES EXPERIENCED BY PARENTS OF YOUNG CHILDREN

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The dissertation "The Development of a Technique for Assessing the Stresses Experienced by Parents of Young Children" presented to the Graduate Faculty of the University of Virginia by William T. Burke in partial fulfillment of the requirements for the degree of Doctor of Philosophy is approved.

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To Mary B. Burke

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Dissertation Abstract

Early identification and intervention programs have become the focus of much attention as preventive interventions in the field of mental health. Research in the areas of child development, parent-child interaction and life stress has provided evidence which suggests that it is possible to identify parent-child systems at risk for later difficulty. The stresses which impinge on parents and children have been identified as playing a significant role in the development of emotional and behavioral dysfunction. The present study had as its major goal the development of a technique, based on existing research literature, which could serve as a screening device in identifying parents and children at risk for later difficulty.

Items were developed based on existing research literature and were submitted to a series of 6 pilot testing procedures aimed at 1) establishing face validity and 2) providing the basis for revisions in items and procedures.

Subjects were drawn from among mothers of children less than 3 years of age who brought their children to the well child clinic of a large group pediatric practice in Charlottesville, Va. Mothers participating in the study (N = 208) were asked to complete and return a 126 item questionnaire. Ratings were obtained from the mothers' pediatricians. These ratings, along with variables related to the family's use of medical services, served as initial indices of concurrent validity.

Data analysis procedures included factor analyses of the questionnaire and the physician ratings and mean differences (T-Test) procedures

comparing primiparous and multiparous mothers on the scoring dimensions. Test-retest and alpha reliability coefficients were computed for the total scale and the logically derived subscales. Correlational analyses provided initial information relative to the concurrent validity of the scale.

The results of the study are discussed as presenting good initial evidence for the scale in terms of face validity, construct validity, stability over time and internal consistency. Correlations between scores on the scale and overall stress ratings of mothers made by the doctors were of low magnitude but did achieve statistical significance. Suggestions for future research and potential clinical uses of the scale are presented.

Chapter I

Introduction

The rapidly growing interest in preventive measures in the field of mental health reflects an increasing awareness on the part of professionals that dealing with the outcome of disordered development is an expensive and difficult undertaking. Developing techniques and programs which can effectively intervene before damage is done requires a basic understanding of the processes which are important in both normal and dysfunctional development. Such an understanding may then serve as the base upon which techniques and programs aimed at reducing the incidence of maladaptive behavior and emotional anguish can be built.

The importance of early identification of groups at risk and subsequent preventive intervention is reflected in the government's attempts to provide such services through making early diagnostic and treatment services available through Medicaid and Title XIX. This legislative interest has resulted in a wide range of programs. The American Orthopsychiatric Association (AJO, 1978) has noted the emphasis in these programs on the cognitive and intellectual domain and the relative lack of emphasis in the area of social and emotional development.

Research concerning infancy and early childhood has provided evidence which suggests that early identification and intervention programs may be useful as preventive techniques. First reports of a longitudinal study of health and adaptation in mothers and their first born children with the goal of early identification of families

at risk for developing serious problems (Lagercrantz & Lagercrantz, 1975) strongly suggest that it is possible to make such a discrimination at a very early stage. The preliminary results reported indicated that it was possible to identify families at risk prior to the child's reaching 6 months of age through measurement of maternal attitudes and mother-child interaction.

A number of authors have emphasized the importance of being able to identify families who are at risk and under high degrees of stress. Soderling (1975) noted that children may react to stress through developing a variety of behavioral symptoms. He describes the crucial need for a means of identifying potentially high stress situations before they result in trauma induced symptom formation. Further support for this approach is offered by Kagan and Levi (1975), Masse (1975) and Caplan (1975); all of whom emphasize the need for early identification of potentially high stress situations which makes a variety of forms of preventive intervention possible.

Such an undertaking is complex and fraught with a number of methodological, ethical and practical issues. In order to successfully make such discriminations, it would be necessary to examine the nature of the characteristics which the child manifests, the characteristics manifested by the parents, the nature of the parent-child relationship and the nature of the child's environmental situation (Bell, 1975a, 1975b; Bradley and Caldwell, 1978; Caplan, 1975). Such an assessment requires further research and the development of a methodology capable of making such an assessment in a practical fashion.

Understanding the stresses which affect parents of young children is an important part of efforts aimed at early identification and intervention. The task of raising children is a difficult and complicated undertaking. Parents normally experience a certain degree of stress to which they are able to adapt without dysfunctional consequences. However, the existence of stress in extreme amounts may result in adverse consequences if necessary interventions are not undertaken. These adverse consequences affect the parent as an individual and the developing parent-child relationship. This relationship, which serves as the foundation for the child's emotional and social development (Mahler, 1974), exerts a profound influence on the course of later development.

A large body of research literature exists with relevance to the topic of stresses which operate in families with young children. Studies of the influence of children's temperamental characteristics on later development (Thomas, Chess & Birch, 1968) and the development of maternal feeling toward children (Robson & Moss, 1970) are examples of the variety of existing research regarding the roles which social factors, child characteristics and parent variables play in the development of children. The research literature contains numerous instances of factors which have been found to influence or be correlated with the nature of parent-child relationships.

Understanding the stress in early parent-child relationships requires that this existing information be integrated within a framework which can account for the operation of the many and varied factors which are relevant to stress within the family system. This integration would allow for the development of techniques for assessing

the stresses which parents experience in raising young children. Development of such assessment techniques is one of the ways in which this information can be made useful to practitioners.

Statement of the Problem

The problem addressed in this research project is the measurement of stresses which exist in early parent-child relationships, specifically the stresses experienced by the parents of young children. The purpose of the project was to develop a technique for assessing the stresses experienced by parents of young children with a focus on gathering information about (1) factors which serve as stressors for parents, (2) the intensity of those factors and, (3) the contribution of individual stressors to the overall stressful nature of the situation for the parent.

Project Goals

The goals of the project were:

1. To construct an instrument based on existing research literature which has the potential to identify parents who are experiencing excessive degrees of stress.

2. To field test the instrument, investigate the factor structure and assess the reliability of the instrument.

3. To gather data from the initial sample in order to provide initial information regarding the construct and concurrent validity of the instrument and to begin the process of developing normative information.

Chapter II

Literature Review

> ". . . it must be admitted that stress is an abstraction; but life is also an abstraction, and yet it could hardly be rejected as a worthless concept in biology."
>
> (Hans Selye, 1952)

Definitions

The general phenomenon of stress can best be defined as a condition of an organism which results from the organism's attempt to meet demands for adaptation made by stressors (Selye, 1952). Stressors are defined as environmental agents which manifest their impact by requiring that the organism adapt to their effects. Consideration of stress as a psychological phenomenon requires that definitions account for the roles which cognitive and personality factors (i.e., expectations, beliefs, defenses) play as stressors. The influences of these factors and the modifications which they require in definitions of stress and stressors will be dealt with in detail in the following sections.

History of Stress Research

Physiological Foundation: Selye and the GAS

The research of Hans Selye laid much of the foundation on which current physiological and psychological stress research is based. Selye's definition of stress evolved from his discovery and investigation of the General Adaptation Syndrome (GAS). His interest in the non-specific effects of pathogenic agents led to his discovery

that the body manifests a certain pattern of physiological response to a wide variety of stressors. Selye discovered that regardless of the nature of the stressor agent (physical, chemical or emotional), the physiological syndrome produced was largely the same. He gave this syndrome its title to emphasize the non-specific nature of its occurrence and his conceptualization of the syndrome as the organism's attempts to adapt to the effects of the stressor.

Further investigation of this syndrome led Selye to the discovery that it consisted of 3 stages (Selye, 1952). The first stage of the syndrome was described as the alarm reaction. This stage consisted of the organism's initial response to the stressor in terms of physiological arousal. The second stage, termed the resistance stage, consisted of the organism's attempts to deal with the impact of the stressor. The final, or exhaustion stage, was described as being a state of terminal exhaustion of resources. The organism's resources had been depleted to such an extent that irreversible damage had occurred.

Selye developed the concept of adaptational energy to explain the operation of the GAS. This energy is expended by the organism in its attempts to deal with the effects of stressors. An organism possesses a finite quantity (Selye, 1974) of such energy. Studies have demonstrated that stressor effects can exhaust this adaptational energy at varying speeds depending on the intensity and duration of their effects. Selye's research demonstrated that exposing an organism to the demands of stressors in excess of its available resources would result in serious physiological damage.

The amount of adaptional energy available to an organism was

discovered to vary in relation to the outcome of previous adaptations (Selye, 1952). The discovery of cross-sensitization effects in which an organism's ability to adapt to the effects of stressor B was reduced by the outcome of its adaptation to stressor A provided additional evidence of the finite supply of adaptational energy. These findings provide the basis for the assumption that the effects of stressors are additive.

Selye's research emphasized that the outcome of exposure to a stressor is dependent on the individual's ability to meet the adaptational demands made by the stressor. When demands exceed resources, the organism suffers physiological damage and is sensitized to the effects of future stressors through a reduction in the amount of adaptational energy available. The existence of resources at levels in excess of demands allows the processes of habituation and adaptation to operate. These processes result in more favorable outcomes, effective coping and mastery of stressors.

The concepts developed by Hans Selye have found application in every area of stress research. The concept of adaptational energy and its operation on a physiological level has been expanded to include the operation of psychological processes.

Stress Research After Selye

Research on the etiology and effects of stress has expanded in a number of directions. Selye's research was primarily concerned with investigation of the physiological and bio-chemical mechanisms which produced the GAS. Social psychological research on stress has focused on investigation of the psychological factors which influence

the perception of an event as stressful and the effects of stress on behavior. This research has included studies of the effects of stressful life experiences on physical and psychological health (Mechanic, 1974). The effects of stress on the performance of a variety of tasks have been investigated (Weybrew, 1967; McGrath, 1970). The behavior of individuals in captive situations (Biderman, 1967) and in altered sensory environments (Cohen, 1967) have also been topics of investigation in psychological stress research. Factors involved in the perception of an event as stressful have been the focus of studies such as the Holmes and Masuda (1974) research on stressful life events. Their research has identified and rank ordered life events which are commonly perceived as stressful. Rahe (1974) and McGrath (1970) have emphasized the role of cognitive and personality factors in the process through which events are perceived as stressful.

Social Psychological Stress Research

Definition of Psychological Stress

A workable definition of psychological stress must take a number of elements into account. Appley & Trumbull (1967) identify three (3) elements as being of primary importance in any definition of psychological stress. First, it must be able to account for the characteristics of stimulus events (stressors) which the individual encounters. Second, the definition should be broad enough in scope to deal with the response which the individual makes to the event. Third, it must account for the state which is induced in the individual.

Definitions of stress for the purpose of research often take only one of the three elements as a focus (Appley & Trumbull, 1967).

The existence of psychological stress is often inferred from the presence of a certain event which is hypothesized to be a correlate of stress, or it may be inferred from the response decrement an individual exhibits in a given situation. Stress may also be inferred from the measurement of changes in characteristics of the state of an organism (e.g., physiological indices, anxiety scales).

McGrath (1970) has pointed out the problems inherent in such limited definitions of psychological stress. Restricting the definition to one element ignores the complex nature of the processes involved in psychological stress. Such limited definitions do not allow for the exploration and understanding of the processes involved in the perception of an event as stressful and the individual's response to it. An additional problem arises in terms of the validity of measures based on such limited definitions. The presence of a stressor event or the existence of a response decrement may not imply the existence of a stress state in the organism. In the case of the event, it may not be perceived by the organism as stressful. The decrement in an individual's performance may be due to the effects of other influences, such as fatigue. In addition, the changes in an individual's physiological state may be more a function of arousal than of the individual's experiencing an event as stressful.

Psychological stress can best be conceptualized as a state of the total organism rather than as an event in the environment (Appley & Trumbull, 1967). This state of stress occurs in conditions of imbalance between perceived demand and perceived response capability (McGrath, 1970).

Individual Differences - Importance of Cognitive Appraisal

A number of authors have emphasized the fact that individual differences in susceptibility to stress point to the importance of cognitive and personality factors in determining whether or not an event acts as a stressor. Appley & Trumbull (1967), discussing the lack of evidence for a general stress tolerance factor in stress research, postulate that in order for an event to be perceived as stressful, it must be of a given intensity and content. These characteristics of the event interact with the characteristics of the individual to determine how the event is perceived.

McGrath (1970) provides further support for and expands upon this view in his discussion of the role that individual characteristics play in the process. The properties of the "focal organism" come into play at three levels in the process of an event being perceived and responded to as a stressor. First, at the level of perception, individual characteristics play an important role in determining the type and intensity of demands which are perceived as stressful. The individual may or may not perceive the event as making demands. If an event is perceived as making demands, the individual's appraisal of the intensity of the demands constitutes an important part of the perception of the event. Second, at the level of response, the individual's appraisal of his response capability relative to the perceived demand comes into play. The individual compares the demands being made with his available resources in order to assess his capacity to respond. The third level at which individual characteristics come into play is the consideration by the individual of the consequences of making various responses to the demands. The

individual engages in an appraisal of the consequences of responding in certain ways to the perceived demands and determines his response based on this appraisal.

A series of studies by Lazarus (1967) provide additional support for the importance of cognitive processes. In a study of the effects of altering cognitive appraisal, Lazarus showed a film of a circumcision ceremony (anxiety eliciting stimulus) to 2 groups of men. One of the groups was exposed to a "denial and intellectualization" soundtrack which was aimed at altering the way in which the events of the film would be appraised. The control group received no such preventive "defense." The results, in the form of both physiological and psychological measures of anxiety, revealed that the group exposed to the soundtrack manifested significantly less anxiety on both measures. Lazarus concluded that his results illustrated that stress reactions and coping processes are dependent on the individual's cognitive appraisal of a situation. Altering the appraisal process was shown to effect both physiological and psychological measures of stress.

Studies of Stressful Life Events

Research done on the nature and effects of stressful life events represents a departure from the laboratory-experimental approach typical of studies on test anxiety (Appley & Trumbull, 1967) and the study done by Lazarus (1967) on altering cognitive appraisal. Studies of stressful life events have employed primarily correlational methods and the use of psychophysical scaling methods in the construction of the instruments used to assess the probability of stress being present.

An example of such a research strategy is the series of studies

by Holmes and his colleagues (Holmes and Masuda, 1974) which investigated the relationship between stressful life experience and the onset of physical and psychological disorders. Their research program began with the development of the Social Readjustment Rating Scale. On the basis of interviews with over 5,000 patients, they developed a scale which measures the number of significant life changes experienced by an individual. Subjects were asked to rate life events as to the degree of readjustment each would require. Subject rankings were combined to assign values to each life event according to the degree of readjustment it would require.

Using the methodology developed in their early studies, Holmes and his colleagues (Holmes & Masuda, 1974; Rahe, Malan & Arthur, 1970) found that the magnitude of a subject's life change experiences was significantly related to the time of disease onset. Greater magnitudes of life change were strongly associated with increased probability of illness onset.

The research on life changes related to disease onset has emphasized the importance of the demands for adaptation which life changes make regardless of the desirability of the change itself (Holmes and Masuda, 1974). Mechanic's (1974) review of the research on the relationship between stressful life events and episodes of physical illness identified the focus on life change irrespective of social desirability as a major theoretical issue. The research on life changes has identified the significance of a stressor as being more related to the adaptational demands which it makes than to its threatening or negative nature.

Additional support for the stressful nature of life change is

furnished by Markush and Favero's (1974) epidemiological survey of over 2,000 subjects in the Midwest. They found a significant overall association between subject's scores on a measure of recent life change and scores on measures of depressed mood and the presence of psychophysiological symptoms. Their research provided further support for life change as a stressful experience irrespective of the social desirability of the life change event.

Research on life change has also emphasized the importance of cognitive appraisal as a significant part of the process of an event becoming a stressor. Hinkle's (1974) longitudinal study of 838 men between the ages of 40 and 65 suggests that a number of qualifications must be included in considering the influences of life changes on the physical and psychological health of individuals. The results of his study suggest that exposure to changes in the social environment may lead to significant changes in health if (1) a pre-existing illness or susceptibility in an organ system exists and (2) the life change leads to perceived significant changes in the activities, habits and the physical environment of the individual. The absence of such predispositions or significant requirements for adaptation reduce the probability of life changes effecting a person's health. Hinkle emphasizes the important role which psychological processes, such as cognitive appraisal, play in determining the impact of change. The effect of a change, in terms of it's impact as a stressor, cannot be defined solely by the nature of the change itself. The physical and psychological characteristics of the person determine to a large extent what the effects of the change will be.

The influence of such individual characteristics and the assessment

of more specific aspects of life change is an area which requires further exploration (Dohrenwend & Dohrenwend, 1974). While the research on life change has demonstrated conclusive evidence of the impact of adaptational demands on individuals (Mechanic, 1974; Hinkle, 1974), there is a lack of information on the specific ways in which life changes exert their effects. Cobb (1974) notes the need for more research focused on single illnesses, as well as specific life changes, in order to develop an understanding of the physical and psychological mechanisms involved in the production of stress.

Croog (1970), writing on the family as a source of stress, identified many of the normal developmental changes of family life as sources of stress. These include marriage, childrearing, and changes in interactional patterns. The potential for such changes to function as stressors has been recognized, but a lack of empirical information on specific stressors and their effects prevents further elaboration (Croog, 1970).

Methodological and Measurement Issues

1. Sample Size - Weick (1970) discusses the issue of sample size and statistical significance as it relates to psychological stress research. He contends in his methodological review of stress literature that stress research has in large part disdained the use of small samples in an attempt to achieve statistical goals. This has occurred at the expense of a closer, more intensive examination of the phenomena which are studied. Weick stresses the need for researchers to seek a balance between the levels of investigation employed in stress studies and the quest for statistical generalizability.

2. Laboratory vs. Naturalistic Strategies. A number of authors (McGrath, 1970; Appley and Trumbull, 1967; Weick, 1970) have discussed the importance of moving stress research from the laboratory out into the real world. Various reasons are cited for this, including the necessity of replicating laboratory results in real settings and ethical issues related to deception and inducing stress in human subjects. Further rationales for the use of field studies of stress are the need for epidemiological studies and research which identifies and explores naturally occurring stressful situations.

Studying stress in natural settings is necessary as a complimentary strategy to laboratory investigations (which allow for more rigorous control) in order to understand how stress occurs in real situations. The situational context in which stressors occur can serve as an important factor in determining how they will operate (Trumbull & Appley, 1967).

Adoption of either a naturalistic or a laboratory strategy as a base does not preclude the influences of measurement reactivity as a possible source of contamination (Trumbull & Appley, 1967; McGrath, 1970). Sources of possible reactive effects must be identified and controlled when possible. These effects can include bias resulting from instructions, evaluation anxiety as well as other situational and subject variables. Weick (1970) agrees that the use of naturalistic strategies does not decrease the necessity of controlling for possible extraneous sources of variance. He suggests modifications of naturalistic strategies as ways of rearranging the occurrence of common events in order to provide more meaningful data.

The issue of reactive measures is of central significance to

psychological stress research due to the reliance on self-report measures (McGrath, 1970). While such effects may be avoided to a large extent by using modifications of naturalistic strategies as proposed by Weick (1970), these strategies are vulnerable to other sources of contamination due to their reliance on observational techniques. Observing behavior does not provide sufficient information on the psychological or physiological elements of stress to assure valid measurement. As an alternative, McGrath (1970) proposes that researchers make use of multiple strategies of measurement. Combinations of measurement strategies, such as self-report and observation, would provide evidence of the validity of the assessment while at the same time loosening the measurement restrictions imposed by naturalistic strategies.

3. Reliability and Validity of Measures. The issue of measurement reliability is a complex concern in stress research due to the nature of the phenomenon. Trumbull and Appley (1967) have described the importance of the factor of time in stress research. An event which serves as a stressor may exhibit long or short-term effects. Adaptational processes also vary temporally, further confusing any attempt to assess reliability on a temporal basis. One study which attempted such an assessment (Casey, Holmes & Masuda, 1967) measured the consistency of recall of past events over time as an index of reliability. Fifty-five subjects were asked to complete the Social Readjustment Rating Scale. A retest was done after a nine month interval. The results indicated that while the amount of information recalled over time decreased, that which was recalled was consistent at a statistically significant level. This study emphasizes the fact

that while reliability measures are possible in stress research, they must take into account the transient nature of the phenomenon. Measurement of a form of test-retest reliability was possible using a scale designed to elicit retrospective report. Procedures designed to measure test-retest reliability would not be feasible using an instrument designed to measure present stress, except over a relatively short period of time.

The assessment of the validity of measures in stress research presents similar difficulties. McGrath (1970) has argued for the use of multiple measures of stress (concurrent validity) as an index of validity. Longitudinal studies (Hinkle, 1974; Holmes and Masuda, 1974) have sought to establish the predictive validity of stress scales, but require a large investment in time. Validation of stress measures must occur through repeated replications using a variety of techniques (McGrath, 1970; Appley & Trumbull, 1967; Dohrenwend & Dohrenwend, 1974).

The complexity of stress as a phenomenon and the lack of a number of already validated measures of stress make the use of multiple measurement strategies a necessity. Concurrent validity can be assessed through a variety of techniques in order to compensate for the lack of well validated concurrent measures (McGrath, 1970). The use of already validated instruments, such as the Taylor Manifest Anxiety Scale, is also possible. Although they may not be direct measures of the same variables, such instruments can provide an additional source of concurrent validity.

Components of a Model of Stress Effects

A number of authors (Selye, 1952 & 1974; Appley & Trumbull, 1967;

Lazarus, 1967; Rahe, 1974) have discussed their conceptualizations of how stressors exert their effects on individuals. These models of how stress develops vary in the emphasis which they place on certain factors, depending on the area of interest of the author. There are, however, three major conceptual areas which are almost universally perceived as important components of a model of stress effects.

1) Process Concepts - The models of stress effects developed by Rahe (1974) and Cobb (1974) represent attempts to conceptualize the process by which an event comes to function as a stressor and exert an impact on the individual. Their models emphasize the notion that the link between event and outcome is a complex process in which many factors exert an influence.

