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Family adaptation to the birth of a premature baby cared for in the intensive care nursery



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# Family Adaptation to the Birth of a Premature Baby Cared for in the Intensive Care Nursery

by

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## ABSTRACT

This multidimensional longitudinal study assessed factors contributing to adjustment of parents following the birth of a premature baby who was cared for in a hospital intensive care nursery.

Sixty-two couples whose premature babies were cared for in an intensive care nursery completed interviews and questionnaires shortly after the birth of their babies and one year later. All data was gathered separately from each spouse. Data regarding ways of coping with the premature birth, previous stressful life events, perceptions of family structural flexibility and cohesiveness, social network, and the severity of the infant's illness were gathered at the initial assessment. The associations between ways of coping and the other dimensions were assessed. At the follow-up assessment, data was obtained for the Symptom Checklist-90, the Parenting Stress Index, the Rand Well-Being Scale, and the developmental and health status of the child. Following the logical framework for adjustment to a stressful event developed for this study, the relative contributions of child health at each assessment, coping, social network, perceptions of family relationships, and previous stressful life events to the psychological adjustment and physical symptomatology of parents both individually and as a couple one year after the birth were assessed.

The results for the relationship among initial assessment variables showed that the use of specific ways of coping was related to gender, socioeconomic status, severity of the child's illness at the initial assessment, previous stressful life events, and family relationships. The results for the contributions to adjustment showed: (1) among mothers, adjustment was related only to the health of the child at follow-up; (2) among fathers, adjustment was associated with their ways of coping and perceptions of family relationships, but not with the current health of the child.

It was suggested that future research on adjustment to stressful events focus on each family member individually, and include a detailed understanding of the impact of the event with the context of the individual's experience and social relationships.

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# Introduction

## Statement of the Problem

Social science research has confirmed the belief held throughout the ages that stressful events are associated with psychological disturbance. The surprise is that many people who experience traumatic events or chronically stressful situations do not exhibit psychological distress. Working from many different perspectives to understand this variation in response to stressful circumstances, social scientists have posited several factors which intervene in the direct relationship between stressful experiences and negative psychological consequences. These include individual personality factors and cognitions, coping processes and social support. The current study explores the relative importance of intervening factors, particularly coping and social support, in the adjustment of families following a stressful experience. An additional contribution of the current study is its focus on family relationships as a specific intervening factor distinguished from social support in general.

This study is based on a theoretical framework, following Lazarus (1966), which presumes that people actively respond to stressful situations and that a combination of the person, the situation, the environmental context and the person's response to the situation

determines adjustment. In order to understand the framework for the current study, it is necessary to understand both the development of research on life-events and stress and on factors which intervene in the process of adjustment to stress. These broad areas of research are the basis for the development of the current study.

The effect of a stressful family experience on the adjustment of family members is explored longitudinally through examination of the experience of having a premature baby cared for in the intensive care nursery. This experience is relevant to the study of family adaptation to stress for several reasons. First, the birth of a baby is a normative family transition. The birth of a premature baby, however, transforms this experience into a crisis situation which can tax the adaptational resources of parents. Having a baby cared for in the intensive care nursery is a highly stressful event for all parents (Caplan, 1960; Caplan, Mason, & Kaplan, 1965; Kaplan & Mason, 1960; Mason, 1963). Second, although there may be important differences in the experience of premature birth for mothers and fathers, the infant's illness is a crisis that parents experience together, with neither spouse being personally in the sick role. Thus, the positions of the spouses relative to the intensity of the stressful event may be approximately equal, although different thematic issues may be involved for each. Factors which influence

the adjustment of both parents are studied and compared. Finally, the adjustment of the family members to the premature birth may have profound effects on the future well-being of the child and on family relationships (Elmer & Gregg, 1967; Fomufod, Sinkford, & Louy, 1975; Klaus & Kennell, 1970; Klein & Stern, 1971; Liefer, Leiderman, & Barnett, 1972).

## Review of the Literature

### A Brief Overview of Stress, Coping, and Social Networks

Stressful life experiences have been associated with both psychological and physical distress in a large body of research (Cohen, 1979; Elliott & Eisdorfer, 1982; Thoits, 1983; Zegans, 1982). Recent research has acknowledged the complexity of this relationship, and has focused on individual psychological resources, including coping strategies and social support, which may buffer the negative effects of stressful experiences on adjustment (Menaghan, 1983; Pearlin & Anashensel, 1985; Turner, 1983). A variety of stressors and of strategies people employ in adapting to them have been explored, along with an array of physical and psychological outcomes related to these stressors and coping strategies. A major portion of the research on stress and coping, however, has focused on the adjustment of individuals apart from the context of their social relationships. The growing body of research

on social support (e.g., Henderson, 1980; Husaini, Neff, Newbrough, & Moore, 1982; Schaefer, Coyne & Lazarus, 1982) touches a social perspective by addressing the adjustment of individuals, with consideration of aspects of their social environment. In the course of daily life, however, individuals experience the effects of stressful experiences and cope with them within the essential social context of family life. The literature on social support does not give specific attention to these family relationships or their stress mediating or enhancing qualities.

Because this study is based on ideas drawn from various theoretical and empirical perspectives, a broad array of literature must be synthesized. The major areas which must be discussed are (1) the physical and psychological effects of stress on individuals, (2) individual coping strategies, (3) social networks and (4) family relationships. Because of the diversity of research to be discussed, a general overview of the perspective of each area will be presented, and sample works will be discussed in greater detail. The last area mentioned, however, family relationships, has been given the least attention in stress research. For this reason and because it is considered an important aspect in adjustment to stressful experiences, it will be explored in greater detail in this review. Within the area of family relationships, several theories of the family will be

presented, including models of family stress. Both theoretical perspectives and empirical research which point to the central role of primary social relationships as the context in which individuals experience stress and as powerful mediators of the effects of stress for the individual will be discussed. These various individual and family frameworks will be integrated in the exposition of the theoretical model of family adaptation to stress used for this study. Finally, literature on the psychological effects of premature birth for both children and families will be presented. The hypotheses for the study will follow.

## Physical and Psychological Effects of Stressful Events

### An overview of the stress framework.

The concept of stress has advanced in this century from a generalized biological formulation, to a concept tied to specific experiences and the psychological responses to them, to a formulation combining both physiological and biological perspectives (Selye, 1982). This latter concept is, however, outside the scope of the present work. The concepts of stress and adaptation may have a historical basis as old as Hippocrates (Selye, 1982), but the modern concept of the association between stress and disease was introduced in this century by Selye (1952), in his description of the "general adaptation syndrome" (GAS). Selye described stress as three physiological phases of

response to a noxious agent: (1) the alarm reaction, followed by (2) the stage of resistance and (3) the stage of exhaustion. All three stages are managed by the body's finite "adaptational energy."

Research on psychological stress and its effects followed this physiological framework, except for the psychological nature of the sources, mediators, and manifestations of stress. Research focused on extreme situations, including military combat experience (Grinker & Spiegel, 1945), the concentration camp (Bettelheim, 1943), and the process of bereavement (Lindemann, 1944) as sources of stress. Disturbances in functioning which were observed were perceived as resulting from these extreme situations. This led to the development of theories regarding the sources. mechanisms, and manifestations of psychological stress (Holroyd & Lazarus, 1982; Lazarus, 41966).

As the concept of stress acquired popular attention during the 1970's, varying approaches were taken in studying it. Researchers defined stress in three major and different ways. Researchers working on responses to extreme situations defined stress as the stimulus itself. In contrast, Appley and Trumbull (1977), in agreement with Selye, described stress as the person's response to stimuli, or "the state of the total organism under extenuating circumstances, rather than an event in the environment" (p.10). Lazarus (1966) emphasized the nature

of stress as involving active transactions between the person and the environment. He describes stress as neither stimulus nor response, but rather as a general term identifying the complex person-environment relationships.

The association between stress and illness. The perspective defining stress as a stimulus followed the homeostatic theories of Cannon (1926) and Selye (1952) and led to research focused on the association between the sources of stress themselves, called stressors, and the development of bodily illness. These stressors were seen as external events or conditions affecting the organism (Breznitz & Goldberger, 1982), and a varied array of such events has been described (Zegans, 1982).

Meyer (1951) introduced the notion of a "life chart" to record the experiences of medical patients for use in diagnosis, and he proposed that ordinary alterations of life circumstances, including normative changes such as residential moves, births, deaths, and job changes, may influence an individual's health status. An important aspect of Meyer's work was the concept that life-events need not be severely traumatic to be important in the etiology of disease. Holmes and Rahe (1967) and their co-workers extended this perspective by examining the relationship between the accumulation of such life changes and the onset of illness among community samples. Through this research approach, they attempted to demonstrate that

the consequences of stress on psychological adaptation could be predicted from additive measures of life-events (Dohrenwend & Dohrenwend, 1974; Gunderson & Rahe, 1974; Holmes & Masuda, 1974). Life-events, or life changes, may be defined as "objective experiences that disrupt or threaten to disrupt an individual's behavior" (Thoits, 1983, p. 34). The outcome measures which have been studied included illness in general (Holmes & Rahe, 1967) and the development of heart disease (Hinkle, 1974; Jenkins, 1976; Theorell, Lind, & Floderus, 1975) and upper respiratory infections (Jacobs, Spilken, & Norman, 1969).

Numerous studies have examined the relationship between life-events and psychological and psychiatric disturbance (e.g., Brown & Birley, 1968; Clayton & Darvish, 1969; Myers, Lindenthal, & Pepper, 1971; Myers, Lindenthal, & Pepper, & Ostrander, 1972; Paykel, 1974), and positive associations have been found. The correlations tend to be statistically significant, but, according to some critics (e.g., Cohen, 1979; Rabkin & Struening, 1976; Thoits, 1983), they are too weak to justify the importance ascribed to them. Some life-events researchers (e.g., Rabkin, 1982; Rabkin & Struening, 1976) have claimed that the truly important association between life-events and illness is obscured due to methodological shortcomings. Others (e.g., Thoits, 1983), however, claim that the methodological problems do not adequately account for the weakness of the

observed effects. Despite these criticisms, the volume of positive findings indicates a correlation between life-events and negative psychological outcomes which should not be dismissed.

The conceptual and methodological approaches to life-events research and the weaknesses of these approaches have been reviewed elsewhere (Brown, 1974; Cohen, 1979; Dohrenwend et al., 1982; Rabkin & Struening, 1976; Thoits, 1983). Issues in this area of research include problems in measurement both of life-events and illness outcomes, questions regarding the validity and reliability of the life-events scales, and questions about the causality of the relationships found. An overview of the research methods and related criticisms will be presented here, beginning with issues in the measurment of life events, followed by the measurement of outcome.

Measurement of life-events. During the past 20 years, many approaches have been taken to the measurement of life events, and researchers have demonstrated increasing awareness of specific qualities of life-events which may be important to assess. These qualities including (1) individual evaluation of the desirability of the event, (2) the controllability of the event, and (3) the predictability of the event may be important in modifying the relationship between these events and negative outcomes.

Holmes and Rahe's original self-report measure of life-events, the Schedule of Recent Experience (Holmes & Rahe, 1967) consisted of 43 common human events, and respondents checked off events which they had experienced during a specified period of time. The Social Readjustment Rating Scale (Holmes & Masuda, 1974) was developed to provide weights fordf these events according to their Life Change Unit (LCU) scores. The weightings were derived by having events rated by samples of judges regarding the amount of readjustment each event required, from 0 to infinity, compared to a standard life change, marriage, which had its rating set at 500. The derived ratings ranged from 11 (minor violations of the law) to 100 (death of a spouse), and were called Life Change Units (LCU). Other similar measures have been developed (e.g., Dohrenwend, Askenasy, Krasnoff, & Dohrenwend, 1982; Horowitz, Schaefer, Hiroto, Wilner, & Levin, 1977; Sarason, Johnson, & Siegel, 1978), and they have used judges to weight the impact of events or have weighted them by the subjective distress reported by the respondent (e.g., Vinokur & Selzer, 1975). These measures have been utilized in a multitude of studies examining diverse physical and psychological outcome measures (for reviews see Cohen, 1979; Dohrenwend et al., 1982; Holmes & Masuda, 1974; Perkins, 1982; Thoits, 1983).

Holmes and Rahe's (1967) measure has been used in many large-scale retrospective and prospective studies. As an example of the prospective studies, Rahe (1968) studied life-events during the previous six months among 2500 U. S. Navy personnel aboard ships. He categorized personnel with life change scores in the top 30% as a high risk of illness group and those with scores in the bottom 30% as the low risk group, and found that the high risk of illness group consistently reported more illnesses during each month of the six-month cruise. These results were used as evidence for the association between life changes and illness. An example of research utilizing psychological disturbance as a consequence of life-events is Paykel's (1974) retrospective study of life-events experienced by depressives during the 6 months before onset of symptoms. He compared these with life-events experienced by matched subjects from the general population and found that events involving exits of people from the social environment were reported by 25% of the depressives and only 5% of the control subjects. This difference was statistically significant and was used as evidence that stressful life-events are associated with the onset of depressive symptoms.

Although Holmes, Rahe, and their colleagues maintain that any life change is associated with illness, other evidence exists that the desirability of an event may

influence its association with negative outcomes (Brown & Birley, 1968; Brown & Harris, 1978; Liem & Liem, 1976; Paykel, Prusoff, & Uhlenhuth, 1971; Vinokur & Selzer, 1975). Thoits (1983) reviews over 20 studies that distinguished between desirable and undesirable events and reports that all but three studies found psychological disturbance more highly correlated with undesirable change than with the total amount of change. She concludes that the relationships between life-events and psychological disturbance found in previous studies can "almost certainly be attributed to the effects of undesirable events alone" (p.58). She makes an interesting distinction between psychological and physical outcomes, indicating that while this conclusion may hold for psychological distress, there is evidence that total change may best predict physical health outcomes (e.g., Chiriboga, 1977; Cooley, Miller, Keesey, Levenspiel, & Sisson, 1979). Thoits (1982) suggests that this may be because people become tired from life changes, whether they are desired or not, and that tiredness may make them more susceptible to illness.

The second quality of life-events which may be important to their association with negative outcomes is their controllability. Psychological theories of helplessness predict that the experience of undesirable and uncontrollable events may lead to harmful psychological consequences (Abramson, Seligman, & Teasdale, 1978), due to

resultant feelings of helplessness and hopelessness. Thoits (1983) points out that life-events researchers, with the exception of Dohrenwend and Dohrenwend (1981) have studied only the effects of controllability isolated from desirability. Researchers have utilized a priori classifications of the controllability of events (e.g., Brown & Birley, 1968) or have asked respondents to rate the controllability of events (e.g., Husaini & Neff, 1980). Thoits (1983) suggests that uncontrollable events are more strongly associated with depression than controllable events. The association between life events and other dependent measures, such as schizophrenia or psychiatric status, does not depend on the controllabilty of the events. For this reason, the variability found for the importance of controllability may result from the use of different measures of outcome. It does appear, however, that controllability of events alone is not as strongly correlated with outcome as desirability of events.

Predictability is the third quality of life-events which may be important in their association with distress. Although this has not been widely explored, it appears that predictable, or normative, events are less disturbing than unexpected events (Dohrenwend et al., 1982). These conclusions are based on both a priori rated normative vs. non-normative events (Pearlin & Lieberman, 1979) and

respondent-rated expected vs. non-expected events (Streiner, Norman, McFarlane, & Roy, 1981).

In summary, the desirability, controllability, and predictability of events moderate their correlation with negative outcomes. In addition, complex configurations among these qualities of life-events may influence the association of life-events with outcome measures, and these configurations have not been investigated. The evidence does suggest that all life-events do not lead to illness or psychological disturbance; rather, certain types of events or events with specific effects on the individual's life are associated with problems in adjustment.

There are, however, problems with the measurement of life-events which should be considered. These include (1) problems of recall, (2) problems of confounding between life-events and outcome measures, and (3) the additive nature of measures.

Uhlenhuth, Haberman, Balter and Lipman (1977) studied the reliability of recall of events over time, and found a decline in recall of events during the course of a year. They concluded that memory of events over time is unreliable. While other studies have not found such decline (e.g., Brown & Harris, 1978), these researchers used interviews to supplement their self-report measures, a procedure which should improve recall. Jenkins, Hurst, and Rose (1979) conclude that reliability of recall is not

adequate for events occurring more than six months previously. The issue of recall is important to consider, particularly if life-events are measured during times of distress, when recall may be reduced.

Some life-events are more likely to occur as a result of illness, and thus may be confounded with outcome measures. Examples of these include sexual and financial difficulties, changes in sleeping habits, and changes in employment. Hudgens (1974) suggested that over half of the items on several life-events questionnaires could be symptoms or consequences of illness. In these cases the direction of causation would be from the illness to the event, and this could result in spuriously inflated measures of the effects of life-events.

It is important to note that the impact of events may increase dramatically as their number increases or when the events are closely clustered in time (for a review of additive effects, see Thoits, 1983). Thus, multiple events may have broader consequences in an individual's life than single events. Multiple events may tax a person's coping abilities dramatically more than single events (Dohrenwend et al., 1982). Pearlin (1983) claims that life-events may have adverse effects due to the extension of their effects to other enduring aspects of life. His sociological perspective stresses the importance of the larger social and role contexts in which events occur.

In this social vein, an area of research which has received little attention is the potentially differential effect of life-events among varying socioeconomic groups. There may be differences among social groups in both their level of exposure to life-events (Dohrenwend et al., 1982) and the negative manifestations of these events. Thoits (1982, 1983) presents evidence that undesirable events are distributed equally among social groups, but that members of disadvantaged groups exhibit more symptoms at any level of exposure. Thus, socioeconomic status may be an additional variable to consider in the investigation of the effects of life-events.

In summary, despite problems in measurement of life events, self-report questionnaires provide information about the accumulation of life changes, sometimes including respondent ratings of the severity, distressfulness, controllability, and/or expectability of these events. They may be used to understand the context in which a specific stressful event occurs or as a general measure of stress which may then be correlated with other psychological dimensions.

Measurement of outcomes. Measures of outcomes in life-events literature include reports of illness (e.g., Rahe, 1968), examination of medical records (e.g., Theorell, 1974), reports of psychological symptoms (e.g., Brown & Harris, 1978; Myers, Lindenthal, & Pepper, 1971, 1974), and

psychiatric patient status (e.g., Birley & Brown, 1970; Paykel, 1974). This review will focus on issues regarding psychological outcome measures which may affect their association with measures of life-events.

Psychiatric diagnoses have repeatedly been criticized for their lack of reliability (e.g., Spitzer & Fleiss, 1974). In addition, general diagnoses often do not differentiate disorders which may have specific relationships with life-events (Thoits, 1982). These problems may lower correlations between life-events and psychiatric consequences in studies which use psychiatric diagnoses as the measure of the consequences of life-events..

Another method used to differentiate psychiatric cases from controls is treatment status. This measure has been subject to criticism because patients' status may reflect help-seeking behavior more than illness itself (Mechanic, 1974; Rabkin & Struening, 1976). Patient status may be insufficent as a measure of psychological distress.

Symptom inventories are a third indicator of psychological outcomes. These too are subject to several problems. These include: (1) problems of social desirability in self-report measures (Dohrenwend & Dohrenwend, 1969) which may result in reponses which are differentially biased in various social groups (Thoits, 1982), (2) the retrospective nature of the self-report

measures (Cohen, 1979) which may result in inaccurate reporting and (3) the subjective nature of the reports, which may result in measures which reflect respondents' perceptions of that they are ill rather than illness itself (Cohen, 1979; Mechanic, 1974). Thus, self-report measures of psychological symptoms have the advantage of ease of application and potential specificity of symptomatology measured, but they also have methodological problems which should be considered in the evaluation of research findings.

Another criticism of the use of dependent measures in life-events research has to do with the timing of these measures. It has been suggested (e.g., Cohen, 1979; Thoits, 1983) that if psychological measures are obtained either too soon or too late after an event has occurred, their relationship with the event may not be observed because the psychological consequences of the event either have not been manifested yet or have already diminished. While most measures of life-events address events occurring up to one year earlier, research has indicated that symptoms may begin as shortly as one month after a series of events (e.g., Brown & Birley, 1968; Paykel, 1979). Thus, there is evidence to indicate that by the time some measures of symptomatology are obtained, event-associated distress may have diminished.

Overall, there is an overwhelming body of research which indicates that there is a correlation between life-events and negative psychological and physical manifestations. The research has methodological problems, and the findings are weak in magnitude, but the consistency of association found across a vast array of research indicates the importance of the association between life-events and distress. Further research must be done, however, to continue the process of defining specific aspects of life-events which contribute to negative outcomes.

According to the theoretical framework of the current study, individuals are not passive recipients of the effects of these stressful events. Rather, they actively mediate the effects of life-events through processes of cognitive appraisal (Lazarus & Launier, 1978), coping (e.g., Coyne & Lazarus, 1980), and use of social support (e.g., Gottlieb, 1981). People also interact with the environment to shape it and thus may contribute to or prevent the occurrence of stressful events (Lazarus & Launier, 1978), but this aspect of personal influence is outside the scope of this review. It is now time to discuss these mediators of the association between life stress and its manifestations, coping and the social environment, to understand their conceptual bases and their importance for the current study.

Coping

Cohen et al. (1982) and Lazarus (1966) have suggested that the ways in which people cope with stressful situations mediate between these situations and their problems in adjustment. Coping refers to the things that people do in their own behalf to avoid or minimize the stress that would otherwise result from problematic conditions of life (Pearlin & Schooler, 1978). Lazarus and Launier (1978) emphasize the person-environment interaction by defining coping as "action-oriented and intrapsychic efforts to manage environmental and internal demands, and conflicts among them, which tax or exceed a person's resources" (p. 311). Along with social supports, this concept is used to explain the varying consequences among people who experience similar stressful situations (e.g., Pearlin & Aneshensel, 1985). While these approaches include both adaptive and maladaptive strategies in their definitions of coping, some theorists (e.g., Haan, 1977) have made a distinction between adaptive management strategies which they call coping and rigid, reality-distorting, or "immature" (see also Vaillant, 1976) strategies which they call defenses. In accord with Cohen and Lazarus (1979), throughout this review the term coping will include any efforts to manage stressful situations.

Although the term coping generally has been applied to individuals, with the exception of the work of McCubbin and co-workers (e.g., McCubbin, Olson, & Larsen, 1982), behaviors which fit the definition of coping can occur both within individuals and in collectivity, within families. Individual coping and coping within families will be addressed in turn.