The importance of individual and social factors in stress research have been discussed in terms of their functions as "filters" in the process of an event becoming stressful. Rahe (1974) has developed a conceptual model of the "pathway along which environmental stresses must travel and the transformations that occur before they may stimulate subjects' illness reports." The model consists of a series of filters and prisms which are composed of the past experiences, psychological defenses, physiological reactions, and coping processes of the individual. In Rahe's model, as life experiences pass through each of the filters and prisms they are either deflected or transformed. Life events may be deflected by psychological defenses which defend against their significance. They may also be transformed in some fashion by these same defenses, or by one of the other filters and prisms in the pathway. The physiological reactions which are not

dealt with by the individual's coping abilities may result in the report of somatic symptoms, depending on the interpretation which the individual makes of them.

The model developed by Cobb (1974) conceptualizes the relationship between life events and physical or psychological illness as an interaction between personal characteristics and the social situation. Cobb describes the process as consisting of six stages: (1) the life event, (2) the objective stress experienced by the individual, (3) the subjective stress which is experienced, (4) the strain which is experienced, (5) the resulting illness, and (6) the illness behavior which the individual displays. Individual and situational characteristics interact at each stage in the process. Their interaction determines the individual's response within the specific stage and the cumulative effect of their influence in determining the eventual response, i.e. illness behavior. Cobb identifies the psychological defenses, coping strategies, abilities, needs, genetic predispositions, past experiences, and attitudes of the individual as being personal characteristics which have a significant impact on the process. Social factors which are identified as having an impact include the current life situation, available social supports, and the attitudes of other individuals.

2) Perceived Dissonance - The perception of discrepancy between demands and resources is an important part of a conceptual model of stress. McGrath (1970) states that perceiving a dissonant situation as having important consequences is one of the key factors in an individual's experience of stress. McGrath notes that the concept of dissonance is important in explaining the stressful nature of stimulus

underload conditions as well as the classical inverted U relationship between performance and anxiety.

The coping processes which an individual engages in are in large part determined by the individual's perception that a dissonant situation exists. Hinkle (1974) and Hill (1965) have identified the interpretation which the individual makes of the event in relation to himself as being a crucial factor in determining how the individual responds. The study of the effects of altering cognitive appraisal (Lazarus, 1967) has provided direct evidence of the role of cognitive and perceptual processes in determining an individual's response to an event as stressful.

3) Adaptational Concepts - A common element of all models of stress is that the effects of stress are seen as being the outcome of adaptational or coping processes (Selye, 1974; Lazarus, 1967). Selye's (1974) discussion of the resistance stage in the GAS emphasizes the expenditure of energy involved in adaptational processes. This view has been expanded upon by Lazarus' (1967) discussion of stress reactions as being the reflection of coping processes which the individual is engaged in. The concept of adaptation has also been emphasized by the research on stressful life events (Holmes & Masuda, 1974; Mechanic, 1974). The significance of life changes as stress-producing agents lies in the demands for adaptation which they make.

Sources of Stressors

Situational/Demographic Factors

A variety of situational and demographic factors have been identified by various authors as contributing to the parent's experience

of childrearing as stressful. The physical environment of the family's living situation can function as a stressor by interfering with the mother's attempts to attend to her child. The physical characteristics of the home may also play a role in the overexposure of the parents to the infant and facilitate response inhibition through stimulus satiation (Harper, 1971).

Factors which influence the parental experience of pregnancy, childbirth and the nature of early parental contacts with newborn infants have been found to influence the early parent-child relationship. Lozoff et al. (1971) cite the results of five separate studies of "rooming-in" practices as exerting a significant impact on the mother-infant relationship. The studies showed that increasing the amount of contact between a mother and infant in the first few days of life resulted in significantly more positive mother-infant interactions at short-term follow-up. Infants in the extra contact conditions were observed to cry less frequently and to smile more frequently than controls. Mothers in the extra contact conditions were observed to exhibit more affectionate behavior toward their infants and were judged to be more involved with their infants. Lozoff and his colleagues suggest that the observed effects are related to the mother's increased confidence in her role due to the increased amount of early positive physical contacts.

Greenberg and Lind (1973) found that mothers who roomed in with their infants rated themselves as more competent and confident in dealing with their infants than mothers who had not experienced the additional early contact. A subsequent study by Greenberg and Morris (1974) showed similar results for fathers who experienced

early physical contact with their infants.

Further evidence of the importance of maternal experience and feelings is provided by Levy's (1958) observational study of early mother-infant contacts. Significant positive correlations were discovered between mothers' reports of their feelings and interests related to children and judges' ratings of their interactions with their infants as accepting of the infant. Detailed analysis of the observational data suggested that the behavior of mother and child were largely interdependent and influenced to a significant extent by the mothers' early experiences with and attitudes toward children. An additional influence was identified as the contextual demands of the situation.

The situational context provided by family relationships has been identified as a potential source of stressors for parents of young children. The research by Holmes and Masuda (1974), reviewed earlier in this chapter, has identified the adaptational demands made by changes in family roles and interaction patterns (e.g., sleep habits, sexual interactions, recreational patterns, financial situation) which commonly accompany the birth of a child and the childrearing process as important sources of stress. Croog (1970) notes that extended family relationships and how people perform their roles as mothers, wives, husbands and fathers may serve as significant sources of stress. Conflicts which occur over values, role demands, and expectations may also serve as stressors. The developmental changes which occur in families related to the birth of a child include many changes in roles and interpersonal interaction patterns (Croog, 1970).

Changes which occur in the parents' interactions with the larger

social environment play a role in their experience of childrearing. A major study of the correlates of a sense of psychological well-being (Bradburn, 1969) identified the availability of novel experiences and interpersonal contacts as two major variables in an individual's feeling a sense of well-being. The results indicated that an individual's feelings regarding his family were a significant component of his overall sense of well-being. The existence of a positive affective status was correlated with a sense of social involvement with other people and the availability of novel experiences. Socio-economic factors were found to be of relevance below a middle income level. The implications of Bradburn's (1969) findings for parents of young children are obvious when we consider the financial and social restrictions which accompany childrearing. Parents of young infants are often isolated from their previous social contacts and may lack the time, energy and money to achieve a sense of social involvement and obtain novel experiences. Steele (1970) observes that some of the characteristics which distinguish the normal from the abusive parent are a sense of social isolation, a perceived lack of available resources, and loneliness. Normal parents are described as individuals whose fears of difficulty are ameliorated by their confidence that useful help can be found in the environment.

A study of some of the ecological correlates of child abuse in rural New York State (Garbarino, 1976) provides further evidence suggestive of the importance of situational factors as stress producers for parents. Garbarino found that a substantial proportion of the variance in rates of child abuse was associated with the degree to which the localities lacked adequate support systems for parents.

These support systems included day care centers, health services and financial support services. Significant correlations were also observed between the economic stresses impinging on parents and rates of child abuse.

Situational stresses and parents' needs for support are not confined to social and economically disadvantaged populations. Zinner & Hartzman (1978) describe their experiences of starting parent groups with middle class mothers of young children as illustrating the need for support even among those parents who are not subjected to severe socio-economic stresses. The parents who participated in the time-limited parent groups continued to meet as a group on their own, building an ongoing peer support system. Zinner and Hartzman present very limited clinical outcome information which suggests that improved mother-child relationships resulted from the mutual sharing and support which the groups provided.

Parent Characteristics

Parental personality factors have been described as exerting a significant influence on parental functioning in interactions with children. Bradburn (1969) has discussed the interrelationship between a person's overall sense of psychological well-being and feelings related to the family. This was found to be a particularly significant factor for the female subjects in Bradburn's study. A study of child neglect in Appalachia (Polansky et al., 1972) identified two dimensions of maternal personality as being correlated with the existence of a neglectful situation. Neglectful mothers were found to score higher on measures of an apathy/futility dimension and a childlike impulsivity dimension. Spitz (1970) identifies personality disturbance in the

mother as a primary factor in the existence of unsatisfactory, damaging mother-child relationships.

The physical health and post-partum physiological changes experienced by mothers have been identified as potential sources of stress (Bell, 1974; Broussard, 1971). Mothers vary in their physical responses to pregnancy and childbirth. The hormonal changes which occur after pregnancy also effect women in differing ways. All of these factors play a role in the mother's perception of her physical state and her perceived readiness to deal with the childrearing situation (Broussard, 1971).

The feelings which parents manifest regarding themselves and their role performance have been identified as significant sources of stress for parents. Bell (1975a) has described how parents may be stressed by their own feelings of guilt about their functioning as parents as well as by the negative feelings which they may have about their children. Parents perceive their children as representing their functioning as parents to the outside world. This concern regarding how they as parents will be seen by others may serve to increase the parents' feelings of anxiety. Three common misconceptions of parents are described by Fries (1946) as (1) a parent should never feel hostility toward a child, (2) parents should be infallible and omnipotent and (3) parents should sacrifice until it hurts. These misconceptions are illustrative of the unreachable standards which parents may set for themselves.

A study conducted by Emmerich (1969) was concerned with how parents perceive their roles and the effectiveness of their functioning. The findings, in the form of a factor analysis of parental responses

to a questionnaire, revealed that the factor which accounted for the highest proportion of total variance was a measure of the extent to which parents perceived themselves as effective implementers of childrearing methods vs. shifting methods constantly out of a sense of desperation. The second factor which emerged from the data analysis was a measure of the extent to which parents believed that the methods they employed would be effective. Schaefer & Cole (1977) investigated the relative influence of maternal feelings and concerns as compared to the observed deviance of the child's behavior as factors affecting the decision to refer a child to a mental health facility. Their study of 64 mothers of 8 and 14 year old boys suggested that while real behavioral differences may exist between referred and non-referred populations, the influence exerted by the mothers' feelings of competence and being able to handle the behaviors exhibited by her children is a significant factor in the decision to make referrals.

Greenberg and Lind (1973) in their study of rooming-in practices in Sweden, found that the parents' feelings of being ready to deal with their infants were significantly affected by prior experience with their infants. In a study of parental attitudes toward childrearing, Hereford (1963), found that parents worry most about their own adequacy as parents. The parents in Hereford's study felt they were most effective in providing physical care and least effective in guidance, companionship, and control functions.

A number of authors have discussed the importance of parental feelings and expectations about childrearing as significant influences on parent-child interaction. Levy (1958; 1959) emphasizes the importance of reducing the guilt which a parent experiences in regard

to their feelings toward children. Levy advocates emphasizing the "natural" differences among mothers in their feelings toward their children as a means of protecting both mother and child from the stressful nature of such guilt feelings. Rothenberg (1978) suggests that pediatricians may be able to play an important preventive role by providing information and reassurance to parents during the regular first year visits. Particular areas seen as being in need of attention in this regard include normal caretaking difficulties, parental feelings about their new roles and their children, changes in family relationships and the child's constitutional predisposition to certain behavior patterns (e.g., "cuddlers" vs. "non-cuddlers").

Robson and Moss (1970) investigated the development of maternal feelings of affection and attachment for infants. Their study of 54 mothers of newborn children revealed that maternal feelings develop in a gradual fashion over the first months of life. While a marked degree of inter-individual variation was observed among mothers participating in the study, it was not until the third post-partum month that a modal strong sense of attachment was seen to exist. These individual variations were found to be related to the mothers' emotional needs, her reasons for having the child, and her expectations of childrearing (Robson & Moss, 1970). Parental expectations regarding the difficulties which they will encounter in raising children, and parental expectations regarding the child serving as a need-gratifying agent are important factors in their experience of childrearing (Robson & Moss, 1970; Steele, 1970). Parental feelings of the need to sacrifice for the child (Fries, 1946; Pumroy, 1966), and parental acceptance of the demands inherent in rearing children (Spitz, 1970)

have also been identified as significant influences.

Parents find themselves caught in the paradox of feeling controlled by the child and at the same time feeling totally responsible for every aspect of the child's behavior (Bell, 1975a). The desire to escape from the stresses imposed by the feelings and expectations that parents experience regarding their children results in the expenditure of considerable energy.

In an observational study of child-environment interaction sequences, Schoggen (1963) measured the frequency, source, and goals of "environmental force units" directed towards children. The results indicated that the single most frequent goal of environmental force units used by significant others in the environment is the goal of getting the child to cease making demands for attention. This finding illustrates the extent to which demands made by children serve as aversive or stress producing stimuli to their caretakers.

The ability of parents to discriminate among different states and desires of their infants has been identified as a factor which can influence the nature of the parent/child relationship. In a study of the relationship between infant crying behavior and maternal responsiveness, Bell & Ainsworth (1972) found that mothers who responded to their children's crying did not maintain the behavior over the long term. Contrary to some predictions which might be made based on reinforcement theory, infants whose mothers responded to their cries manifested less prolonged and less frequent crying behavior over time. Thus, mothers who were able to be sensitive to the needs of their infants had less crying to deal with. Mothers who were not able to do this had infants that presented a more stressful situation.

Characteristics of the Child

Parental perceptions of infant characteristics may serve as an important source of stress. Broussard and Hartner (1970; 1971) studied maternal perceptions of infant characteristics using the Broussard Neonatal Perception Inventory. The scale asks the parent to rate her perception of the average baby and her perception of her own infant on 6 variables (crying, feeding, vomiting, sleeping, bowel movements, and settling down to a predictable pattern). The instrument also includes a Degree of Bother inventory which asks the mother to rate the degree of difficulty her child has presented to her in each of the 6 areas. In the studies, scores on the scale were used to identify those infants felt to be at risk for subsequent development of emotional problems. A follow-up at 4 1/2 years of age using clinical interview and observational data revealed a statistically significant association between prediction and outcome. The results of the studies suggest that by the time the child is one month of age, a maternal "set" may be formed which, in interaction with the child's characteristics, may significantly influence the later course of development. An additional finding from the studies by Broussard and Hartner (1971) was that mothers of high-risk infants perceived their own health and their infant's health as being poorer than mothers of low-risk infants. The physical health of individuals in the child-rearing system may serve as a significant source of stress.

Bell (1975a) has described the many demands which infants make on their caretakers, the exasperating characteristics of certain infants (constant fussing, irritating crying behavior) and deviations in the child's social and intellectual functioning as being significant

sources of stress for parents. Developmental changes in the infant's reactivity and manipulability, normal regressions in infant behavior and the physical appearance of the infant have all been described as child characteristics which make significant contributions to the parent-child interaction (Bell, 1974) and may serve as potential sources of stress for the parent.

Steele (1970), studying parents who abused their children, noted that while all parents have needs for their children to respond to them in a rewarding fashion, abusive parents expect too much. The difference between abusive and non-abusive parents is seen as being one of degree. Normal parents have strong needs for their infants to react to them in a rewarding fashion and find the lack of such responses to be stressful.

A number of authors (Harper, 1971; Bell, 1974; Lewis & Lee-Painter, 1974; Thomas & Martin, 1976) have discussed the effects which children exert on their caretakers. Bell (1974) has observed that infant characteristics exert an influence on the caregiving activities of the parents and the nature of the social interaction which occurs between parent and child. Infant characteristics and behavior serve to initiate and maintain caregiving interactions between the parent and child. The physical appearance (Fullard & Reiling, 1976) and behavior (e.g., crying) of infants serve as signals to parents to begin certain caretaking behaviors (diapering, feeding) and the response of the infant serves to maintain the caregiving system (Harper, 1971). Infants initiate many of the social interactions with their parents. Their behavior and development are important influences on the parent's continuing involvement in the interactions

and on the type of interactions which occur. As the infant develops locomotor skills, social exchanges with adults take on a different character and involve different parent behaviors. The infant's behavior is also important in determining the end of interaction sequences, as when a young child becomes fussy and is put to bed.

The New York Longitudinal Study (Thomas, Chess and Birch, 1968; 1971) identified individual differences among infants on a number of variables which have been shown to have implications for the child's subsequent development and which may serve as potential sources of stress for parents. Thomas et al. (1971) found that infants tended to vary along a general continum of easy to difficult. Clusters of temperamental characteristics were observed which determined the infant's position on the continum. Schaefer and Emerson (1964) studied the patterns of infant response to physical contact and were able to distinguish three groups of infants. These groups were described by the authors as "cuddlers," "non-cuddlers" and a group which was intermediate between the first two groups.

A series of studies by Korner and her colleagues (Korner, 1974) of individual differences among infants have shown that infants vary significantly in characteristics which have important implications for their interactions with parents and their later development. Korner has found that infants differ significantly from each other in both the frequency and duration of crying behavior. Significant individual differences have been observed in the amount of comforting infants require and the duration of time for which the comforting is effective.

Tanternanova (1973) has observed significant individual differences

in the duration of infant's smiling behavior over the first 6 months of life. Studying 7 infants during the first 6 months of life, Tanternanova describes a developmental progression in infant smiling behavior which varies as a function of both individual differences among infants and the amount of social stimulation they receive from adults in their environments. Osofsky (1976) provides further support for both the influences of individual differences and their effects on the parent-child relationship. In a study of 134 pairs of mothers and newborn infants, Osofsky found that a reliable relationship existed between the degree to which the newborn infant was alert and responsive and the mother's responsiveness and sensitivity to her infant.

Developmental changes in the behavior of infants may also exert a significant impact on the parent-child interaction. A study by Emde, Gaensbauer & Harmon (1976) of emotional expression in infancy revealed the existence of "bio-behavioral shifts," which are periods of rapid change in the behavior of infants. These periods are related to physiological indices which suggest that the infant is experiencing significant maturational changes in central nervous system organization. Emde's research suggests the existence of three levels of affective expression during infancy. The first level, occurring during the period of birth through 2 months of age, consists of the infant's crying as the only clear expression of affect. The relatively undifferentiated expression of crying is followed by the addition of smiling to the infant's response repertoire. This second level, occurring at about 3 months, also consists of a decrease in the frequency of crying, an upsurge in active exploratory behavior by the

infant and an increase in the regularity of the infant's functioning. Movement into this level significantly reduces the demands which parents feel from the infant and increases the reward and novelty value of the infant's behavior for the parents. The infant's behavior is also more modifiable by experience at this level, providing an additional source of reinforcement for the parents. Emde et al. (1976) describe the third level, occurring between 5 and 9 months of age, as being identifiable behaviorally by the development of stranger distress. The attachment level of the mother is strengthened during this period by the specificity of the infant's attachment to her. This level also marks the beginning of bi-phasic emotional responses by infants. It is obvious that throughout the process of the infant's development of a more differentiated and less generalized affective repertoire, the relationship between the parent and child will be undergoing similar changes. The parent will be called upon to adapt to the rapidly changing infant and make appropriate changes in his or her expectations and behavior.

A study which describes an attempt to intervene in the interaction between child temperament and the parents' ability to deal with their child was conducted by McInerny and Chamberlain (1978). They used the Carey scales of infant temperament in a longitudinal study of children through a well-baby clinic. They found that children classified as "difficult" based on temperament ratings at 6 months of age were rated as difficult to rear by their mothers when they reached 2 years of age. Attempts to intervene by educating mothers in the context of well-child visits regarding individual variations in temperament proved to be ineffective as a means of preventing the

identification of these children as problems.

Stress in Family Systems

The Childrearing Unit as an Interactive System

Research on socialization processes in child development have in large part abandoned the unidirectional model of socialization effects. Developmental researchers have examined the influences of children on their parents (Osofsky & O'Connel, 1972) and have emphasized the study of childrearing as an interactive process. Patterson's (1974) investigations of stimulus control of social behavior in families have shown that the behavior of individual family members are predictable based on knowledge of the behaviors of other family members. Thomas and Martin (1976) point out that any member of the system is affected by certain behaviors of others in the system and the context in which the interaction occurs. The contextual influences of the physical environment, the behaviors and cognitions of others, and the role context in which the interaction occurs all effect the behavior of individuals. The complexity is increased still further when we consider that interactional sequences do not occur in isolation, but are part of a chain of sequences which provide further contextual influences (Thomas and Martin, 1976; Lewis and Lee-Painter, 1974).

A study which focused on attempting to enhance the quality of the mother-infant relationship as a means of enhancing the mother's role as a facilitator of cognitive development is described by Bromwich (1976). As a part of an infant stimulation program, an assessment model of the mother-child relationship which included qualitative

aspects of the affective relationship was developed and used to aid in programming intervention efforts with mothers. While the study lacked an adequate design to allow for inferences regarding the effectiveness of the measures or intervention, clinical evidence is cited which suggests that enhancing the quality of the affective relationship also leads to improvement in the effectiveness of mothers as facilitators of cognitive development.

Metz et al. (1976) report on the development of a pediatric multiphasic screening instrument used with children between the ages of 4 and 13. Their screening instrument attempted an assessment of parental perceptions of child behavior and family stress (defined as the occurrence of stressful life events) as well as assessing the cognitive and perceptual motor functioning of the child. The instrument was used as a regular part of the examination of children through the pediatric clinic of a private health maintenance organization. The authors report that of those children screened as High Risk and whose parents were willing to come in for a follow-up appointment, almost all were described as having significant problems. This description was based on an interview with a social worker who was aware of the High Risk status of the family. In addition, the authors were able to contact only 50% of the High Risk group. Only half of the people contacted were willing to come in for a follow-up appointment. While there are obvious methodological problems with the way in which Metz et al. attempted to validate their screening instrument, the information they present is suggestive of the potential utility of such a screening technique. The authors cite the existence of other criterion information (diagnosis prior to screening and

teacher ratings of behavior problems) as providing further support for the utility of such a technique.

Metz et al. (1976) state that their results also suggest support for a "cumulative stress hypothesis." They found that while the results of individual portions of their assessment technique were associated with the criterion variables, accurate prediction required consideration of the additive nature of sources of stress.

The Application of Dissonance and Adaptation Concepts to the Child-Rearing System

Concepts of dissonance and adaptation related to parent-child interaction have been discussed by Thomas, Chess and Birch (1968) in their work on temperamental characteristics and the development of behavior disorders. These authors identify the existence of excessive degrees of dissonance between the demands and expectations which exist in the environment and the child's capacity to meet them as an essential element in the development of disordered behavior. Stress resulting from dissonance in the parent-child relationship is seen as a normal developmental phenomenon. Under optimal conditions, dissonance exists at levels which allow the child to make adaptations and master the dissonant situations. This results in expanded developmental competence and continued normal development (Thomas, Chess & Birch, 1968). The existence of excessive degrees of dissonance interferes with normal development and results in the development of behavior disorders. Cameron (1977) presents a "geological" model in which the child's temperamental characteristics are likened to geological fault lines in his personality. The existence of excessive "strain" on these fault lines (in the form of dissonance) results in

behavioral "earthquakes." The strain imposed by dissonance or stress interacts with the child's vulnerabilities to produce behavioral disturbance.

Cameron (1978), reanalyzing data from the New York Longitudinal study of Thomas, Chess and Birch (1968), found that it was possible to identify children who were at risk for the development of behavior problems on a retrospective basis. The results of this re-analysis suggest that while it is possible to predict the occurrence of mild behavioral difficulties based on temperament data alone, prediction of more severe disturbance required consideration of a "parental pathology" dimension. Cameron extended his retrospective analysis to include an assessment of the influence of temperament on the form of behavioral symptoms which the children in the NYL study manifested. These results were suggestive of a correspondence between early temperament and later behavioral symptoms; but due to the small number of cases involved tests of statistical significance in the observed trends were not performed. The results provide further evidence which supports Cameron's (1977) conceptualization of a "geological model" of stress effects in child behavior.

Dissonance and adaptation are important concepts in understanding the ways in which stress occurs in families. The conceptual models discussed by Thomas et al. (1968) and Cameron (1977) apply reciprocally to all members of the childrearing system. When dissonance exists at excessive levels for parents, it can result in disordered parental functioning and behavior. Croog (1970) and Hill (1965) have emphasized the adaptational demands made by changes in the family's structure.

The Effects of Stress on Childrearing

Extreme degrees of stress in the childrearing system may result in deviant parenting behavior in the form of child abuse and neglect. The study by Steele (1970) of 60 abusive parents revealed that psychological, social and economic factors which contribute to the parents' experience of childrearing as stressful account for much of the difference between normal and abusive parents. Polansky's (1972) study of child neglect in rural Appalachia identified 2 types of neglectful parents. One group of parents were found to have characterological deficits which impaired their functioning as parents. Another set of parents were seen as essentially normal individuals who were unable to cope with the extreme stresses which they faced in their life situations. Other studies of child abusers (Elmer, 1973; Flynn, 1970; Kempe, 1971) have identified the stressful nature of the childrearing experience as a more important factor than psychopathology in the parent. A review of research literature which considers child characteristics as factors in the phenomenon of abuse (Friedrich & Boriskin, 1976) suggests that child characteristics such as prematurity, mental and physical handicaps and the parents' perception of the child as "different" play an important role in the stresses which precipitate child abuse. Abuse and neglect represent extremely deviant forms of parenting behavior which have catastrophic impacts on the child.

At less extreme levels, excessive stress results in the parents' making use of less adaptive strategies and behaviors in dealing with their children. Parents begin to respond in a fashion which may serve to temporarily reduce their feelings of tension and frustration

(Steele, 1970). During infancy, the parent's behavior toward the child is of critical importance for the later course of the parent-child relationship and the child's developing capacity for object relations (Ainsworth, 1971; Mahler, 1974; Robson & Moss, 1972). The existence of excessive stress during these early periods can set the stage for future difficulties (Levy, 1959; Mahler, 1974).

The effects of excessive stress during the early years of life are not limited to impaired development for the child. A significant negative impact on the parent as an individual may occur as a result of the guilt and frustration which parents experience (Bell, 1975a). Another possible impact is the development of a cycle of stress and dysfunctional behavior which is difficult to break and results in future difficulties for all members of the childrearing system (Thomas, Chess and Birch, 1968; Patterson, 1974; Polansky, 1972).

Chapter III

Methodology

Conceptual Framework

The first sections of this chapter are devoted to a discussion of assumptions and the specification of a model of stress effects in the childrearing system. The following assumptions and model constitute the conceptual base from which the problem of assessing the stress experienced by parents of young children was approached. The final section of this chapter consists of a description of the procedures used in carrying out the project.

Assumptions

1. Stress is a normal part of life.

The daily experiences of human beings contain many examples of encounters with stressful life events. The continuing struggle with the stresses and strains of everyday life is a major part of modern definitions of mental health as a process of coping. Mental illness or maladaptive behavior are seen as the result of stress which is excessive. This occurs when an individual is unable to adapt to the demands which he encounters in the environment.

Developmental processes which produce dissonance, disequilibrium, anxiety and tension play an important role in the child's growth. Theorists including Freud, Piaget, Erickson, and the social learning theorists have recognized the inherently stressful nature of mastering developmental tasks, moving on to newer and more complex stages of development, and acquiring new skills. Throughout the process

of development, children and their caretakers are continually confronted with demands for change and adaptation. Research which has examined the effects of life changes on physical and psychological health has demonstrated that the amount of adaptation demanded of an individual is a major source of stress and can have serious negative consequences.

It is the ability of the child (with the assistance of his caretakers) to master the demands for adaptation inherent in the process of development which determines whether the child will proceed along normal developmental lines or develop maladaptive behaviors. Thomas, Chess and Birch (1968) have discussed the role of dissonance in detail, emphasizing the essential role which dissonant situations play in the normal process of child development. Stress becomes pathogenic when dissonance exists at levels which interfere with the child's attempts to master the situation.

2. Stress is a phenomenon defined by the individual.

Individual characteristics play an important role in determining to what extent an individual perceives and responds to a particular event as being stressful. Much of the stress research has emphasized the role which perceptual, cognitive, and personality factors play in the individual's appraising an event as a stressor. While certain stressors act directly upon the individual without the mediation of psychological processes (e.g., physical stressors such as heat or cold), the vast majority of stressors are subject to mediation.

Since these processes vary across individuals, some degree of inter-individual variation in appraising events as stressful is to be

expected. This factor, therefore, requires a broad spectrum of items and areas to be tapped in any assessment procedure. Individuals vary in the types or classes of events which they perceive as stressful. For example, a baby's cry may be distressing to one person but not to another. Individuals also vary in thresholds for certain events. One mother may be able to tolerate prolonged periods of crying while another mother may have a tolerance level of only a few minutes.

The same processes which effect the way in which the individual perceives an event also effect the way the individual responds to the event. Individual characteristics play an important role in determining both the form and the intensity of the response to an event which is perceived as stressful.

3. The individual exists in a social/situational context.

The environment in which the individual exists exerts an influence on how events are perceived and responded to. The family is the major social context for both parents and children. As such, its influence on the way events are perceived and responded to must be taken into account.

Social and situational factors in the environment may influence the way in which an event is perceived and the resources available to cope with the event. As an example, the availability of in-laws for advice and to share caretaking responsibilities probably makes a significant difference in the amount of stress experienced by the child's parent.

4. Stressor effects are additive.

The assumption that stressor effects are additive is supported by the research of Holmes and Masuda (1974) on stressful life events and their effects on physical and psychological health. Their studies have provided evidence to support the proposition that individuals possess a finite but flexible quantity of adaptational energy. This energy is used by the individual to meet the demands of stressful life experiences. The quantity of adaptational energy which an individual has available at any given point in time varies as a function of 2 factors. These are (1) the organismic state of the individual (including physical and psychological health) and (2) the demands currently being made by the environment. The individual's adaptational resources are reduced as the number and intensity of demands increase.

Stressor effects have also been shown to persist after the stressor has ceased making demands on the individual's resources. Individuals require a recuperative period to regain expended adaptational energy.

The additive nature of stressful events has important implications for the parent-child relationship when we consider the limited availability of such recuperative periods to parents of young children. It is not uncommon for parents to be immersed in their roles for extended periods of time without having opportunities for temporary relief available to them.

5. The existence of excessive degrees of stress exerts a negative impact.

The functioning of a parent is a critical element in the effective-

ness of the childrearing system. Excessive stress on a parent will result in a negative impact on the parent and the other members of the childrearing system. The negative impact on the parent includes (1) the production of a negative feeling state and (2) less adaptive functioning. This decrease in the adaptive functioning of the parent is manifested in impaired judgment, less developmentally appropriate parenting behaviors and resorting to behaviors which serve to reduce stress momentarily. The parent resorts to the use of aversive control techniques, overt and covert rejection and other practices which serve to reduce the stressful nature of the situation temporarily. The paradox which occurs is that these same behaviors, which lead to a temporary reduction in the stress experienced by the parent, result in increased stress for the other members of the system. Their reduced level of adaptive functioning results in an eventual increase in stress for the parent.

An example of such a situation can be seen in Levy's (1958) description of the feeding interactions of mothers and their infants in the first few days of life. The mothers in Levy's study were under pressure from the nurses to feed their infants within a certain period of time. They became frustrated by the babies' uncooperative behaviors (such as sleeping and refusing to nurse) and resorted to the use of more physically rough techniques in an attempt to get the babies to eat. This behavior proved to be counterproductive in that the babies were even less likely to begin or resume nursing once agitated by their mothers' handling. The rough handling may have served to reduce the mother's feelings of frustra-

tion temporarily, since they were doing something. However, the net effect was increased stress for both parent and child.

It is clear that the use of less adaptive techniques can only lead to temporary decreases in the stress experienced by the parent. Such maladaptive parenting practices lead inevitably to escalation in the cycle of stress.

Choice of the mother as the measurement point

The final issue to be discussed in this section is the choice of the mother as an appropriate "measurement point" in the child-rearing system. The mother's role in the development of her children has been the focus of much attention in the child development literature. The child's relationship with the mother has been shown to constitute a base upon which the child develops the capacity for interpersonal relationships (Mahler, 1974). Mothers traditionally spend the largest amount of time with young children and are largely responsible for the direct care of their children.

The mother's role in the childrearing system is of pivotal importance. She is often required to assume mediational and systems management tasks within the family. A mother often functions as the primary mediator between the family and the larger social environment. Her role in the family places her in the position of being the individual most exposed to the stresses operating in the family. The feelings, beliefs and behavior of the mother reflect the degree to which the family situation presents a positive, adaptive environment for the child's development. The mother's pivotal position also gives her access to information on the variety of factors which

may operate as stressors in the family.

A study of family interaction which assessed the accuracy of mothers as informants (Douglas et al., 1968) found a correlation of .90 between maternal report of children's activities and interaction and direct observation. These results suggest that mothers may be an accurate and reliable source of information on their interactions with their children and the interactions of family members.

Model of Stress Etiology and Effects

This section of the chapter presents a discussion of a model of how stress originates and manifests its effects in the childrearing system. The proposed research project proceeds from a social systems orientation which considers the individual as an interacting member of social systems. Studying the stresses involved in early parent-child relationships from such an orientation requires that the characteristics of the individuals involved in the system and the situational context in which their interactions occur be considered.

Situational factors involved in the childrearing system which might produce stress include the physical characteristics of the environment, demographic factors and characteristics of the larger social system. An example of the possible influence of the physical characteristics of the environment would be the size of the dwelling in which the family resides. Demographic factors such as socio-economic status and the size of the family might represent important influences on stress. The extended social system in the form of extended family relationships and social activities of the parents

would also be important to consider.

The characteristics of individual members of the system represent an important source of stress. Research on infants has shown that they vary markedly in terms of a number of characteristics which have important implications for their later development and how their parents perceive them (Cameron, 1977). The characteristics of the parents as individuals also play an important role. It is necessary to consider variables such as the personality characteristics, beliefs and expectations, physical health and relevant abilities which effect parental perceptions and role performance.

All of the areas discussed above are represented in the model of stress etiology and effects in the childrearing system (Figure 1) as sources of stressors. The model presented in Figure 1 is a flow chart representation of the process through which an event comes to be defined and responded to as a stressor.

Events which may potentially act as stressors are perceived by the individual, who appraises them to determine their meaning and potential effect. This process of cognitive appraisal may be seen as a series of "psychological filters" (after Rahe, 1974), which contain the personality characteristics, beliefs, expectations and needs of the individual. It is this filtering process which determines to what extent the individual perceives the event as stressful in that it makes a demand on available coping resources. Events come to be perceived as stressors when they are perceived as requiring that the individual expend adaptational energy to deal with them.

FIGURE 1

Model of Stress Etiology and Effects

SOURCES OF EVENTS

Parental feelings and expectations

Physical environment

Child characteristics

Demographic factors
- SES
- Family size

Extended Social system
- Extended family
- Community

PARENT PROCESSES EVENT

Perceptual and cognitive appraisal processes operate

Factors which influence how the event is processed:
- Parent personality
  - beliefs
  - expectations
  - abilities
  - past experience

OUTCOME

1. event ignored
2. event perceived as not stressful
3. event perceived as stressful

RESPONSE

Behavioral

Affective

Physiological

FEEDBACK

Response of parent becomes a part of the interaction in the system. Cycle repeats.

The existence of discrepancies between resources and demands at excessive levels for the parent results in impaired coping skills, reduced flexibility and a general decrement in the use of adaptive strategies. This regression to less adaptive means of dealing with situations under excessive stress produces even more stress for the parent. The negative outcomes resulting from the use of less adaptive strategies become stressors which place additional demands on the parent. The cyclical nature of these processes are quite evident. The parent is left to deal with feelings of anger, helplessness and desperation. Such a cycle, if not broken, can be seen as a degenerative spiral with increasing probability of a dysfunctional outcome.

Procedures

This section describes the procedures used in carrying out the research project. It deals with the four phases of the project including instrument development, sample and data collecting procedures, statistical analysis and feedback offered to the parents and physicians who participated in the study.

Instrument Development Phase

Item Development

The first step in implementing the project consisted of a review of relevant literature in areas which have been discussed as sources of potential stressors. These areas included situational/demographic factors, child characteristics and parent characteristics. Research literature was reviewed which related to the topics of infant development, parent-child interaction, attachment, child abuse and neglect,

child psychopathology, childrearing practices and stress research.

The second step in the item development phase consisted of developing a list of dimensions and variables which had been identified as sources of or effects of stress in the research literature. These dimensions and variables were listed on cards which contained information as to the nature of the dimension, the research studies which had dealt with the dimension and the way in which the dimension had been measured. Discussion of the literature review and clinical experience with the senior advisor and other individuals interested in the project served as the source of some additional dimensions. Supporting research was sought for these added dimensions. However, no dimension was excluded if supporting empirical evidence could not be found. The goal at this stage of the project was to develop a comprehensive list of possible dimensions related to the phenomenon of parenting stress which would serve as the primary source of items.

Each card, with its corresponding dimension, served as the basis for developing a number of items of varying formats and wording. Items were constructed with an orientation toward assessing the degree of dissonance which parents might experience among demands, expectations and their resources. The items were worded and designed so as to assess the perceptions and expectations of mothers of young children since they had been chosen as the source of information. Items were constructed in such a way as to assess the intensity of the parent's reaction to the item. This was done by allowing parents a range of response choices on the items. In some cases adaptations of items from existing scales were included. When such adaptations of existing items were used, selection of the item to be

adapted was made on the basis of how well it seemed to measure the construct which the original scale was supposed to be tapping. An attempt was made to generate as many items relating to each dimension as possible. The resulting pool of potential items were then discussed with the senior advisor. Decisions to discard or revise items were made with a number of factors in mind. Among the factors considered in this initial process of selection and revision were the vocabulary level of the wording used, the apparent face validity for the dimension and the social desirability of the phrasing. Complicated sentence structure and phrasing were not used in the construction of the items. Items were discarded or revised if it seemed that the use of extreme language might excessively restrict the range of possible responses. A further consideration in the decision to discard items was based on the desire to construct a scale which drew on a wide variety of content areas and was not highly weighted in any single area of content. In the case of items relating to the temperamental characteristics of children, an attempt was made to include items which assessed all of the dimensions identified in the research literature. The number of items relating to each particular dimension was made proportional to their representation on other scales of this kind (e.g., Carey Temperament Scale) and took into account the relative importance assigned to each dimension by empirical research (Thomas, Chess and Birch, 1971; Cameron, 1977).

Two basic item formats were chosen based on the literature review, which had included reviews of a number of instruments related to parenting, and reviews of the test construction literature (Shaw and Wright, 1967; Robinson and Shaver, 1973). Items were placed in either

a Likert-type scale format or a multiple choice format. The exceptions to this were those items which seemed to be best handled in a check-list format.

Pilot Tests

1) A format pilot test was conducted in order to determine if the format of the item (Likert-type scale or multiple choice) would have any effect on the response to the items. A sample of 14 items were selected from the item pool. Each item was placed in Likert-type scale format and multiple choice format. A group of six mothers were selected from among associates of the experimenter and asked to respond to each of the 28 items. They were also requested to keep track of the amount of time required to complete each set of 14 items. Their responses to each of the equivalent items were compared. The amount of time required by the different formats was also compared. Differences were defined as existing between the formats if a mother's response to an item in one format was different by more than one score point from her response in the other format. Using this definition, a 92% index of agreement was computed for the two formats. No trends were observed which would suggest that the differences which did exist tended to favor one format over the other. The time required to complete the multiple choice items exceeded that required to complete the Likert-type items by 64%. Since no significant differences were found between the formats in terms of response, it was decided to adopt the Likert-type format in order to make most effective use of subjects' time. Only those items which did not lend themselves to such a format were kept in the multiple choice format. These

changes in format also resulted in a considerable reduction of the number of pages required for the scale. A small number of items which required direct observation of the mother and child interacting or which required judgments by persons with some knowledge of the mother/child dyad were incorporated into a behavior rating survey.

2) The second pilot test of the items was conducted after all of the items included in the initial item pool were developed and after an initial form of the questionnaire complete with instructions was completed. The scale was administered to a sample of 10 mothers in a field trial of the items, instructions and procedures. Mothers participating in the field trial represented a wide range of SES and educational achievement. Five of the mothers who participated in the field trial were participating in a community-based family intervention program serving families identified through a local welfare department as being in need of treatment. These mothers had educational levels which ranged from having completed 6th grade to high school graduation. The families lived in very deprived situations and were maintained at a subsistence level by social services support. The 5 mothers who made up the remainder of the sample for this field trial had achieved at least graduation from high school, and in 2 cases were college graduates. Their socio-economic levels ranged from working class to lower middle class. The mothers who participated in the field trials were given copies of the questionnaire and the instructions. They were asked to complete the questionnaire, keeping track of the time required. These mothers were also asked to note any reactions, criticisms or suggestions which they might have. After the questionnaires had been completed, each mother was

interviewed and asked for her reactions to the task of taking the questionnaire as well as to individual items on the scale. Suggestions and criticisms were solicited and specific requests for evaluative feedback concerning the scale's construction or areas which the mothers felt were not covered were made.

The results of the field trial suggested that the items and instructions were comprehensible to mothers who had achieved at least a 6th grade educational level. The average time required to complete the instrument was 28 minutes, with a range of from 10 minutes to 60 minutes reported by the mothers. In order to provide an additional check on the mothers' comprehension of the items, 9 pairs of items which had identical or very similar content were examined to see if answers varied significantly. Using the same criterion for disagreement as in the format pilot test (D = difference of more than 1 score point), a consistency ratio was computed. This revealed an 81% rate of agreement between answers, suggesting that mothers in the sample were comprehending the items. These findings were further supported by the interviewer's impressions based on the interviews with the mothers.

A number of the mothers were quite vocal in describing changes which they felt should be made in the scale. In a few cases, objections were raised to a few items based on the mothers' feelings that the questions might seem to be intrusive or that they were not perceived by the mothers as relevant to the task of being a parent. These comments and observations served as the source of a number of revisions in item wording, instructions and the addition of a few new items to the scale. In terms of the items which were criticized by some mothers as not being relevant (e.g., I was not happy with the

last purchase of clothing that I made for myself), it seemed that the mothers who raised these criticisms were dealing only with the manifest content of the items and were not perceiving the more subtle implications of the questions.

3) The third step in the instrument development phase consisted of an item pre-testing procedure in which a panel of 6 professional judges were asked to rate each item on the scale. The judges were selected for their familiarity with early parent-child relationships and the stresses which parents experience. They were asked to rate each item on 2 dimensions and to assign each item to the category (Mother Characteristics, Child Characteristics or Situational/Demographic Characteristics) which the item appeared to be measuring. The first dimension that judges were asked to rate each item on was the significance of the item in terms of assessing a factor which could serve as a potential stressor to the parent of a young child. The second dimension was related to the adequacy of the item's construction in terms of clarity of communication and vocabulary level. Judges were asked to rate each item on each dimension using 5 point scales. A score of 1 was equivalent to a rating of poorly constructed or not relevant, a score of 3 was equivalent to a rating of adequate construction or relevant content and a score of 5 was equivalent to a rating of good construction or high relevance. Rating scales, a copy of the questionnaire and a set of instructions detailing their tasks were provided to each of the judges (See Appendix A). Their comments, suggestions and criticisms were also solicited on the rating forms. Each judge was provided with a set of cards on which individual items from the scale

were printed. They were also provided with large manilla envelopes labelled "Parent Characteristics," "Child Characteristics" and "Situational/Demographic Characteristics." The judges were asked to place each card in the envelope labelled with the category which the item appeared to be measuring.

The ratings made by the judges were averaged for each item on each dimension. Out of the 246 average ratings resulting from this procedure (123 items rated on 2 dimensions), 85% of the average ratings were in excess of 4.0. Eleven items received average ratings of less than 4.0 on their relevance dimension and 28 of the items received an average rating of less than 4.0 on construction. Only 4 of the 246 average ratings fell below 3.0 and none were below 2.0. These results indicate the relatively positive fashion in which the professional judges rated the items contained on the scale. Results of the judges' categorizations of the items revealed a 67% rate of agreement between the category assignments made on an a priori basis as the items were developed and the judges' perceptions of the items. Disagreements with the assigned category was defined as cases in which more than one judge disagreed with the originally assigned category.

Closer inspection of the instances of disagreement revealed that in 66% of the cases of disagreement, judges were split between whether items should be assigned to the parent characteristics or child characteristics categories. In a large number of these cases (62%), the content of the item referred to an interaction between the mother and the child. These results provided an initial suggestion of an additional potential subscale embedded in the instrument which

is specifically related to interactional variables.

Suggestions and criticisms made by the judges were compiled for each item. These suggested revisions and comments served as a source of information upon which later revisions were based.

4) The readability level of the questionnaire was assessed through the use of 2 different readability analysis procedures. Using the Frye procedures, a readability index of 6th grade level was obtained. The SMOG procedure yielded a readability index of 8th grade level for the total questionnaire. The results of the SMOG analysis, which is described as a more stringent form of readability analysis, suggests that the questionnaire should be comprehensible to most individuals who have even moderately developed reading skills. Further support for the readability of the questionnaire had already been obtained through the interviews with mothers in the field test. A number of these mothers reported educational levels between 6th and 8th grade and were able to comprehend the directions and items.