Coping as an individual process. Coping has been studied and described in diverse ways, and until recently (Cohen & Lazarus, 1979; Haan, 1982; Lazarus & Launier, 1978; Moos & Billings, 1982; Pearlin & Schooler, 1978) there has been no effort to systematically define it. Because of the continuing confusion in this area and the confounding of concepts, it is helpful to begin a discussion of coping with a classification of concepts.Lazarus and Launier (1978) define the major categories of coping as foci, functions, and modes. Cohen and Lazarus (1973, 1979) also distinguish dispositional or trait measures of coping from episodic or process measures. In addition, Pearlin (Pearlin & Aneshensel, 1985; Pearlin & Schooler, 1978), working from a sociological perspective, distinguishes among the roles which serve as the context for the situations with which people cope. Clarification of each of these distinctions is useful for understanding the confusing terminology used within the general concept of coping.

Lazarus and Launier (1978) describe a hierarchical schema of coping concepts, with temporal orientation of coping as the most global concept, followed by focus of coping, function of coping, and mode of coping. In defining these concepts, Lazarus and Launier (1978) claim that understanding the ways in which people appraise situations is critical to understanding the coping efforts they use to manage them. They posit primary appraisal as the evaluation of the significance of a situation for the person's well-being, and secondary appraisal as the person's evaluation of the coping resources which are available to manage the stressful situation. The three possible primary appraisals of situations are (1) irrelevant, (2) benign-positive, or (3) harmful. Appraisals of stress include three types: (1) harm/loss, referring to damage that has already occurred, (2) threat, referring to potential harm in the future, and (3) challenge, referring to a focus on potential gain, growth, or mastery, rather than on potential harm. It is within the context of these appraisals that coping efforts occur. Research relating individuals' appraisal of situations with the coping strategies they use to manage them (e.g., Folkman & Lazarus, 1980; Vitaliano, Russo, Carr, Maiuro, and Becker, 1985), has found important associations between the types of appraisals people make and the modes of coping they use. Other researchers (e.g., Moos & Billings, 1982)

discuss appraisal as a third "focus" of coping, along with problem-focused and emotion-focused coping (see below for Lazarus' definition of focus of coping), rather than as a separate concept which influences coping.

The foci of coping described by Lazarus and Launier (1978) include the self and the environment. Thus, some coping efforts are directed at altering the self, some at altering the environment, and some at altering both. The individual's appraisal of a situation would determine the focus of any efforts to cope with it.

The functions of coping have been described in several different ways, although the ideas underlying these categorizations do not seem to differ in important ways. Lazarus and Launier (1978) define two major functions of coping: (1) instrumental, or efforts to alter the troubled transaction and (2) palliative, or efforts to regulate emotional distress. They specify use of these functions both for past-present and future temporal orientations regarding stress. In later writings (e.g., Cohen & Lazarus, 1979; Folkman & Lazarus, 1980) these two functions are referred to as problem-solving and emotion-regulating. Cohen and Lazarus (1979) point out that these two functions of coping may facilitate each other, as when reducing emotional distress enables a person to actively manage a situation more effectively.

Pearlin and Anashensel (1985) present a slightly different list of functions of coping, including (1) prevention of the stressful situation, (2) alteration of the stressful situation, (3) changing the meaning of the situation, and (4) management of the symptoms of stress. It may be helpful to compare these two descriptions of the functions of coping, which upon examination do not appear to provide divergent conceptualizations of these functions. The first of Pearlin's functions, prevention, falls under the future-oriented perspective of Lazarus and Launier (1978). The latter writers, however, specify both problem-focused and emotion-regulating functions within the future orientation. Pearlin's second function of coping, alteration of the stressful situation, clearly resembles Lazarus' problem-focused function of coping. Pearlin's third function of coping, alteration of meaning, resembles Lazarus' concept of appraisal, but Pearlin's concept emphasizes re-appraisal, or change of the meaning ascribed to a situation, as a means of coping with the situation. Finally, Pearlin's fourth function of coping, management of the symptoms of stress, resembles Lazarus' emotion-regulating function. Thus, these two descriptions of the functions of coping seem to reflect only minor differences. Pearlin discriminates within emotion-focused coping between alteration of meaning and management of symptoms, and this distinction is potentially a useful

one. He combines the temporal and functional aspects of coping as defined by Lazarus under the general category of functions. Lazarus' schema provides flexibility of application by describing two very general functions which occur in each temporal orientation. Thus, each specific schema has certain advantages.

The lack of a defined system for describing how people cope is a major problem in research on coping (Cohen et al., 1982; Cohen & Lazarus, 1979; Haan, 1982; Moos & Billings, 1982). Various writers in slightly different ways have defined how people cope, and each new paper uses a slightly different schema. Thus, although there may be some development in the specificity of ideas regarding coping strategies, there is little replication or verification of previous research. The ways in which people cope have been studied as modes of coping (e.g., Cohen & Lazarus, 1979; Lazarus & Launier, 1978), coping responses (e.g., Billings & Moos, 1981; Moos & Billings, 1982), and coping strategies (e.g., Pearlin & Schooler, 1978). The schema which have been proposed for these "modes" of coping tend to overlap in conceptualization. Lazarus and Launier (1978) identified four main modes of coping as (1) information seeking, (2) direct action, (3) inhibition of action, and (4) intrapsychic processes. Cohen and Lazarus (1979) added a fifth coping mode, turning to others, to this list. These are broad categories, while

other schema (e.g., Moos & Billings, 1981; Moos & Tsu, 1977; Pearlin & Schooler, 1978) include more specific coping strategies. These various lists of coping strategies are too lengthy to present here, but some general comments about them are relevant to this discussion. Some lists of coping strategies, due to their specificity, are relevant only to the situation being managed. Pearlin and Schooler (1978), for example, define specific coping strategies used within various social roles, such as marriage, parenthood, and occupation. Moos and Tsu (1977), Weisman and Worden (1976-1977), and Mages and Mendelsohn (1979) list coping strategies relevant to illness situations. Other schema (e.g., Haan, 1977) are limited to intrapsychic processes, and do not include strategies oriented toward direct action. An advantage of Lazarus' broad schema over more specific ones is that other, more specific coping mechanisms may be subsumed within it. An advantage of the more specific schema is that they define coping strategies more clearly than these broad modes of coping. These various modes of coping will be reviewed further in the discussion of measurement issues in the assessment of coping.

Finally it is important to distinguish between two major conceptualizations of coping which have been used in research, the dispositional and episodic approaches. Dispositional coping refers to the tendency of an

individual to use certain modes of coping across a variety of stressful situations. The episodic or process approach to coping addresses the individual's actual coping behavior in specific situations.

The dispositional approach to coping implies that individuals tend to use the same coping strategies, regardless of the situation, an implication which can be tested by empirical research. For example, according to the repression-sensitization schema (Byrne, 1961, 1964), it is assumed that people have broad dispositions either to repress or to be sensitized to the threatening aspects of various situations. There is evidence, however, that people do not respond the same way to different situations (e.g., Folkman & Lazarus, 1980; Pearlin & Schooler, 1978). Sidle, Moos, Adams, and Cady (1969) asked respondents about their hypothetical use of 10 coping responses in three different situations, and found some degree of situational stability in response and some degree of situational variability. Further evidence is found in research not directly related to coping (e.g., Holmes & Rahe, 1967) which has demonstrated that people tend to rate the severity of various situations similarly, indicating situation-specific, rather than person-specific ratings. Further evidence of problems with the dispositional approach were described by Cohen and Lazarus (1973). They found that process measures of coping were associated more

strongly with ease of recovery from surgery, than were dispositional measures. In addition, they found that dispositional and process measures of coping were not strongly correlated.

The process approach assumes that individuals respond to different situations with various modes of coping. Lazarus and Launier (1978), in fact, emphasize that individuals may respond to a given situation in various ways over time, and that an individual's modes of coping, therefore, should be measured repeatedly over time. Also using a process-oriented perspective, Horowitz (1976) describes the alternation of denial and intrusive thoughts in response to stressful life events, and several researchers have described developmental processes in bereavement (e.g., Parkes, 1972) and in adjustment to illness (e.g., Mages & Mendelsohn, 1979; Weisman & Worden, 1976-1977).

Personality characteristics or general psychological resources of individuals have been associated with their coping strategies. Moos and Billings (1982) call these dispositional characteristics "coping resources," and define them as "personality, attitudinal, and cognitive factors that provide the psychological context for coping" (p. 215). These factors affect the coping process and are, in turn, affected by it. Moos and Billings (1982) stress the necessity for distinguishing between coping resources

(personality characteristics) and coping "responses," or specific coping behaviors. They conclude that both personal (ie., dispositional or resource) factors and environmental (ie., situational) factors should be considered in understanding the use of coping responses, since to some degree resource factors may influence the coping responses people use. Thus, although Lazarus' approach emphasizes situational factors, other researchers put more weight on coping dispositions or resources.

Measurement of coping. Because of the complexity of the coping strategies people use and the lack of agreement regarding ways of categorizing these coping strategies, it is difficult to measure how people cope. Some progress recently has been made, however, in the development of measures of coping. Since the current study utilizes a framework consistent with the process approach to coping, this review of coping measures will address only process-oriented measures. Dispositional measures include the Defense Mechanism Inventory (Gleser & Ihilevich, 1969) and the Q-Sort of Ego Processes (Haan, 1977); reviews of these and other dispositional measures may be found in Haan (1982) and Moos and Billings (1982).

Haan (1982) provides a useful distinction between measures of coping made outside and within the stress situation, and she recommends assessment both before, during, and after stressful situations. Naturalistic

situations, however, do not allow for assessment before a situation occurs. Measurement outside specific situations includes general psychometric testing and assessment of community samples, while measurement within situations includes any studies of specific populations in the process of managing specific stressful circumstances.

Two major approaches have been taken to measure individual coping strategies: the use of interview data and self-report instruments. Examples of each method will be discussed, along with their advantages and limitations.

1. Interview studies of coping.

Two examples of the use of interviews to study coping will be discussed. Other studies which have used this method include Hackett and Cassem (1974), in a study of recovery from myocardial infarction (see also Shaw, Cohen, Doyle, & Palesky, 1985), Weisman and Worden (1976-1977), in a study of adjustment to cancer, and Chesler and Barbarin (1984), in a study of families of childhood cancer patients. For reviews of other studies see Haan (1982) and Moos and Billings (1982).

Cohen and Lazarus (1973) studied the association between coping processes and patients' ease of recovery from surgery. They interviewed hospitalized pre-operative patients regarding their emotional states, knowledge about the operation, and interest in obtaining further information. Using detailed criteria, raters listened to

tape-recordings of interviews and scored subjects on a coping scale from vigilance to avoidance, including a middle group that did not emphasize either vigilance or avoidance. These researchers also administered two dispositional measures, the Goldstein Sentence Completion Test (Andrew, 1967) and the Epstein and Fenz (1967) modified repression-sensitization scale. The results showed that the process ratings of coping were associated with differential recovery from surgery, whereas the dispositional measures were not. This interview procedure for measuring avoidance-vigilance has also been utilized in other studies (Cohen, 1980; Hitchcock, 1983; LaMontagne, 1982; Shaw, 1984).

Pearlin and Schooler (1978) used a sociological role perspective in their study of coping patterns of a community sample. They interviewed subjects regarding the coping strategies they use in relationship to problems within various roles at work and in the family. They classified the strategies that people reported according to the function of the strategy, and assessed the extent to which people used different strategies within different social roles, as well as the effectiveness of those strategies. An important feature of this work was that coping responses specific to each situation were included, such as non-punitiveness vs. reliance on discipline within

the parenting role, and that effectiveness was measured within each role situation.

These interview methods have the advantage of allowing people to describe their coping strategies in their own words. Analysis of these data can contribute to our understanding of what people actually do to manage difficult situations. A potential problem with interview methods aimed at understanding the range of coping responses people use is that subjects may not remember to mention all of the things they have done in coping with a situation. Horowitz and Wilner (1980) suggest that people may remember most readily the coping strategies which were not successful. Another possibility is that people report only their most recently utilized coping strategies. This would result in limited understanding of the range of coping strategies which people use, especially if the interview method does not stimulate recall by asking people about their use of specific coping stategies.

2. Self-report measures.

Examples of self-report measures regarding real life, as opposed to laboratory situations, will be discussed in this review. For reviews of other methods, see Cohen and Lazarus (1979), Haan (1982), Moos and Billings (1982), and Stone and Neale (1984). The self-report measures of coping developed by Moos, Cronkite, Billings, and Finney (1983) and Folkman and Lazarus (1980) will be reviewed here.

Moos and co-workers' Index of Coping Responses (Billings & Moos, 1981; Moos et al., 1983) includes 19 self-report items which were rationally classified in two ways: by coping method as (1) active-cognitive, (2) active-behavioral, or (3) avoidance, and by coping focus as (1) problem-focused or (2) emotion-focused. Respondents complete the questionnaire with reference to a stressful event of their choice. The 19 items on this measure assess a broad array of coping behaviors, including praying, eating, drinking, exercising, taking action, seeing the positive side, and taking it out on others.

Lazarus and co-workers' (Folkman & Lazarus, 1980) Ways of Coping Checklist has been used in various settings. It has been modified, and its factor structure has been revised by several independent researchers. This 68-item measure asks respondents to report how they coped with a recent stressful experience of their choice. These experiences are not classified according to social roles, as in the work of Pearlin and Schooler (1978). This questionnaire also asks respondents to appraise the levels of threat and controllability of the situation. The checklist initially was divided into emotion-focused and problem-focused coping strategies. Its revised factor analysis (Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980) includes 7 scales reflecting modes of coping: (1) problem-focused coping, (2) wishful thinking, (3) help

seeking/avoidance, (4) growth (5) minimizes threat, (6) seeks emotional support, and (7) blames self.

Parkes (1984) examined the coping strategies of nursing students with the Folkman and Lazarus measure. She used factor analysis to derive three global measures of coping (1) general coping, which she interprets as a measure of the degree of variation in the coping strategies used by a respondent, (2) direct coping, which seems similar to problem-focused coping, and (3) repression. Although her findings emphasized global strategies available to repondents, other work with this inventory presents more specified dimensions of coping. Vitaliano, Russo, Carr, Maiuro, and Becker (1985), for example, applied the Ways of Coping Checklist to three groups, including psychiatric out-patients, spouses of Alzheimer's disease patients, and students. They used factor analysis to derive 5 scales: (1) problem-focused coping, (2) seeks social support, (3) blames self, (4) wishful thinking, and (5) avoidance. These scales are similar to those derived by the Lazarus group, but they have higher internal reliability and share less variance, indicating psychometric improvements over the scales of Aldwin et al. (1980). It is interesting to note that Vitaliano et al. (1985) tested the construct validity by correlating some of these coping scales with independent measures of anxiety and depression. These coping scales are not intended,

however, to be measures of depression or anxiety. A question remains whether the significant correlations found were due to confounding between the measurement of coping strategies and measurement of depression and anxiety or to tendencies of depressed or anxious people to use certain coping strategies.

These self-report measures of coping provide for determination of the coping behaviors and patterns that people use. In this way, they have contributed to the development of the conceptualization of modes of coping. The self-report measures are readily administered and offer the opportunity to study many aspects of coping, including the similarity of coping across situations and over time, and the association between the use of coping strategies and a wide range of intrapersonal, situational, and environmental factors. There are problems associated with their use, however.

First, self-report indices of coping are subject to the same problems as any self-report measure regarding reliability and validity. These problems include the assumption that people can describe or report their own behavior (Haan, 1982) and biases due to social desirability (Dohrenwend & Dohrenwend, 1969).

Second, the factor analytic techniques used to derive these measures assume that people will respond similarly on items which reflect similar coping responses. It may be,

however, that the successful use of one strategy reduces the need to use other coping strategies (Moos & Billings, 1982). In this way, additive measures of coping may not accurately reflect how people manage stressful situations.

Third, a limitation of these measures is that the items and derived scales describe generic categories of behavior rather than specific actions. An item such as "took some positive action," for example, does not indicate exactly what the person did. Similarly, "talked to a friend about the situation" does not indicate how extensively this was done or how satisfying it was. In addition, it should be remembered that the derived coping scales necessarily reflect only behaviors which are included on the coping questionnaires.

Fourth, since they were derived to assess coping with a range of problems experienced by people in the community, these measures do not necessarily include the specific coping strategies used by people in unique situations. In order to describe accurately the coping strategies used by specific populations, therefore, it may be necessary to modify these self-report measures to fit the specific demands of individual stressful situations.

In summary, although much theoretical and empirical work has been done in the area of coping with stressful situations, there is no consensus among researchers regarding what aspects or modes of coping are most

important. It is a complex field of study, and further work must be done to define coping strategies, the patterns in which they are used in various situations, and their relative effectiveness.

The approaches to coping discussed thus far have been oriented toward the coping of individuals, reflecting the historical development of the term coping. Coping behaviors, however, often involve interaction with others, particularly with other family members. Since, with the exception of a few studies(e.g., McCubbin, Olson, & Larsen, 1982; Stewart, 1982), research has not specifically addressed coping within families, it is necessary to infer family coping strategies from studies of other aspects of family interaction.

Coping within families. On the family level, the study of coping-related behaviors has included research on problem-solving (e.g., Caplan, 1976; Minuchin, 1974, 1978; Reiss, 1971, 1981), communication patterns within the family (e.g., Rausch, Barry, Hertel, & Swain, 1974), and self-report measures of coping strategies used by the family (e.g., McCubbin et al., 1982), research which combines coping measures of individual family members (e.g., Stewart, 1982), and sociological approaches to stress management (e.g., Glasser & Glasser, 1970). Problem-solving and communication patterns have been studied within the investigation of family functioning in general, rather

than in studies of adjustment to specific stressful situations. In the current study we are interested in how people cope with a stressful situation within the context of family life, in addition to how they cope as individuals. Research within each of these two areas offers insight into aspects of coping which may be important in understanding coping within the family context, and these will be discussed in turn.

Family problem-solving has been described by various researchers in terms which reflect all of the functions of coping described by Pearlin and Aneshensel (1985). The first of these functions, prevention of the stressful situation, was described by Minuchin (1978) in his clinical research on families of children with psychosomatic illnesses. He defined the family's lack of problem-solving ability as one of four factors which predicted psychosomatic illness. Reiss (1967, 1981), in his laboratory studies of family functioning, investigated whether the problem-solving ability of individuals improved or declined when they attempted to solve problems conjointly with other family members. He found that, relative to families with no history of psychiatric disorders, families of psychiatric patients were more likely to deteriorate in their ability to perform problem-solving paradigms when they worked with other family members. Caplan (1976) presented a theoretical framework

in which he discussed the role of the family in assisting individual members with problem-solving throughout the life course. In this schema, the family facilitates individual problem-solving. As described by these writers, problem-solving may encompass a variety of behaviors, including establishing a chain of command, discussion of a problem and possible solutions among family members, and initiation of action within the family or in the outside world. These modes of behavior, which include affective behaviors, gathering information, and taking concrete action, are similar to the modes of coping behavior which have been described for individuals.

Effective communication patterns have been described as prerequisites for coping within the family. Rausch, Barry, Hertel, and Swain (1974), for example, emphasize specific communication styles that foster conjoint learning and continued evolution of family relationships. These communication patterns allow couples to work together more competently in meeting the demand to find creative solutions to manage new situations. Mishler and Waxler (1968) defined several characteristics of the communications of families who work well together. These include flexible verbal and non-verbal communication styles, egalitarian decision-making, and responsivity among family members in terms of knowing what to expect from each other and understanding each other. Some writers have

found that the silence of family members is an indication of poor functioning (Ferreira & Winter, 1965), while others have suggested that lack of communication is less destructive than negative communication (Stuart, 1970). Whichever aspects of communication are identified as most important, communication within the family may fulfill each of the functions of coping defined by Pearlin and Aneshensel (1985) and described above.

Thus, there are identified dimensions of family interaction which may be viewed broadly as forms of coping. This indirect, inferential approach to coping, however, is oriented toward general behaviors within families rather than toward responses to specific stressful situations. In addition, the problem-solving and communication research addresses only limited aspects of the range of coping behaviors which people use. These are important aspects of coping within families, but there are other modes of coping which are neglected within this interactional framework.

McCubbin and his co-workers specifically have addressed coping responses of the family as a unit, and they have developed an inventory of family coping strategies. Their work follows the theoretical frameworks of Hill (1949) and Burr (1973), which depict the family as an active "reactor to stress and as a manager of resources within the family system" (McCubbin, Patterson, Comeau,

Joy, Cauble, & Needle, 1982). These frameworks are described more fully in the section on "Family Stress Theory." McCubbin and his colleagues (McCubbin, Olson, & Larsen, 1981) developed a family-oriented measure of coping, the Family Crisis Oriented Personal Evaluation Scales (F-COPES). This 30-item scale has been factor analyzed to derive eight scales within two dimensions, the ways in which a family internally handles difficult situations and the ways in which they manage problems with the external environment.

Although the family-oriented nature of this measure gives the impression that it is an ideal approach and useful measure for the current study, several important problems with this and similar measures must be made clear. First, respondents are asked to answer questions according to what "we" do when "we" face problems or difficulties. It seems readily apparent that "we" do not engage in behavior, except when the behavior specifically involves interaction between people. Individuals engage in behavior, sometimes with others. Thus, in reference to an item such as "Having faith in God," it is not clear what an accurate response would be for a religious man who is married to a woman who does not believe in God. It seems that spouses could have disparate responses to every item in the questionnaire. Second, the questions are oriented toward problems or difficulties in general rather than to a

specifc problem. In this way, they are oriented toward a dispositional view of coping (Cohen & Lazarus, 1973, 1979), the problems of which were presented earlier. Finally, the 30 items on the questionnaire do not represent a complete sampling of possible coping responses. There are, for example, no items reflecting avoidance and no items reflecting drinking, smoking, over-eating, or other stress-reduction behaviors, and, surprisingly, no items reflecting sharing of problems within the family.

Although McCubbin and his colleagues have been highly productive in the general area of family stress, their research involves ascertaining individuals' perceptions of their families rather than any direct measures of the family as a unit. Because the family is an interacting group, it presents major obstacles to research efforts. Although the work of McCubbin and his associates has not solved these problems, it has brought attention to them and contributed to the development of new ways to approach family research.