5) The fifth step in the Instrument Development phase consisted of a conference with committee members in which the results of the preliminary field trial and judges' ratings of the instrument were reviewed. The procedures used and progress made in setting up the data collection phase were also reviewed.

Prior to the meeting, members of the committee were provided with copies of the questionnaire. Revisions of items were made based on the results of the judges' ratings, feedback from mothers involved in the field test and suggestions made by committee members. Examples of revisions included modifying questions to avoid the repetitive use

of the phrase "his or her," inclusion of items related to fathers being seen as resources and inclusion of an item meant to tap prolonged periods of post-partum depression. An additional outcome of this meeting was a decision to conduct a final pilot testing of the items, instructions and procedures. The purpose of this pilot test was to assess the adequacy of the revised version of the scale and procedures using a sample of mothers which closely approximated the characteristics of the population which was to be used in the data collection phase of the study.

6) The final step of this phase of the study consisted of an additional field trial of the instrument. For this pilot test a sample of 6 mothers of children less than 3 years of age were selected. All of the mothers participating in this procedure were of approximately middle SES and were representative of the population which provided the sample used in the final data collection phase of the study. The mothers were asked to complete the scale and were then interviewed regarding their reactions to the questionnaire. As in the previous pilot tests, evaluative feedback was solicited from the mothers. The results of this procedure led to a few revisions in the wording and structure of 4 items.

The product of these procedures was a questionnaire containing 126 items (See Appendix E). Out of these 126 items, 95% were directly related to at least one study which provided evidence of the importance of the dimension as a stressor for parents of young children. A summary table of the references and dimensions related to each item is provided in Appendix G.

Data Collection Phase

Access to the Population

Given the focus and intent of the research project, it was necessary to secure a sample of mothers of young children. Prior to initiating the instrument development phase of the project, a meeting was held with a group of physicians engaged in a large group pediatric practice in Charlottesville, Va. The meeting consisted of presenting the conceptual basis of the project and exploring its practical implications, especially as they related to the situations which the pediatricians encounter in their contacts with mothers of young children. The physicians expressed an interest in the project and a willingness to participate in the research.

After completion of the instrument development phase, another meeting was held with the physicians to review the material and procedures which had been developed. Each doctor was provided with a set of materials to review and a description of 3 possible alternative data collection procedures. After discussion, the doctors selected the data collection procedures outlined in Appendix B. A date was set for the data collection to begin and a series of informal meetings with the nursing and clerical staff were held in order to coordinate the procedures for data collection.

Subjects

Subjects for the data collection phase of the study were drawn from among mothers of children less than 3 years of age who brought their children to the well-child clinic of a large group pediatric practice in Charlottesville, Va. It was decided to limit the age

range to younger than 3 years since the project was specifically concerned with the stresses faced by parents of young children. A total of 700 mothers were given questionnaires over a 6 week period. The majority of this sample was rated by their physicians, although in some cases physician ratings were not obtained due to the pressures inherent in a medical environment. The subjects included in this study were the first 208 mothers who returned questionnaires and for whom physician ratings were available. The return rate for the sample was in excess of 60%. It is not possible to provide a more accurate rate of return due to the continuing return of the scales. Questionnaires which were returned after the cutoff date used for this study were saved for later analysis.

Information describing the demographic characteristics of the sample of 208 mothers is presented in Table 1. The mean age of mothers in the sample is 28 with a range of 26 years. The average age of fathers is 30 with a somewhat larger range of 47 years. The number of ethnic minorities in the sample is extremely low, the overwhelming majority of parents being white. The average mother in the sample indicated an educational level in excess of high school completion, while the average educational achievement of fathers was slightly higher. A wide range of levels of educational achievement was represented in the sample. The majority of the mothers in the sample were married and living with their spouses. The average number of children per mother was 1.6. In terms of employment, 22% of the mothers were engaged in full-time employment and 13% in part-time employment. The remaining mothers (64%) indicated their primary employment was as a wife and mother. The average family income for

Table 1: Summary of Descriptive Statistics on Demographic Variables Describing the Sample of 208 Mothers.

Total Family Income - Percent of Total Sample

Less than $5,000	5,000 to 10,000	10,000 to 15,000	15,000 to 20,000	Greater than 20,000
3.8	17.8	24.5	26.9	24.5

Race of Parents - Percent of Total Sample

	American Indian	Black	Oriental	White	Other
Mother	.5	2.4	1.4	95.2	.5
Father	0	2.9	.5	96.2	.5

Educational Level of Parents - Percent of Total Sample

	1-8th gr	9-12th gr	Vocational	College Grad	Graduate or Professional School
Mother	.5	31.7	22.1	33.7	12.0
Father	2.8	22.9	13.0	26.0	30.3

Marital Status of Mothers - Percent of Total Sample

Married	Separated	Widowed	Divorced	Never Married
97.1	1.4	0	.5	1.0

Number of Children in Family

Mean - 1.588
Mode - 1.0
Median - 1.436
Std. Dev. - .727
Variance - .529
Skewness - 1.201
Kurtosis - 1.738

Mothers Employment Status - Percent of Total Sample

Housewife	Full-time	Part-time
64.4	22.1	13.0

Age of Parents

Mothers -	Mean 27.928	Std. Dev. 4.501	Skewness .106
	Mode 28.00	Variance 20.260	Kurtosis .029
	Median 28.071	Range 26.0	
	Minimum 18	Maximum 44	
Fathers -	Mean 30.3	Std. Dev. 5.572	Skewness 1.852
	Mode 30.0	Variance 31.043	Kurtosis 8.909
	Median 29.9	Range 47	
	Minimum 18.0	Maximum 65	

the sample was in excess of $15,000. The median family income fell in the 15 to 20 thousand dollar a year range.

The information obtained from the demographic variables describes an average white middle-class group of mothers. While a range of scores was obtained on the demographic variables, the sample represents a fairly typical group of white middle-class suburban families. Out of the total sample of 208 mothers who returned questionnaires, 94% agreed to participate in follow-up phases of the research project (yet to be conducted) and allowed access to their children and medical records.

Retest Reliability Sample

A second set of questionnaires were sent to the first 40 mothers who returned questionnaires with a letter asking them to complete the scale a second time to assist in a follow-up phase of the research (see Appendix C). This procedure provided a sub-sample of mothers who had completed the instrument twice in a 3 week period on which the test-retest reliability assessment was made.

In all cases, mothers were provided with stamped, self-addressed envelopes in which to return the copies of the questionnaire. The return address listed was that of the research project in care of the pediatric office.

Data Collection Procedures

The procedures used to distribute the questionnaires were as follows:

As mothers entered the reception area, the well-clinic receptionist determined if the mother had a child less than 3 years of

age. If this was the case, the mother was given an envelope with a letter paper-clipped to the front and was asked to please read the letter prior to seeing the doctor (See Appendix D: PRP letter number 1). Enclosed in the envelope was a copy of the questionnaire (See Appendix E) and another letter explaining the project and requesting the mother's cooperation (Appendix D: PRP letter number 2). Sometime during the examination, the physician would ask the mother if she had read the letter, make a short statement of his support for the project and a request for her cooperation (See Appendix B). After completing his examination of the child, the physician would complete the behavior rating card (Appendix B) and place it in a box provided. Data pickup and material resupply occurred on a daily basis.

After the returned questionnaires had been matched with the rating scales filled out by the physicians, the responses were coded onto machine readable forms using a coding manual constructed for this purpose. Computer data cards were keypunched automatically from these forms. Data was recorded such that all items were scored in the same direction (score of 1 equivalent to least stress, score of 5 equivalent to higher degree of stress). The coding manual used, along with a list of the recorded items, is presented in Appendix F.

Statistical Analysis

The data analysis procedures used in the study were selected in order to provide information pertaining to the goals of the study. Factor analysis procedures were used to describe the factor structure of the instrument and, along with the correlational procedures and

analysis of mean differences between primiparous and multiparous mothers, to provide information concerning the construct validity of the instrument. Reliability assessment procedures were used to assess the stability of the measure over a short period of time as well as its internal consistency. Descriptive statistics were used in describing the response characteristics of the sample.

The data analysis procedures included a PA-1 factor analysis of the first 114 questionnaire items using oblique rotation and setting a limit of 4 factors. A principal components analysis was selected as the most appropriate method of condensation of the variables due to its property as the method which explains the most variance for any set number of factors (Nunally, 1967). Demographic items were not included in the factor analysis due to the scaling problems inherent in their construction and the different forms of information they represented. This analysis was performed in 3 parts as the SPSS package sets a limit of 80 variables for a factor analysis. Items were divided into 3 groups (A, B, C) by assigning letters sequentially through the first 114 items. Three factor analyses were performed combining 2 groups of items in each analysis (A + B, B + C, A + C). A scree test performed on the results of these analyses suggested that the four factor solutions provided a parsimonious yet complete description.

The results of these analyses were used to reduce the number of variables to 80 in order to run one complete factor analysis. A criterion of .40 or greater was set for item loadings on factors. Items which loaded less than .40 on a factor were dropped from the subsequent factor analysis.

A PA-1 factor solution using oblique rotation with a limit of 4 factors was then obtained. The oblique rotation provided the "cleanest" solution in terms of interpreting the factors which emerged from the analysis. Derivation of factor scores was accomplished using a PA-1 solution with orothogonal rotation in order to obtain uncorrelated factor scores. These scores aid in interpreting further correlational analysis as they are independent and do not co-vary.

A separate factor analysis was performed on the physicians' ratings using a PA-1 procedure with oblique rotation and a limit of 3 on the number of factors. Descriptive statistics were calculated for all of the variables (including demographic variables and physician's ratings) as well as the factor scores obtained from the 80 items after the initial screening.

The 3 variables selected to be correlated with the scores resulting from the scale (and referred to as "criterion variables") included the number of visits to a physician which members of the family had made in the last 6 months, the number of days family members had been in the hospital during the last 6 months and the overall stress rating which the physician made of the mother. The first two variables (number of visits, number of days in hospital) were selected in order to determine if any relationship existed between scores on the scale and retrospective report of use of medical services. Medical services utilization has been identified as one outcome of excessive stress in the life stress literature (Holmes and Masuda, 1974). These studies did not use past use of medical services as a predictor of present stress. Their use in the present study

represented an attempt to assess the degree of relationship between scores on the scale being constructed and the parents' report of their past use of medical services as a possible index of the stress present in the family. The third variable (doctor's overall stress rating) was included in an attempt to provide some initial information related to the concurrent validity of the scale.

A Pearson product-moment correlation matrix was computed for the criterion variables (number of visits to doctor, number of days in the hospital and physician's rating of overall stress), factor scores, a composite total score (which included the sum of the factor scores plus the demographic stress score), scores on the logically derived subscales and a second composite total score (sum of scores on logically derived subscales). All scores were transformed to Z scores prior to computation of the subscale scores and composite scores. For a more detailed description of the scoring formulas used to derive the subscale and composite scores, see Appendix F. An additional composite score (Life Stress Composite Score) was developed in order to provide a rough comparison between the amount of life stress experienced by the mothers in the sample and that observed in the population at large (Holmes and Masuda, 1974). The formula used to derive this score may also be found in Appendix F.

While it was initially intended for the physician rating dimensions to be included in the overall scoring of the scale, the results of the initial descriptive statistics showed that scores on these dimensions were extremely skewed and that they were severely restricted in terms of range and variability. An additional consideration which influenced the decision not to include the physician ratings in the

overall scoring was the fact that the physicians differed significantly in their ratings. Due to the lack of opportunity to obtain inter-rater reliabilities or to train the physicians in making the ratings, no methodological or statistical procedures which would have reduced the inter-rater variability as a source of error were practical.

As a result of the extremely small variation in the physicians' ratings, it was decided to select a subsample of the total N comprised of those individuals who had been rated by the physician whose ratings showed the greatest variability. In order to identify this doctor and to assess the differences among the physicians in terms of their ratings, an ANOVA was performed on the physicians' ratings.

The correlational analyses were then replicated on a subsample (N = 47) of those individuals rated by the physician whose ratings displayed the greatest variability. The Pearson correlation procedures were replicated separately for those individuals rated by each physician. This information was used (along with the results of the ANOVA procedures) to provide feedback to the physicians on their ratings.

In order to compare mothers of first children with mothers of more than one child, a series of T-Test analyses were performed on each of the criterion variables, logically derived subscale scores, factor scores and the 2 composite total scores.

The final set of statistical procedures used in the study were computations of alpha reliability and test-retest reliability coefficients for the questionnaire. The total sample (N = 208) was used in computing the alpha reliability coefficients. Test-retest reliability was computed using the subsample (N = 15) of individuals

who completed the questionnaire a second time.

Feedback

Parents who participated in the study were provided with feedback in the form of a letter which thanked them for their cooperation, provided an abstract of the results of the study and explained that individual scores were not being provided due to the inability of the present research to be able to interpret the meaning of individual scores. This was explained as being in large part due to the very competent nature of the parents who participated in the study and the low level of stress which appeared to be present in the sample.

Chapter IV

Results

Factor Analysis of 80 Variables (Post Screening)

The four factor solution for the 80 variables remaining after the screening procedure accounted for 34.6% of the total variance in the 80 variables. Communalities ranged from a low of .09 for question 1 to a high of .60 for question 96. Variables with loadings exceeding .30 on any of the factors are shown in Table 2. Results of a scree test suggested that 4 factors provided a parsimonious yet complete interpretation of the data. Table 3 shows the breakdown of the amount of variance accounted for by each factor.

Factor intercorrelations are presented in Table 4. The correlations among factors, while not exceedingly large, do represent a meaningful degree of association. It must be noted that the factor loadings presented in Table 2 do not represent the factor solution used to generate the factor scores used in subsequent analyses. Table 2 represents the results of an oblique rotation which provided the "clearest" solution in terms of interpreting the factor structure. In order to avoid the interpretive problems which would result from having factor scores which were correlated in subsequent analyses, factor scores were generated based on a solution which employed orthogonal rotation. These scores are, by definition, uncorrelated.

Physician's Ratings of Mothers

1. Descriptive Analysis.

A summary of descriptive statistics (means, standard deviations,

Table 2: Factor Loadings of 80 Post-Screening PSI Variables listed by question number. Variables represent those that loaded in excess of .40 on the initial factor analysis. Only loadings above the .30 screening criterion are included.

Question No.	Variable	Factor I	II	III	IV
1	Child is persistent in demands				
2	Child has difficulty adapting to changes		.34		
3	Child is active - exhausts mother		.51		
4	Mother feels not appreciated by child			.32	-.36
5	Child smiles less than expected			.58	
6	Child demandingness		.61		
9	Child regression in behavior		.43		
11	Mother feels child doesn't like her			.37	-.37
12	Child doesn't learn as quickly as expected			.53	
13	Child bothers mother				-.61
14	Child disorganized, easily distracted		.32	.34	
15	Child moodiness		.36	.32	
18	Child easily upset			.30	-.39
19	Child doesn't laugh/giggle in play			.53	
20	Child overreacts to sound and light		.50		
21	Child doesn't smile as much as expected			.71	
22	Child avoids new toy before playing				.41
23	Child cries/fusses more than expected		.36		
25	Child able to adapt to new things			.43	
27	Child difficulty concentrating		.46	.32	
28	Child bothers mother				-.60
29	Child attention span		.39		
30	Child not able to do as much as expected			.50	
31	Child likes parent, wants to be close			.47	
32	Child wanders away		.45		
33	Child demandingness		.57		
34	Child hangs on parent		.61		
35	Child hard to care for			.59	
36	Child doesn't make parent feel good			.46	

Question No.	Variable	Factor I	Factor II	Factor III	Factor IV
37	Child more active		.51		
38	Child doesn't like to cuddle or touch			.44	
39	Child more of a problem than expected		.60		
40	Child squirms and kicks during bathing		.44		
42	Child easily distracted from wanting				-.42
45	Child cries/fusses less-more				-.44
46	Ease of calming child when upset				.36
50	Mother feels sicker, more aches and pains	.37	.42		
52	Mother needs help caring for the child		.47		
53	Mother feels bad re: self as parent	.51			
54	Mother's development of feelings for child				
57	Mother feels can't handle things	.52			-.31
59	Mother feels alone	.71			
60	Mother unhappy w/ last purchase of clothing	.49			
64	Being parent harder than expected	.53			
65	Less interest in sex recently	.31			-.37
66	Child bothers parent in order to be mean			.43	-.35
68	Mother feels gives up life to meet child's needs	.41			
69	Mother feels trapped by responsibilities	.55			
71	Mother feels capable as a parent	.46			
72	Mother feels good	.47			
73	Mother doesn't enjoy things like used to	.56			
77	Mother feels guilty re: feelings toward child	.42			
78	Mother feels child's needs control her life	.46			
79	Things about her life bother mother	.73			
80	Felt sad and depressed when left hospital	.39			
82	Usually expect not to enjoy party	.54			

Question No.	Variable	Factor I	II	III	IV
83	Mother feels guilty re: anger toward child	.39			
84	Mother not interested in people	.45			
85	Mother feels other women don't like her	.70			
86	Raising children more trouble	.37			-.34
87	Mother enjoys being parent	.55			
88	Mother felt sad and depressed after home for 1 month	.55			
90	Raising children, hard-easy	.35			
91	Mother feelings re: being parent	.41			
94	How handles child misbehavior			.41	
95	Mother's physical health	.46			
96	Mother happy-unhappy re: life	.75			
97	No. things child does to bother mother				-.44
98	Child cooperates with mother				-.50
99	Husband not helping	.56			
100	Hard to find place to be alone	.47			
102	Have people to get advice from	.49			
103	Mother has fewer chances to see friends	.60			
104	Mother not able to do new things	.51			
106	No. children too many			.39	
107	Child density				
108	Mother not able to do things she likes	.59			
111	More problems in relations with husband	.69			
112	Doesn't do as many things with husband	.60			
114	Husband doesn't spend time with family	.52			

NOTE: loadings less than .30 omitted

Table 3: Percentage of Total Variance in 80 Post-Screening Variables Accounted for by Each of 4 Factors.

Factor	Eigenvalue	% of Variance	Cumulative %
I	15.665	19.6	19.6
II	5.258	6.6	26.2
III	3.496	4.4	30.5
IV	3.227	4.0	34.6

Table 4: Product Moment Correlations Among 4 Factors Resulting from Factor Analysis of 80 Post-Screening Variables.

Factor	I	II	III	IV
I				
II	.25			
III	.17	.17		
IV	-.19	-.16	-.11	

variances, skewness, kurtosis, and ranges) of the physician's ratings of mothers on the 6 dimensions are presented in Table 5. As is obvious from the information presented in the table, the doctors rated the majority of mothers in a positive direction, producing a rather skewed distribution of scores with a small amount of variance. On two of the dimensions (Physician Rating number 4, how mothers respond to a compliment to child; Physician Rating number 5, degree of maternal involvement with and interest in child) the doctors used only 2 of the rating points on the scale to describe the 208 mothers in the sample. The sixth dimension in the physician's ratings (overall stress rating), which was designated as one of the criterion variables for the study, emerged as one of the three dimensions on which the doctors made use of more of the rating scale in describing the sample of mothers (range = 4).

2. Factor Analysis of Physician Ratings.

A factor analysis of the doctor's ratings revealed two primary factors which accounted for 79.5% of the total variance in the physician rating scale. Communalities ranged from a low of .794 (Physician Rating number 3, degree of maternal involvement) to a high of .992 (Physician Rating number 4, maternal response to compliment). Dimensions with loadings exceeding .40 are shown in Table 6. As can be seen from the table, PR number 4 does not load on either of the primary factors in excess of .40, seeming to exist as a variable independent of the primary factors. Physician's Rating number 6 (overall stress) loads equally on both primary factors.

Table 5: Descriptive Statistics - Physician Ratings of 208 Mothers on 6 Rating Dimensions.

Variable	Mean	Std Dev	Variance	Kurtosis	Skewness	Range
V.153, PR 1 Impulsive-Relaxed	1.495	.751	.563	2.772	1.624	4.0
V.154, PR 2 Dependent-Independent	1.505	.972	.944	4.397	2.194	4.0
V.155, PR 3 Apathy-Involvement	1.252	.588	.346	4.777	2.351	3.0
V.156, PR 4 Response to compliment	1.170	.436	.191	6.381	2.612	2.0
V.157, PR 5 Involved-Disinterested	1.15	.421	.177	8.073	2.898	2.0
V.158, PR 6 Overall Stress	1.364	.732	.535	6.562	2.407	4.0

Table 6: Results of Factor Analysis of 6 Physician Ratings Dimensions on Sample of 208 Mothers: Factor Loading and % of Total Variance Accounted for by Each Factor.

A. Factor Loadings of Physician Rating Variables

	Variable	Factor I	Factor II	Factor III
V. 153	Impulsive-Relaxed	.89		
V. 154	Dependent-Independent	.89		
V. 155	Apathy-Involvement		.75	
V. 156	Response to Compliment			.91
V. 157	Involved-Disinterest		.86	
V. 158	Overall Stress	.61	.63	

Note: loadings less than .40 omitted

B. Percentage of Total Variance in Physician Ratings of 208 Mothers Accounted for by Each of 3 Factors

Factor	Eigenvalue	% of Variance	Cumulative %
I	3.689	61.5	61.5
II	1.081	18.0	79.5
III	.374	6.2	85.8

3. Analysis of Ratings Across Physicians (ANOVA)

As it was not possible to obtain interrater reliability measures among the doctors, an ANOVA was used to determine if the doctors differed significantly from each other in the ratings which they assigned to their patients. Table 7 presents the results of this analysis for each of the 6 physician rating dimensions. Significant differences between the doctors were found on 4 of the 6 physician rating dimensions (F probability of less than .01). Doctor number 1 was consistently found to have the highest mean rating, the largest range and the largest standard deviation of all of the doctors across all of the dimensions on which significant differences were discovered.

Reliability Assessment

Two procedures were used in order to assess different types of reliability for the questionnaire. Test-retest reliability coefficients (Spearman rank-order coefficients) were computed for a sample of 15 mothers who completed the questionnaire on two occasions. The internal consistency of the scale was assessed by computing alpha-reliability coefficients for the logically derived subscales and the total scale score.