In research combining coping measures of individual family members, Stewart (1982) studied the process of family adjustment during the aftermath of a devastating tornado. Each spouse completed Folkman and Lazarus' (1980) Ways of Coping Checklist, and she examined their scores on emotion-focused and problem-focused coping in combination. She found that marital pairs who were least likely to have

a member use counselling services had only one member who used a high degree of problem-focused coping. Marital pairs in which both or neither spouse had a high problem-focused coping score were more likely to use counselling services. This study suggests that the combination of coping strategies used by spouses may be related to adjustment. Thus, the specific coping stategies used by an individual may have different effects, depending on the coping strategies of the spouse. The specific results of Stewart's study indicate that it may be better for both spouses if only one of them takes a problem-focused approach to coping than if both of them take a problem-focused approach. A broader perspective on this research method, however, is that it indicates that studies of the social context in which individuals cope may provide valuable insight into the use and effectiveness of their coping strategies. In addition, this method avoids the problem described above of individuals responding with regard to "family" behavior.

Sociological research on family adjustment to stress has identified some interactional qualities of the family which contribute to better coping. These qualities were described by Angell (1936) as integration and adaptability, and they were verified by Hill (1949), who added the quality of marital adjustment. Glasser and Glasser (1970) have categorized qualities which are essential for families

to cope with stress adequately as (1) involvement and commitment of family members, (2) interdependence of the instrumental and socioemotional roles of family members, and (3) adaptability. Thus, families lacking these qualities would be seen as more vulnerable to the negative manifestations of stressful situations. These concepts may be compared with coping resources, or dispositions described for individuals. Thus, rather than describing specific coping behaviors in which family members engage, these sociological concepts of family functioning describe qualities of the family which may contribute to or inhibit the use of specific coping responses. In this way, these researchers do not distinguish what the family "is" from what the family "does."

Of these five approaches to the study of family coping, including studying family problem-solving, observing family communication, questioning individuals regarding their perceptions of family coping, combining data on the coping efforts of individual family members, and identifying family coping resources, research which combines the coping responses of individuals seems the most promising within the stress and coping framework. This approach allows the researcher to gain an understanding of the range of individual coping strategies as well as the combinations of coping strategies used by family members. This methodology has not been used widely, and further

investigation of ways to combine data from family members may provide promising results.

In summary, how people cope with situations clearly is an essential ingredient in any formulation of the relationship between stressful life situations and adjustment to them. Coping may be studied as a type of individual behavior or within the social context of the family, and a broad range of aspects of coping may be addressed. The current conceptualization of coping strategies includes a level of specificity beyond the simple repression-sensitization versus emotion-focused conceptualizatons used during the last decade, and it seems useful to develop and utilize these more precise categories. In addition, it appears useful to study coping both within individuals and by comparing the coping responses of individuals within families.

The social environment is the second major factor which has been posited as a mediator in the association between stressful life events and their negative manifestations. It is time now to discuss this mediator and its role in the management of stress.

The Social Environment

Research has demonstrated that aspects of individuals' social environment are associated with measures of both physical health (e.g., Cassel, 1976; DiMatteo & Hays, 1981) and mental health (e.g., Cobb, 1976; Mueller, 1980).

Social networks and social support have been posited as a major modifier of people's responses to common problems (e.g., Dean & Lin, 1977; Pearlin, 1985). In addition, researchers have posited that the family is an aspect of the social environment which greatly influences adjustment (e.g., Hill, 1949; Kaplan, Smith, Grobstein & Fischman, 1977; Venters, 1980). This review of the social environment in relation to stress will cover four areas: (1) epidemiological research which has pointed to the significance of the social environment in the maintenance of physical and psychological well-being, (2) the concepts of social support and social networks, (3) the measurement of social networks, and (4) the family as a mediator of stress.

The social environment and physical health. Epidemiological research indicates that disruptions in social connections, low levels of emotional or instrumental support, and few social attachments are associated with poor health outcomes (for reviews see Broadhead, Kaplan, & James, 1983; Mueller, 1980; Turner, 1982; Wortman, 1984). Various studies conceptualize the social environment differently, and they use disparate indicators of physical health including mortality, incidence of heart disease, and complications of pregnancy.

The evidence for an association between marital status and mortality is strong and "incontrovertible" (Turner, 1982). Some studies have used marital status to indicate the presence of social ties or death of a spouse to indicate absence of ties. Kraus and Lillienfeld (1959), for example, compared mortality rates of married and single people. They found that married people had lower mortality rates than single persons in each demographic group studied and that widowers had mortality rates three to five times greater than married men of the same age.

Parkes, Benjamin, and Fitzgerald (1969), in their prospective "Broken Heart" study, followed 4500 widowers after their wives' deaths. They found that these widowers had a 40% increase in their death rate over that expected for the population at large. This elevated mortality rate was attributed to the loss of the critical intimate social tie of marriage. While the loss of one's wife includes the loss of a social role, instrumental support, affection and companionship, as well as other potential social ties and services, this study did not distinguish specific aspects of loss which may have been associated with mortality.

Expanding the conception of social ties beyond marital status, Berkman and Syme (1979) studied mortality rates prospectively for nine years among nearly 5000 residents of Alameda County, California. They examined the social ties of marriage, friends, church membership and other group

affiliations. Controlling for health status and risk factors at the time of first contact, they found that those with the most social contacts had the lowest mortality. The more intimate ties of marriage and friendship were stronger negative predictors of mortality than church or other group membership. The researchers suggest that social factors somehow influence host resistance and vulnerability to disease, although the specific mechanisms of mediation were not discussed.

Further epidemiological studies have investigated other aspects of the social environment in relation to physical illness. Nuckolls, Cassel, and Kaplan (1972) studied the relationship of stress factors to pregnancy complications. They found that in situations of high stress, women who also had high "psychosocial assets" had low levels of complications, while those without these assets had higher levels of complications. Thus, social connections are seen here as mitigating the effects of stress. "Psychosocial assets" were defined as any factors which "contribute to a woman's ability to adapt to her first pregnancy" (p.433), and included her feelings about herself, her marriage, her extended family, patterns of friendship, and her feelings about the pregnancy. Among the methodological problems of this study is the inclusion in the index of psychosocial assets factors other than the social environment, so that the social environment was not

isolated for study. In addition, the index of psychosocial assets includes aspects of the pregnancy which may be confounded with the outcome measure, complications in delivery. Similar studies utilizing more clearly defined measures of social support could yield more conclusive results.

In a study of the role of the social environment in heart disease, Stout, Monroe, Brandt and Wolf (1964) studied the incidence of deaths due to myocardial infarction (MI) in Roseto, Pennsylvania. They compared this with the MI death rate in four neighboring towns. Roseto was a stable Italian town where people were overweight, ate large quantities of lard, and would have been expected to have high risk of MI. Their MI death rate, however, was exceptionally low. Men who were born in Roseto and moved elsewhere died of MI at relatively young ages. The authors cite the stability of the town, the enjoyment of life among its residents, and the lack of overt class distinctions as possible social factors supporting this salubrious condition. In this study, the role of the social environment in health maintenance is inferred, and a strong and unified social environment is proposed as a buffer to the effects of physiological and behavioral risk factors for myocardial infarction.

Medalie and Goldbourt (1976) prospectively studied the association between social factors and heart disease. They studied the incidence of ischemic heart disease in 10,000 Israeli men aged 49 and over during the course of 5 years. Self-reports of anxiety and family problems were associated independently with the development of angina pectoris. In addition, perceived love and support from the patient's wife significantly reduced the risk of angina, even in the presence of high risk factors, including anxiety. Thus, although family problems apparently contributed to illness, perceived spousal love and support mediated the effects of other problems. In contrast to the studies of social connectedness discussed above, the measure of the social environment used in this study focused on subjects' perceptions of their love relationships with their wives.

Further evidence of the association between poor social connections and illness includes the findings of associations between exits from the social network and the exacerbation of congestive heart failure (Chambers & Reiser, 1953) and the incidence of tuberculosis (Chen & Cobb, 1953). Other studies have investigated the relationship between low levels of social support (see below for further description of this concept) and poor recovery from illness. Finlayson (1976), for example, found that husbands whose wives perceived low levels of instrumental support had slower recovery following

myocardial infarction, and Cobb (1976) reported more arthritic symptoms among men who had small social networks.

Although each of these studies utilizes a unique conceptualization of the social environment, their overall, compelling conclusion is that there is an important relationship between social ties and the incidence of physical health problems (DiMatteo & Hays, 1981; Turner, 1982). They barely begin, however, to suggest specific aspects of human social relationships which may be important to this connection. The mechanisms of mediation remain as an unopened black box.

The social environment and psychological well-being. In addition to the associations between the social environment and physical health, aspects of the social environment, variously defined, have been associated with psychological well being (for reviews see Cobb, 1976; Cohen et al., 1982; Dean & Lin, 1977; House, 1981; Mueller, 1980). These studies have investigated the association between social relationships and the incidence of psychological problems such as depression and other psychological disorders (e.g., Brown & Harris, 1978; Dean, Lin, & Ensel, 1981; Henderson, Byrne, & Duncan-Jones, 1981; Miller & Ingram, 1976; Pattison, DeFrancisco, Wood, Frazier, & Crowder, 1975; for reviews see Gottlieb, 1981; Mueller, 1980; Turner, 1982), as well as their role in

mediating the negative effects of stress, including life stress in general (e.g., Aneshensel & Frerichs, 1982; Dean & Lin, 1977; Fischer & Phillips, 1982; Husaini, Neff, Newbrough, & Moore, 1982; Pearlin, Lieberman, Menaghan, & Mullan, 1981; for reviews see Cassel, 1974; Cobb, 1976; Eckenrode & Gore, 1981; Kessler, 1982), work-related stress (e.g., House, 1981; LaRocco, House, & French, 1980), and the stress of physical illness (for reviews see DiMatteo & Hays, 1981; Wortman, 1984; Wortman & Conway, 1985). These studies point to an essential role for social relationships in positive adjustment to stressful experiences and to life in general.

This voluminous area of research addresses various aspects of the social environment which have been postulated as factors associated with psychological well-being. These include the presence of a confidant, the number of social ties, the level of social integration in the community and the perception of the adequacy of social ties.

Using the presence of a confidant as an indicator of social relationships, Brown and Harris (1978) found that following stressful experiences, women who had a close, confiding relationship with a husband or boyfriend were less likely to develop symptoms of depression than those without close relationships. This finding was confirmed by Roy (1978) in a matched controlled study of depressed

women. He found that significantly more depressed women had non-confiding relationships with their husbands than non-psychiatric patient controls. The results of both of these studies relate only to women.

Several researchers (e.g., Henderson, Duncan-Jones, McAuley, & Ritchie, 1978; Pattison et al., 1975) have found that "neurotics" have fewer social connections than "normals," and that psychotics have even fewer social connections, most of which are with kin. Neurotics rated interpersonal relationships negatively more often than did normal subjects. There is confusion in this research, however, about whether these limited social relationships are the cause, the result, or a manifestation of the psychological disorders. Pre-illness characteristics may account for these observed associations (Turner, 1982), and manifestations of the illness itself may account for the negative ratings of existing relationships.

Much research indicates an association between the lack personal integration in one's community and depression (for review see Mueller, 1980). Several epidemiological studies, for example, have shown higher rates of mental illness among people who live in communities in which they are members of a minority group (e.g., Mintz & Schwartz, 1964; Wechsler & Pugh, 1967). Brown, Davidson, Harris, Maclean, Pollack, and Prudo (1977) studied women living on an isolated island off the coast of northern Scotland.

They found that women who were more integrated into the community, as defined by being born there, living in a household engaged in one of the major occupational activities, and attending church regularly, were less likely to be depressed. An intriguing additional finding was that women who were more integrated had higher levels of anxiety, and the researchers suggest that this may be due to the oppresssive nature of the closely attached community. Although these studies require inferential interpretation, they are consistent with the concept of the importance of the social environment in the maintenance of psychological well-being.

Researchers also have found that specific aspects of the social environment are associated with the epidemiology of depression. Henderson and his associates (Henderson, Byrne, & Duncan-Jones, 1981) assessed the availablility and perceived adequacy of social attachments and of "social integration" in a community sample in Canberra, Australia. They found that the onset of psychological symptoms was associated with subjects' ratings of both the availability and the perceived adequacy of social relationships, but that the associations were stronger for perceived adequacy. A potential problem in this type of research is that people who report psychological symptoms also may tend to report dissatisfaction with their social relationships (Henderson et al., 1981; Thoits, 1982).

In summary, there is sufficient evidence to conclude that people who have more, stronger, or more satisfying social relationships are less likely to suffer psychological distress. Several methodological problems, however, complicate this conclusion. First, research on the effects of the social environment has used diverse definitions of the social environment and of social support (Bruhn & Phillips, 1984). Most researchers develop their own instrument using a unique conceptualization of the underlying theme (Cohen et al., 1982), and as a result, it often is not possible to compare results of various studies.

Another source of concern and intense debate is whether social relationships, however they are defined, have a direct role in preventing illness or whether they serve as buffers to the negative effects of stress. Cobb (1976) argued that social support acts chiefly as a buffer, but its effect is frequently observable because life is full of crises. This is a complex methodological issue, and several researchers have commented on the effects of confounding between measures of life events and social relationships and how this, in turn, influences findings regarding buffering effects (Schaefer, Coyne, & Lazarus, 1981; Thoits, 1982). Turner (1982) reviewed the criticisms of both buffer and main effects hypotheses and concluded that it is not possible to resolve the issue of direct

versus buffering effects, and that "social support is of influence independent of degree of adversity, that it matters more when adversity is high" (p.144), and that its importance varies according to social class. Thus, it is likely that the social environment affects health directly and acts as a buffer to the effects of stressful experiences.

Finally, the interpretation that social relationships are causally associated with health and well-being has been questioned by numerous writers (e.g., Mueller, 1980; Thoits, 1982; Turner, 1982). Most of the studies of social relationships and health have been cross-sectional in design. Mueller (1980) concludes that the studies which show differences in characteristics between the social environments of people who have psychological disorders and those who do not fail to clarify this issue of causality. Since many life events directly involve changes in social relationships (i.e., deaths, births, or marriages) or result in changes (i.e., moves, illness, or job changes), and coping strategies often involve social relationships (i.e., seeking social support or seeking information), it seems likely that these three major factors work together in some mutually influential patterns to affect health and well-being.

Although some writers have questioned the strength of research on the association between social relationships and health (e.g., Cohen, 1979; Heller, 1979), many conclude that although methodological problems pertain there is a wealth of evidence in support of the importance of the social environment for both physical and psychological well-being (e.g., Dean & Lin, 1977; Turner, 1982). Turner refers to the historical nature of the concept that social relationships play a crucial role in general well-being as he quotes Genesis (2:19) in which the Lord says that "it is not good that man be alone." Mueller (1980) extends theories of the significance of social relationships in his proposition that the major effects of life-events on health and well-being may be mediated through their effects on the social environment.

Definitions of social supports and social networks. The identification of aspects of the social environment which are important in resistance to stress and under what conditions, however, remains a major task for research in this area (DiMatteo & Hays, 1981). What are these aspects and how have they been considered? The two major areas of the social environment which have been studied are social supports and social networks.

Social support generally refers to the qualitative aspects of social relationships (Bruhn & Phillips, 1984; Turner, 1982), and may include respondents' perceptions of

the adequacy of social relationships (e.g., Henderson et al., 1981). A number of researchers have differentiated types of social support which may be important. Cobb (1976) conceptualized social support as information leading a person to believe that he/she is loved and wanted, valued and esteemed, and a member of a network of mutual obligation and communication. House (1981) extended this definition by identifying four types of support as (1) emotional support, involving empathy, love, and trust, (2) instrumental support, involving behaviors which directly assist the receiver, (3) informational support, or the provision of information which may be useful in a given situation, and (4) appraisal support, or information relevant to self-evaluation. Research has emphasized various of these aspects of support, often in terms of how support is perceived by its recipients. In this way, research on social support constitutes a subjective approach to the study of the social environment.

The study of social networks is a quantitative approach to the social environment, including such concepts as the number, interconnectedness, and proximity of social relationships, as well as patterns of communication among network members. The network perspective as a defined analytic tool was developed by Mitchell (1969), and has been used widely (for reviews see Mueller, 1980; Turner, 1982; Wellman, 1981). Networks are defined as the group of

people with whom an individual maintains social bonds, or the "outer boundaries of supports upon which an individual can draw" (Pearlin, 1985, p. 44). Wellman (1981) in his review of social network analysis and its relation to social support, endorses the social network approach as a background for understanding the circumstances under which people receive support. Mueller (1980) refers to the social network concept as a unifying framework in which diverse findings regarding social factors (including network structure, supportiveness of network ties, and change or disruption of network ties) may be integrated. He defines the primary network as the people with whom the focal individual has a personal relationship, and indicates that this group is most relevant for psychological study. It is this social network which is of interest in the current study.

Measurement of social networks. It may be observed that of the studies reviewed above, some investigated structural characteristics of the network, such as its size or the presence of certain types of people, and others investigated qualitative or supportive aspects of social ties, such as respondents' perceptions of the adequacy of their social relationships. Both types of measures have been associated with physical and mental health. Structural measures of social networks are relatively objective and independent of other variables, such as

stress and mental health (Wortman, 1984), which is an important advantage in research that looks for associations between the social environment and health. For this reason, techniques which have been used to measure structural aspects of social networks will be discussed here.

Many researchers have used their own unique methods for studying social networks, but some recently developed instruments (e.g., Fischer, 1982; Henderson, Byrne, & Duncan-Jones, 1981) show promise for more widespread application. These social network measures indicate the extent to which people are linked to significant others and thus have opportunities to interact in ways that could, potentially, foster the expression of support (Barrera, 1981). Measures of social networks have included indicators such as marital status, membership in formal groups such as church or civic organizations, and indirect measures of social factors in the community at large. Each of these measures addresses a limited aspect of the social network, and examples of studies which used these methods are reviewed above.

Henderson et al.'s (1981) Interview Schedule for Social Interaction (ISSI) is a more complete approach utilizing a self-report questionnaire. This 52-question instrument asks subjects to indicate the number of people with whom they have various levels of contact, from

exchanging a few words to discussing upsetting events, and to evaluate the adequacy of these contacts. The ISSI is a thorough questionnaire, but it seems likely that the current subjective state of respondents would strongly bias their replies. For example, someone who is feeling depressed or lonely at the moment might underestimate the number of contacts he/she actually has. In this way, measures of social network and social support derived from this and other similar questionnaires are likely to be confounded with the psychological state of the respondent.

Fischer (1982) recently developed a systematic interview method for questioning subjects regarding their social networks. Subjects are asked to name specific people who perform various specified functions, including who would care for their home if they went out of town, with whom they discuss spare-time interests, whose advice they would consider in making important decisions, and from whom they could borrow money. In this way, subjects think systematically about people who fulfill each of these functions. Subjects then are asked a series of questions about their relationships with the specific people, and measures of the social network are derived. Fischer applied this methodology in a study of the social network characteristics of 1000 urban residents. It has an advantage over other techniques in that asking people to name specific individuals in their social networks allows

for relative objectivity in reporting. In addition, questions regarding specific activities in which these other people participate stimulates recall of social network members who might otherwise be forgotten.

There is ample evidence that aspects of the social network are important for psychological adjustment (e.g., Mueller, 1980; Wellman, 1981). Researchers do not agree, however, about the effects of specific social network characteristics. Cobb (1976), for example, emphasizes the importance of small, close networks, while Wellman (1981) and Granovetter (1982) discuss the value of larger networks which include weaker ties as potential sources of new information and of social support in long-term stressful situations. It seems likely that the advantage of small as compared to large networks would depend to a large degree on the type of stressful situation encountered. Thus, further research is necessary to identify the specific aspects of social networks which are related to positive adjustment, as well as the conditions under which they are relevant. In addition, further study of the association between dimensions of the social network and stressful life events and coping may reveal combinations of these factors which are important for physical and psychological well-being.

Family relationships as an important dimension of the social environment. As a dimension of the social environment, family relationships largely have been neglected in research on social networks and social support. Studies that use marital status or perception of spousal love as the indicator of social attachment (e.g., Brown & Harris, 1978; Kraus & Lillienfeld, 1959; Parkes, Benjamin, & Fitzgerald, 1969; Roy, 1978) are, however, an exception to this neglect. Below, it will be posited that the family is a unique, non-substitutable part of the social network. Second, a model of family stress will be presented, and, third, issues regarding the measurement of family relationships will be presented.

The social bonds within the family have implications which extend beyond those of other parts of the social network, and these bonds make relationships with family members different from other social relationships in essential ways. The family is the most intimate and continuous social context in which people live, and individuals depend financially, emotionally, and physically on family members on a daily basis over time. It is within the family that developmental processes of an individual's life occur; values, beliefs, and appraisal processes are formed; and the larger social world is perceived and negotiated. Although extra-familial relationships have an important place in people's lives, family relationships are

more fundamentally tied to one's view of the world, self-perception, sense of security and feelings of well-being. Due to dependence on the family, tensions in family relationships have greater impact on individual family members than problems in other relationships. Whereas relationships with friends are somewhat interchangeable and often vary during the life course as people change residence or focus on new interests, family relationships involve more constant legal, moral, and personal bonds.

Stressful life events, whether or not they directly involve family members, affect the family and reactions to such events are mediated through it. The life-events that have been rated as most demanding are changes in family relationships such as loss of a spouse through death or divorce (Holmes & Rahe, 1967), and ten of the fourteen most stressful life events on Holmes and Rahe's (1967) Social Readjustment Rating Scale directly involve family members. Whereas loss of a friend may be difficult, loss (or gain) of a family member entails changes in daily patterns and in one's self-perception in relation to that other person. In fact, most major normative life transitions, including marriage, parenthood, launching of children, and death of a spouse, center on family relationships.

Those life-events which do not occur within the family, such as work-related problems of individuals, often impinge upon the family indirectly. In addition, the

impact on an individual of many stressful life-events may be influenced by their effect on the family. A pregnancy desired by a potential mother, for example, may have different implications depending on whether or not it is wanted by the potential father. Similarly, the stressfulness of a job transition that requires a residential move may vary depending on its implications for other family members. Many life events are managed within in the family, such as the illness of a family member, and they may require alterations in patterns of daily functioning and changes in roles. Kaplan, Smith, Grobstein, and Fischman (1977), reporting on their experiences with families of sick children, state that it is "important to emphasize family as well as individual reactions in coping with stress since the family has a unique responsibility for mediating the reactions of its members" (p. 81). Thus, it is most often toward their families that people turn in times of stress.

The importance of the family in the adjustment of individuals to stressful situations has been addressed by theoretical frameworks within psychology and sociology (e.g., Burr, 1973; Caplan, 1976; Hill, 1949; Moos, 1977). According to theorists such as Antonovsky, Moos, and Caplan, stressful events are experienced universally, but the extent to which these events affect physical health, psychological well-being, and interpersonal relationships

is mediated by the most immediate and intimate of social structures, the family.