Test-Retest

Using the Spearman procedures, a test-retest coefficient of .817 was obtained for the total scale. The Child Characteristics subscale of the questionnaire had a coefficient of .839, the Mother Characteristics subscale was found to have a coefficient of .706 and the Situational/Demographic subscale had a coefficient of .775. All of

Table 7: ANOVA Results - Differences Between Doctors on their Ratings of Mothers on 6 Dimensions, N = 208.

V.153 Impulsive - Relaxed

Source	DF	Sum of Squares	Mean Square	F ratio	F prob
Between Groups	4	3.99	.9983	1.789	.1323
Within Groups	199	111.00	.5578		
Total	203	115.00			

Doctor	N	Mean	Std. Dev	Minimum Value	Maximum Value
1	47	1.68	.725	1.0	4.0
2	30	1.60	1.037	1.0	5.0
3	16	1.62	.885	1.0	3.0
4	67	1.42	.677	1.0	4.0
5	44	1.32	.561	1.0	3.0

V.154 Dependent - Independent

Source	DF	Sum of Squares	Mean Square	F ratio	F prob
Between Groups	4	6.67	1.667	1.78	.1341
Within Groups	199	186.31	.936		
Total	203	192.98			

Doctor	N	Mean	Std. Dev	Minimum Value	Maximum Value
1	47	1.55	.829	1.0	5.0
2	30	1.57	1.040	1.0	5.0
3	16	1.37	.619	1.0	3.0
4	67	1.69	1.208	1.0	5.0
5	44	1.20	.701	1.0	5.0

V.155 Apathy - Involvement

Source	DF	Sum of Squares	Mean Square	F ratio	F prob
Between Groups	4	11.136	2.783	9.29	.000
Within Groups	199	59.609	.299		
Total	203	70.745			

Doctor	N	Mean	Std. Dev	Minimum Value	Maximum Value
1	47	1.66	.841	1.0	4.0
2	30	1.27	.639	1.0	3.0
3	16	1.19	.403	1.0	2.0
4	67	1.04	.271	1.0	3.0
5	44	1.16	.428	1.0	3.0

V.156 Response to Compliment

Source	DF	Sum of Squares	Mean Square	F ratio	F prob
Between Groups	4	10.26	2.56	17.76	.000
Within Groups	199	28.74	.144		
Total	203	38.99			

Doctor	N	Mean	Std. Dev	Minimum Value	Maximum Value
1	47	1.57	.683	1.0	3.0
2	30	1.13	.346	1.0	2.0
3	16	1.0	0	1.0	1.0
4	67	1.01	.122	1.0	2.0
5	44	1.07	.255	1.0	2.0

V.157 Involved - Disinterest

Source	DF	Sum of Squares	Mean Square	F ratio	F prob
Between Groups	4	8.28	2.071	14.712	.000
Within Groups	199	28.01	.141		
Total	203	36.29			

Doctor	N	Mean	Std. Dev	Minimum Value	Maximum Value
1	47	1.51	.621	1.0	3.0
2	30	1.13	.434	1.0	3.0
3	16	1.0	0	1.0	1.0
4	67	1.0	0	1.0	1.0
5	44	1.07	.33	1.0	3.0

V.158 Overall Stress

Source	DF	Sum of Squares	Mean Square	F ratio	F prob
Between Groups	4	13.41	3.351	6.94	.000
Within Groups	199	96.02	.482		
Total	203	109.43			

Doctor	N	Mean	Std. Dev	Minimum Value	Maximum Value
1	47	1.83	1.07	1.0	5.0
2	30	1.23	.50	1.0	3.0
3	16	1.31	.48	1.0	2.0
4	67	1.18	.55	1.0	4.0
5	44	1.27	.54	1.0	3.0

these coefficients proved to be statistically significant at the .01 level of significance.

Alpha-Reliability

Alpha-reliability coefficients were computed for the logically derived subscales and the total questionnaire. These coefficients were based on the entire sample of 208 cases. An alpha-coefficient of r = .93 was obtained for the total questionnaire. The logically derived subscales had the following alpha coefficients: Child Characteristics, r = .87; Mother Characteristics, r = .91; Situational/ Demographic Characteristics, r = .675. These values all exceed the required values for statistical significance at the .01 level. The results of the reliability assessments are presented in Table 8.

Descriptive Analysis

Table 9 presents the means, standard deviations, variances, skewness, kurtosis, and ranges for the factor scores, logically derived subscale scores, composite total scores, Life Stress Composite Score and the three criterion variables. Considering the logically derived scores, it appears that in all cases an adequate degree of variability exists in the sample. The distributions on each of the logically derived scores have means that are at least two standard deviations higher than the minimum possible scores which can be obtained on the scale. Distributions of scores on each of these 4 scores (Child Characteristics, Mother Characteristics, Situational/ Demographic Characteristics and Total) are minimally skewed and result in a range of scores with sufficient variability to suggest

Table 8: PSI Test-Retest and Alpha Reliability Results for Subscales and Total Scores.

Test-Retest Reliability* N = 15

Scale	p	Significance
Child Characteristics	.839	**
Mother Characteristics	.706	**
Situational/Demographic Characteristics	.775	**
Total Questionnaire	.817	**

* 3 week period

Alpha-Reliability - N = 208

Scale	Alpha-coefficient	Significance
Child Characteristics	r=.873	**
Mother Characteristics	r=.919	**
Situational/Demographic Characteristics	r=.675	**
Total Questionnaire	r=.927	**

** Significant at .01 level

Table 9: Descriptive Statistics of Factor Scores, Logically Derived Subscale Scores, Composite Total Scores, Criterion Variables and Life Stress Composite Score for the Total Sample.

Factor Scores

Scores on Factor I - Parent Feelings re: Self and Situation

Mean - .105	Std. Dev. - 1.108	Skewness - .865
Mode - -1.799	Variance - 1.227	Kurtosis - .850
Median - -.110	Range - 6.194	

Scores on Factor II - Child Characteristics (Difficult to Easy)

Mean - -.090	Std. Dev. - .972	Skewness - .673
Mode - -2.067	Variance - .946	Kurtosis - .428
Median - -.187	Range - 4.710	

Scores on Factor III - Reinforcement in Mother/Child Interaction

Mean - .056	Std. Dev. - .991	Skewness - .285
Mode - -2.572	Variance - .982	Kurtosis - .161
Median - .105	Range - 5.76	

Scores on Factor IV - Mothers Reported Degree of Bother

Mean - .244	Std. Dev. - .970	Skewness - .753
Mode - -1.590	Variance - .941	Kurtosis - 1.069
Median - .277	Range - 4.979	

Total Stress Score Composed of Factor Scores

Mean - 19.087	Std. Dev. - 7.761	Skewness - .746
Mode - 14.00	Variance - 60.229	Kurtosis - .397
Median - 17.938	Range - 41.453	

Logically Derived Scores

Scores on Child Characteristics Subscale (minimum = 49; maximum = 245)

Mean - 104.495	Std. Dev. - 17.029	Skewness - .393
Mode - 103	Variance - 290.0	Kurtosis - .227
Median - 104.25	Range - 93.0	

Scores on Mother Characteristics Subscale (minimum = 50; maximum = 250)

Mean - 109.668	Std. Dev. - 20.964	Skewness - .534
Mode - 107.0	Variance - 439.479	Kurtosis - .543
Median - 107.389	Range - 115	

Scores on Situational/Demographic Characteristics Subscale (minimum = 19; maximum = 170)

Mean - 58.543	Std. Dev. - 11.989	Skewness - .381
Mode - 59.0	Variance - 143.728	Kurtosis - .060
Median - 57.929	Range - 65	

Total Scores Composed of Logically Derived Subscales (minimum = 119; maximum = 665)

Mean - 272.707	Std. Dev. - 41.731	Skewness - .263
Mode - 255.0	Variance - 1741.503	Kurtosis - .092
Median - 270.667	Range - 224	

Criterion Variables

V.160 No. days in hospital

Mean - 1.556	Std. Dev. - 3.086	Skewness - 3.16
	Variance - 9.523	Kurtosis - 14.023
	Range - 21.00	

V.131 No. of visits to a doctor

Mean - 1.810	Std. Dev. - 1.077	Skewness - 1.337
	Variance - 1.160	Kurtosis - 1.089
	Range - 4.0	

V.158 Doctors overall stress rating (minimum = 1; maximum = 5)

Mean - 1.364	Std. Dev. - .732	Skewness - 2.407
	Variance - .535	Kurtosis - 6.562
	Range - 4.0	

Life Stress Composite Score (minimum = 0; maximum = 75)

Mean - 8.663	Std. Dev. - 6.536	Skewness - .910
Median - 7.65	Variance - 42.717	Kurtosis - .996
Mode - 4.0	Range - 36.0	
Maximum - 36.0	Minimum - 0.0	

that the scores may have some meaning.

In terms of the factor scores (and the composite total score derived from them), the absolute values of the scores appear to be rather small in comparison to the logically derived scores. This occurs due to the fact that factor scores are Z-score equivalents and, by definition, have means close to zero and standard deviations close to 1. In the case of the factor total score, the addition of the scores from the demographic stress index have resulted in a distribution with absolute values somewhat higher than those observed in the case of the factor scores alone. The distributions of scores on the factor score dimensions manifest an adequate degree of variability and do not appear to be highly skewed. The range of scores represented in the distribution would seem to suggest that the scores may well have some meaning.

In contrast, the physicians ratings of overall stress are raw scores with a possible range of from 1 to 5. In this case the values of the standard deviation and variance are indicative of the extremely skewed nature of the distribution and its small variability. In the case of the variable concerning number of days in the hospital (Table 9), the rather large indices of skewness and kurtosis illustrate the extremely skewed nature of the distribution of scores on this variable as well. The distribution of scores on V.131 number of visits to a doctor (Table 9), does not show as large a degree of skewness or kurtosis as the doctors overall stress rating or the number of days in the hospital, but still manifests a significantly skewed distribution with somewhat restricted variability.

The statistics presented regarding the distribution of scores

on the life stress composite score describe a distribution with relatively unrestricted variability, range and which is not extremely skewed. Scores on this variable do not range over more than the lower half of the potential score range. Since the items and scoring weights used in constructing this variable were adapted from the life stress scale developed by Holmes and Masuda (1974), it is possible to make a rough comparison between the distribution of scores on this variable and how mothers would score on their life stress index. Such a comparison can be made on a conceptual level, based on the assumption that scores on the 2 indices would be highly correlated, but not on a statistical level since score transformations are only statistically valid using Z-scores.

Given the limitations of such a comparison, the sample of mothers participating in this study report having experienced relatively few and non-disrupting levels of life stress over the past 6 months. The mean score of 8.6 on this variable translates in rough fashion to a score of 85 on the life stress scale. Including 2 standard deviations above the mean results in a score on the composite index of 22, which roughly translates to a score of 220 on the life stress scale. Holmes and Masuda (1974) describe scores in excess of 300 as predictive of major physical or psychological problems. Thus, the sample of mothers participating in this study would seem to be experiencing degree of life stress which are, for the majority of mothers in the sample, not seriously disrupting. However, the fact that the range of scores on the index does exceed 30 suggests that a few of the mothers in the sample may be experiencing degrees of life stress which may produce serious consequences.

Mean Differences: Primiparous vs. Multiparous Mothers

A series of T-Test procedures were used in order to assess differences which might exist between primiparous mothers and mothers of more than one child on the factor scores, subscale scores, composite total scores, and the criterion variables.

Results of this series of T-Tests are presented in Table 10. The number of cases used in the T-Tests on the factor score dimensions are lower than on the other dimensions due to the existence of missing data in the factor scores. The missing data procedures which were used eliminated an individual from the factor score computation if factor scores could not be computed due to missing data.

Primiparous and multiparous mothers were found to differ significantly (.05 level) on three of the dimensions included in the analysis. Primiparous mothers obtained higher scores on Factor II than multiparous mothers. Conversely, multiparous mothers obtained higher scores on Factor IV than mothers with only one child. Mothers with more than one child reported significantly more visits to a doctor than did mothers with one child. However, the 2 groups did not differ significantly on the other utilization of medical services variable of number of days in the hospital.

Correlational Analysis

A correlation matrix of Pearson product-moment correlations was computed for the factor scores, subscale scores, composite total scores and the three criterion variables (physician's overall stress rating, number of visits to a doctor and number of days in a hospital).

Table 10: Mean Differences: Primiparous vs. Multiparous Mothers. Results of T-Test comparisons of primiparous and multiparous mothers on factor scores, logically derived scores, total scores and criterion variables.

Variable	Group	N	Mean	Std.Dev.	T	DF	Prob
V.161 Score on Factor I (z score equivalent	multi	69	.1027	1.161	.13	118	.900
	primi	51	.0770	1.031			
		--	--	--	--	--	--
V.162 Score on Factor II (z score equivalent)	multi	69	-.3475	.908	-3.49	118	.001*
	primi	51	.2535	.967			
		--	--	--	--	--	--
V.164 Score on Factor III (z score equivalent)	multi	69	.1703	.841	1.28	118	.202
	primi	51	-.0612	1.137			
		--	--	--	--	--	--
V.163 Score on Factor IV (z score equivalent)	multi	69	.4161	.894	2.34	118	.021*
	primi	51	.0032	1.032			
		--	--	--	--	--	--
V.167 Demo Stress Index (raw score)	multi	95	18.884	6.265	-.10	202	.920
	primi	109	18.990	8.474			
		--	--	--	--	--	--
V.168 Tot. Factor Score (z score equivalent)	multi	95	.2455	1.694	.40	202	.687
	primi	109	.1391	2.025			
		--	--	--	--	--	--
V.169 Child Charac. Subscale (raw score)	multi	95	102.947	16.652	-1.25	202	.213
	primi	109	.1391	2.025			
		--	--	--	--	--	--

Variable	Group	N	Mean	Std.Dev.	T	DF	Prob
V.170 Mother Charac. Subscale (raw score)	multi	95	109.957	19.754	.23	202	.876
	primi	109	109.266	22.400			
		--	--	--	--	--	--
V.171 Situational/ Demographic Subscale (raw score)	multi	95	58.957	10.974	.46	202	.648
	primi	109	58.192	12.688			
		--	--	--	--	--	--
V.172 Tot. Logical Derived Score (z score equivalents combined)	multi	95	-1.6178	2.279	-.22	202	.829
	primi	109	-1.5458	2.449			
		--	--	--	--	--	--
V.131 No. visits to doctor (raw score)	multi	92	2.032	1.063	2.74	194	.007*
	primi	104	1.615	1.06			
		--	--	--	--	--	--
V.160 No. days in hospital (raw score)	multi	93	1.87	3.258	1.39	199	.167
	primi	108	1.26	2.899			
		--	--	--	--	--	--
V.158 Overall stress rating (raw score)	multi	95	1.3053	.603	-1.03	200	.303
	primi	107	1.4112	.824			
		--	--	--	--	--	--

* significant at .05 level

1. Correlations among criterion variables.

The correlations among the 3 criterion variables are presented in Table 11. Of the 6 correlation coefficients, one correlation emerged as significant at the .05 level for two-tailed tests of significance. Number of visits to a doctor was found to correlate .23 (significance level of .001) with number of days spent in the hospital. The correlation between doctors overall stress rating and number of days in the hospital ($r = .125$) approached significance (significance value of .075).

2. Correlations of factor scores with criterion variables.

The correlations of the factor scores and demographic stress index with the criterion variables are presented in Table 12. None of the 5 correlation coefficients were significant at the .05 level. Factor scores were expected to be independent of each other based on their construction, thus no intercorrelations were examined.

3. Correlations of logically derived subscale scores with criterion variables.

The nine correlation coefficients resulting from this analysis are presented in Table 13. Two of the correlations are significant at the .05 level. Scores on the Child Characteristics subscale were found to correlate .156 with the doctors overall stress rating of the mother. Scores on the Mother Characteristics subscale were found to correlate .148 with the doctors overall stress rating of the mother.

Correlations among the logically derived subscales are presented in Table 14. All of the three non-redundant correlation coefficients resulting from this analysis were found to be significant at the .05

Table 11: Pearson Product-Moment Correlation Coefficients - Correlations Among 3 Criterion Variables for Total Sample.

		V.131	V.160	V.158
V.131	No. visits to doctor			
V.160	No. days in hospital	r=.2348 n=199 s=.001		
V.158	Overall stress rating	r=.0674 n=198 s=.346	r=.1252 n=203 s=.075	

r= correlation coefficient
n= number of cases
s= significance level

Table 12: Pearson Product-Moment Correlation Matrix: Correlations of Factor Scores and Demographic Stress Score with Criterion Variables for the Total Sample

	V.131 No.visits doctor	V.160 No.days in hospital	V.158 Overall stress Rating
V.161 Factor I	r=.0446 n=119 s=.630	r=.0291 n=120 s=.752	r=.1008 n-121 s=.271
V.162 Factor II	r=-.015 n=119 s=.872	r=.0249 n=120 s=.787	r=.1001 n=121 s=.275
V.164 Factor III	r=.0772 n=119 s=.404	r=-.0207 n=120 s=.822	r=.0889 n=121 s=.332
V.163 Factor IV	r=.0501 n=119 s=.589	r=.1243 n=120 s=.176	r=.0088 n=121 s=.923
V.167 Demographic Stress Index	r=-.0512 n=119 s=.472	r=.0706 n=120 s=.315	r=.0087 n=121 s=.902

r = correlation
n = number of cases
s = significance level

Table 13: Pearson Product-Moment Correlation Matrix: Correlations of Logically Derived Subscales with Criterion Variables for the Total Sample

	V.131 No.visits to doctor	V.160 No.days in hospital	V.158 Overall stress Rating
V.169 Child Characteristics	r=.0151 n=200 s=.832	r=.0291 n=205 s=.679	r=.1562 n=206 s=.025
V.170 Mother Characteristics	r=.0870 n=200 s=.221	r=.1108 n=205 s=.114	r=.1481 n=206 s=.034
V.171 Situational/ Demographic Characteristics	r=-.016 n=200 s=.822	r=.0844 n=205 s=.229	r=.0664 n=206 s=.343

r = correlation
n = number of cases
s = significance level

Table 14: Pearson Product-Moment Correlation Matrix: Correlations Among the Logically Derived Subscales for the Total Sample.

	V.169	V.170	V.171
V.169 Child Characteristics			
V.170 Mother Characteristics	r=.6263 n=208 s=.001		
V.171 Situational/ Demographic Characteristics	r=.1835 n=208 s=.008	r=.3762 n=208 s-.001	

r = correlation
n = number of cases
s = significance level

level. A correlation of .626 was found between scores on the Child Characteristics subscale and scores on the Mother Characteristics subscale. Scores on the Situational/Demographic subscale were found to correlate .183 with scores on the Child Characteristics subscale. Finally, scores on the Situational/Demographic subscale correlated .376 with scores on the Mother Characteristics subscale. Of the three correlations, the Mother Characteristics and Child Characteristics subscales share the greatest amount of common variance. The next highest degree of association exists between the Mother Characteristics and Situational/Demographic Characteristics subscales. The correlation between scores on the Child Characteristics subscale and the Situational/Demographic Characteristics subscale indicates that these scales have the least variance in common, but are still associated at a statistically significant level.

4. Correlations of Composite Total Scores with Criterion Variables.

A total of 6 correlation coefficients resulted from this matrix. Looking at the composite total score composed of the factor scores and the demographic stress indices, no significant correlations exist with any of the three criterion variables. The correlations between the composite total score composed of the logically derived subscales and the criterion variables resulted in one correlation significant at the .05 level. This composite index correlated .14 with the overall stress rating made by the doctors. These results are presented in Table 15. As would be expected, the two composite total scores were found to have a significant degree of association ($r = .83$, significant at .001 level) as they represent different score derivation procedures based on the same data.

Table 15: Pearson Product-Moment Correlation Matrix: Correlations of the 2 Total Scores with the Criterion Variables and Themselves for the Total Sample.

	V.131 No.visits to doctor	V.160 No.days in hospital	V.158 Overall stress Rating	V.172 Score Total
V.168 Factor Score Total	r=-.0057 n=200 s=.936	r=.0890 n=205 s=.205	r=.0601 n=206 s=.391	r=.8323 n=208 s=.001
V.172 Logically Derived Score Total	r=.0244 n=200 s=.731	r=.1024 n=205 s=.144	r=.1406 n=206 s=.044	

r = correlation
n = number of cases
s = significance level

Sub-Sample Analysis

The value of the physician ratings as a criterion variable was limited by their skewed distribution and restricted variation. Due to this attenuation of the potentially most meaningful criterion variable, it was decided to select a subsample which showed the greatest degree of variation and repeat the correlational analyses. This procedure was attempted in order to assess whether the increased range and variability provided by considering Doctor No. 1's ratings alone could overcome the effects of reducing the number of cases on which the correlations were based to provide a more meaningful criterion variable. The analyses reported in this section were based on a subsample (N=47) of mothers who were rated by Doctor No. 1. As noted in a previous section of this chapter, his ratings showed the greatest range and variation of all of the physicians, suggesting that he was discriminating between mothers on the overall stress rating to a greater extent than were his colleagues.

Correlational Analysis

A. Correlations among criterion variables.

A total of three correlation coefficients resulted from this matrix. One of these correlations, number of visits to a doctor with number of days in a hospital, was found to be significant at the .01 level (r=.449, significance level of .002). This finding replicates what was found for the total sample on this same analysis. These results are presented in Table 16.

B. Correlations of factor scores with criterion variables.

As in the analysis of the total sample, none of the fifteen

Table 16: Pearson Product-Moment Correlation Matrix: Correlations Among the Three Criterion Variables for the Subsample of Mothers Rated by Doctor 1 (N=47).

	V.131	V.160	V.158
V.131 No. visits to doctor			
V.160 No. days in hospital	r=.4498 n=46 s=.002		
V.158 Overall stress rating	r=.0517 n=46 s=.733	r=.0748 n=47 s=.617	

r = correlation
n = number of cases
s = significance level

correlation coefficients resulting from this matrix reached statistical significance. Results of this analysis are presented in Table 17.