Antonovsky (1979) introduced the concept of "coherence" as a psychological resource which provides resistance against the negative effects of stress, and he emphasized the crucial role of the family in development of this resource. Coherence, according to Antonovsky, requires confidence that one's internal and external environments are predictable. This confidence is passed on and maintained within families, because it is the family which sustains the predictable environment during crucial developmental years. Once an individual develops the psychological trait of coherence, the person has a fundamental internal resource for adapting to a broad range of life experiences. Although this resource is internal and psychological, social relationships are critical for its development.

Moos (1977, 1979) included the social environment as a factor in his model for understanding the crisis of physical illness. He emphasized the role of human relationships within the family and in the wider community in influencing the course of an illness and its outcome. As a theorist and researcher with an environmental perspective, he is concerned with the family environment as one of many social and physical environments which affect individual lives. To study this environment, he developed

the Family Environment Scale (Moos, 1974), which measures aspects of family life in relation to stress, coping, and health.

Caplan (1974) postulates that social groups in general act as buffers against disease in that they help a person mobilize psychological resources, share tasks, and provide material supplies and cognitive guidance. He includes familial and extra-familial network systems as sources of social support. In a later paper Caplan (1976) emphasized the importance of the family as the particular social unit which provides information about the world, feedback and guidance, belief systems, practical services and a haven for rest and recuperation. It is within the particular social relationships of the family that the effects of stressful events are mediated.

In summary, these theoretical frameworks provide a basis for the conceptualization of the family as a distinct unit within the social network and as a unique and primary mediator of the effects of stressful experiences.

Family stress theory. Theories of the family (for reviews see Burr, Hill, Nye, & Reiss, 1979; Hoffman, 1981; Walsh, 1982) propose that the clinical or empirical study of individuals exclusive of their social and familial context neglects critical, dynamic influences on the person and is inadequate for understanding how people function. Hill (1949) studied families responding to war-induced

separation and reunion and formulated the ABC-X model of family stress. Since this model, together with its expansions, (Burr, 1973; McCubbin & Patterson, 1981, 1982) represents a major comprehensive model of family response to stress, it is presented in some detail.

Hill (1949) posited that the stressful event and related hardships (A), interacting with the family's crisis meeting resources (B), and also interacting with the definition the family gives to the event (C) produce the crisis (X). Hill also identified a "roller-coaster course" of family adjustment involving (1) a period of disorganization, (2) a period of recovery, and (3) a new level of organization. According to this conceptualization, stressors are events of sufficient magnitude to cause changes in the family system, stress refers to tensions in the family that result from demands which exceed the family's management ability, and crisis refers to the disorganization that results from inadequate resources for meeting the demands imposed by the stressor.

Burr (1973) clarified and expanded this model and included in it the concept of "regenerative power" of families following stressful events (from Hansen, 1965). Burr outlined aspects of stressful events and of families which are related to families' vulnerability to stress and to their regenerative power. Relevant aspects of stressful events include their chronicity and expectedness; aspects

of families include their appraisal of the seriousness of the event, their appraisal of responsibility for the event, the degree of internal integration of the family, structural qualities of the family, marital adjustment, and the extent of consultation between spouses in decision-making. All of these dimensions appear to be similar to Lazarus' concept of cognitive appraisal of the situation, although here they are used as concepts regarding families, rather than individuals. Within the framework of coping described earlier, family structure and closeness may be seen as coping resources or dispositions of the family. Thus, they are the background of family relationships within which coping behaviors, such as communication and problem-solving, occur.

McCubbin and Patterson (1981, 1982) expanded this model into a more dynamic theory which includes reciprocal interactions among the ABC-X factors and family adaptation over time. In this Double ABC-X framework, "A" is the pile-up of stressors over time which make adaptation to a specific stressful event more difficult; "B" includes the psychological and social resources utilized by the family in managing stressful events, and can include new as well as pre-existing resources; and "C", family perception, consists of perception of the immediate stressor and of the total crisis situation, including the family's subjective redefinition of the situation and efforts to integrate

discrepant individual perceptions within a family viewpoint.

Comparing this family model with individual models of adjustment to stressful events, A may be seen as an indicator of the nature of the stressful event and other life-events which have occurred in the family, B as coping resources, coping behaviors and social network connections of the family, C as primary and secondary appraisal of the event, and X as an outcome measure of health or well-being.

This model suggests that stressful life-events, coping, and the internal and external social environments must be conceptualized specifically for families in order to understand how families adapt to stressful experiences. This, however, is a complex task, since families consist of interacting individuals, each of whom experiences stressful life events, copes, and interacts with the internal and external social environment. Adequate techniques for measuring dimensions of stress and coping at the family level are not defined in these models or in research which has applied them to families experiencing various stressful events. Two important areas of confusion remain in the measures which have been used, including: (1) the distinction between individual perceptions of the family and how the familiy actually functions and (2) the distinction between dispositional and process measures of

family relationships. Which dimensions of families to measure and how to measure them adequtely are two major issues in research on the family and stress.

Measurement of family relationships.

1. Identifying Dimensions of Family Life. Burr's (1973) theoretical framework for family adaptation to stressful experiences identified structural or dispositional aspects of families which are important for successful adjustment, such as defined patterns of influence and closeness, and process measures, such as communication and problem solving. Since process measures of coping were reviewed earlier, this discussion will focus on dispositional qualities of families.

Whereas many dimensions of family life have been studied in relation to family adaptation, including family communication (e.g., Wynne, Jones, & Al-Khayyal, 1982), problem-solving (e.g., Olivieri & Reiss, 1982), roles (e.g., Beavers, 1982; Feldman, 1982), and affective involvement (e.g., Epstein, Bishop, & Baldwin, 1982), two more global dimensions of family functioning which may impinge on other aspects of the family in the adaptation process repeatedly have been described. These concepts, family structural organization and cohesion, have been identified in theoretical and empirical work in family psychiatry (e.g., Minuchin, 1974; Reiss, 1971), sociology (e.g., Burr, 1973; Cogswell, 1976; Hess & Handel, 1959),

anthropology (e.g., Rosenblatt & Budd, 1976; Stephens, 1963), and psychology (e.g., Olson, Russell, & Sprenkle, 1979) as underlying dimensions of families which are essential in their adjustment to various situations over the life course. Family cohesion has been called enmeshment-disengagement (Minuchin, 1974), separateness-connectedness (Hess & Handel, 1959), low and high cohesion (Olson, Russell, & Sprenkle, 1979), and environmental-interpersonal sensitivity (Reiss, 1971) by different research groups. Family structure has been called flexibility, adaptability (Olson, Sprenkle, & Russell, 1979), and fluidity. Although different aspects of these concepts are emphasized by each researcher, they may be considered reflective of the same essential dimensions of family life, indicating the level of closeness or emotional bonding (Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson, 1983) among family members and how flexible they are in changing "power structure, role relationships, and relationship rules in response to situational and developmental stress" (Olson, Sprenkle, & Russell, 1979, p. 12) in response to various situations.

2. Measurement of Dimensions of Family Life.

How can these characteristics of the "family unit" be studied? Is it feasible to ask a family to report about itself? Family researchers have employed methodology of varying complexity to study the family as a functioning

unit. Fisher and associates (Fisher, Kokes, Ransom, Phillips, & Rudd, 1984) have developed a typology defining three levels of methods of measurement in family research. At the simplest level, individual family member assessment, reports are obtained from individuals about aspects of the family as a whole. This method has the inherent problem of reflecting only the perspective of an individual within the family, rather than measuring characteristics of family relationships in any direct way.

At the next level of complexity, relational family assessment, measures of family characteristics can be derived from comparison of individual family members' reports. Comparisons such as similarity or difference scores or correlations between family members' scores can be derived and used as unique variables in further research. This methodology has the advantage of including perspectives of more than one family member, and its measures may reflect aspects of interaction. It does not, however, address the interactional process of the family.

Transactional family assessment involves a greater degree of complexity. In interactional research, interactions among family members are observed and rated in ways which address both the content and process of interactions. Task-oriented interactions are usually videotaped and rated according to designed criteria. No consistent, well-defined methods of analysis have, however,

become generally accepted. Theories of the family define family interactions as intricate, subtle, and complex, features which make them elude empirical investigation. These cumbersome interactional approaches to research, however, begin to address this problem.

It is possible to study elements of family relationships with the more readily obtained individual family member assessments and relational family assessments, especially if these self-report data are interpreted with an understanding of the differences between individual reports of the family and how the family actually functions. These more accessible family measurement methods are used in the current study, and research which has applied them to assessment of family cohesion and adaptability will be reviewed.

3. Assessment of Cohesion and Adaptability.

Three questionnaires developed to measure individual perceptions of family cohesion and adaptability have been used most widely. Olson, Bell, and Portner (1978) developed the Family Adaptability and Cohesion Evaluation Scales (FACES) to measure these dimensions. FACES is a 30-item scale including statements about family life, and it has been factor analyzed to yield two dimensions, cohesion and adaptability. It is a measure of individuals' perceptions of their families.

Moos and Moos (1976) developed the Family Environment Scale (FES) to measure aspects of family life. This measure also reflects individuals' perceptions of their families, and it yields scales measuring the relationship dimensions of cohesion, expressiveness, and conflict, dimensions of personal growth reflecting the area of personal growth emphasized by the family, and the system maintenance dimensions of organization and control. It has been applied in community samples (Billings & Moos, 1982), and in studies of clinical populations (e.g., Bloom, 1982).

Finally, Fisher (1983) developed the California Family Life Scales to measure family structure, cohesion, and aspects of family world view. This 102-item questionnaire assesses individuals' perceptions of many aspects of their families. It has been factor analyzed to yield scales indicating family cohesion, structure, and aspects of family world view such as optimism/pessimism, child-centeredness, and security. Cohesion and structure are seen as separate dimensions, and the advantages of having moderate levels of each is viewed as an empirical question.

In summary, it may be concluded that family relationships are a unique dimension of the social environment and are not interchangeable with non-familial relationships. A comprehensive model of family stress has been developed, and it includes as important factors in

family adjustment to stressful situations (1) relatively dispositional aspects of the family, such as cohesion and adaptability and (2) process dimensions such as communication and problem-solving. The process dimension is discussed above in the section on family coping. Cohesion and adaptability can be measured using indices of individual family members' perceptions of their family and ratings which compare these perceptions.

Definition and Measurement of Adjustment

The major goal of the current study is to assess the relative importance of stressful life events, coping, and the social environment in influencing the adjustment of parents following the birth of a premature baby. This review has defined issues regarding definition and measurement of stressful events, coping, and the social environment, but has not yet addressed the questions of what is adjustment and how it can be measured.

Phillips (1968) integrated numerous aspects of adjustment into a unified theory of human growth and adaptation. He suggested the importance of four major dimensions: (1) basic interpersonal, work, and social skills, (2) a sense of self-worth and moral values, (3) general satisfaction with life, and (4) an absence of psychopathology. This theory focuses on positive aspects of personality, an approach which seems relevant for the

study of otherwise normal adults adjusting to stressful life experiences. In addition, there is evidence of interaction between physical and psychological well-being (e.g., Engel, 1977) which indicates that measurement of adjustment should include assessment of both physical and psychological health. Following this multidimensional approach to adjustment, it seems important to include measures of psychopathology, physical health, well-being, and indices relevant to the specific problems people face.

Another issue to be considered is measurement of the health of families. McEwan (1974) discussed the problem of defining "family health," and although he was referring to physical health, the issues he raised are relevant to a discussion of psychological health as well. He indicated that although the family may function in many ways as a unit, only individuals within the family can be either sick or healthy. Thus, it is the manifestation of good or ill health of family members which indicates the health of the "family." Family sociologists describe the purpose of the family as the promotion and development of the well-being of family members, which is consistent with the view that the health of the family may be measured by the health of its individual members. Thus, health, or adjustment, is defined as a multidimensional concept including measures of psychopathology, physical health, well-being, and indices relevant to the specific stressful situation. Family

adjustment is defined as the adjustment of all family members.

An alternative approach to the measurment of family adjustment was used by Venters (1980), in her thoughtful and comprehensive study of families with children with cystic fibrosis. She used an index of family functioning as an outcome measure. This index included aspects of family communication, cohesion, and satisfaction reported by parents. Several important issues are raised by the difference between this conceptualization and that of the current study. These include the question of what is actually measured by "family" measures, confounding of outcome and process measures, and the question of what is an adequate measure of adjustment.

As indicated above, self-report measures which gather information from individuals about the family measure the individual respondent's perception of the family, and do not actually measure the family. Venters computed the correlations between matched mothers' and fathers' scores on each aspect of family functioning, and found $r$'s ranging from .55 to .69. She took this as evidence that her index measured "true" family functioning. While these are high correlations in social science research, such correlations do not necessarily indicate that mothers and fathers had the same scores. High correlations also would be found if their scores co-varied together but were not at the same

scale level. Although Venter's study represents a valuable approach to the measure of family functioning, the problems involved in the leap from self-report measures to inferences about the family as a unit should be considered.

The next issue of concern regarding measurement of adjustment is the potential confounding of process and outcome measures. In the current study, cohesion is conceived as a dimension of the family which may affect adjustment, while in Venters' (1980) study cohesion is a measure of adjustment itself, defined as family functioning. Venters acknowledges that cohesion is an aspect of coping, but her conceptualization confuses coping processes and resources with outcome measures. This problem emphasizes the necessity for clarity in distinguishing variables which reflect the adaptation process from those which reflect outcome.

Finally, the question of what we mean by adjustment is raised by the Venters (1980) study. Clearly, psychological adjustment is a subject of great complexity, including multiple dimensions of people's daily lives and internal experiences. When we measure "adjustment," we try to quantify the adequacy of a person's internal well-being and functioning in the interpersonal world. This, of course, is the most global of concepts. In fact, what we measure are indicators of adjustment. Cohen and Lazarus (1979) list problems with the measurement of coping effectiveness,

including (1) the problem of determination of optimal functioning within the psychological, physiological, or social domain, and how to evaluate differential outcomes in different domains, (2) differences between short-term and long-term effectiveness, and (3) problems in generalizing from specific situations. Adjustment may be defined in various studies as maintaining employment, not requesting mental health services, or low scores on a measure of depression. It should be remembered in each of these instances that what we measure is not in fact "adjustment" itself. Rather, what we measure is an indicator which we select as a reflection of adjustment. In interpretation of research findings, therefore, it is important to remember exactly how adjustment has been defined and measured.

This review thus far has considered issues relevant to a variety of stressful situations. The current study utilizes the experience of having a premature baby cared for in the intensive care nursery as an example of a stressful situation through which factors associated with adjustment may be studied. Literature on the specific aspects of this experience which have been found to be stressful and which may have relevance to adjustment now will be considered.

Coping with the Birth of a Premature Baby

The birth of a premature baby who must be cared for in an intensive care nursery is a relevant event for the study of adaptation to stress within the family for several reasons. First, the birth of a premature baby is necessarily a family transition (Cowan, Cowan, Coie, & Coie, 1978). Both members of the couple were involved in conceiving the child, and having a baby cared for in the intensive care nursery is a highly stressful event for both parents (Caplan, 1960; Caplan, Mason, & Kaplan, 1965; Kaplan & Mason, 1960; Mason, 1963). Finally, research has shown that how the family adapts to the stress of this birth may have profound effects on the future of the child as well as on the family.

Premature babies are four to seven times over-represented among victims of child abuse (Benedict & White, 1985; Elmer & Gregg, 1967; Fomufod, Sinkford, & Louy, 1975; Herrenkohl & Herrenkohl, 1979; Klein & Stern, 1971; for reviews see Friedrich & Boriskin, 1976; Martin, Beasley, Conway, & Kempe, 1974) and are also at risk for failure to thrive and for developmental disabilities (Lubschenko, Delivoria-Papadopoulos & Searles, 1972; Weiner, Rider, & Oppel, 1968). There are data to suggest that these negative outcomes may depend more on the socioeconomic and psychological environment of the child than on specific neonatal factors (Drillien, 1964; Weiner, Rider, & Oppel,

1968). In addition, early parent-infant separation may result in failure to establish secure attachment and in later parenting disorders (Klaus & Kennell, 1970; Liefer, Leiderman, & Barnett, 1972).

Whereas the stressful of any transition to parenthood has been the subject of debate (Dyer, 1965; Hobbs & Cole, 1976; LeMasters, 1965; Rossi, 1968; Russell, 1974), no one debates the stressfulness of having a premature baby cared for in an intensive care nursery. A birth which is anticipated as a positive experience becomes a medical emergency with serious risks for mother and baby when the baby is born prematurely. Parents often do not see their baby before she or he is whisked off to the intensive care nursery, attached to monitors and breathing equipment, injected with various needles, and placed inside a plastic house to live for usually one to three months. A mother who expected still to be pregnant must go home with a baby neither inside her body nor in her arms. The baby is cared for by nurses, and often parents do not feel that the baby is really "theirs" (Guess, 1981).

Researchers from the Harvard School of Public Health Family Guidance Center during the early 1960's interviewed 60 families from the time of the premature birth until the baby had been home for two months (Caplan, 1960; Caplan, Mason, & Kaplan, 1965; Kaplan & Mason, 1960; Mason, 1963). At this time, parents could not visit, hold, and feed their

babies in the intensive care nursery, as they may currently do. Although these hospital policies have changed, this research still may have relevance to the adaptation process of contemporary parents of premature babies.

Kaplan and Mason (1960), following Caplan's (1960) crisis theory to study parental adjustment following a premature birth, outlined the difficult stages in the process of having a premature baby as: (1) labor and delivery, which are a medical emergency rather than the anticipated positive experience, (2) mother's homecoming without the baby, and (3) the baby's arrival home. These writers defined the four essential tasks for parents as (1) "anticipatory grief," which is the preparation for the possible loss of the child, (2) acknowledgment of maternal failure to deliver a full-term baby, (3) relating to the baby again following withdrawal during anticipatory grief, and (4) understanding how the premature baby differs from a full-term baby in its needs and growth patterns.

Mason (1963) specified aspects of mothers' coping styles which predicted good outcome as the expression of a fairly high level of anxiety, active seeking of information about the baby, and strong maternal feelings toward the baby. Strong support from the father also predicted a favorable outcome. He found that mothers' coping behavior following the birth of a premature baby significantly predicted the quality of mother-child relationship.

Since parental visits in the intensive care nursery have been encouraged, researchers have studied both positive and negative effects of these visits. Harper, Sia, Sokal, and Sokal (1976) found that parents who were permitted to have contact with their infants experienced prolonged stress. The parents, however, reported that they found the contact valuable despite their anxiety.

Specific problems which often occur when premature infants go home were described by Blake, Stewart, and Turcan (1975). Mothers are not prepared to recognize signals from the baby, they are anxious, and they over-respond, all of which result in their becoming exhausted from taking care of their babies. Often, this exhaustion leads to resentment and guilt. Bakeman and Brown (1980), however, observed mother-infant interaction during three years of follow-up, and found no association between mother-infant interaction during the first months of life and infants' social or cognitive development.

In summary, most of the studies done on low birthweight infants indicate that at least in the short term this is a stressful and demanding time for parents. While a few studies have nominally included fathers, most have focused only on mothers, and no studies specifically have been concerned with the adjustment of fathers. Longer term studies are equivocal about the impact of prematurity on the infant and the family, but enough evidence is

available to conclude that there are serious disruptions in family life which warrant further research.

Rationale for the Current Study

In summary, there is evidence that stressful life events are associated with psychological disturbance, and that this relationship is mediated by coping and by aspects of the social environment, including the social network and family relationships. People manage stressful events within the total context of their lives. Although the events may be discrete and time-limited, they may have reverberating manifestations in many aspects of the individual's life. In this way, the effects of a stressful event may last beyond the time of the event itself, and may lead to coping efforts which involve diverse aspects of the person's life.

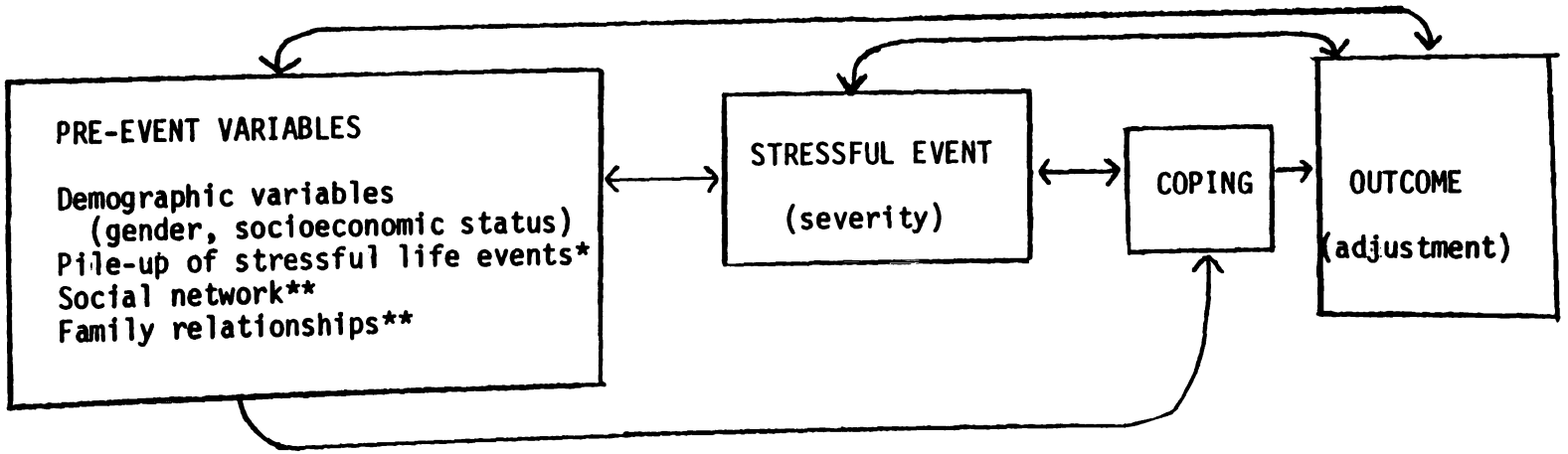
The array of literature on the effects of stressful life-events indicates that numerous aspects of the lives of individuals may be affected by the event and in turn may affect and reflect the course of adjustment to the event. In addition, previous research has demonstrated interacting associations among these dimensions. Although the nature of these isolated aspects has been addressed in research, few studies have addressed the relative yet simultaneous contributions to psychological adjustment of these dimensions, including stressful events, coping, and the social environment. In addition, even fewer studies have

assessed the differences in these constructs among family members who experience the same event.

The current study employs an interactional framework to integrate research from diverse fields of study, including data on life-events, coping, the social environment, and family relationships, in order to understand factors which contribute to adjustment following a stressful experience. This framework addresses the responses and adjustment of individuals, and includes as an dimension of these responses the individual's perception of family relationships. This framework allows the comparison of these dimensions between family members who experience the same event. Dimensions considered in the framework for the current study are outlined in Figure 1.

This framework is designed according to the temporal pattern of pre-event variables, aspects of the stressful event itself (which may, in fact, change over time), individual coping responses to the stressful event, and outcome. Pre-event variables include demographic variables such as gender and socioeconomic status, perceived family relationships, social network, and other previous stressful life events. The stressful event, as defined in the current research, is the birth of a premature baby, and includes the severity of the child's illness. Coping follows as a response to the event. Finaly, outcome reflects the long-term adjustment of individuals to the

## Logical Framework for Adjustment to a Stressful Event




* Viewed as stressor.
** Viewed as psychological resource for management of situation.

stressful event as seen within the context of the other variables listed above.

Within these temporal boundaries, there are perceived relationships among the individual variables. Demographic variables are background variables which may influence all of the other dimensions. The social network, other stressful life events, and perceived family relationships may mutually influence each other. Finally, all of these dimensions may influence coping. To preserve clarity in a complex framework, only the most important arrows have been included in the figure.

Within this model, the distinction regarding the role of each of these dimensions within the model is an important one. Demographic variables are viewed as the background for all of the other dimensions under investigation; the set of stressors includes aspects of the current situation, such as the severity of the problem, and the pile-up of stressful life-events, and are indicated by one asterisk in Figure 1; and the set of psychological resources for managing the stressful event includes coping and the social network, and perceived family relationships, and are indicated by two asterisks in Figure 1.

In the current study, the relative contributions to adjustment following a stressful family event of the seriousness of the event, other stressful life-events, coping, and the social environment, including family

relationships are investigated. In addition, the relative contribution of each of these factors to the adjustment of husbands and wives as individuals and as a couple is assessed. Following the interactional framework, the current study also addresses specific relationships between coping strategies and demographic variables, cumulative stressful life-events, aspects of the current stressful event, and the social environment.

## Hypotheses

### Patterns of Coping

**Hypothesis A.1.**

There is a consistent pattern of coping strategies used by individuals in dealing with a premature birth, such that people who use certain coping strategies are likely to use them in combination with other specific coping strategies. These patterns will be different for men and women.

Initial Assessment Variables-Individuals as the Unit of Analysis

Hypothesis B.1.

There are relationships between the coping strategies people use in managing the experience of having a premature baby cared for in the intensive care nursery and other initial assessment variables, including socioeconomic status, social network size, severity of the infant's illness, negatively evaluated life events, and family relationship measures of cohesion, structure, optimism, and child-centeredness. These relationships are similar for women and men.

The following hypotheses, which involve specific coping strategies, were devised after the coping factors were derived but before other data were analyzed.

Hypothesis B.2.

There is a difference in coping strategies used among parents of babies with varying severities of illness at the time of initial assessment. Specifically, parents whose babies are more severely ill use more Wishing to Undo, less Looking on the Bright Side, and more Self-Blame

than parents of children whose illnesses are less severe.

Hypothesis B.3.

There is an association between family cohesiveness and social network, such that those individuals who perceive their families as more cohesive have smaller social networks. Their need for social relationships, it is hypothesized, is met more through their cohesive families and less through relationships with extended family and friends.

Hypothesis B.4.

Individuals who perceive their families as more structured will use more positive coping methods such as Taking Action and Looking on the Bright Side. Individuals who perceive their families as less structured will use more negative emotional and avoidant coping methods, such as Self-Blame and Avoidance.

Hypothesis B.5.

Individuals who have experienced more negatively evaluated life-events are psychologically worn down from previous coping efforts and therefore

use more negative emotional and avoidant coping methods, such as Self-Blame, and Avoidance, and Wishing to Undo.

Hypothesis B.6.

Among women, those with larger social networks are more likely to use Seeking Social Support than those with smaller social networks.

Initial Assessment Variables-Couples as the Unit of Analysis

Hypothesis C.1.

Coping strategies used by the couple as a unit can be assessed, and these "couple coping strategies" are associated with socioeconomic status, the severity of illness at the initial assessment, negatively evaluated life events for the family, individual perceptions of family relationships, and the size of their family social network.

## Follow-Up Assessment Variables-Individuals as the Unit of Analysis

### Hypothesis D.1.

There are relationships between the adjustment of individual parents one year after the premature birth and their socioeconomic status, the severity of illness at the initial assessment, the child's health at the follow-up assessment, other negatively evaluated life events, the coping strategies used to manage the premature birth, family relationships, and the size of their social network.

### Hypothesis D.2.

Parents whose children are more healthy at the follow-up assessment will be better adjusted psychologically. This relationship will be stronger for mothers than for fathers.

### Hypothesis D.3.

Individuals who perceive their families as more child-centered will find their child less demanding, after the child's health at the time of follow-up is taken into account.

Hypothesis D.4.

Individuals who perceive their families as more structured, more cohesive, and more child-centered will be better adjusted psychologically at the follow-up assessment, after the health of the child is taken into account.

Hypothesis D.5.

Individuals who use more Positive Action, Looking on the Bright Side, and Seeking Social Support (for women only) and less Wishing to Undo, Self-Blame, and Avoidance in coping with the experience of having a premature baby will be better adjusted psychologically at the follow-up assessment, after the health of the child is taken into account.

Follow-Up Assessment Variables-Couples as the Unit of Analysis

Hypothesis E.1.

Couples can be categorized according to the level of adjustment of the spouses.

Hypothesis E.2.

Spouses who use the coping strategies of Avoidance or Wishing to Undo will be more likely to be members of poorly adjusted couples.

Hypothesis E.3.

Independent of the child's health at follow-up, families that either spouse perceives as more highly structured and more cohesive will be more likely to be well adjusted.

Hypothesis E.4.

Couples with more divergent scores on the measures of family cohesion and family structure will be more likely to be in the poorly adjusted group.

Hypothesis E.5.

There will be an association between couples' membership in the coping groups and their membership in adjustment groups.

# METHODS

## Design

This longitudinal study investigated the relationships among cumulative stress, current stress, coping strategies, family relationships, and adjustment following the birth of a premature baby who was cared for in the intensive care nursery. Parents were recruited from four hospitals in Northern California, and both parents of each baby were subjects for the study. All data were obtained from each parent individually, so that two complete sets of data were gathered for each couple.

The initial assessment was done soon after the baby's birth. It included an interview and questionnaires addressing coping strategies, family relationships, life events during the past year, social network, and demographic data (see Table 1 for an outline of these measures), as well as information regarding the health of

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TABLE 1

Measures Obtained During Initial Assessment

1. Interview
2. Premature Birth Oriented Coping Checklist
3. California Family Life Scales
4. Life Events Inventory
5. Social Network Questionnaire
6. Demographic Data Questionnaire (including child health data)

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the baby. The follow-up assessment took place one year later. This assessment included an interview and questionnaires assessing the parent's psychological well-being, psychological and physical symptomatology, perceptions of the baby, and perceptions about himself or herself as a parent, as well as an assessment of child development (see Table 2 for an outline of these measures).

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TABLE 2

Measures Obtained During Follow-Up Assessment

Measures of Parents
1. Interview
2. Parenting Stress Index
3. Well-Being Scale

Measures of Children
4. Hopkins Symptom Checklist-90
5. Denver Prescreening Developmental Questionnaire

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Subjects

Subjects in this study were 62 couples who were parents of premature babies cared for in the intensive care nurseries of four California hospitals: Children's Hospital Medical Center of Northern California in Oakland ($n$ = 37), Valley Children's Hospital in Fresno ($n$ = 4), Community Hospital of Sonoma County ($n$ = 15), and Kaiser Foundation Hospital in San Francisco ($n$ = 6). Analyses of variance revealed that there were no significant differences between socioeconomic status or the severity of the child's illness among families from the four

hospitals. Parents whose babies were cared for at Children's Hospital Medical Center in Oakland were slightly older ($\bar{X}$ = 30.2 years) than those whose babies were cared for at Community Hospital of Sonoma County ($\bar{X}$ = 27.8 years), $t(53) = 2.10$, $p < .05$. Since there were no differences in socioeconomic status or severity of the child's illness, this slight age difference was not considered an important difference between parents at the two hospitals. Prematurity was defined as delivery prior to 37 weeks of gestation. Currently cohabiting English-speaking couples who had a premature baby cared for in the intensive care nursery were eligible for participation.

Six couples referred to the study refused to participate. One was advised by a lawyer not to participate due to pending litigation and one or both spouses in the other five couples did not want to participate for unspecified reasons. An additional four couples were deleted from the study before the first interview: two couples did not live together and the other two couples lived more than 100 miles from San Francisco and were not able to meet at the hospital.

Data regarding the babies at the time of initial assessment, including the number of weeks gestation, weight, number of days in the hospital, number of days on the respirator, are presented in Table 3. Gestation ranged from 24 to 37 weeks with a mean of 32.5 weeks. Six babies

TABLE 3

Health Indicators for Infants at Initial Assessment

| Gestation (weeks) | Number[a] | Percent |
|---|---|---|
| 24 - 28 | 7 | 11.3 |
| 29 - 31 | 10 | 16.1 |
| 32 - 34 | 30 | 48.4 |
| 35 - 37 | 15 | 24.2 |
| **Weight (grams)** | | |
| <1000 | 6 | 9.7 |
| 1001 - 1500 | 15 | 24.2 |
| 1501 - 2000 | 15 | 24.2 |
| 2001 - 2500 | 14 | 22.5 |
| >2500 | 12 | 19.4 |
| **Days in hospital** | | |
| 5 - 10 | 13 | 21.0 |
| 11 - 30 | 18 | 29.0 |
| 31 - 60 | 18 | 29.0 |
| 61 - 90 | 10 | 16.2 |
| 91 - 210 | 3 | 4.8 |
| **Days on respirator** | | |
| 0 | 15 | 24.2 |
| 1 - 4 | 12 | 19.4 |
| 5 - 10 | 13 | 21.0 |
| 11 - 30 | 15 | 24.2 |
| 30 - 100 | 71 | 1.3 |

[a] N = 62

weighed less than 1000 grams, 15 weighed between 1001 and 1500 grams, 15 weighed between 1501 and 2000 grams, 13 weighed between 2001 and 2500 grams, and 12 babies weighed more than 2500 grams. Infants were hospitalized from five to 210 days, with a mean of 42 days and a median of 34.5 days. This represents a wide range of severity and of

prematurity, including extremely small babies who could not have survived without highly developed technology, relatively healthy but small babies, and well-developed babies with minor problems requiring extra care for a few days. Nearly half of the babies were hospitalized for more than a month. Nine of the births were twin, and in these cases data are presented for the twin whose health problems were more severe.

Demographic data regarding the parents are presented in Tables 4 through 6. The parents were primarily Caucasian (80%). Approximately half of the subjects were Protestant; most of the others were Catholic; a few were Jewish and two were Buddhist. Sixteen percent of the subjects did not indicate a religious background. Parents represented a broad range of ages, from 18 to 40 years; the mean age was 29 years. There was a range of socioeconomic status from a low of 14 to a high of 66 with a mean of 42, corresponding to Hollingshead Class I to Class V with a mean of Class II (Hollingshead, 1971). The median family income for this sample was $30,000-40,000, with a range from under $10,000 to more than $50,000. This indicates inclusion of subjects with a broad range of income and socioeconomic status, although the sample was predominantly middle class. The mean duration of marriage was 5.5 years, and 17% of subjects had been married prior to their current marriage. For 36 of the 62 couples (58%), this was their

TABLE 4

Ethnic and Religious Background and Marital History of Parents

| | Mothers[a] | | Fathers[a] | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| **Ethnic Background** | | | | |
| Caucasian | 52 | 83.2 | 49 | 78.4 |
| Hispanic | 5 | 8.0 | 8 | 12.8 |
| Asian | 4 | 6.4 | 5 | 8.0 |
| Black | 1 | 1.6 | 1 | 1.6 |
| **Religious Background** | | | | |
| Protestant | 25 | 39.1 | 28 | 43.8 |
| Catholic | 22 | 34.4 | 22 | 34.4 |
| Jewish | 4 | 6.2 | 2 | 3.2 |
| Buddhist | 1 | 1.6 | 1 | 1.6 |
| None mentioned | 12 | 18.8 | 13 | 20.3 |
| **Marital History (this relationship)** | | | | |
| First marriage | 52 | 83.8 | 51 | 82.4 |
| Second marriage | 10 | 16.2 | 11 | 17.6 |

[a] N = 62

first child together. In six of these couples, one or both spouses had children from a previous marriage. Thus, for about half of the total sample, this was a first child. Although the sample represented a fairly wide spectrum of the population in terms of socioeconomic status and ethnic background, it was predominantly white, relatively well-educated, and middle class.

Follow-up interviews conducted one year after the initial assessment included 54 couples (87.1% of the

TABLE 5

Socioeconomic Status and Years Married for Couples

| | Mean | S.D. | Range |
|---|---|---|---|
| Socioeconomic status[a] | 42.8 | | 14-66 |
| Years married | 5.5 | 4.2 | 1-18 |

[a] SES was determined by the Hollingshead Four-Factor Index (Hollingshead, 1971). These scores compare to Hollingshead Class I to V as follows:

8-19 = V (lowest)
20-29 = IV
30-39 = III
40-54 = II
55-66 = I (highest)

TABLE 6

Age and Education of Mothers and Fathers

| | Mothers | | | Fathers | | |
|---|---|---|---|---|---|---|
| | Mean | S.D. | Range | Mean | S.D. | Range |
| Age (years) | 29.3 | 5.4 | 18-39 | 30.7 | 5.7 | 20-40 |
| Education (years) | 14.4 | 3.1 | 10-24 | 14.7 | 2.7 | 10-20 |

initial assessment sample). Of the eight couples who did not complete the second interview, one couple completed the interview but not the questionnaires, three couples refused to participate, and two couples had babies who had died during the year. Two couples whose babies died were excluded from the study because (1) there were not enough

couples to constitute a separate group, (2) they were different from the rest of the study sample in that they did not have babies at the one year follow-up, and (3) they were still grieving at the time of follow-up and indicated that they preferred not to participate. Two additional mothers completed the interview and questionnaires, but their husbands refused to participate. Subjects who completed both assessments and those who did not complete the follow-up assessment were compared, and no significant differences were found in age, socioeconomic status, or in severity.

Procedures

Recruitment. All eligible parents were contacted by the hospital social worker at Children's Hospital Medical Center in Oakland, Kaiser-Permanente Medical Center in San Francisco, and Valley Children's Hospital in Fresno, and by the intensive care nursery nurse at Sonoma Community Hospital in Santa Rosa. In each case, potential subjects were given a letter introducing them to the study. The social worker or nurse described the research project and asked for parents' verbal consent to be contacted by the researcher, who then contacted all consenting parents by telephone to arrange for a meeting time to describe the study, to obtain informed consent, and to complete the initial assessment. Informed consent was obtained prior to the first interview. Subjects completed interviews and questionnaires twice. The initial assessment took place

shortly after the birth of the baby, and the follow-up assessment was done one year later.

Initial assessment.

1. Overview. The initial assessment took place from 7 to 100 days after the baby was born (Table 7). This variation in timing for the initial assessment was in part due to variation in the severity of the infants' illnesses. Hospital staff or the parents themselves sometimes preferred that the interviews take place when the health of the baby was at least partially stabilized. Each spouse was interviewed individually, either in his or her home (n = 42 couples, 67.7%) or at the hospital (n = 20 couples, 32.3%). The interview site was selected for the convenience of subjects. The interview lasted from 20 minutes to 1 1/2 hours, and averaged about 30 minutes in duration. Mothers were interviewed first. At the completion of the interview, each subject was given the questionnaires listed in Table 1 to complete.

TABLE 7

Age of Babies at Initial Assessment

| Age of Baby (Days) | Number[a] | Percent |
|---|---|---|
| 7-14 | 21 | 33.9 |
| 15-30 | 19 | 30.6 |
| 31-45 | 10 | 16.1 |
| 46-60 | 6 | 9.7 |
| 61-100 | 6 | 9.7 |

[a] N = 62.

2. Measures.

a. Measures of Parents (See Appendix A).

(1) Interview. This semi-structured interview was devised for this study to establish rapport with subjects and to provide an open-ended method for gathering clinical information in depth. The interview included questions about events surrounding the birth of the baby, the transfer to the intensive care nursery, the parent's perception of the potential implications of prematurity for the baby's development, the perception of the closeness and supportiveness of the marital relationship, and effects of having a premature baby on the marital relationship. All interviews were audio-recorded. However, data from the interviews were not analyzed.

(2) Premature Birth Oriented Coping Checklist. This questionnaire was developed by the author to measure the coping strategies used by parents in adapting to the particular stressful experience of having a premature baby cared for in the intensive care nursery. It is a revision of the Ways of Coping Checklist of Folkman and Lazarus (1980), but includes only items which were considered relevant to the stressful situation studied. Revisions were made because some of the items were not considered appropriate for the particular population of parents of premature infants, and because some additional

coping strategies not included in the Ways of Coping Checklist were thought to be relevant to this population. Relevant items selected from the Index of Coping Responses (Moos, Cronkite, Billings & Finney, 1983) were added to the checklist. So that this quesionnaire is not confused with Folkman and Lazarus' original scale, it is referred to as the Premature Birth Oriented Coping Checklist.

The Ways of Coping Checklist format was modified in several ways. The response choice was expanded from a yes-no format to a four-point scale with regard to the frequency with which the respondent used the coping strategy. This change followed the format of the Index of Coping Responses (Moos et al., 1983), and was incorporated by Lazarus in his revision of the Ways of Coping Checklist (Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980). The four-point scale allows respondents to report their coping behaviors with increased accuracy, since people who used a behavior infrequently may hesitate to respond positively in the yes-no format. Next, the wording of all items was changed from second to first person. This was done because it was considered more personal for people to respond in the first person and more natural for a self-report measure to be in the "I" rather than "you" format. Fifty-six of the 68 Ways of Coping items were included, and six items from the Index of Coping

Responses (Moos et al., 1983) which were particularly relevant to this sample were added. Since this study focused on a specific stressful event for couples, items regarding social support from the spouse and blaming the spouse were added. The final questionnaire included 64 items. In contrast to the Ways of Coping Checklist (Aldwin et al., 1980), all subjects were asked to respond in reference to the situation of having their baby cared for in the intensive care nursery.

(3) Life Events Questionnaire. This instrument was developed by Fisher (1982) to measure a broad range of events which occurred during the past year and to indicate their perceived effects on the family. The items on the questionnaire were compiled from several inventories of life events, including those of Holmes and Rahe (1967), Horowitz (Horowitz, Schaefer, Hiroto, Wilner & Levin, 1977), and Sarason (Sarason, Johnson, & Siegel, 1978). This questionnaire differs from previous measures of life events in several important ways. First, the list of events includes a wide range of events reflecting changes in both work and home life. Second, rather than presuming that events have a certain importance to people, respondents are asked to rate the effect or impact on the family of each of the events on a scale from very negative to very positive. In this way, the

rating is oriented toward the effect of the event for the family, rather than on the individual respondent alone. Third, the questionnaire asks about the current salience of the event for the respondent.

For each of 75 events, respondents were asked to indicate which events occurred since the baby's birth, during the pregnancy, and within six months before pregnancy; and for each event which occurred, they were asked to indicate its effect on the family from very negative to very positive. In this way, a measure of life events was derived which reflects the effect of the event on the family at the time it occurred.

Holmes and Rahe (1967) postulated that all life changes, both positive and negative, are associated with the development of illness. There is evidence, however, that the events which are most strongly correlated with illness are negative ones (Liem & Liem, 1976; Vinokur & Selzer, 1975). The measure of life events in this study was used specifically as an indicator of cumulative stress. Following research which has found negative events to be the most important in predicting negative outcomes, it was decided to include only negatively evaluated events in this measure.

Summary scores for negatively evaluated life events were derived for individuals and for couples.

The individual scores were obtained by scoring each event evaluated as "somewhat negative" as one point and each event evaluated as "very negative" as two points. These scores were summed for each subject. To derive a family score, it was assumed that any event which negatively affects any family member has some negative effect on the family as a unit. It was decided that the sum of negatively evaluated life events impinging on a family would be an important indicator of the cumulative stress for the family (Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson, 1983). Thus, each event was given its most negative rating from either spouse using the non-redundant sum of ratings from both spouses. If, for example, one spouse rated an event as somewhat positive and the other spouse rated it as very negative, the event was rated as very negative for the family. If both spouses gave the event the same rating, that rating was used as the family rating. These family ratings for negative events were summed to derive a family score.

(4) California Family Life Scales (CFLS). To measure the perceptions of family members regarding family structure, cohesion, and world view, the California Family Life Scales (Fisher, 1983) were utilized. These scales were developed specifically to assess individuals' perceptions of aspects of their

family life and family relationships. They differ from other measures of family relationships, such as the Family Environment Scale (Moos, 1976) and the Family Adaptability and Cohesion Evaluation Scales (FACES) of Olson, Bell, and Portner (1978) in several important ways. First, the CFLS measures aspects of the family world view, including optimism and pessimism in general outlook, family child-centeredness, security and insecurity, and need for sameness and variety, as well as cohesion and family structure. Other similar measures do not include these aspects of family world view. In addition, unlike the existing scales measuring cohesion and adaptability, in the development of the CFLS items reflecting the dimensions of cohesion and structure were analyzed separately. This method of analysis was used for two major reasons: 1) there is no theoretical justification for presuming that cohesion and structure are independent constructs, and therefore no justification for treating them orthogonally in factor analysis. Since it is possible that these constructs are related and correlated, items designed to reflect each construct were analyzed separately and 2) due to this separate factor analysis, the derived scales represent more clearly articulated constructs than those of previous measures.

The CFLS yields 24 sub-scales reflecting seven major constructs related to family life. The major constructs are (1) family cohesion, (2) family role flexibility, (3) need for consensus and toleration of differences, (4) optimism and pessimism, (5) needs for sameness and variety, (6) child and adult centeredness, and (7) security and insecurity. For the purposes of this study, four of the major constructs were selected to answer specific questions. These included family structure, family cohesion, family optimism, and family child-centeredness.