C. Correlations of logically derived subscale scores with criterion variables.

In contrast to the results obtained for the total sample, none of these 9 correlations reached statistical significance at the .05 level. The correlations between scores on the Mother Characteristics and Situational/Demographic Characteristics subscales and the doctors overall stress rating approached significance, but were not sufficiently large (given the small N they were based on) to achieve significance at the .05 level. These results are presented in Table 18.

The intercorrelations of the subscale scores were all significant at the .05 level. These correlations are presented in Table 19.

D. Correlations of composite total scores with criterion variables.

The correlations of the first composite total score (composed of the factor scores) and the criterion variables did not reach statistical significance at the .05 level. One of the correlations, between the total score and number of days in the hospital, very closely approached being significant (r=.28, significance level of .054).

Correlations of the second composite total score with the criterion variables resulted in a replication of the findings for the overall sample. This total score (composed of the scores on the logically derived subscales) correlated with the doctors overall stress rating at a .05 level of statistical significance (r=.293, significance level of .045). These results are presented in Table 20.

Table 17: Pearson Product-Moment Correlation Matrix: Correlations of Factor Scores and Demographic Stress Index with Criterion Variables for the Subsample of Mothers Rated by Doctor 1.

	V.131 No.visits to doctor	V.160 No.days in hospital	V.158 Overall stress rating
V.161 Factor I	r=-.0077 n=25 s=.971	r=.2507 n=25 s=.227	r=.0969 n=25 s=.645
V.162 Factor II	r=-.1051 n=25 s=.617	r=.2691 n=25 s=.193	r=.1646 n=25 s=.432
V.164 Factor III	r=.1181 n=25 s=.574	r=.1121 n=25 s=.594	r=-.1680 n=25 s=.422
V.163 Factor IV	r=.3257 n=25 s=.112	r=.1048 n=25 s=.618	r=.1736 n=25 2=.407
V.167 Demographic Stress Index	r=.0912 n=46 s=.547	r=.1451 n=47 s=.330	r=.1691 n=47 s=.256

r = correlation
n = number of cases
s = significance level

Table 18: Pearson Product-Moment Correlation Matrix: Correlations of Logically Derived Subscales With the Criterion Variables for the Sub-sample of Mothers Rated by Doctor 1.

	V.131 No.visits to doctor	V.160 No.days in hospital	V.158 Overall stress rating
V.169 Child Characteristics	r=.1339 n=46 s=.375	r=.0597 n=47 s=.690	r=.1939 n=47 s=.192
V.170 Mother Characteristics	r=.2183 n=46 s=.145	r=.1499 n=47 s=.315	r=.2366 n=47 s=.109
V.171 Situational/ Demographic Characteristics	r=.1330 n=46 s=.378	r=.1725 n=47 s=.246	r=.2505 n=47 s=.089

r = correlation
n = number of cases
s = significance level

Table 19: Pearson Product-Moment Correlation Matrix: Correlations Among Logically Derived Sub-scales for the Subsample of Mothers Rated by Doctor 1.

	V.169	V.170	V.171
V.169 Child Characteristics			
V.170 Mother Characteristics	r=.6888 n=47 s=.001		
V.171 Situational/ Demographic Characteristics	r=.3505 n=47 s=.016	r=.3413 n=47 s=.019	

r = correlation
n = number of cases
s = significance level

Table 20: Pearson Product-Moment Correlation Matrix: Correlations of Composite Total Scores with Criterion Variables for the Subsample of Mothers Rated by Doctor 1.

	V.131 No.visits to doctor	V.160 No.days in hospital	V.158 overall stress rating
V.168 Factor Score Total	r=.1752 n=46 s=.244	r=.2826 n=47 s=.254	r=.178 n=47 s=.254
V.172 Logically Derived Score Total	r=.2004 n=46 s=.182	r=.1258 n=47 s=.237	r=.2937 n=47 s=.045

r = correlation
n = number of cases
s = significance level

It can be seen from this subsample analysis that the increased discrimination in Doctor no. 1's ratings was not sufficient to overcome the effects of reducing the number of cases on which the correlations were based. The patterns of results which emerged from this analysis were essentially the same as that seen in the analysis of the total sample.

Chapter V

Discussion

This chapter presents a discussion of the results of the study, their implications for the area of investigation and suggestions for future research. The chapter is organized in sections which deal with the psychometric properties of the scale in terms of its factor structure and reliability. Information pertaining to the construct validity of the scale and some initial information relative to concurrent validity is discussed.

A major purpose of the study was to review the research literature pertaining to parenting and child development in order to identify factors which could serve as stressors for parents of young children. This was accomplished and items were developed for the scale which were based on the research literature. Pilot testing procedures were used to assess the readability and adequacy of the items, instructions and procedures which make up the scale. Items were rated by a panel of expert judges in order to assess their construction, face validity and to provide some evidence of construct validity. The assignments of items to a priori subscales were also validated by the judges' ratings. These procedures resulted in numerous revisions of the items and procedures. The ratings made by the judges also suggested the possibility of a mother-child interaction subscale which might be further developed as a part of continuing research on this instrument.

Psychometric Properties

Construct Validity: Factor Structure

Factor I

The five highest loadings on Factor I include the following: V.63 mother feels alone, r=.69; V.83 mother feels things about her life bother her, r=.72; V.89 mother feels that other women don't like her, r=.68; V.100 mother feels unhappy about her life, r=.75; and V.115 mother feels there have been more problems in her relationship with her husband since having her last child, r=.67. These high loading variables, considered along with the other variables which load on this factor, represent feelings which mothers are expressing regarding themselves and their situation. As such, this factor has been named "parent feelings related to self and situation." It is interesting to note that V.99 (mothers health) loads on Factor I while V.54 (mother feels sicker has more aches and pains) loads on Factor I as well as Factor II. These associations would be expected based on the stress research literature (Holmes and Masuda, 1974) which has consistently found significant correlations between peoples' perceptions of their lives as stressful and the occurrence of physical complaints. Since the factor seems to be tapping the mother's feelings about herself and her life situation, it is not surprising to find variables related to feelings of physical well being associated with this dimension.

This factor is made up of variables concerned with a number of aspects of a mother's life. Variables which load on this factor are concerned with the mother's perception of and feelings about

herself as a parent, her feelings about herself in relation to other people, her feelings about her relationship with her husband, and her feelings about her life situation in general. Parents' feelings about themselves as parents have been identified as exerting important influences in a number of studies. Emmerich's (1969) study of how parents perceive their roles identified a factor which reflected the parents' perceptions of themselves as competent. This factor was found to account for the major portion of the variance in the parents' attitudes. Further support for the strong influence which parents' self-perceptions exert is provided by Schaefer and Cole's (1977) study of factors effecting child referrals to mental health services. They found that mothers' feelings of competence exert a significant influence on the mother's decision to refer children for mental health services. Hereford's (1963) study of childrearing attitudes suggested that not only do parents worry most about their competence as parents, but their concerns in this regard are focused more on relationship issues than on the adequacy of their caretaking activities.

Factor II

The five variables which load highest on Factor II include: V.10 child demandingness, r=.59; V.37 child demandingness, r=.55; V.38 child hangs on parent, r=.57; V.39 child seen as harder to care for than most, r=.58 and V.43 child presents more of a problem to parent than expected, r=.57. These variables consist of mother's descriptions of characteristics of their children on a difficult to easy dimension. Taken in combination with the other variables

which load on this factor, it has been named "child characteristics, difficult to easy." It appears to represent maternal descriptions of the child's behavioral characteristics along an easy to difficult child continuum. This factor contains a number of questions which were based on the research of Chess, Thomas and Birch (1968; 1971) and Carey (1972) related to temperamental characteristics and behavioral individuality in early childhood. The existence of a "difficult child-easy child" dimension based on descriptions of behavioral characteristics has been replicated in a number of studies (Chess, Thomas and Birch, 1968; McInenry & Chamberlain, 1978). It is not surprising that such a factor would emerge given the sources of content for questions used and the repeated replication of this dimension using both parent descriptions (Chess, Thomas and Birch, 1968) and professional raters (Gregg, 1969) as data sources.

Two of the variables which loaded on Factor II (as well as Factor I) were not descriptions of child behavioral characteristics. These were V.54 mother feels sicker, reports more aches and pains (r=.39) and V.56 mother states need for help in childcaring (r=.45). Considering the life stress research literature, it would be expected that an association would exist between variables related to a difficult child - easy child dimension and maternal feelings of physical well-being. The fact that V.56 mother states need for help in child-rearing, loads on this factor most likely reflects parents' feelings that their children present unusually difficult behavior to manage. It is not surprising that parents who describe their children's behavior as being difficult would be more likely to state a need for help while those who describe their children as meeting their expectations

behaviorally would tend to report less need for assistance.

Factor III

The five variables which load highest on Factor III include V.9 child smiles less than expected, r=.54; V.16 child doesn't learn as quickly as expected, r=.48; V.23 child doesn't giggle or laugh when playing, r=.49; V.25 child doesn't smile as much as expected, r=.68; and V.34 child is not able to do as much as expected, r=.54. The variables which load on this factor appear to be tapping parents' interpretation of their experience of their interaction with the child. Parents' feelings about their relationship with their children on affective (smiling, moodiness of child, cuddling, child's feelings for parents) as well as cognitive domains (child's learning, child's abilities) are represented by the variables which load on this factor. It has been named "reinforcement in mother-child interaction" as an appropriate way of describing this dimension. Variable 98, parent style of handling child misbehavior, initially seems to be somewhat out of place loading on this factor until the relationship implications of the parents' style of response to child misbehavior is considered. Parents who interpret their experience of their relationships with their children in a positive fashion would be much more likely to respond to the child's misbehavior in a less punitive and aversive fashion. On the other hand, parents who perceive their relationship with their children as an aversive or negative affective experience would be more likely to respond in punitive and aversive ways to children's misbehavior. Another variable which loads on this factor but does not have the same manifest content as the other variables is V.110, number of children I have

now is too many. It is not surprising to find this variable associated with a dimension which relates to the parents' experience of their relationship with their children. Parents who experience their relationships with their children as being positive would be less likely to agree with such a statement as "The number of children I have now is too many." Negative experiences of relationships with children would most likely predispose parents to agree with such a statement and express feelings of being overburdened by the children which they have at present.

Factor IV

The five variables with the highest loadings on Factor IV include: V.17 child bothers mother, r=.58; V.22 child is easily upset, r=.36; V.32 child bothers mother, r=.57; V.49 child cries and fusses more than expected, r=.39, and V.101 mother reports number of things child does which bothers her, r=.39. The duplicate variables (V.17 and V.32) load equally high on this factor, as would be expected given their equivalent content. The variables which load on this factor reflect the mothers' report of the degree of difficulty they encounter in raising their children. Its structure appears to be very similar to the degree of bother inventory which Broussard and Hartner (1970; 1971) describe in their research. This factor has been named "degree of bother" in that it appears to reflect more the mothers' feelings about the behavior of their children rather than a description of their behavior (Factor II) or the mothers' feelings about the relationship between themselves and their children (Factor III). As such, it is more concerned with the difficulty which the mothers experience in dealing with their children in the context

of the mothers' childrearing activities.

The significance of parental perception of this dimension is illustrated by Broussard and Hartner's (1970; 1971) studies of maternal perceptions of infant characteristics and the subsequent development of the child. They found that it was possible to identify infants at risk for the development of later emotional problems on the basis of maternal ratings of the discrepancy between their children and average children and scores on a degree of bother inventory.

The factor structure of the instrument, as it appears from the results of this initial factor analysis, is in keeping with the multifaceted nature of the phenomenon of stress. Stress is a phenomenon which is determined by a multitude of variables. One would expect that an instrument which would be able to measure the wide variety of potential stressors impinging on a parent would be composed of a number of factors which would account for relatively small percentages of the total variance.

In order to assess the stress which parents experience it is necessary to seek information on a wide variety of variables which may serve as potential stressors. It would be expected that some of the resulting items would show a degree of statistical association, while others would be relatively independent. This is an especially important point when we consider the additive nature of the phenomenon of stress (Selye, 1952) and the experiences of other researchers. Metz et al. (1976) found in their attempts to develop a similar instrument that it was necessary to consider the operation and presence of a number of variables, in an additive fashion, in order to accurately predict the existence of problem situations.

Just such a pattern of results emerged from the factor analysis. The congruence observed between the factor structure of the instrument and what would be expected based on knowledge of the general phenomenon of stress suggests that the instrument possesses a degree of construct validity.

The procedures used in constructing and pilot testing the scale provided strong evidence of a good degree of face validity and construct validity for the items included on the scale. Items were based on research that had suggested their importance and relevance to the stress experienced by parents. Ratings by professional judges provided further support for the face validity of the items, the construct validity of the scale and the assignment of the items to the logically derived subscales.

Further evidence which supports the construct validity of the scale comes from the analysis of mean differences between primiparous and multiparous mothers. The results of the analysis of differences between mothers having only one child and mothers having more than one child revealed 3 statistically significant differences. The difference observed on V.131, number of visits to a doctor, is readily understandable in that having more children results in a larger number of trips to the doctors' offices. Primiparous mothers described their childrens' behavior in more negative terms than did multiparous mothers (V.162, Factor II Child Characteristics, difficult to easy). This finding is similar to that found in the study of referrals to mental health facilities (Schaefer and Cole, 1977). Results of that study suggested that primiparous mothers were more likely to view childrens' behavior as extreme than were multiparous

mothers. However, on V.163 (Factor IV, Degree of bother) multiparous mothers described themselves as experiencing a significantly greater degree of difficulty than primiparous mothers. It would seem that mothers with more than one child tend to accept a wider range of child behaviors as being expected or normal while at the same time reporting more stress as a result of having to deal with certain child behaviors which prove to "bother" the parent. Overall, primiparous mothers tended to describe their children's behavior in more negative terms than their counterparts with more than one child, and at the same time report experiencing a lesser degree of being bothered by their children than multiparous mothers.

These results are consistent with the differences observed between experienced and non-experienced mothers in studies of maternal reactions to infant behavior (Bell and Ainsworth, 1972; Greenberg and Lind, 1973; Lewis and Lee-Painter, 1974). This research suggests that experienced mothers are more able to make judgments about the states of their children (i.e. they are more able to "read" their infants). In the case of the mothers in the present study, it would seem that multiparous mothers describe fewer of their childrens' behaviors as discrepant from expectation based on their greater experience with children. Primiparous mothers do not have the experiential base of the multipari to use in modifying their expectations. Primipari may also, as a result of their not having had the same degree of experience with children as multiparous mothers, be less willing to label behaviors exhibited by their children as "problems."

The differences observed on the scale between primiparous and

multiparous mothers, along with the nature of these differences, provides further support for the construct validity of the scale. In order for such statistically significant and conceptually meaningful results to be found, the scale must be measuring a construct which has practical significance in the parenting situation.

Reliability Indices

The test-retest reliability coefficients (reported in Chapter IV) for the individual subscales and the total questionnaire are statistically significant and at a level which is generally considered to indicate a high degree of this form of reliability for an instrument of this type. The rank order correlation coefficients resulting from this analysis suggest that the individual subscale scores and the total score are relatively stable measures over a short period of time.

The alpha-reliability coefficients reported for the logically derived subscales and the total questionnaire ranged from .67 to .93. The magnitude of these coefficients indicates that the individual subscales and the questionnaire taken as a whole show a relatively good level of internal consistency. The correlation coefficients are of a size generally considered to be of practical significance.

Since the reliability of a measure has important implications for its potential validity, the information from the reliability indices suggests a significant potential for the questionnaire in terms of reliably and validly measuring the stress which parents experience. Nunally (1967) describes one of the more important implications of coefficient alpha as: "the square root of coefficient alpha is the estimated correlation of a test with errorless true scores."

Given this statement and the magnitude of both the test-retest reliability coefficients and the alpha reliability coefficients, it would seem that the scale is a measure with good stability over short periods of time, good internal consistency and good potential in terms of construct, concurrent and predictive validity.

The procedures and results discussed so far have provided evidence which suggests that the scale has good properties in terms of face validity, factor structure, construct validity and reliability. At this point, the discussion will focus on the initial information concerning concurrent validity provided by the criterion variables. The discussion will center initially on the factor structure of the physician ratings and proceed to consideration of the correlations between scores resulting from the scale and the criterion variables.

Concurrent Validity

Factor Structure of Physician Ratings

Factor I. The 3 variables which loaded on Factor I include: V.153 PR 1 impulsive-relaxed, r=.88; V.154 PR 2 dependent-independent, r=.89 and V.158 PR 6 overall stress rating. This factor was named "impulsive dependency vs. mature independence."

Factor II. The 3 variables which loaded on Factor II include: V.155 PR 3 apathy vs. energetic, r=.75; V.157 PR 5 interested involvement vs. dramatic disinterest and neglect, r=.86 and V.158 PR 6 overall stress rating, r=.63. This factor was named "apathetic disinterest vs. energetic involvement" in order to reflect the continuum of interest and involvement with the child that it seems to represent.

The physician's overall stress rating (PR 6) loaded equally on both of the 2 factors. This finding is not surprising in view of the way these factors closely approximate the dimensions of apathy, futility and childlike impulsivity which Polansky et al. (1972) describe as correlates of maternal neglect of a child. It would be expected that mothers rated in a negative direction on these two dimensions would also receive higher overall stress ratings than mothers who appeared maturely independent and energetically involved with their children.

One of the six physician rating dimensions, V.156 PR 4 maternal response to compliment to child, seemed to be a variable relatively independent of the two primary factors which emerged from the analysis. It showed a modest loading on Factor II (r=.39), which reflects a moderate degree of correlation between the variable and the degree of interest and involvement displayed by the mother. This variable was suggested by Levy (1959) as a useful index of the mother's orientation to the child, i.e. whether the mother is child-oriented or adult-oriented. While this procedure may have been effective in Levy's work with a lower SES population, it appears that its utility with a more sophisticated population, such as that represented in this sample, is somewhat limited.

Correlational Analyses

The correlations among the criterion variables did not attain statistical significance, with one exception. The two criterion variables related to utilization of medical services (number of visits to a doctor and number of days in a hospital) were found to correlate r=.23. This finding would be expected since each variable

represents a different type of medical service. The correlations between the use of medical services variables and the overall stress rating made by the doctors did not achieve statistical significance. The low magnitude of these correlations between the doctors overall stress rating and use of medical services would be expected given the nature of the phenomenon of stress and its effects on health. The impact of life stress on health is something which appears to occur over a period of time in cumulative fashion. Thus, one would not expect a high degree of association to exist between present stress and retrospective report of use of medical services. Most of the major studies of life stress have used periods of 6 months to 1 year after the assessment of life stress as the reporting period for medical services utilization (Holmes and Masuda, 1974).

The pattern of intercorrelations among the logically derived subscales emerged as would be expected. The largest amount of common variance was shared by the Mother Characteristics and Child Characteristics subscales. This would be expected as this interaction represents the relationship which has the most impact on both mother and child. The second largest amount of shared variance was between the Mother Characteristics and Situational/Demographic subscales. It would also be expected that mothers would be more directly effected by situational factors than their children, resulting in a larger correlation.

None of the factor score variables (individual factors or total score composed of factor scores) correlated with the overall stress rating made by the doctors. Comparing these results to those obtained using the logically derived subscale scores and the total score, it

is clear that the logically derived scores are accounting for a greater proportion of the variance in the overall stress rating made by the doctors. This suggests that the logically derived scores may provide a better predictive index of stress than the factor scores. One thing that may be influencing the lack of a statistically significant association between the factor scores and the doctors overall stress rating is the fact that the factor scores are based on the 80 items included in the post-screening factor analysis. The logically derived scores are based on the total number of items included on the questionnaire. Items were screened out of the factor analysis procedures based on the size of their loadings on the factors. While this procedure maximizes the degree of relationship between individual variables and the factor, it also allows the elimination of items which may not load highly on any factor but which may account for a significant proportion of the variance in the criterion variable. It is important to note in conjunction with this argument that the majority of the items which were used on the scale were based on research which suggested their relevance as stressors to parents of young children. Thus, it was assumed that any item on the scale was, in some fashion, related to the parents experience of stress irrespective of how that item might correlate with other items. Another possible influence on the magnitude of the correlations between scores on the logically derived subscales and the doctors' overall stress rating is the extremely skewed distribution and restricted variability of this criterion variable. Given this rather severe attenuation of the criterion variable, it is not surprising that the correlations found are of relatively small magnitude

(even though statistically significant).

A number of possible influences are seen as exerting an influence on the distribution of the physician ratings and resulting in the rather severe attenuation of this criterion variable. First, the orientation of the physicians in terms of training and practice is necessarily focused on physiological factors. This orientation, combined with the relatively limited and focused nature of their interactions with their patients, makes such ratings a difficult task except in extreme circumstances. Making finer discriminations along such a rating dimension may well prove to be an impossible task for a physician in such a situation. Secondly, parents entering a pediatrician's office have a significant investment in presenting the best possible appearance to their physician. This factor further complicates the task of making such ratings. Third, as described in previous sections, this sample represented a portion of the population who are functioning under relatively low levels of general life stress. The sample was skewed demographically in directions which would suggest that one might expect to find lower levels of stress and higher levels of functioning than in the general population. Further evidence for the low stress levels present in the sample is the fact that the score ranges on the scale made use of less than 50% of the maximum possible range of scores. The range of actual scores was also restricted to the lower end (less stress) of the potential score range. Fourth, the procedures used in preparing the physicians to make the ratings did not include any training procedures. Due to the practical time constraints involved in the study, such procedures were not possible. The use of training procedures might well have

increased the utility of the overall stress rating as a criterion variable. Informal discussions with various physicians after completion of the study suggested that a greater degree of discrimination would have occurred in their ratings if more extensive discussion of the nature, use and meaning of the ratings had been possible.

The combined influence of all of the factors discussed above resulted in a rather severe attenuation of the doctors overall stress rating as a criterion variable. This attenuation is reflected in the low magnitude of the correlations which were found. However, the fact that the correlations did achieve statistical significance in spite of the attenuating influences provides additional evidence supporting the hypothesis that scores on the scale have meaning in terms of the stresses which parents experience.

The study conducted was primarily concerned with the development and initial field testing of the instrument. The discussion of the instrument's validity represents an attempt at securing initial information concerning the validity of the scale. Since the primary purpose of the research was not to make definitive statements concerning the validity of the scale, efforts were not made to secure extensive information concerning concurrent validity.