(5) Social Network Inventory. This measure was used to assess the size of the social networks of individuals and couples. The questionnaire was developed by Phillips and Cummings (Phillips, 1983), based on the work of Fischer (1982) and Fischer and McCallister (1978). The method used in the questionnaire is to obtain the names of specific members of the respondent's social network who fulfill certain instrumental and emotional aspects of social support. Further information about these specific network members is then obtained. Measures of the specific members of the respondent's social network, the aspects of social support provided by these members, and some aspects of the relationship with members including relative vs. friend status,

perceived closeness of the relationship, and frequency of contact can be derived.

For this study, both individual and family measures of social network were used. The total number of different people available to provide various types of support was of interest. For individuals, therefore, the size of each subject's social network was evaluated in terms of the total number of non-redundant members of the network. For families, the network size was defined as the total number of non-redundant network members for both spouses combined. Thus, if one spouse had 10 network members, the other spouse had 8 network members, and 5 of these members were shared by both spouses, the family social network size would be 13.

(6) Demographic Questionnaire. This self-report instrument was developed specifically for this study. Information regarding age, occupation, ethnic and religious background, family income, marital history, and number of children from this and previous marriages was obtained from each parent.

Socioeconomic status (SES) was calculated from information obtained from the demographic questionnaire. The four-factor method of Hollingshead (1971) takes into account gender, marital status, employment and education, and it provides for calculation of SES for the family. According to

Hollingshead's method, if both spouses were employed, the average of the SES calculated for each spouse was utilized as the SES for the family. If only one spouse was gainfully employed, the family's SES was calculated on the basis of the employed member's education and occupation. Hollingshead includes the factor of marital status in his calculation of SES, but since all subjects were married and cohabiting, this factor was disregarded. Hollingshead indicates that his method includes gender; however, he states that the effects of occupation and education are the same for men and women. Thus, the SES score for each spouse was calculated by multiplying the occupation scale value by a weight of 5 and the education scale value by a weight of 3, and summing these two scores. Possible resultant scores range from 66, reflecting high SES, to 8, reflecting low SES, which corresponds to Hollingshead Class I to Class V.

A. Measures of Infants (See Appendix A).

(1) Index of the Severity of Infant's Illness (see Tables 8 and 9). To understand the nature and severity of the stressful experience for parents, it was important to take into account the severity of the infant's illness. To this end, a measure of the severity of illness was developed. A new index was necessary for two primary reasons. First, because

infants were cared for in several hospitals, there was no uniformity of records or ratings which could be used as a measure of severity for this study. Second, there was no single indicator of severity which adequately reflected severity for all babies. For example, length of hospitalization did not adequately reflect the severity of the infant's illness. Some infants were hospitalized for a long time because they were small and needed to grow although they were otherwise healthy, while other infants had more severe or prolonged problems but could be cared for at home. Similarly, variation in the effects of gestation and birthweight made these data poor unique indicators of severity. Some very small babies had smooth courses of development, whereas some larger babies encountered life-threatening problems.

For these reasons, an index reflecting gestation, birth weight, length of hospitalization, and number of days on the respirator was developed. These four indicators of severity were combined according to the criteria outlined in Table 8. First, each indicator was rated from 1 to 4, using approximate quartile divisions of the sample. A score of 1 indicated less seriousness and a score of 4 reflected the greatest severity. Since most babies did not have the same score for all indicators, the indicators were prioritized, with days of hospitalization selected as

TABLE 8

Steps in the Development of Severity of Illness Index

A. Health Indicators (each rated 1 to 4 by quartile divisions):

1. Days in hospital
2. Days on respirator
3. Weeks of gestation
4. Weight at birth

B. Scoring Criteria

1. a. If all 4 indicators the same, use that score.
   b. If all 4 indicators not the same, go to 2.

2. a. If 3 of 4 indicators the same, and 4th is within one point, use that score.
   b. If 3 of 4 indicators not the same, go to 3.

3. a. If days in hospital and days on respirator scores the same, use that score.
   b. If not the same, use days in hospital score.

the most important indicator of severity, followed by days on the respirator. These measures appeared to be better indicators of health status than birthweight and gestation alone because some small babies progressed very well while some large babies had more severe complications. Since some of the data for these ratings was obtained at the follow-up assessment, these scores are available only for the 54 babies whose parents completed the study.

TABLE 9

Severity of Illness Rating Distribution

| Rating | Number[a] | Percent |
|---|---|---|
| 1 (least severe) | 10 | 16.1 |
| 2 | 22 | 35.5 |
| 3 | 18 | 29.0 |
| 4 (most severe) | 12 | 19.4 |

[a] N = 54.

## Follow-Up Assessment

### 1. Overview.

One year after the first interview, subjects were contacted to arrange a follow-up interview. The ages of the babies at follow-up are presented in Table 10; they ranged from 12 to 15 months old. Subjects who lived more than 100 miles away (12 couples, 22.2%) were asked to complete the interview by telephone and to mail their questionnaire responses. The remaining 42 couples (77.8%) were interviewed in their homes. T-tests revealed no significant differences between parents who were interviewed in their homes and those interviewed by telephone in parents' scores on the measures of adjustment at the time of follow-up, the children's health, or in the children's development, as measured by the Denver Prescreening Developmental Test (see below).

TABLE 10

Age of Babies at Follow-Up Assessment

| Age of Baby (Months) | Number[a] | Percent |
|---|---|---|
| 12 | 18 | 33.3 |
| 13 | 20 | 37.0 |
| 14 | 8 | 14.8 |
| 15 | 8 | 14.8 |

[a] N = 54.

Measures were assembled to assess four aspects of adaptation for parents: general well-being, physical and psychological symptomatology, perceptions of their child, and perceptions about themselves as parents. In addition, measures were gathered to evaluate child development and child health.

2. Measures (see Appendix B).

a. Measures of Parents.

(1) Interview. A semi-structured interview format designed specifically for this study was employed for the follow-up interview. The questions addressed the child's hospitalization and course of development; the baby's current health status and developmental level, as well as the parent's thoughts and feelings about this; parents' perceptions of the effects of prematurity and hospitalization on the baby's development and disposition; relationships with family members; and other life changes since the

baby's birth. With the exception of the babies' health status, data obtained from this interview were not analyzed. These data will be the topic of a future report.

(2) Parenting Stress Index. Since this was a study of adjustment following the birth of a premature baby, it was considered important to measure parental perceptions of the child and self-perceptions in relation to being a parent as important aspects of adjustment. The Parenting Stress Index (Abidin, 1983) was selected to measure these two aspects of adjustment because it was developed and tested with subjects who were similar to the current study sample, and because it provides scores on sub-scales which were of essential interest in this study.

This 96-item self-report instrument was developed by Abidin (1983) for use in research aimed at studying the effects of stress on parenting behavior. It has been validated with mothers of normal, disturbed, and chronically ill children (Abidin, 1982; Greenberg, 1983; Loyd & Abidin, 1985; Mash & Johnson, 1983; Saviano, 1981). It yields 7 subscales in the parent domain and 6 subscales in the child domain (see Table 11 for list of subscales and sample items).

TABLE 11

Parenting Stress Index Scales and Sample Items

Parent Domain

1. Depression
   I feel every time my child does something wrong it is really my fault.
2. Attachment
   I expected to have closer and warmer feelings for my child and this bothers me.
3. Competence
   I have had many more problems raising children than I expected.
4. Social Isolation
   I feel alone and without friends.
5. Restriction of Role
   Since having a child I feel that I am almost never able to do things that I like to do.
6. Relationship with Spouse
   Having a child has caused more problems than I expected in my relationship with my spouse.
7. Health
   During the past six months I have been sicker than usual or have had more aches and pains than I normally do.

Child Domain

1. Distractability
   My child is so active that it exhausts me.
2. Reinforces Parent
   My child smiles at me much less than I expected.
3. Mood
   My child generally wakes up in a bad mood.
4. Acceptability
   My child is not able to do as much as I expected.
5. Adaptability
   My child gets upset easily over the smallest thing.
6. Demandingness
   My child seems to be much harder to care for than most.

(3) Hopkins Symptom Checklist-90 (Derogatis, 1977). Another aspect of adjustment which was considered important for this study was psychological distress. It was important to use a measure that would be sensitive to variations in the low levels of distress and symptomatology which would be expressed by this non-clinical sample. The Hopkins Symptom Checklist-90 was selected to measure psychological symptomatology since it has been utilized widely among normal, non-clinical populations, and has been shown to be sensitive to low levels of distress. This 90-item self-report checklist of psychological and somatic symptoms yields scales measuring somatization, obsessive compulsive symptomatology, interpersonal sensitivity, depression, anxiety, hostility, and paranoid ideation, as well as a global distress index.

(4) Well-Being Index. Because this was a non-clinical population, it was considered important to include a measure of adaptation which was based on well-being, rather than on psychological symptomatology alone. The Well-Being Index which was selected consisted of the Positive Well-Being, Self-Control, and Vitality scales from the Rand Health Insurance Study (Brook, Ware, Davies-Avery, Stewart, Donald, Rogers, Williams, & Johnson, 1979). These scales have been validated with a large community

sample. The Well-Being Index is a 13-item self-report scale reflecting general well-being and level of energy.

b. Measures of Child.

(1) Denver Prescreening Developmental Test. To understand the nature and severity of the ongoing stress experienced by the parents in this study and to be able statistically to control for the severity of the child's problems in assessing parents' adjustment at follow-up, it was considered important to understand the developmental problems of the children. To assess the development of the baby at the follow-up assessment, a brief inventory which parents could respond to regarding the abilities of their children was required. The Denver Prescreening Developmental Test was selected to assess the age-related development of babies.

This summed 10-item developmental test (see Table 12) is age-graded for children 3 months to 5 years of age. It provides scores from 1 to 10 according to the number of age-graded tasks the child is able to perform. The Denver Prescreening Developmental Test was developed as a screening tool for use in pediatric clinics to identify children who should be tested further for developmental problems, and it has been validated among large pediatric clinic samples. For this study of premature babies at one-year follow-up,

items were selected according to the infants's age adjusted for prematurity. Thus a 13 month old baby who was 8 weeks premature was tested at the 11 month level. Parents were asked to respond to verbal questions regarding their child's abilities.

(2) Child Health (see Table 13). To understand the nature and severity of the ongoing stress experienced by parents in this study, it was considered important to assess their children's health as well as their developmental problems. A rating system was developed for this purpose, to identify the global health status of children at the time of follow-up.

TABLE 12

Denver Developmental Prescreening Scores at Follow-Up Assessment

| Denver Score[a] | Number[b] | Percent |
|---|---|---|
| 10 | 28 | 51.8 |
| 9 | 13 | 24.1 |
| 7 - 8 | 8 | 14.8 |
| <7 | 5 | 9.2 |

[a] Age adjusted for prematurity.

[b] N = 54.

The health of the children at 12 to 15 months was determined from interviewing the parents regarding their perceptions of the child's health, specific health problems experienced by the child, number of

TABLE 13

Health of Babies at Follow-up Assessment

| Health | Number | Percent |
|---|---|---|
| 1. Healthy | 34 | 63.0 |
| 2. Moderate Problems | 12 | 22.2 |
| 3. Severe Problems | 8 | 14.8 |

[a] N = 54.

visits to the doctor, and any special treatment the child had received, such as specialized medical examinations, physical therapy, or surgery. In addition, the child's score on the Denver Prescreening Developmental Test was included in the assessment of child health.

Specific procedures were followed to derive a global rating of child health, and the criteria are included in the text which follows. Because at one year of age it is difficult to distinguish the effects of health, physical disability, and developmental problems, measures of child development and physical health were combined for this rating. Some developmental problems may result from physical disabilities at this age. One child in the current study, for example, had a genetically acquired peripheral muscle disability which meant that she could not walk or crawl, but she appeared to have

normal cognitive development. Because of her physical disability, however, her Denver score was low. Children who had scores on the Denver Prescreening Developmental Test of 9 or 10 and who had no illnesses other than colds were given a score of 1, reflecting good health and development. Children who had had any kind of surgery, who had an illness lasting a month or more since they left the hospital, who had been re-hospitalized for more than overnight, or who had Denver Prescreening Developmental Scores of 8 were given a score of 2 on the child health measure. These included a child who had recovered from failure-to-thrive due to an allergic reaction to milk and soy which was not diagnosed for several months, a child who had heart surgery, a child with asthma, and several children with Denver scores of 8. Children who had severe ongoing health problems or Denver scores below 8 were given a score of 3. These children had problems which included blindness, deafness, profound developmental problems, severe deficiency in pulmonary functioning, and ongoing cardiac problems.

# RESULTS

## Development of the Premature Birth Oriented Coping Checklist Scales

### First-order Factor Analysis

As the first process in data analysis, the Premature Birth Oriented Coping Checklist scales were developed utilizing a factor analytical framework. This factor analysis was necessary for several reasons. First, because some items in the Premature Birth Oriented Coping Checklist differed from those in the Ways of Coping Checklist (Folkman & Lazarus, 1980), the items did not fit into Folkman and Lazarus' coping factor scales. In addition, the original factor analysis of the Ways of Coping Checklist was performed on data obtained from a sample of college students who responded with regard to a stressful event of their choice, although the revised scales (Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980) were derived from data obtained from a community sample. Parkes (1984), in her factor analysis of the Ways of Coping Checklist using data from a population of nursing students, derived three broad factors which differed from those of Lazarus. The sample in the current study was experiencing a single crisis situation, one which was different in important ways from the events experienced by both students and nurses. It seemed likely, therefore, that the factor structure for this specialized sample would differ from that found in either of the student samples.

As the first step in scale development, frequency distributions were obtained for each item. Items which had less than 10% of the sample responding "sometimes" or "fairly often" and those which had less than 20% responding positively were eliminated from further analysis (eight items). Three items (drinking, smoking, and drug use) were combined into one item reflecting use of drugs.

The remaining 54 items were factor analyzed using a principal components analysis. Using the criteria of eigenvalue greater than 1 and scree test rules, 4, 12, and 16 factors were rotated by the Varimax method. The first 8 factors of the 16-factor solution provided sensible and understandable uni-dimensional scales with face validity. They were Wishing to Undo, Seeking Social Support, Spiritual Focus, Self-Blame, Taking Action, Avoidance, Waiting, and Looking on the Bright Side. The scale items and their factor loadings are presented in Appendix C. To test the stability of this solution, the 32 items which emerged in these eight scales were isolated, and a second factor analysis was performed using only these items. Again, eight factors were rotated by the Varimax method. The original eight factors were replicated, indicating that they were stable, and were not merely due to variance contributed by the other items.

The final process in development of these scales involved verification of this factor structure by gender. This analysis was performed to determine if differences in

how men and women managed the problem of having a premature baby resulted in different factor structures for the coping scales. There was some evidence that men and women cope with situations differently (Folkman & Lazarus, 1982; Pearlin & Schooler, 1978), but it was not known whether the factor structure of the questionnaire would be different for men and women.

Due to the sample size (58 men and 57 women) without missing values, the factor analyses could not be run separately by gender using all 54 items. Consequently, the final 32 items contained in the original eight factors were included in this analysis. Separate principal components analyses were run by gender, and eight factors were rotated using the Varimax rotation. Factors were considered replicated by gender if they reflected the same content as the factor for the total sample and if all but one item matched the total sample factor. Five of the eight factors were replicated by gender using these criteria, reflecting Wishing to Undo, Self-Blame, Taking Action, Avoidance, and Looking on the Bright Side. A sixth factor, assessing Seeking Social Support, emerged for women but not for men. These five factors for men and six factors for women were utilized in subsequent analyses. Item loadings on these factors ranged from .38 to .85. Inter-item reliability of the factors was tested using Chronbach's $\alpha$, and yielded values from .58 to .81. Correlations between scales were very low ($r < .18$, ns.), with the exception of Wishing to

Undo and Self-Blame, which were more highly correlated ($r$ = .47, $p < .001$).

Second order factor analysis

Hypothesis A.1 proposed that there would be a cluster of coping strategies used by individuals, such that those who use certain coping strategies are more likely to use them in combination with other specific coping strategies, rather than using one coping strategy alone. There is evidence that people use combinations of coping strategies in managing stressful situations, and it seemed likely that people would use the coping strategies (scales) in consistent higher order patterns, such that those, for example, who use a strategy such as Taking Action might also tend to use Looking on the Bright Side, or those who use Self-Blame might also use Wishing to Undo. If such higher-order patterns of coping were found, they would facilitate the investigation of the relationship between the coping patterns of spouses in this situation. It would be methodologically more feasible to compare the coping strategies used by husbands and wives if these strategies could be described by a few global patterns than to compare a large number of individual strategies. It may be that patterns of coping are more important in the process of adjustment than any single coping strategy they use.

To test this hypothesis, second order factor analyses of the coping scales were performed by gender, using the first order factors as items in the analysis. This method was used for two reasons: First, there were different

first-order coping factors for men and women, and second, using this method it was possible to determine whether or not men and women had different patterns of coping strategies. The scores on the first order factors derived for each gender (five for men and six for women) were used as items in principal components analysis. Two second order factors for men and three second order factors for women were rotated by the Varimax method according to the eigenvalue greater than 1 and scree test rules. These factors and their loadings are presented in Appendix C.

For women, the first factor included Seeking Social Support, Taking Action, and Looking on the Bright Side, and was called Positive Action. It represented a combination of active, problem-focused and positive emotion-focused coping strategies. The second factor included Wishing to Undo and Self-Blame, and was called Negative Emotion. It represented wallowing in emotions which, most likely, result in feeling worse about the situation. The third factor was Avoidance.

For men, the second-order factors represented more complex combinations of coping strategies. The first factor included Wishing to Undo and Taking Action, and was called Action/Wishing to Undo. It represented coping which included an active, problem-focused approach in combination with emotions directed toward wishing that the event had not occurred. The second factor included Self-Blame, Looking on the Bright Side, and Avoidance (loaded

negatively), and was named Vigilant Mixed Emotional Focus. This represents vigilant, non-avoidant coping which includes a mixture of positive and negative emotion-focused strategies.

## The Relationship Among Initial Assessment Variables

### General analyses with individuals as the unit of analysis

Hypothesis B.1 proposed that there would be relationships between the first- and second-order coping strategies people use in managing the experience of having a premature baby cared for in the intensive care nursery and the following variables: socioeconomic status, the severity of the infant's illness, cumulative life events, size of the social network, and family relationships. To verify this hypothesis, regression analyses were performed using each scale of the Premature Birth Oriented Coping Checklist as a dependent variable in regression analysis and gender, socioeconomic status, size of social network, number of negative life events, severity of the child's illness, and four scales of the Family Life Inventory (Cohesion, Structure, Child-Adult Separateness, and Optimism) as independent variables.

Although the second order factor analyses of the coping scales revealed different patterns of coping for men and women, separate hypotheses were not proposed for men and women regarding the relationships between the coping

scales and the initial assessment variables. For this reason, regression analyses were performed on the total group of subjects, including both men and women, and gender was used as one variable in the set of initial assessment variables. Regression analyses were run for each of the five coping scales which emerged from factor analysis for both men and women: Wishing to Undo, Self-Blame, Taking Action, Avoidance, and Looking on the Bright Side. The relationship between the initial assessment variables and Seeking Social Support was tested for women only, since this coping scale emerged only for women. In addition, tests were performed to determine if there were any significant interactions between the main demographic variables (gender, socioeconomic status, and severity of the baby's illness), and any of the other initial assessment variables. A summary of the results of these regression analyses is presented in Table 14, and tables of the significant results are included in Appendix D.

The interactions between gender and the other eight initial assessment variables were tested as a set in a hierarchical regression analysis, following the set of nine main effects. The interactions between socioeconomic status and the other eight initial assessment variables, and between severity of illness and the other initial assessment variables were treated similarly: each set of interactions was entered following the set of nine main effects. Analyses of three-way interactions were performed

TABLE 14

Summary of Findings from Initial Assessment Regression Analyses

| | Coping Scales[a] | | | | | |
|---|---|---|---|---|---|---|
| | WTU | SB | TA | LBS | AV | SSS |
| Gender | **** | **** | -- | (I)[b] | -- | -- |
| SES | ** | -- | -- | -- | (I)[b] | -- |
| Severity | * | -- | -- | -- | -- | -- |
| Social Network Size | -- | -- | -- | -- | -- | -- |
| Negative Life Events | -- | * | -- | (I)[b] | -- | -- |
| Family Cohesion | -- | -- | -- | -- | (I)[b] | -- |
| Family Structure | -- | -- | -- | * | -- | * |
| Family Child-Centeredness | -- | -- | -- | -- | (I)[b] | * |
| Family Optimism | -- | -- | -- | ** | -- | -- |

[a] WU = Wishing to Undo
SB = Self-Blame
TA = Taking Action
LBS = Looking on the Bright Side
AV = Avoidance
SSS = Seeking Social Support

[b] (I) indicates significant interaction with other variables.

Note. * = $p < .05$.
** = $p < .01$.
**** = $p < .0001$.

only if the set of two-way interactions accounted for a significant increment in the variance in coping (Cohen & Cohen, 1975).

Because of the large number of variables entered in these regression equations, Fisher's protected *t*-test was used to protect experimentwise error (Cohen & Cohen, 1975). Accordingly, the overall *F* for each set of variables was tested for significance, and the contribution of the individual variables in that set was analyzed only if the overall *F* was significant at $p < .05$. The contribution of each independent variable was analyzed after all other independent variables had been taken into account, i.e., as if it were the last step entered in a hierarchical regression.

Taking Action. The regression analysis using Taking Action as the dependent variable revealed that, contrary to prediction, neither the set of individual initial assessment variables nor any of the sets of interactions accounted for a significant amount of variance. Thus, the extent to which people used Taking Action was independent of the other initial assessment variables.

Avoidance. For Avoidance, the set of individual initial assessment variables did not account for a significant amount of variance, but the set of interactions between socioeconomic status and the other initial assessment variables did, $sR^2 = .15$, $F(8,97) = 2.34$, $p < .05$. The interactions between socioeconomic status and family cohesion, $t(1,97) = -2.82$, $p < .01$ and between

socioeconomic status and child-centeredness, $t(1,97) = 2.47$, $p < .02$, both contributed significantly to the variance in Avoidance accounted for in this equation, after all of the other interactions with socioeconomic status and the main effects had been accounted for. The three-way interactions for socioeconomic status, gender, and the other initial assessment variables was tested as a set in the third step of a hierarchical regression analysis, and the $sR^2$ for this set was not significant.

The regression equation for Avoidance was examined to determine the meaning of the significant two-way interactions. For the interaction between socioeconomic status and family cohesion, it appears that among subjects of low socioeconomic status, those who perceive their families as not cohesive are less likely to use avoidance than those who perceive their families as highly cohesive. Among subjects of high socioeconomic status, however, those who perceive their families as less cohesive are much more likely to use avoidance than those who perceive their families as more cohesive.