The issues involved in developing evidence which supports the validity of an instrument of this type are quite complex. Since it is designed to function as a screening instrument rather than a diagnostic tool, the predictive validity of the instrument should not be so great as to result in under identification or excessive "false negatives." In order to be practical in a setting such as the one used in this study, the instrument must exceed the judgment of

physicians in terms of identifying parent-child systems at risk for later problems. Thus, while physician ratings may be an appropriate initial step in assessing the concurrent validity of the scale, future efforts aimed at assessing both concurrent and predictive validity must make use of other criterion variables. This will be discussed in greater detail in the section devoted to suggestions for future research.

Practicality

One of the goals of the research project was to develop an instrument which had good practical utility as well as adequate psychometric properties. The instrument developed during this project has proven to be quite practical. The reading level required to complete the scale (6th grade) is such that it is understandable to a large majority of the population. It is an easy instrument to administer since it is in the form of a questionnaire and it requires no trained personnel to administer the items. Scoring is easily automated through the use of machine-readable answer forms. The total cost per subject in the present study is estimated at $3.50 per subject, which would be reduced if it were used in larger numbers. This cost included the return postage for the questionnaires. The time required to complete the scale is not excessive (between 15 and 30 minutes) and the procedures fit into the routine workings of a pediatric office without causing major disruptions. The time required in the study to acquaint secretarial personnel with the procedures (2 hours) and the demands on their time were small for such an instrument.

In comparison to other projects which have similar aims, the present instrument is both less expensive and more easily administered. The study conducted by Lagercrantz and Lagercrantz (1975) provided a great deal of information about the interaction between mother and child, but required a good deal of time from trained observers. Metz et al. (1976) developed a screening program which was comparable in cost (estimated cost per subject $3.00) but required hiring and training technicians to administer a battery of assessment techniques. Their procedures also required the presence of the child in order to complete the assessment battery.

Implications of the Results: Suggestions for future research and potential uses of the instrument

The results of the research project discussed in this dissertation have a number of implications for the further development of this instrument, its uses in future research related to parenting and child development and the implications of the findings for the potential clinical uses of the instrument. The scores on the scale are distributed in such a fashion as to at least roughly approximate a normal distribution. Due to the low frequencies in each score unit, the distribution is rather platykurtic in form.

Given that the phenomenon of parenting stress is one which results in a distribution of scores which even roughly approximates a normal curve, it is possible to identify those individuals who fall at different points along the dimension of parenting stress in a fairly reliable fashion. The ability to identify children at risk for the later development of emotional and behavioral problems presents a significant potential for the development of programs aimed at

early intervention and the prevention of more serious later difficulties. Such a potential exists within the current health services delivery system in the form of pediatric well baby clinics operated through both the private and public sectors. Identification of parents and infants at risk prior to the end of the first year of life is possible on a mass basis given a technique which can reliably and validly predict the occurrence of serious difficulty. A crucial step in the further development of this instrument is to obtain a reliable external criterion measure to use in making decisions regarding which items to drop or modify and possible weighting procedures for items and subscales.

Continuing analyses of the data already gathered are also planned. Further analysis of the physician ratings as a criterion variable is possible using point biserial correlations. It is possible that although the range of physician judgments on the criterion variable was restricted to the first few rating points, there may exist a significant discrimination between those points on the rating scale.

Continued exploration of the relationship of this instrument to other measures of stress, the parent-child relationship and child behavior would provide information relative to the construct and predictive validity of the instrument. Suggestions for future research include studies which would examine the correlation of the instrument with measures of anxiety, family functioning and indices of psychopathology in both parents and children. Research projects with families already identified as being under a significant degree of stress (child abuse, handicapped children and other clinical populations) would provide valuable information concerning the instrument's

validity. Use of the instrument as a pre-post measure of intervention (parent groups, psychotherapy, parent consultation) strategies would provide additional information relative to validity. Studies of populations with different demographic characteristics (SES, race, urban vs. rural) would extend the normative information available concerning the phenomenon. Studies using observational assessments of the mother-child relationship in assessing the nature of the attachment process could provide a valuable index of the predictive validity of the instrument as well as beginning to provide initial information concerning the effects of stress on the parent-child relationship. Perhaps the most immediately crucial further research project is to continue to follow the sample of parents and children who have participated in this project on a longitudinal basis.

The instrument developed during this project has been shown to possess an adequate degree of reliability and to have good potential validity. A good deal of further research will be required before the instrument can be fully developed and its true potential assessed. This project represents a beginning effort in what will hopefully become a continuing line of research.

APPENDIX A

Parenting Stress Index

Instructions to Professional Judges

As a professional who has experience in working with parents and their young children, you are being asked to rate each of the items contained in this scale. The items have been developed for the purpose of assessing the nature and amount of stress which a parent may experience in raising a young child.

Task 1. Please take the item cards and sort each card into one of the following categories:

Category 1 - Family Situational or Demographic Factors
Category 2 - Parent Characteristics
Category 3 - Child Characteristics

After sorting the items into three piles according to the category you have assigned to them, please place each pile in the appropriate manila envelope, labeled with the category name.

Task 2. Please rate each item 1 - 5 on each of the 2 questions. The first question asks you to judge to what extent the content of the item is relevant to the issue of stress for parents of young children. The second question for each item asks you to make a judgment as to the adequacy of the item's construction; i.e., how well does the item communicate, is the vocabulary level appropriate - generally how understandable is the item.

For the first question, a score of 1 is lowest (not relevant), 3 is middle range (relevant), 5 is exceptional (very relevant). For the second question, a score of 1 is an indication of poor item construction, 3 is adequate item construction and a score of 5 indicates very good item construction. Please be sure to rate each item on each of the 2 questions.

Item Rating Scale

Please rate each item card of the Parenting Stress Index according to the instructions on the attached instruction sheet.

Item	Relevance of Content					Adequacy of Construction					Suggested Improvements
	Low				High	Poor				Good	
1	1	2	3	4	5	1	2	3	4	5	
2	1	2	3	4	5	1	2	3	4	5	
3	1	2	3	4	5	1	2	3	4	5	
4	1	2	3	4	5	1	2	3	4	5	
5	1	2	3	4	5	1	2	3	4	5	
6	1	2	3	4	5	1	2	3	4	5	
7	1	2	3	4	5	1	2	3	4	5	
8	1	2	3	4	5	1	2	3	4	5	
9	1	2	3	4	5	1	2	3	4	5	
10	1	2	3	4	5	1	2	3	4	5	
11	1	2	3	4	5	1	2	3	4	5	
12	1	2	3	4	5	1	2	3	4	5	
13	1	2	3	4	5	1	2	3	4	5	
14	1	2	3	4	5	1	2	3	4	5	
15	1	2	3	4	5	1	2	3	4	5	
16	1	2	3	4	5	1	2	3	4	5	
17	1	2	3	4	5	1	2	3	4	5	
18	1	2	3	4	5	1	2	3	4	5	
19	1	2	3	4	5	1	2	3	4	5	
20	1	2	3	4	5	1	2	3	4	5	

APPENDIX B

MEMORANDUM

To:
From: Dick Abidin
Re: Beginning of research project
Date: March 23, 1978

We are planning to begin passing out the questionnaires on Wed., March 29 through the Well-Child Clinic. Each parent will receive an envelope containing the questionnaire with a short letter of explanation attached (see enclosed sample) to the outside of the envelope. A more detailed letter of explanation will be included inside the envelope for the mothers to read at home. The data collection procedure will follow the procedure we discussed at our last meeting (please see attached description).

The behavior rating cards will be attached to the front of each well-child patient file underneath the billing form. After completing the visit, please fill in the Mother's name, rate her on each dimension and then place the card in the box in the exam room labeled Parent Research Project. We would also appreciate it if you would make a statement to each mother regarding the project which would be something like:

> "We are cooperating with the Parent Research Project and would appreciate it if you would participate by filling out and returning the questionnaire. The project is an interesting one which we hope will provide valuable information and be of help to parents."

Thank you for your valuable assistance.

Enclosed:
1. Sample letter
2. Data collection procedure
3. Behavior Rating Manual

Data Collection Procedure

1. Mother enters office, goes to reception window.

   A. Receptionist hands mother packet with written explanation and request for cooperation - asks mother to read letter.

   B. Receptionist places red check in upper right hand corner of file, clips behavior rating card to file.

2. Doctor fills in rating card, asks mother's cooperation after exam. Places card in box provided.

3. When mother returns packet (by mail) secretary places in box in office.

4. Daily pickups of cards and packets by project staff.

Behavior Ratings

Instructions to Raters

You are being asked to rate mothers' behavior on a few dimensions based on what you have observed of the mother's behavior during your brief interactions with her. Each dimension is described, along with the kinds of behaviors you should consider in making your rating. Sample descriptions of mothers at various points on the rating scale are provided. Thank you for your cooperation.

1. Childlike Impulsivity - Mature and Relaxed Rate mother behavior along continuum, considering her behavior in the clinic or office. Separate anxious and worried from the behaviors of impatience, demanding. Example of extremes:

   5. Jumping to conclusion while you explain things.
      Demand to be seen quickly.
      Impatient with child, pushes, yanks, etc.
      Talks to child on child's level.

   1. Is relaxed and not upset by minor delays.
      Listens attentively to instructions.
      Patient with child yet is able to influence and manage child without resorting to pushing, yanking, etc. (physical means).
      Speaks to child as authority.

2. Dependency - Mature Independence Rate the mother along a continuum from dependent to mature independence based on her behavior towards people you have seen her encounter and the way she relates to you. Examples of extremes:

   5. Relies on others too much.
      Can't make own decisions.
      Wants to be told everything she should do.
      Wants people to take care of her.

   1. Self-reliant.
      Makes decisions on her own but uses professional guidance.
      Takes care of things herself.

3. Apathy/futility - Energetic/involved Rate the mother on this dimension based on your impression of her behavior in the office setting and other knowledge you may have of her. Examples of extremes:

   5. Seems depressed, lacks energy, seems to feel nothing will work, feels that there's no use in trying, doesn't seem to care, accepts almost anything that happens without trying to change things.

   1. Seems energetic, involved and active
      has positive outlooks
      willing to try even difficult things
      wants to change things for the better.

4. Mother's response to a complimentary comment about the child: "My what a (good looking, beautiful, handsome, cute, good or other appropriate positive comment) child."

   1. Smiles with pride, says "thank you" looks at child.
   2. Appears pleased.
   3. Non specific response - ambivalence.
   4. Doesn't seem to understand what the examiner is talking about.
   5. Ignores comment and doesn't look at child.

5. Mother's interest in the child when observed together.

   Reference Behaviors, holding, touching, cuddling, gazing, concern for its needs, reaction to its cries and concern for its appearance.

   5. Dramatic neglect and disinterest.
   4. Noticeable lack of interest.
   3. Questionable concern or ambivalence.
   2. Minimally involved and concerned.
   1. Very involved, with obvious genuine concern.

6. The degree to which the mother appears hassled or overwhelmed by her child caring responsibility.

   5. Appears on the verge of quitting and is completely overwhelmed by her responsibilities (depressed appearance, helpless looks).
   4. Disorganized in efforts to manage child.
   3. Average degree of competence and organization.
   2. Somewhat better organized and effective in managing child than average.
   1. Very competent and effective in managing child and her responsibilities.

Mo. name _____
Rater MD RN OT _____
Date _____

1. Childlike Impulsivity/Mature, Relaxed

1	2	3	4	5
impulsive, demanding				relaxed, mature

2. Dependent - Mature, Independent

1	2	3	4	5
very dependent				self reliant

3. Apathy/futility - Energetic/involved

1	2	3	4	5
depressed giving up doesn't care				energetic positive outlook tries hard

4. Responds to compliment

1	2	3	4	5
smiles with pride		seems ambivalent		ignores comment, doesn't look at child

5. Interest when observed together

1	2	3	4	5
very involved, genuine concern				dramatic neglect and disinterest

6. Degree hassled or overwhelmed by child caring responsibility

1	2	3	4	5
very competent and effective				on verge of quitting, completely overwhelmed

APPENDIX C

Dear Parent:

We would like to ask for your help in completing one of the follow-up phases of our research project. As you know from completing the questionnaire which you received, we are trying to gather information from parents of young children. One part of our project is concerned with studying the questionnaire which we are developing. As part of our statistical analysis of the questionnaire, we need to have parents re-take the questionnaire within a few weeks of having filled it out the first time.

We would appreciate your taking the time to fill out the questionnaire once again and return it in the enclosed self-addressed stamped envelope. Your assistance will enable us to complete the next step in our research project. As we said in our first letter, you will be receiving the results of your questionnaire within the next few months.

Thank you for your cooperation. If you have any questions, please call 924-7471 and ask for the staff of the Parent Research Project.

Sincerely,

Richard R. Abidin
Parent Research Project

RRA/edl

encs.

APPENDIX D

PRP Letter 1

Parent Research Project

University of Virginia

Dear Parent:

The physicians are cooperating with the Parent Research Project of the University of Virginia in a research program which is designed to find ways of helping parents in their task of raising children. The first step in this project is to gather information about the normal difficulties which parents face in raising a young child.

We are asking for your help in this project. Enclosed in this envelope is a questionnaire which we would like to have you complete at home and return in the stamped self-addressed envelope. The questionnaire should take about 30 minutes to complete. We will be sharing the results with you. All the information which you provide will be held in the strictest confidence.

Thank you,

Dr. Richard R. Abidin
Parent Research Project
University of Virginia

PRP Letter 2

Parent Research Project

Dear Parent:

We would like to ask for your help in a research project which is designed to find ways to help parents in their job of raising children.

The first part of the Parent Research Project will gather information from mothers of young children about the normal difficulties involved in raising children. Your answers to the questions on the following pages will help us to better understand the demands faced by mothers of young children. This information will be shared with you and your pediatrician. The information you receive will compare your situation in terms of the amount of stress you are experiencing to that of other mothers with young children. You will receive the results of this questionnaire in approximately 3 months. The information you provide will be kept in the strictest confidence.

In completing this questionnaire, please be as frank as possible in your answers. Your first reaction to the questions should be your answer.

Until we have completed gathering the information and studying the questionnaire, we have asked your pediatrician not to answer any questions about the instrument. If you have questions please call 924-7471 and ask for the staff of the Parent Research Project.

Please return the questionnaire in the enclosed stamped self-addressed envelope. Thank you for your cooperation and participation. You may keep this sheet for future reference.

Dr. Richard R. Abidin
Parent Research Project
University of Virginia

APPENDIX E

PARENTING STRESS INDEX

(PSI)

Richard R. Abidin and William T. Burke

Parenting Stress Index (PSI)

Parent Questionnaire

Instructions:

In answering the following questions, please think about your youngest child.

The questions on the following pages ask you to mark an answer which best describes your feelings. While you may not find an answer which exactly states your feelings, please mark the answer which comes closest to describing how you feel.

Please mark the degree to which you agree or disagree with the following statements by circling the letter which best matches how you feel. If you are not sure, please circle the question mark.

SA	a	?	d	SD
Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree

Example: I enjoy going to the movies.
SA a ? D SD

SA a ? d SD 1. When my child wants something, my child usually keeps trying to get it.

SA a ? d SD 2. Compared to the average child, my child has a great deal of difficulty in getting used to changes in schedules or changes around the house.

SA a ? d SD 3. My child is so active that it exhausts me.

SA a ? d SD 4. When I do things for my child I get the feeling that my efforts are not appreciated very much.

SA a ? d SD 5. My child smiles at me much less than I expected.

SA a ? d SD 6. My child makes more demands on me than most children.

SA a ? d SD 7. As my child has grown older and become more independent, I find myself more worried that my child will get hurt or into trouble.

SA a ? d SD 8. My child looks a little different than I expected and it bothers me at times.

SA a ? d SD 9. In some areas my child seems to have forgotten past learning and has gone back to doing things characteristic of younger children.

SA	a	?	d	SD	10.	My child has had more health problems than I expected.
SA	a	?	d	SD	11.	Sometimes I feel my child doesn't like me and doesn't want to be close to me.
SA	a	?	d	SD	12.	My child doesn't seem to learn as quickly as most children.
SA	a	?	d	SD	13.	There are some things my child does that really bother me a lot.
SA	a	?	d	SD	14.	My child appears disorganized and is easily distracted.
SA	a	?	d	SD	15.	I feel that my child is very moody and easily upset.
SA	a	?	d	SD	16.	My child reacts very strongly when something happens that my child doesn't like.
SA	a	?	d	SD	17.	My child generally wakes up in a bad mood.
SA	a	?	d	SD	18.	My child gets upset easily over the smallest thing.
SA	a	?	d	SD	19.	When playing, my child doesn't often giggle or laugh.
SA	a	?	d	SD	20.	My child easily notices and overreacts to loud sounds and bright lights.
SA	a	?	d	SD	21.	My child doesn't seem to smile as much as most children.
SA	a	?	d	SD	22.	My child usually avoids a new toy for a while before beginning to play with it.
SA	a	?	d	SD	23.	My child seems to cry or fuss more often than most children.
SA	a	?	d	SD	24.	My child doesn't seem comfortable when meeting strangers.
SA	a	?	d	SD	25.	It takes a long time and it is very hard for my child to get used to new things.
SA	a	?	d	SD	26.	Leaving my child with a babysitter is usually a problem.
SA	a	?	d	SD	27.	Compared to most, my child has more difficulty concentrating and paying attention.

SA a ? d SD 28. My child does a few things which bother me a great deal.

SA a ? d SD 29. My child will often stay occupied with a toy for more than 10 minutes.

SA a ? d SD 30. My child is not able to do as much as I expected.

SA a ? d SD 31. Most times I feel that my child likes me and wants to be close to me.

SA a ? d SD 32. My child wanders away much more than I expected.

SA a ? d SD 33. My child makes more demands on me than most children.

SA a ? d SD 34. My child is always hanging on me.

SA a ? d SD 35. My child seems to be much harder to care for than most.

SA a ? d SD 36. My child rarely does things for me that make me feel good.

SA a ? d SD 37. My child is much more active than I expected.

SA a ? d SD 38. My child does not like to be cuddled or touched very much.

SA a ? d SD 39. My youngest child turned out to be more of a problem than I had expected.

SA a ? d SD 40. My child squirms and kicks a great deal when being dressed or bathed.

SA a ? d SD 41. My child's sleeping or eating schedule was much harder to establish than I expected.

SA a ? d SD 42. My child can be easily distracted from wanting something.

For each question, please circle the letter which best describes your feelings about your youngest child.

43. Which statement best describes your child?
    A. Almost always likes to play with me.
    B. Sometimes likes to play with me.
    C. Usually doesn't like to play with me.
    D. Almost never likes to play with me.

44. If your child is age 1 month to 18 months answer Item A. If your child is 19 months or older answer Item B. (Answer Item A or Item B)

Item A. When my child cries, I can tell whether it is hunger or something that hurts.

SA a ? d SD

Item B. It is hard for me to know when my child is unhappy until a big upset occurs.

45. My child cries and fusses:
A. much less than I had expected.
B. less than I expected.
C. about as much as I expected.
D. much more than I expected.
E. it seems almost constantly.

46. When upset, my child is:
A. easy to calm down.
B. harder to calm down than I expected.
C. very difficult to calm down.
D. nothing I do helps to calm my child.

47. How easy is it for you to understand what your child wants or needs?
A. Very easy.
B. Easy.
C. Somewhat difficult.
D. It is very hard.
E. I usually can't figure out what the problem is.

48. When my child cries it usually lasts:
A. less than 2 minutes.
B. 2-5 minutes.
C. 5-10 minutes.
D. 10-15 minutes.
E. more than 15 minutes.

49. How much difficulty does your child have getting used to changes in schedules or changes around the house.
A. A great deal of difficulty.
B. A moderate amount of difficulty.
C. Some difficulty.
D. A little difficulty
E. No difficulty.

Answer key to questions 50-88.

SA	a	?	d	SD
Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree

SA a ? d SD 50. During the past six months I have been sicker than usual or have had more aches and pains than I normally do.

SA a ? d SD 51. I feel that I am successful most of the time when I try to get my child to do or not do something.

SA a ? d SD 52. Since I brought my last child home from the hospital, I find that I am not able to take care of this child as well as I thought I could. I need help.

SA a ? d SD 53. When I think about the kind of parent I am, I often feel guilty or bad about myself.

SA a ? d SD 54. It takes a long time for a mother to develop close, warm feelings for her children.

SA a ? d SD 55. Most of my life is spent doing things for my child.

SA a ? d SD 56. I believe that my child can tell how I feel.

SA a ? d SD 57. I often have the feeling that I cannot handle things for my child.

SA a ? d SD 58. I expected to have closer and warmer feelings for my child than I do and this bothers me.

SA a ? d SD 59. I feel alone and without friends.

SA a ? d SD 60. I am unhappy with the last purchase of clothing I made for myself.

SA a ? d SD 61. I never expected that punishing my child would hurt me as much as it does.

SA a ? d SD 62. When my child misbehaves or fusses too much I feel responsible, as if I didn't do something right.

SA a ? d SD 63. When I left the hospital with my child, I had doubtful feelings about my ability to handle being a parent.

SA a ? d SD 64. Since having my last child, I have had less interest in sex.

SA a ? d SD 65. Being a parent is harder than I thought it would be.

SA	a	?	d	SD	66.	Sometimes my child does things that bother me just to be mean.
SA	a	?	d	SD	67.	When I was young, I never felt comfortable holding or taking care of children.
SA	a	?	d	SD	68.	I find myself giving up more of my life to meet my children's needs than I ever expected.
SA	a	?	d	SD	69.	I feel trapped by my responsibilities as a parent.
SA	a	?	d	SD	70.	I feel everytime my child does something wrong it is really my fault.
SA	a	?	d	SD	71.	I feel capable and on top of things when I am caring for my child.
SA	a	?	d	SD	72.	Physically, I feel good most of the time.
SA	a	?	d	SD	73.	I don't enjoy things as I used to.
SA	a	?	d	SD	74.	I feel that I have been a better parent than I thought I would be.
SA	a	?	d	SD	75.	I expected that being a parent would be much easier than it has been.
SA	a	?	d	SD	76.	My child knows I am his or her mother and wants me more than other people.
SA	a	?	d	SD	77.	I often feel guilty about the way I feel towards my child.
SA	a	?	d	SD	78.	I often feel that my child's needs control my life.
SA	a	?	d	SD	79.	There are quite a few things that bother me about my life.
SA	a	?	d	SD	80.	I felt sadder and more depressed than I expected after leaving the hospital with my baby.
SA	a	?	d	SD	81.	I can't make decisions without help.
SA	a	?	d	SD	82.	When I go to a party I usually expect not to enjoy myself.
SA	a	?	d	SD	83.	I wind up feeling guilty when I get angry at my child and this bothers me.
SA	a	?	d	SD	84.	I am not interested in people as I used to be.

SA a ? d SD 85. I often have the feeling that other women my own age don't particularly like my company.

SA a ? d SD 86. I have had many more problems raising children than I expected.

SA a ? d SD 87. I enjoy being a parent.

SA a ? d SD 88. After being home from the hospital for about a month, I noticed that I was feeling more sad and depressed than I had expected.

89. When I think about myself as a parent I believe:
A. I can handle anything that happens.
B. I can handle most things pretty well.
C. Sometimes I have doubts, but find that I handle most things without problems.
D. I have some doubts about being able to handle things.
E. I don't think I handle things very well at all.

90. Raising children is:
A. a lot of trouble.
B. hard but manageable.
C. difficult at times.
D. a good experience - there are a few problems.
E. a real joy - not hard at all.

91. I feel that I am:
A. a very good parent.
B. a better than average parent.
C. an average parent.
D. a person who has some trouble being a parent.
E. not very good at being a parent.

92. Which statement best describes you?
A. I have always liked and been interested in children.
B. When I was younger I liked children but didn't want to spend time around them.
C. I was never really interested in children.
D. I have never really liked being around children. They still bother me.

93. When my children do things that bother me it is:
A. on purpose to be mean.
B. to get attention.
C. for no reason; they are just being children.
D. for a lot of different reasons.
E. because they haven't learned to do what is expected yet.

94. If my child does something bad (like biting another person) I find that the best way to get the child to stop is:
    A. ignore it.
    B. looking angry.
    C. yelling in an angry voice, "No" or "stop it."
    D. spanking.
    E. biting.

95. Since I've had my child:
    A. I have been sick a great deal.
    B. I haven't felt as good.
    C. I haven't noticed any change in my health.
    D. I have been healthier.

96. When I think about my life I find that:
    A. I feel happy and satisfied.
    B. most of the time I feel happy.
    C. I am unhappy and dissatisfied about a few things.
    D. I am dissatisfied and unhappy about most things.
    E. if I could start over again I would change most things in my life.

97. Think carefully and count the number of things which your youngest child does which bothers you. For example - dawdles, refuses to listen, overactive, interrupts, cries, fights, whines, etc. Please circle the letter which includes the number of things which you counted.
    A. 1-3
    B. 4-5
    C. 6-7
    D. 8-9
    E. 10+

98. I have found that getting my child to do something or stop doing something is:
    A. much harder than I expected.
    B. somewhat harder than I expected.
    C. about as hard as I expected.
    D. somewhat easier than I expected.
    E. much easier than I expected.

Answer key to questions 99 - 114.

SA	a	?	d	SD
Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree

SA a ? d SD 99. Since having my youngest child, my husband (or male friend) has not given me as much help and support as I expected.

SA	a	?	d	SD	100.	It is hard to find a place in our home where I can go to be by myself.
SA	a	?	d	SD	101.	Since having our last child our home seems a lot smaller and we don't have enough space.
SA	a	?	d	SD	102.	When I run into a problem taking care of my children I have a lot of people to whom I can talk to get help or advice.
SA	a	?	d	SD	103.	Since having children I have a lot fewer chances to see my friends and to make new friends.
SA	a	?	d	SD	104.	Since having this child I have been unable to do new and different things.
SA	a	?	d	SD	105.	Having a child seems to have increased the number of problems we have with in-laws and relatives.
SA	a	?	d	SD	106.	The number of children that I have now is too many.
SA	a	?	d	SD	107.	My children are too close together in age and it presents a lot of problems.
SA	a	?	d	SD	108.	Since having a child I feel that I am almost never able to do things that I like to do.
SA	a	?	d	SD	109.	Having children has been much more expensive than I had expected.
SA	a	?	d	SD	110.	Having a child has caused changes in the way I sleep.
SA	a	?	d	SD	111.	Having a child has caused more problems than I expected in my relationship with my husband (or male friend).
SA	a	?	d	SD	112.	Since having a child my husband (or male friend) and I don't do as many things together.
SA	a	?	d	SD	113.	While I was in the hospital with my baby I got a lot of practice taking care of the baby.
SA	a	?	d	SD	114.	Since having my youngest child, my child's father has been busy and does not spend as much time with the child and the family as I had expected.

These questions ask you to provide some information about your family. Your answers will be kept confidential.

115. When were you born? Self ____ Year Your child's father ____ Year

116. What are your ethnic backgrounds?

Self:	Child's father:
____ American Indian	____ American Indian
____ Black	____ Black
____ Oriental	____ Oriental
____ White	____ White
____ Other	____ Other

117. What were the highest levels in school or college you and the child's father have completed?

Self:	Child's father:
____ 1-8th grade	____ 1-8th grade
____ 9-12th grade	____ 9-12th grade
____ Vocational or some college	____ Vocational or some college
____ College graduate	____ College graduate
____ Graduate or professional School	____ Graduate or professional School

118. Are you currently living with your spouse?

____ Yes	____ No: never married
____ No: separated	____ No: divorced
	____ No: widowed

119. How old are the children living in your home?

Girls:	____	____	____	____
Boys:	____	____	____	____

120. Are persons other than your children living with you?
____ No ____ Yes (who? _____)

121a. Are you employed now?
____ No
____ Yes, full time
____ Yes, part time job title _____

121b. If you are not currently employed, what is the main reason? (Check all that apply.)

____ Temporarily laid off	____ Student
____ Not employed, looking for work	____ Health reasons
____ Not employed, not looking for work	____ Retired
____ Homemaker	____ Doing volunteer work
	____ Other _____

122a. Is your husband employed now?
____ No
____ Yes, full time ____ Yes, part time job title _____

122b. If he is not currently employed, what is the main reason? (Check all that apply.)

____ Temporarily laid off
____ Not employed, looking for work
____ Not employed, not looking for work
____ Homemaker
____ Student
____ Health reasons
____ Retired
____ Doing volunteer work
____ Other _____

123. What is your family's total annual income?

____ Less than $5,000
____ $5,000 to $10,000
____ $10,000 to $15,000
____ $15,000 to $20,000
____ $20,000 to $25,000
____ over $25,000

124. During the last 6 months, have any family members been in the hospital for at least 3 days?

____ No
____ Yes ____ total number of days

125. What is the total number of times members of your family saw a doctor during the last 6 months? (Do not count checkups)

____ 0-2 times
____ 2-5 times
____ 6-10 times
____ 11-20 times
____ More than 20 times

126. During the last 12 months, have any of the following events occurred in your immediate family? Please check any that have occurred.

____ Divorce
____ Marital reconciliation
____ Marriage
____ Separation
____ Pregnancy
____ Other relative moved into household
____ Went deeply into debt
____ Moved to new location
____ Promotion at work
____ Income decreased substantially
____ Alcohol or drug problem
____ Death of close family friend
____ Began new job
____ Entered new school
____ Trouble with superiors at work
____ Trouble with teachers at school
____ Legal problems
____ Graduation from school
____ Death of immediate family member

Name _____ Telephone number _____

Address _____

_____

_____

1. I am willing to have the staff of the Parent Research Project contact me for the purpose of follow-up on the research project.

____ Yes ____ No

2. I grant permission for the staff of the Parent Research Project to review my child's medical records for the purpose of follow-up on the research project. I understand the information will be kept in the strictest confidence and I may revoke this permission at any time.

____ Yes ____ No

Signed _____

Date _____

Thank you for your time and cooperation. If you have any questions concerning our project please feel free to call us at 924-7471.

APPENDIX F

Composition of Logically Derived Subscales

Child Characteristics Subscale
Questions 1-49

Mother Characteristics Subscale
Questions 50-98

Situational/Demographic Characteristics Subscale
Questions 99-114, 117-119, 123, 126*

*Weights used in scoring for Question 126 were based on clinical extrapolations of the life stress research (Holmes and Masuda, 1974). Weights used in scoring Question 118 were derived from life satisfaction ratings of individuals of different marital status (Bradburn, 1969). See attached copy of last pages of questionnaire for actual weights used.

Life Stress Composite Score
Total of weights from Question 126.

Coding Manual

ID Number - Code in Social Security Number - left reference
ex: 157540000

Code the questionnaire responses on the computer answer sheets using the following coding formula for items in the SA a ? d SD format.

SA = A
a = B
? = C
d = D
SD = E

Special Cases

43. Response A = A code
B = B
C = D
D = *

44. Code as follows if child is less than 18 months:
Response SA = E code
a = D
? = C
d = B
SD = A

If child is over 18 months, code as follows:
Response SA = A code
a = B
? = C
d = D
SD = E

92. Response A = E code
B = C
C = B
D = A

95. Response A = A code
B = B
C = D
D = E

115. Code test No.: Self in first 2 - last 2 no.s in DOB
Child's Father in second 2

116. Code Self in slot 115
American Indian = A
Black = B
Oriental = C
White = D
Other = E

Code Child's Father in slot 116

117. Code Self in slot 117
1-8th grade = A
9-12th grade = B
Vocational = C
College = D
Grad. School = E

Code Child's Father in slot 118

118. Code in slot 119
Yes = E 5 No nev. mar. = D 4
No sep. = A 1 No divorced = C 3
No widow = B 2

119. Code in slot 120 number of children
1 = E
2 = D
3 = C
4 = B
5 = A

120. Code in slot 121
No = A
Yes = B

121a. Code in slot 122
No = A
Yes F= B
Yes P= C

122a. Same as above, code in slot 124

121b. Code in slot 123 if checked:
Not employed looking = A
Temporarily laid off = C

122b. Same as above, code in slot 125

123. Code in slot 126
less than 5 = A
5-10 = B
10-15 = C
15-20 = D
20- = E

124. Number days hosp.
156 1 2 3 4 5
157 1 2 3 4 5
158 6 7 8 9 0

125. Code in slot 127
Response 0 - 2 = E code
2 - 5 = D
6 - 10= C
11= 20= B
greater 20= A

126. Code in slot if checked, mark A

7	128	Divorce
4	129	Marital Rec.
5	130	Marriage
6	131	Sep.
4	132	Preg.
4	133	Other rel.
4	135	Debt
2	136	Moved
3	137	Promotion
4	138	Income - or +
7	139	Alcohol
4	140	Death of friend
4	141	Began job
3	142	Enter school
2	143	Trouble work
2	144	Trouble school
2	145	Legal prob.
2	146	Graduation
6	147	Death of family

Slot 148 - Code in Physician Name from card
A - Pierello
B - Gleason
C - Wood
D - Benjamin
E - Ford

Slot 149 - Code response for item 1
Response 1 = A code
2 = B
3 = C
4 = D
5 = E

Slot 150 - use same code for item 2

Slot 151 - same code item 3

Slot 152 - same code item 4

Slot 153 - same code item 5

Slot 154 - same code item 6

Slot 155 - count number of extraneous marks
A = 1-3
B = 4-6
C = 7-9
D = 10-12
E = 13-15

Sample showing weights for items

SA a ? d SD 114. Since having my youngest child, my child's father has been busy and does not spend as much time with the child and the family as I expected.

These questions ask you to provide some information about your family. Your answers will be kept confidential.

115. When were you born? Self ____ Year Your child's father ____ Year

116. What are your ethnic backgrounds?

Self:		Child's father:	
____	American Indian	____	American Indian
____	Black	____	Black
____	Oriental	____	Oriental
____	White	____	White
____	Other	____	Other

117. What were the highest levels in school or college you and the child's father have completed?

Self:		Child's father:	
5	1-8th grade	____	1-8th grade
4	9-12th grade	____	9-12th grade
3	Vocational or some college	____	Vocational or some college
2	College graduate	____	College gradua
1	Graduate or professional School	____	Graduate or Professional School

118. Are you currently living with your spouse?

1	Yes	2	No: never married
5	No: separated	3	No: divorced
		4	No: widowed

119. How old are the children living in your home?

Girls:	____	____	____	____
Boys:	____	____	____	____
Total number	1	2	3	4 5 or greater

120. Are persons other than your children living with you?
____ No ____ Yes (who? _ _ _ _ _ _ _ _ _ _ _ _ _)

121a. Are you employed now?
____ No
____ Yes, full time
____ Yes, part time job title - - - - - - - - - - - - - -

121b. If you are not currently employed, what is the main reason? (Check all that apply.)

___ Temporarily laid off
___ Not employed, looking for work
___ Not employed, not looking for work
___ Homemaker
___ Student
___ Health reasons
___ Retired
___ Doing volunteer work
___ Other _ _ _ _ _ _ _ _

122a. Is your husband employed now?

___ No
___ Yes, full time
___ Yes, part time job title _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

122b. If he is not currently employed, what is the main reason?

___ Temporarily laid off
___ Not employed, looking for work
___ Not employed, not looking for work
___ Homemaker
___ Student
___ Health reasons
___ Retired
___ Doing volunteer work
___ Other _ _ _ _ _ _ _ _

123. What is your family's total annual income?

5 Less than $5,000
4 $5,000 to $10,000
3 $10,000 to $15,000
2 $15,000 to $20,000
1 $20,000 to $25,000
1 over $25,000

124. During the last 6 months, have any family members been in the hospital for at least 3 days?

___ No
___ Yes ____ Total number of days

125. What is the total number of times members of your family saw a doctor during the last 6 months? (Do not count checkups.)

___ 0-2 times
___ 2-5 times
___ 6-10 times
___ 11-20 times
___ More than 20 times

126. During the last 12 months, have any of the following events occurred in your immediate family? Please check any that have occurred.

7 Divorce
4 Marital reconciliation
5 Marriage
6 Separation
4 Pregnancy
4 Other relative moved into household
4 Income increased substantially (20% or more)
4 Went keeply into debt
2 Moved to new location
___ Promotion at work
4 Income decreased substantially
7 Alcohol or drug problem
4 Death of close family friend
4 Began new job
3 Entered new school
2 Trouble with superiors at work
2 Trouble with teachers at school
2 Legal problems
2 Graduation from school
6 Death of immediate family member

APPENDIX G

PARENTING STRESS INDEX

Item, Dimension & Illustrative Reference Sources

Item	Dimension		
		A.	Situational/Demographic
115-126			Family Life Questionnaire adaptations Rahe, 1970, 1974.
100-101	(73)		Physical Environment Harper, 1971.
102	(4)		Perceived Resources available outside family Bradburn, 1969. Steele, 1970.
103	(59)		Changes in Social Contacts Holmes and Masuda, 1974.
104	(3)		Availability of Novel Experiences Bradburn, 1969. Bell, 1974.
105	(42)		Extended family relations Croog, 1970.
106-107	(71)		Child Density Abidin and Burke.
108	(57)		Changes in Recreational Patterns Holmes and Masuda, 1974.
109	(54)		Changes in Finances Holmes and Masuda, 1974.
110	(56)		Changes in Sleep Holmes and Masuda, 1974.
111-112	(58)		Changes in Husband/Wife Interaction Holmes and Masuda, 1974.
113	(6)		Mother's Early Experiences With Baby Lozoff, 1977.
		B.	Parent Characteristics
50	(7)		Feeling of Physical Well-being Bell, 1974. Broussard, 1970.

51	(37)	Parent feels able to effect change Emmerich, 1969. Schaefer and Cole, 1977.
52	(39)	Perceived readiness to deal with infant Greenberg, 1973.
53	(Dep)	Mother depression Abidin.
54	(61)	Parent expectations re: positive feelings Robson and Moss, 1970.
55	(21)	Parent sees life focused on child Pumray, 1966.
56	(49)	Feels recognized by infant Harper, 197 .
57	(39)	Readiness to deal with infant Greenberg, 1973.
58	(61)	Expectations re: positive feelings Robson and Moss, 1970.
59	(Dep)	Maternal depression Shepher, M., et al., 1971.
60	(1)	Sense of Psychological well-being Bradburn, 1969.
61	(50/20)	Guilt feelings Fries, 1946.
62	(20)	Feels responsible for child's behavior Pumray, 1966.
63	(40)	Parental early contacts and feelings toward infant Greenberg, 1973. Levy, 1958.
64	(Dep)	Maternal Depression Shepherd, M., et al., 1971.
65	(45)	Expects extreme difficulty Steele, 1970.
66	(18)	Perceived causes of child behavior Hereford, 1963.
67	(38)	Previous experience with children Greenberg, 1973.

68	(21)	See lives focused on child Pumray, 1966.
69	(Dep)	Maternal Depression Shepherd, M., et al., 1971.
70	(20)	Felt responsibility for child's behavior Pumray, 1966.
71	(39)	Perceived readiness to deal with infant Greenberg, 1973.
72	(7)	Physical well-being Bell, 1974. Broussard, 1971.
73	(Dep)	Maternal Depression Shepherd, M., et al., 1971
74	(51)	Expectations of self as parent Fries, 1946.
75	(45)	Expects extreme difficulty Steele, 1970.
76	(49)	Feels recognized by child Harper, 1971.
77	(69/50)	Parental guilt feelings Fell Fries, 1946.
78	(65)	Feeling controlled by and responsible for child Bell, 1975.
79	(1)	Sense of psychological well-being Bradburn, 1969.
80	(40)	Early experience with infant Greenberg, 1973. Levy, 1958.
81	(Dep)	Maternal depression Shepherd M., et al., 1971.
82	(1)	Sense of psychological well-being Bradburn, 1969.
83	(50)	Guilt feelings re: anger Fries, 1946.
84	(Dep)	Maternal Depression Shepherd M., et al., 1971.

85	(1)	Sense of psychological well-being Bradburn, 1969.
86	(45)	Expectations of extreme difficulty Steele, 1970.
87	(63)	Acceptance of parental role Gardner, 1971.
89	(39)	Feels ready to deal with child Greenberg, 1973.
90	(45)	Expectations of extreme difficulty Steele, 1970.
91	(51)	Expectations of self as parent Fries, 1946.
92	(38)	Previous experience with infants Greenberg, 1973.
93	(18)	Perceived causes of child behavior Hereford, 1963.
94	(10)	Tolerance for child behavior Schectman, A., 1970.
95	(7)	Physical health Bell, 1974. Broussard, 1971.
96	(1)	Sense of psychological well-being Bradburn, 1969.
97	(10)	Degree of bother Eyberg scale Bell, 1974.
98	(37)	Perceived ability to effect change Emmerich, 1969. Schaefer and Cole, 1977.

C. Child Characteristics

1	(36)	Persistence Thomas and Chess, 1968, 1971.
2	(36/30)	Persistence/adaptability Thomas and Chess, 1968, 1971.
3	(27/53)	Activity Thomas and Chess, 1968, 1971.

4	(9/66)	Child's reaction to parent Bell, 1974. Steele, 1970.
5	(9/66)	Child's reaction to parent Bell, 1974. Steele, 1970.
6	(12/23)	Infant demandingness Bell, 1974 Broussard, 1971.
7	(16)	Proximal-distal changes in infant behavior Bell, 1974.
8	(8)	Physical appearance of child Bell, 1974. Fullard and Reisling, 1976.
9	(15)	Normal regressions in child behavior Bell, 1974.
10	(22)	Child health Broussard, 1971.
11	(41/66)	Reward child offers to parent Ainsworth, 1971. Bell, 1975.
12	(53)	Response capability of infant Harper, 1971. Emde, 1976.
13	(67)	Exasperating characteristics Bell, 1975.
14	(35)	Attention span Thomas and Chess, 1968, 1971.
15	(33)	Quality of mood Thomas and Chess, 1968, 1971.
16	(31)	Intensity of reaction Thomas and Chess, 1968, 1971.
17	(33)	Quality of mood Thomas and Chess, 1968, 1971.
18	(31)	Intensity of reaction Thomas and Chess, 1968, 1971.
19	(33)	Quality of mood Thomas and Chess, 1968, 1971.

20	(32)	Threshold of responsiveness Thomas and Chess, 1968, 1971.
21	(33)	Quality of mood Thomas and Chess, 1968, 1971
22	(29)	Approach/withdrawal Thomas and Chess, 1968, 1971.
23	(33)	Quality of mood Thomas and Chess, 1968, 1971.
24	(29)	Approach/withdrawal Thomas and Chess, 1968, 1971.
25	(30/36)	Adaptability/persistence Thomas and Chess, 1968, 1971.
26	(20/36)	Adaptability/persistence Thomas and Chess, 1968, 1971.
27	(35)	Attention span Thomas and Chess, 1968, 1971.
28	(67)	Exasperating characteristics Bell, 1975.
29	(35)	Attention span Thomas and Chess, 1968, 1971.
30	(53)	Response capability of child Harper, 1971. Emde, 1976.
31	(41)	Parent/child relation - attachment Ainsworth, 1971.
32	(16)	Proximal-distal changes in child behavior Bell, 1974.
33	(12/23)	Infant demandingness Broussard, 1971. Bell, 1974.
34	(16)	Proximal-distal changes Bell, 1974.
35	(23/12)	Infant demandingness Broussard, 1971. Bell, 1974.
36	(66/9)	Rewards child offers to parent Bell, 1974. Steele, 1970.

37	(27/53)	Activity level Thomas and Chess, 1968, 1971.
38	(9/66)	Rewards child offers to parent Bell, 1974 Steele, 1970.
39	(23/12)	Infant demandingness Broussard, 1971. Bell, 1974.
40	(27/53)	Activity level Thomas and Chess, 1968, 1971.
41	(36/30)	Adaptability/persistence Thomas and Chess, 1968, 1971.
42	(36)	Persistence Thomas and Chess, 1968, 1971.
43	(29)	Approach/withdrawal Thomas and Chess, 1968, 1971.
44	(11)	Readability of infant Bell, 1974.
45	(67)	Exasperating characteristics Bell, 1975.
46	(30)	Adaptability Thomas and Chess, 1968, 1971.
47	(11)	Readability of infant Bell, 1974.
48	(67)	Exasperating characteristics Bell, 1974.
49	(30)	Adaptability Thomas and Chess, 1968, 1971.

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