Examination of the regression equation revealed that among all levels of socioeconomic status there was a tendency for people who perceived their families as less child-centered to use more avoidance. This relationship was, however, particularly marked for high socioeconomic status subjects, such that the slope of the regression equation was much steeper for these subjects. Thus,

avoidance was used most by people of higher socioeconomic status who perceived their families as not cohesive and/or as not child-centered.

Wishing to Undo. The regression of the nine initial assessment variables on Wishing to Undo yielded $R^2 = .254$, $F(9,105) = 3.98$, $p < .001$. None of the $sR^2$ for the sets of interactions made a significant contribution. Examination of the individual main effects revealed that, after all of the other initial assessment variables were accounted for, women did more Wishing to Undo than men, $t(1,105) = -4.17$, $p < .0001$, and that those subjects with higher socioeconomic status used more Wishing to Undo than those of lower socioeconomic status, $t(1,105) = 2.63$, $p < .01$. In addition, subjects whose baby's illness was more severe were more likely to use Wishing to Undo, $t(1,105) = 2.05$, $p < .05$. Thus, Wishing to Undo was used more by women, those of higher socioeconomic status, and those whose babies were more severely ill.

Self-Blame. The set of initial assessment variables accounted for a significant amount of the variance in Self-Blame, $R^2 = .231$, $F(9,105) = 3.50$, $p < .001$. Gender and negative life-events accounted for this variance. Women were more likely than men to use Self-Blame, $t(1,105) = -4.30$, $p < .0001$), and subjects with more negatively evaluated life events were more likely to use Self-Blame,

$t(1,105) = 2.13$, $p < .04$). None of the other individual initial assessment variables made a significant contribution to the variance in Self-Blame.

Looking on the Bright Side. The regression analyses of Looking on the Bright Side yielded both a significant set of main effects for the initial assessment variables, $R^2 = .187$, $F(9,105) = 2.67$, $p < .01$, and for the set of interactions with gender, $sR^2 = .120$, $F(8, 97) = 2.09$, $p < .05$. Among the main effects, those with more structured families, $t(1,105) = 2.78$, $p < .01$, and those who perceived their families as more optimistic, $t(1,105) = 3.53$, $p < .001$, did more Looking on the Bright Side. The interactions between gender and socioeconomic status, $t(8,97) = -2.43$, $p < .02$, and between gender and negatively evaluated life events, $t(8,97) = 2.73$, $p < .001$, contributed significantly to the $sR^2$ for this set of interactions. The three-way interactions for socioeconomic status, gender, and the other initial assessment variables were tested as a set in the third step of a hierarchical regression analysis, and the $sR^2$ for this set was not significant.

To understand the meaning of the significant two-way interactions, the regression equation was computed separately for men and women. First, the interaction between gender and socioeconomic status was examined. It revealed that among women, there was no difference in

Looking on the Bright Side for varying levels of socioeconomic status. Among men, however, those with lower socioeconomic status did more Looking on the Bright Side. Next, the interaction between gender and negative life events was investigated, revealing that the interaction was due to opposite relationships between negative life-events and Looking on the Bright Side for men and women. Among women, those with more negatively evaluated life events did less Looking on the Bright Side, while among men those with more negatively evaluated life events did more Looking on the Bright Side. Thus, men and women appear to be affected differently by life events in terms of their use of coping strategies. Women are, perhaps, more discouraged by negative life-events, while men who have experienced more life-events cope with this subsequent event with more optimism. These interpretations assume that the stressful life-events influenced coping, which is consistent with the temporal framework outlined in the introduction and Table 1.

In summary, the relationships between Looking on the Bright Side and the other initial assessment variables is somewhat complex. First, those with more structured and optimistic families used more Looking on the Bright Side. Second, men with lower socioeconomic status and those with more negatively evaluated life events used more Looking on the Bright Side. Women who had more negatively evaluated life events, however, did less Looking on the Bright Side.

Seeking Social Support. The regression analysis of Seeking Social Support only included data for women because this measure provided a factor only for women. It yielded a significant set of main effects $R^2 = .305$, $F(8,49) = 2.69$, $p < .02$. Women who perceive their families as more structured, $t(1,49) = 2.06$, $p < .05$, and those who perceived their families as more child-centered, $t(1,49) = 2.26$, $p < .05$ used more Seeking Social Support.

Second-order coping factors. To complete the analyses of the association between initial assessment variables and coping, the second-order coping factors were used as dependent variables in regression analyses. Since the second-order coping factors were different for men and women, these regression analyses were performed separately by gender. Once again, tests were performed to determine if there were any important interactions between the main demographic variables (socioeconomic status, and severity of the baby's illness) and any of the other initial assessment variables. Analyses of three-way interactions were performed only if the set of two-way interactions accounted for a significant increment in the variance accounted for.

Because the regression analyses with second-order coping factors as the dependent variable were performed separately by gender, results will be presented separately for men and women.

a. Men. For the men, the two second order coping factors were used as dependent variables: Action/Wishing to Undo and Vigilant Mixed Emotional Focus. The regression analyses of both of these second-order factors revealed that neither the set of individual initial assessment variables nor any of their sets of interactions accounted for a significant amount of variance. Thus, for men, the second-order coping factors were not significantly associated with any of the initial assessment variables.

b. Women. For the women, the three second order coping factors were used as dependent variables: Positive Action, Negative Emotion, and Avoidance. The regression analysis of Avoidance revealed that neither the set of individual initial assessment variables nor any of their sets of interactions accounted for a significant amount of variance. For Positive Action, the $R^2$ for the set of main effects was significant, $R^2 = .342$, $F(8,49) = 3.18$, $p < .01$, but none of the sets of interaction effects contributed significantly to the variance accounted for. Examination of the main effects for the individual initial assessment variables revealed that only family structure,

$t(1,49) = 2.30$, $p < .03$ was significantly associated with Positive Action. Thus, women who perceived their families to be more highly organized used more Positive Action.

For Negative Emotion, the $R^2$ for the set of main effects was significant, $R^2 = .353$, $F(8,49) = 3.34$, $p < .01$, but none of the sets of interaction effects contributed significantly to the variance in Negative Emotion. Examination of the main effects for the individual initial assessment variables revealed that socioeconomic status, $t(1,49) = 3.59$, $p < .001$, and the number of negatively evaluated life events, $t(1,49) = 2.73$, $p < .01$, were each significantly and positively associated with the use of Negative Emotion, after all of the other main effects had been accounted for.

In summary, among the women, Positive Action was used more by those who perceived their families as more structured, and Negative Emotion was used more by those who were of lower socioeconomic status and by those who had experienced more negatively evaluated life events.

Hypothesis B.2. Hypothesis B.2 predicted that there would be a difference in coping strategies used among parents of babies with varying severities of illness. To test this hypothesis, the regression analyses described above were examined to determine associations between the severity of the child's illness and the coping strategies parents used. This revealed that with the exception of

Wishing to Undo, parents used similar coping strategies regardless of the severity of illness. Parents whose baby's illness was more severe, however, were more likely to use Wishing to Undo, $t(1,105) = 2.05$, $p < .05$. This finding was in accord with prediction.

Hypothesis B.3. Hypothesis B.3 proposed that there would be an association between family cohesiveness and social network, such that those individuals who perceived their families as more cohesive would have smaller social networks. Their needs for social support, it was supposed, would be met more through their cohesive families and less through relationships with extended family and friends. This hypothesis was tested using a product-moment correlation analysis, and was not confirmed. There was a nonsignificant positive correlation of only $r = .04$. Thus, individual perceptions of family cohesiveness and social network size were not related.

To rule out the possibility that there was a curvilinear relationship between cohesion and social network size, subjects were divided into three groups according to their scores on cohesion. Differences between the mean social network size among the three groups was tested using a one-way analysis of variance, which was not significant. There was no significant difference in the mean size of social network among people with high, medium, and low scores on the cohesion scale.

Hypothesis B.4. Hypothesis B.4 proposed that family structure would be positively associated with Taking Action and Looking on the Bright Side, and negatively associated with Avoidance and Self-Blame. This was by tested by first-order correlation analyses which revealed a significant association only between family structure and Looking on the Bright Side. Those who perceived their families as more structured used more Looking on the Bright Side ($r$ = .27, $p < .003$).

Hypothesis B.5. Hypothesis B.5 proposed that the number of negatively evaluated life events people had experienced would be positively associated with Avoidance, Wishing to Undo and Self-Blame. This was by tested by first-order correlation analyses which revealed significant positive associations between negative life events and Wishing to Undo ($r$ = .27, $p < .003$), and Self-Blame ($r$ = .24, $p < .01$).

Hypothesis B.6. Hypothesis B.6 proposed that women with larger social networks would be more likely to use Seeking Social Support. This was by tested by a first-order correlation analysis which was not significant.

## Analyses With the Couple as the Unit of Analysis

Development of "Couple Coping" Groups. It was of interest to understand how individuals cope with a stressful event within the context of how their spouses cope. To this end, "couple coping groups" were devised utilizing the second-order coping factors. Each spouse was placed in a group according to his or her highest second-order coping factor score. Thus, women were placed in a group according to the scale (Avoidance, Positive Action, or Negative Emotion) on which they had the highest score, and men were placed in a group according to the scale (Action/Wishing to Undo or Vigilant Mixed Emotional Focus) on which they had the higher score. Groups for husbands and wives were combined in a 3 X 2 matrix (groups and their composition are presented in Table 15). Chi square analysis was used to determine whether there was any significant pattern of association between husbands and wives coping groups. Thus, a significant chi square result would indicate that wives with a certain pattern of coping were more likely to have husbands with a certain pattern of coping. The chi square analysis, however, indicated that there was no relationship between the distribution of coping groups of wives and husbands, $\chi^2$ (2, $N$ = 58) = 2.98, ns.

TABLE 15

Couple Coping Groups

| | | Women | | |
|---|---|---|---|---|
| | | Positive Action | Negative Emotion | Avoidance |
| Men | Action/Wishing to Undo | 2 | 12 | 7 |
| | Vigilant Mixed Emotional Focus | 10 | 5 | 10 |

$\chi^2$ (2, N = 58) = 2.98, N.S.

Association between couple coping groups and other initial assessment variables. Hypothesis C.1 predicted that there would be an association between membership in the couple coping groups and other initial assessment variables. To test this hypothesis, the relationships between membership in the couple coping groups and family socioeconomic status, family structure and cohesion, and life events were assessed. Linear discriminant function analysis (Statistical Analysis System, 1982) was utilized to test the extent to which this combination of variables could correctly predict membership in the couple coping group. The prior probability was set as proportional to the sample size.

Couple coping groups were not successfully predicted from socioeconomic status, family structure, cohesion, or life events by discriminant function analysis. Of the 56 couples without missing data, only 21 (37.5%) were correctly classified.

## Follow-up Assessment

### Analyses With the Individual as the Unit of Analysis

Hypothesis D.1. Hypothesis D.1 proposed that there would be relationships between the adjustment of parents at the one-year follow-up and their socioeconomic status, the severity of the child's illness at the initial assessment, the child's health at the follow-up assessment, other negatively evaluated life events, the coping strategies used to manage the premature birth, family relationships, and the size of their social network. To assess this relationship between stress, resources, and adjustment, a combination of hierarchical and simultaneous multiple regression analyses were performed.

Because mothers usually have primary caretaking responsibilities for their infants, it was thought that there might be important differences in the effects of the child's illness and coping strategies on adjustment for men and women in this study. For this reason, separate regression analyses were run for men and women. Although this resulted in some loss of statistical power due to a reduced *n* in each analysis, differences between men and

women also could result in blurring of important effects if both genders were combined for the analyses.

The complexity of psychological adjustment requires that many aspects of adjustment be assessed in order to begin to obtain a complete perspective. Four unique outcome measures were used in this study: Parenting Stress Index--Parent Domain, Parenting Stress Index--Child Domain, Global Symptom Index of the Symptom Checklist-90, and the Rand Well-Being Scale, and each was used as the dependent measure in separate regression analyses.

Following the theoretical framework for this study, regression analyses combining hierarchical and simultaneous methods were performed, with a measure of adjustment as the dependent variable. The steps of the hierarchical regression analyses follow from the framework outlined in Figure 1, in which demographic variables are defined as background variables, and variables within the sets of stressor and resource variables are defined. In the regression analyses, SES was the first step entered into the equation. This was followed by the set of potential stressors, including the number of negatively evaluated life events, the current health of the child, the severity of the child's initial illness and whether the birth was single or twin. The set of coping factors comprised the third step in the regression. Finally, other psychological resources, including family cohesion, family structure and the size of the social network, were entered as the fourth

step in the regression equation. Interactions between variables were evaluated only if the set of main effects made a significant contribution to the variance in adjustment accounted for.

As in the analyses of data from the initial assessment, many regression analyses were performed. For this reason, experimentwise error was protected by examining the contribution of the individual variables only if the contribution of the set of variables contributed significantly to the variance in the dependent variable, according to Fisher's protected _t_-test (Cohen & Cohen, 1975). Results are reported separately for men and women.

a. _Men_. Among men, adjustment, as measured by the Global Symptom Index of the SCL-90 and the Well-Being Scale, was not associated with any of the variables in the regression equations. Both the Parent and Child Domains of the Parenting Stress Index, however, were significantly associated with psychological resources, but not with the severity of the illness or any of the other stressors. These results are summarized in Table 16.

For the Child Domain, the set of stressors did not contribute significantly to the variance accounted for. The set of psychological resources, however, accounted for a significant amount of the variance in Child Domain of Parenting Stress, $sR^2 = .29$, $F(8, 38) = 2.21$, $p < .05$. The variables which accounted for this were Wishing to Undo,

TABLE 16

Summary of Findings from Follow-Up Assessment Regression Analyses

| | Outcome Measures[a] | | | |
|---|---|---|---|---|
| | PD | CD | SCL | WB |
| SES | -- | -- | -- | -- |
| Severity at birth | -- | -- | -- | -- |
| Health of child at 1 year | -W | -W | -- | -- |
| Negative Life Events | -W | -W | -W | -- |
| Wishing to Undo | M- | M- | -- | -- |
| Self-Blame | -- | -- | -- | -- |
| Social Network Size | -- | M- | -- | -- |
| Taking Action | -- | -- | -- | -- |
| Looking on the Bright Side | -- | -- | -- | -- |
| Avoidance | -- | -- | -- | -W |
| Seeking Social Support | -- | -- | -- | -- |
| Family Cohesion | -- | -- | -- | -- |
| Family Structure | -- | -- | -- | -- |
| Social Network Size | -- | -- | -- | -- |

[a] PD = Parent Domain of Parenting Stress Index
CD = Child Domain of Parenting Stress Index
SCL = Symptom Checklist-90
WB = Well-Being Scale

Note. W = significant association for women.
M = significant association for men.

$t(1, 38) = 2.23$, $p < .05$, and social network size, $t(1, 38) = 2.14$, $p < .05$. Thus, men who used more Wishing to Undo and who had larger social networks experienced their children as more stressful.

To better understand the specific ways in which men found their children more stressful, individual child domain scales were examined using multiple regression analyses. The results of these analyses are summarized in Table 17. Two of the six scales, Child Accptability and Child Demandingness, appeared to account for the differences found. In the analysis of Child Acceptability, the set of coping factors accounted for a significant amount of the variance, $sR^2 = .22$, $F(5, 41) = 3.01$, $p < .05$. Men who did more Wishing to Undo, $t(1, 41) = 2.47$, $p < .02$, and less Taking Action, $t(1, 41) = 2.57$, $p < .05$, at the time of the birth of their premature babies experienced their babies as less acceptable one year later. In the analysis of Child Demandingness, however, the set of other psychological resources accounted for a significant amount of the variance accounted for, $sR^2 = .24$, $F(3, 38) = 6.37$, $p < .001$. Men who had smaller social networks, $t(1, 38) = 3.69$, $p < .001$, found their babies less demanding. Coping was not associated with Child Demandingness.

Similar results were obtained for the men in the Parent Domain of Parenting Stress. Although the set of stressors did not account for a significant amount of variance in the Parent Domain, the set of coping factors

TABLE 17

Summary of Findings from Regression Analyses with Child Domain Scales as the Dependent Variable

| | Outcome Measures[a] | | |
|---|---|---|---|
| | Acc | Dem | Adapt |
| SES | -- | -- | -- |
| Severity at birth | -- | -- | -- |
| Health of child at 1 year | -W | -W | -W |
| Negative Life Events | -- | -W | -W |
| Wishing to Undo | M- | -- | -- |
| Self-Blame | -- | -- | -- |
| Taking Action | M- | -- | -- |
| Looking on the Bright Side | -- | -- | -- |
| Avoidance | -- | -- | -- |
| Seeking Social Support | -- | -- | -- |
| Family Cohesion | -- | -- | -- |
| Family Structure | -- | -- | -- |
| Social Network Size | -- | M- | -- |

[a] Acc = Child Acceptability
Dem = Child Demandingness
Adapt = Child Adaptability

Note. W = significant association for women.
M = significant association for men.

did, $sR^2$ = .27, $F(5, 41) = 2.59$, $p < .05$. Men who did more Wishing to Undo, $t(1, 41) = 2.70$, $p < .01$, experienced higher degrees of stress.

To better understand the specific ways in which coping was associated with parenting stress among men, individual Parent Domain scales were examined using regression analyses. The results of these analyses are summarized in Table 18. Parent Depression was the only scale for which the set of coping factors accounted for a significant amount of variance, $sR^2 = .26$, $F(11, 39) = 3.06$, $p < .05$. Examination of the individual coping factors revealed that men who used more Wishing to Undo, $t(1, 39) = 2.49$, $p < .02$, and less Taking Action, $t(1, 39) = 2.01$, $p < .05$, were more depressed. For one of the Parent Domain scales, Parent Sense of Competence, the set of stressors accounted for a significant amount of variance, $R^2 = .24$, $F(4, 46) = 3.74$, $p < .01$. Those fathers who had experienced fewer negatively evaluated life events, $t(1, 46) = 2.84$, $p < .01$ felt more competent as parents than those who had many negative life events.

b. Women. The results of the multiple regression analyses for women are summarized in Table 16. Overall, the set of stressors, in particular the severity of the child's illness at the time of the initial assessment; the health status of the child at the time of follow-up; and the pile-up of stress, as measured by the number of negatively evaluated life events, were significantly associated with adjustment, the sets of resources had little effect.

TABLE 18

Logistic Regression Results for Adjustment of Couples with Family Relationships as Dependent Variables

| Variable | Regression Coeff. | Standard Error | Chi-Square | p-Value |
|---|---|---|---|---|
| Child Health[a] | -0.96 | 0.62 | .03 | ns. |
| Cohesion - Father | 0.09 | 0.04 | 4.45 | .03 |
| Cohesion - Mother | 0.04 | 0.03 | 2.44 | ns. |
| Structure - Father | 0.12 | 0.06 | 4.15 | .04 |
| Structure - Mother | 0.00 | 0.04 | 0.00 | ns. |

[a] Child Health at Follow-Up Assessment

Among women, the amount of variance in Well-Being accounted for by the set of stressors was not significant. When the set of three second-order coping factors was added, however, the variance accounted for by that set of variables was significant, $sR^2 = .16$, $F(3, 45) = 3.47$, $p < .05$. Women who used more Avoidance had higher Well-Being scores, $t(1, 45) = 3.17$, $p < .01$.

For the Global Symptom Index of the SCL-90, the set of stressors significantly contributed to the variance accounted for, $sR^2 = .20$, $F(4, 48) = 3.00$, $p < .05$. Women who had fewer negatively evaluated life events prior to the birth of their premature babies experienced fewer symptoms one year later, $t(1, 48) = 3.14$, $p < .01$. No other variables were significantly associated with this measure of adjustment.

For the Child Domain total score, the set of stressors significantly contributed to the variance accounted for,

$sR^2$ = .23, $F(4, 48) = 3.62$, $p < .05$. Only the number of negatively evaluated life events significantly contributed to this, $t(1, 48) = 3.28$, $p < .0002$, such that those with more negative life events experienced more distress. The contribution of the health of the child at one year, however, approached significance, $t(1, 48) = 1.91$, $p < .06$, such that there was a tendency for mothers with less healthy children to report more distress.

The individual scales which were combined to form the Child Domain score were each used as dependent variables in further regression analyses, to determine which specific aspects of the mothers' relationship with the child contributed to the findings for the total score. The results of these analyses are summarized in Table 19. Three scales, child acceptability, child adaptability, and child demandingness, were significantly associated with the set of stressors. The set of stressors contributed significantly to the variance in child acceptability, $sR^2$ = .20, $F(4, 48) = 3.10$, $p < .05$. Only the health of the child at one year contributed to this, $t(1, 48) = 2.52$, $p < .02$, such that mothers whose children were less healthy found them less acceptable. The set of stressors contributed significantly to the variance in child adaptability, $sR^2$ = .20, $F(4, 48) = 3.07$, $p < .05$. Both the health of the child at one year, $t(1, 48) = 2.07$, $p < .05$, and the number of negatively evaluated life events, $t(1, 48) = 2.80$, $p < .01$, contributed significantly.

Mothers who had experienced more negatively evaluated life events and who had less healthy children, reported that their children were less adaptable. Finally, the set of stressors contributed significantly to the variance in child demandingness, $sR^2 = .31$, $F(4, 48) = 5.73$, $p < .01$. Both the health of the child at one year, $t(1, 48) = 2.42$, $p < .02$, and the number of negatively evaluated life events, $t(1, 48) = 3.71$, $p < .001$, contributed significantly. Mothers who had experienced more negatively evaluated life events and who had less healthy children, reported that their children were more demanding.

For the Parent Domain of Parenting Stress, the set of stressors significantly contributed to the variance accounted for, $sR^2 = .22$, $F(4, 48) = 3.35$, $p < .05$. Women whose children were less healthy at the age of one year, $t(1, 48) = 2.56$, $p < .02$, and who had had more negatively evaluated life events, $t(1, 48) = 2.47$, $p < .02$, experienced more distress. Coping and other resources did not contribute significantly to the variance in the Parent Domain accounted for.

To understand the specific aspects of the Parent Domain which accounted for these findings, regression analyses were run using five of the Parent Domain scales as dependent variables. The results of these analyses are summarized in Table 17. These analyses revealed that the set of stressors accounted for a significant amount of the

variance in Parent Attachment, $sR^2$ = .21, $F(4, 48) = 3.24$, $p < .05$, Parent Depression, $sR^2$ = .30, $F(4, 48) = 5.23$, $p < .001$, and in Parent Social Isolation, $sR^2$ = .20, $F(4, 48) = 2.91$, $p < .05$. Mothers whose children were more severely ill at the time of the initial assessment were less attached to their children at the time of follow-up, $t(1, 48) = 2.56$, $p < .01$. Mothers whose children were more severely ill at the time of the initial assessment, $t(1, 48) = 2.26$, $p < .03$, less healthy at the time of the follow-up assessment, $t(1, 48) = 2.36$, $p < .03$, and who had experienced more negatively evaluated life events $t(1, 48) = 3.54$, $p < .001$, were more depressed. Finally, mothers who had twins, $t(1, 48) = 2.15$, $p < .04$, and those who had experienced more negatively evaluated life events, $t(1, 48) = 2.75$, $p < .01$, felt more socially isolated. Again, the stressors were significantly associated with adjustment among mothers, but the coping factors, family scales, and other psychological resources were not.

In summary, the set of stressors, in particular the severity of the child's illness at the time of the initial assessment, the health status of the child at the time of follow-up and the pile-up of stress, as measured by the number of negatively evaluated life events, were significantly associated with adjustment, while coping and family measures had little effect among women. Women who had more negatively evaluated life events had poorer adjustment as measured by the SCL-90, the Parent Depression

and Parent Social Isolation scales, and they perceived their children as less adaptable and more demanding. Mothers whose children were more severely ill at the time of the initial assessment were more depressed and felt less attached to their children at the one-year follow-up. Mothers whose children had more health problems at the time of follow-up were more depressed, found their children less acceptable and adaptable and more demanding. Finally, mothers who had twins felt more socially isolated.

The only significant association between coping and adjustment was that women who used more Avoidance reported better Well-Being at the time of follow-up.

Hypothesis D.2. Hypothesis D.2 predicted that there would be an independent relationship between the child's health at both the initial assessment and follow-up and the psychological adjustment of parents. For this analysis, each of the major measures of adjustment was used as a dependent variable in a regression analysis, with the two measures of health (at the initial and follow-up assessments) as the independent variables. In this way, the independent association of each health measure and adjustment could be assessed.

Regression analyses revealed that the set of infant health measures was not significantly associated with any of the outcome measures, but that there was an association which approached significance for women between the infants' health and the Parent Domain of the Parenting

Stress Index, $R^2$ = .100, $F(2,51)$ = 2.82, $p$ < .07. Mothers whose children were less healthy at follow-up, but not at the initial assessment, reported more stress, $t(1,51)$ = 2.37, $p$ < .02)

Hypothesis D.3. Hypothesis D.3 proposed that individuals who perceived their families as more child-centered would find their child less demanding, after the child's health at the time of follow-up was taken into account. This was tested by a regression analysis of all subjects with the Child Demandingness scale of the Parenting Stress Index as the dependent variable, the child's health as the first independent variable, followed by the Child-Centeredness scale of the Family Life Scales.

Regression analysis revealed that there was no significant association between the perceived child-centeredness of the family and the parent's perception of the child's demandingness. In a regression analysi combining men and women, the health of the child at the time of follow-up was strongly related to the perception of the child as demanding, $t(1, 106)$ = 3.81, $p$ < .001. Child-centeredness of the family, however, was not associated with the perception of the child as demanding, $t(1, 105)$ = 0.21, $p$ < .83.

Hypothesis D.4. Following the theoretical frameowrk of this study, it was of interest to understand the relationship between family relationships and adjustment,

after the health of the child was taken into account and before consideration of other resources, as outlined in Hypothesis D.4. To this end, regression analyses were run using family relationship variables as the third step in the equations, following SES and the severity of the child's illness, with coping scores as the fourth step in the equations. These analyses were performed separately by gender.

Among women, the set of family relationship variables did not account for a significant amount of variance in any measures of adjustment. Among men, however, the set of family variables, when entered as the second step in the regression analysis, accounted for a significant amount of variance in Parent Health, $sR^2 = .15$, $F(2, 44) = 4.65$, $p < .05$, and in Child Demandingness, $sR^2 = .13$, $F(2, 44) = 3.76$, $p$ .05. Men who perceived their families as more structured reported better health, $t(1, 44) = 2.90$, $p < .01$, and they perceived their infants as less demanding, $t(1, 44) = 2.18$, $p < .04$, regardless of the child's health status.

Hypothesis D.5. Hypothesis D.5 proposed that certain coping scales would be associated with pychological adjustment at the one-year follow-up, after the health of the child was taken into account. This was tested by gender using a combination of stepwise and simultaneous regression analyses. Using the four major measures of outcome as dependent variables, analyses were run with the

child's health at follow-up as the first step, followed by the set of first-order coping scales.

Although none of the sets of coping scales contributed significantly to the variance in outcome, there was an interesting trend for men. Men who used more Wishing to Undo, independent of other coping strategies and the health of their children, reported higher levels of stress on both the Parent, $t(1,44) = 2.38$, $p < .02$). and Child, $t(1,44) = 2.49$, $p < .02$), domains of the Parenting Stress Index.

Couple as the Unit of Analysis

Hypotheses E.1. To test Hypotheses E.1, a method of identifying well adapted and poorly adapted couples was developed. According to a broad range of literature on families, maladjustment in the family can be expressed by any family member and does not require expression by all family members (e.g., Framo, 1970; Vogel & Bell, 1968). For this reason, couples were defined as poorly adapted if either spouse expressed poor adjustment. Thus, a couple was defined as poorly adapted if either spouse's score on the Parent Domain of the Parenting Stress Index was in the highest quartile for that spouse's gender (with high scores indicating poor adjustment). Eighteen (33.3%) of the couples were defined as poorly adapted using this method. A couple was defined as well adapted if both spouses were well-adapted. Thus, a couple was considered well adapted if both spouses' scores on the Parent Domain of the Parenting Stress Index were in the lowest third, or if one

spouse's score was in the the lowest third and the other spouse's score was in the lower half of scores. Twenty (37.0%) of the couples were defined as well adapted using these criteria.

Hypothesis E.2. Hypothesis E.2 predicted that people who used the coping strategies of Avoidance or Wishing to Undo would be more likely to be in the poorly adapted group. This was tested using logistical multiple regression analysis (Harrell, 1982; Walker & Duncan, 1967). This method tests group membership based on a statistical strategy which does not assume multivariate normal distributions. Membership in the poorly adapted versus well adapted groups was the dependent variable, and each parent's scores on Avoidance and Wishing to Undo were used as independent variables in logistical multiple regression analysis. These coping measures did not significantly differentiate well-adjusted and poorly adjusted couples.

Hypothesis E.3. Hypothesis E.3 predicted that, independent of the child's health at the follow-up assessment, families with high structure and high cohesion would be more likely to be in the well adapted group. This was tested using the logistical multiple regression analysis described above. Results (see Table 21) indicated that fathers' perceptions of the structuredness, $^{2}(5, N = 54) = 4.45$, $p < .05$, and cohesiveness, $^{2}(5, N = 54) = 4.15$, $p < .05$, of their families significantly predicted

couples' level of adjustment, while mothers' perceptions did not significantly predict adjustment for couples.

Hypothesis E.4. Hypothesis E.4 predicted that couples with more divergent scores on measures of family relationships would be more likely to be in the poorly adapted group. This was tested by logistic regression analysis, which was not significant.

Hypothesis E.5. Hypothesis E.5 predicted that there would be an association between couples' membership in the coping groups and the adjustment groups. This was tested by two-way analysis of variance with the child's health at the follow-up assessment as a covariate, and was not significant.

# DISCUSSION

## Overview

This study yielded four major sets of results. First, it was found that replicable, consistent scales indicating specific approaches to coping with a premature birth could be derived through factor analysis. In addition, these coping scales could be combined into second-order factors representing patterns of coping strategies which individuals used in combination. Second, it was found that coping strategies that were used in dealing with the birth of a premature baby were associated with gender, socioeconomic status, previously experienced negative life events, size of social network, and family relationships. Third, the variables associated with measures of adjustment at follow-up were different for mothers and fathers. For mothers, the health of the child was the major predictor of adjustment, whereas for fathers coping strategies and family relationships were the main predictors. Finally, adjustment scores for spouses were combined to determine the level of adjustment for couples. Fathers' perceptions of family structure and cohesiveness were associated with adjustment for couples. These results are discussed in greater detail in the sections which follow, and are

integrated within an interactional framework of adjustment to stress.

## Development of the Premature Birth Oriented Coping Checklist (PBOCC) Scales

### First-Order Factor Scales

The five first-order factor scales which were derived for men and the six scales which were derived for women are similar to the factor analytic scales derived by Lazarus and co-workers (Aldwin, Folkman, Schaefer, Coyne, & Lazarus, 1980) in their revised Ways of Coping Checklist (WCC-R). The analogous scales are as follows:

| WCC-R | PBOCC |
|---|---|
| Problem-Focused | Taking Action |
| Wishful Thinking | Wishing to Undo. |
| Mixed | --- |
| Minimize Threat | Avoidance |
| Seek Social Support | Seek Social Support |
| Blamed Self | Self-Blame |
| Growth | --- |
| --- | Looking on the Bright Side |

Several distinctions between these two sets of coping scales, however, deserve mention. First, data for the WCC-R factor scales were derived from a community sample of people dealing with various stressful situations, whereas the PBOCC scales were derived from a sample of parents dealing with the specific experience of having a premature baby. Second, the PBOCC scales were derived separately for men and women. The WCC-R scales were derived with data for men and women combined. With the PBOCC, differences were found in the scales derived with factor analysis using the total sample combined and those derived separately by gender. The finding of this difference emphasizes the need for analyzing coping data separately by gender. Third, most of the scales on the PBOCC have fewer items than those on the WCC-R, which may reflect more focused and specific coping behaviors.

The PBOCC scales are sensible, they have relatively high inter-item correlations, and they reflect unidimensional coping strategies. They should be useful in other studies addressing coping strategies used by parents of premature babies.

Second-Order Factor Scales

Three second-order factor scales were derived for women and two second-order factor scales were derived for men. The scales derived for women reflect distinct, sensible and unified approaches to coping: positive

emotions and action; negative emotions; and avoidance. Thus, in accord with Hypothesis A.1, it appears that women do not use random combinations of coping strategies. Rather, they tend to use combinations of coping strategies in specific patterns, as reflected by the second-order factor analysis.

The two second-order factors derived for men, Taking Action/Wishing to Undo and Mixed Vigilant Emotional Focus, indicate that men also use combinations of coping strategies in specific patterns. In this case, however, the meaning of the second-order factors is less obvious. It appears that men use complex, unexpected patterns of coping strategies in dealing with the birth of a premature baby. Those who tend to be action-oriented also wish that the event had not occurred or that they could redo what has happened. Thus, although they wish that the event had not occurred, they are not incapacitated by these thoughts. Rather, they simultaneously take action. The second factor reflects a complex combination of emotions, including self-blame and looking on the bright side. Men who use this pattern of coping are vigilant rather than avoidant, and although they blame themselves they still are able to see the positive side of their difficult situation.

Since these second-order factors diverge from previous findings and from intuitive ideas regarding likely patterns of coping strategies, the significance of the contribution

of these second-order coping factors for men to the understanding of how people cope with stressful life-events is unclear. Further research utilizing similar methodology would be required to determine if these findings are replicable in similar samples and in samples coping with other specific stressful situations.

## The Relationship between Coping and Initial Assessment Variables

### The Individual as the Unit of Analysis

The major findings regarding associations between first- and second-order coping factor scales and the other initial assessment variables will be discussed below. With the exception of Taking Action, each of the first-order coping factors was associated with some of the other initial assessment variables, indicating that coping is a process which is integrated with and which interacts with other aspects of the life and experiences of the individual.

Taking Action. In light of the numerous significant relationships which were found between initial assessment variables and coping strategies, it is interesting to note that the use of Taking Action was not associated with any of the initial assessment variables. This finding of no association may be unique to the type of situation studied, in which there is little that parents actually could do to

influence the course of their child's illness. Having a premature baby cared for in the intensive care nursery demands a degree of passivity from parents. Whereas they expected to take their babies home and care for them, parents found themselves in a situation in which nurses completely took care of their babies. Some parents whose babies were less severely ill were able to hold and feed their babies, and a few mothers even could nurse, but primarily parents had to stand by and watch strangers care for their newborn premature infants. Thus, even parents who were oriented toward taking action find themselves in a situation where there was little they could do to help. Parents of more or less severely ill babies used Taking Action to similar degrees, however, and predicted associations between Taking Action and family structure, optimism, and social network size were not found.

Avoidance. Two interesting interaction effects with socioeconomic status were significant in predicting the use of Avoidance. First, there was an interaction between socioeconomic status and family cohesion which accounted for 15% of the variance in Avoidance. Among subjects with high socioeconomic status, low family cohesion was associated with Avoidance.

This finding is in accord with the results of previous research on family functioning, which has shown that low family cohesion is associated with psychological and behavioral problems of family members (e.g., Minuchin, 1974; Olson, Sprenkle, & Russell, 1979). While some research (e.g., Cohen and Lazarus, 1983; Lazarus, 1983) has shown that the use of Avoidance as a coping strategy may be associated with positive physical health outcomes, other research has found an association between the use of Avoidance and poor psychological adjustment and the presence of depression (Billings & Moos, 1981). The association between low family cohesion and avoidance found in the current study could be predicted from the previous findings of negative association between the use of Avoidance and psychological adjustment, since both Avoidance, on the individual level, and low cohesion, on the family level, have been associated with problems in individual psychological adjustment.

An unexpected result was found in relation to Avoidance, however, among low socioeconomic status subjects. For these people, greater family cohesion was associated with greater use of avoidance. This finding may indicate that a high degree of cohesiveness has different implications to people of varying socioeconomic levels. The finding for people of high socioeconomic status is in accord with previous family research and theory. It may be

that for high socioeconomic status families, high cohesiveness indicates positive interaction and an active approach in coping with life stress. For low socioeconomic status families, however, high levels of cohesiveness may indicate more rigid patterns of interaction and a more withdrawn, less active (avoidant) approach to stressful situations. In this way, the implications of measures of family cohesiveness may be different for families of varying socioeconomic status.

The other interesting and unexpected finding regarding avoidance was the interaction between socioeconomic status and child-centeredness in predicting avoidance. Although among all subjects there was a tendency for those who perceived their families as more child-centered to use less avoidance in coping with their baby's illness, this relationship was stronger for those of high socioeconomic status. The different slopes of the equations may not be as meaningful as the general finding of the negative association between child-centeredness and the use of avoidance. Although this relationship was not hypothesized, it is consistent with intuition. It seems likely that people who perceive their families as child-centered would be more involved with their premature babies and therefore take more active (less avoidant) approaches in coping with their baby's illness. In fact, those subjects for whom this was a first child were instructed to

respond to questions about the child-centeredness of their families in terms of how they imagined things would be as their children developed. It follows that subjects who were currently engaged in avoidant coping strategies would perceive themselves, their marital relationships, or their families as less child-centered than those were were engaged in more active or cognitively involved coping strategies. Thus, it may be that parents' reports regarding child-centeredness reflected, in part, their simultaneous ways of coping with the premature birth of their babies. A general conclusion from these findings, however, is that the use of Avoidance as a coping strategy is connected with diverse and broad aspects of the individual's experience, as indicated by these complex interactions with socioeconomic status.

Wishing to Undo. Although the hypothesized relationships between Wishing to Undo and the initial assessment variables were not confirmed, other significant and interesting relationships were found.

First, women used much more Wishing to Undo than men. This is, most likely, a situation-specific difference. It may be that women in the situation involving their hospitalized newborn babies are emotionally more engaged than their husbands, or that they are specifically more likely to use negative emotions. Evidence in support of

the latter possibility may be found in the analyses of the other coping strategies: Wishing to Undo and Self-Blame were the only coping strategies which women in this study used more than men. Although men and women similarly avoided the situation, took action, and looked on the bright side, women felt badly about their plight much more than men.

Billings and Moos (1981) studied coping in a community sample dealing with a variety stressful situations, and found that women used more active behavioral coping, emotion-focused coping, and avoidance than men. Only the gender difference in the use of emotion-focused coping, however, was replicated in this study, and only for the more negative emotion-focused coping strategies of wishing to undo and self-blame. The lack of correspondence in gender differences between this study and that of Billings and Moos may be due to the specific situation of a premature birth with which people in the current study were coping. It is important to note that since women are likely to be more emotionally involved in the illness of their newborn babies than their husbands, this difference in coping strategies between men and women may not be generalizable to other situations.

Finally, Wishing to Undo was the only coping strategy associated with the severity of the child's illness, such that those with more severely ill babies used more Wishing

to Undo. Although in every other way all parents, regardless of the severity of their child's illness, were similarly engaged in coping, those with sicker children did more wishing that the birth had not turned out this way and that they could undo the entire situation in which they found themselves. It seems that parents for whom the child's illness was more time-limited engaged in less wishing to undo than those for whom the situation was prolonged and possibly chronic and serious. The parents of the less severely ill children may have looked forward to their situation improving, while the parents of sicker babies did not have such realistic hopes, and therefore engaged more in wishing that the situation never had occurred.

These major findings in relation to Wishing to Undo indicate that the use of this coping strategy was connected to parents' specific involvement with the situation. Mothers and fathers appeared to be involved with the premature birth in different ways, and they engaged in wishing to undo to different degrees.

Self-Blame. The gender difference in the use of Self-Blame has been discussed above. The other significant finding, that subjects with more negative life events used more Self-Blame, indicates that the pile-up of stressors contributed to this negative self-preoccupation, and thus

to a feeling of personal responsibility for the premature birth. Perhaps those who have experienced multiple stressful events feel that they have not managed their lives successfully. They may have believed that the pile-up of stress itself led to the the premature birth, and therefore felt personally responsible for the problems their baby experienced. While this finding involved individuals, it is consistent with the ABC-X theory of family adjustment to stressful situations (McCubbin & Patterson, 1981, 1982). The ABC-X theoretical framework asserts the importance of the pile-up of stressors over time in determining adjustment of families to stressful situations.

It has been suggested (e.g., Thoits, 1982) that the negative consequences of life events may be due, at least in part, to their effects on coping. The association between negative life events and a coping strategy of self-blame in this study lends support to this theory. Several researchers (e.g., Kaplan, 1980; Pearlin, Lieberman, Menaghan, & Mullan, 1981; Thoits, 1982) have indicated that negative life events may alter a person's sense of self or mastery. Certainly, in light of the potential effects of personal resources on coping modes (Moos & Billings, 1982), the effects on self-esteem may in turn affect ways of coping with other situations. Thus, as Pearlin, Lieberman, Menaghan, and Mullan (1981) state, "persistent role strains

can confront people with dogged evidence of their own failures--or lack of success--and with inescapable proof of their inability to alter the unwanted cirumstances of their lives" (p. 340). It may be this alteration in coping strategies as a result of negative life-events which influenced the increased use of self-blame in this study.

Looking on the Bright Side. In accord with the specified hypotheses, subjects who perceived their families as more structured and optimistic did more Looking on the Bright Side. The association between family optimism and Looking on the Bright Side may be due to conceptual redundancy of these measures, although one measure is aimed at the family and the other at the individual. The association between family structure and Looking on the Bright Side, however, follows the findings of previous research on family functioning, in which more organized families have been found to be more flexible in adapting to developmental changes. Coping by looking on the bright side may, in part, reflect this flexibility and optimism.

The significant interaction between gender and socioeconomic status in predicting the use of Looking on the Bright Side was elucidated through examination of the regression equation for each gender. Among women, there was no difference in Looking on the Bright Side across socioeconomic status. Among men, however, those of lower

socioeconomic status did more Looking on the Bright Side, independent of all other initial assessment variables and their two-way interactions. This finding is in accord with Kohn (1981), who has found specific relationships among socioeconomic status, occupation, and family and parenting roles, especially among lower class men.

The other interaction effect which significantly predicted Looking on the Bright Side was that between gender and negative life events. Among women, those who had experienced more negative life events did less Looking on the Bright Side, whereas among men the opposite relationship pertained: men who had experienced more negatively evaluated life events did more Looking on the Bright Side. The scores on Looking on the Bright Side for men of all socioeconomic status levels were higher than for the women of comparable socioeconomic status level, but this difference was greatest at higher levels of negative life events. The main effect for gender differences did not approach significance, however. Among all subjects, there was a significant association between negative life events and the use of Self-Blame. Men in this study, however, appeared to respond to the pile-up of stressors differently than did women. For men, the pile-up of stressful events led to a strengthening of effort to view their experience positively, in addition to self-blame, while for women stress led only to increased self-blame.

Seeking Social Support. Women who perceived their families as more organized and as more child-centered sought more social support. It is surprising that there was no association between social network size and Seeking Social Support. It may be that women, regardless of the size of their social network, found someone to talk to about their stressful situation. Whether or not they sought social support may have been related to factors other than the size of their social networks, such as family structure or child-centeredness. In addition, there may be changes over time in the social network itself following a stressful experience (Bankoff, 1983), which may have contributed to this negative finding.

Second-order coping factors. The two second-order coping factors for men were not significantly associated with any of the initial assessment variables. Although there were specific associations for men between individual coping variables and initial assessment variables, as discussed above in regard to the interaction effects, these relationships did not appear with regard to the second-order factors. It appears that these effects could have been obscured when the individual coping factors were combined into the second-order factors.

Two of the three second-order factors for women were significantly associated with the initial assessment variables. The first significant finding was that women who perceived their families as more organized used more Positive Action. This is in accord with the finding for the group as a whole that those who perceived their families as more structured used more Looking on the Bright Side, which is one of the component factors in Positive Action. Women who perceived their families as more structured used more positive emotional and active coping strategies. This finding is in accord with previous research on families which has found positive effects of family structure on psychological adjustment of family members (e.g., Minuchin, 1974).

The second significant finding was the relationship between the set of initial assessment variables and the use of Negative Emotion. Both socioeconomic status and negative life events significantly contributed to the variance accounted for. Women with higher socioeconomic status used more Negative Emotion (Wishing to Undo and Self-Blame) than women with lower SES. This finding coincides with that for the total sample of parents, and was discussed above. Since, for the total group, there was a significant association between higher SES and the use of Wishing to Undo, it is likely that this aspect of Negative Emotion made an important contribution to this finding.

Women who had experienced more negatively evaluated life events used significantly more Negative Emotion. This may be accounted for largely by the use of Self-Blame, which, for the total group, was used more by those with more negative life events. It is important to note, however, that women who have experienced more pile-up of stressors responded to this stressful situation with coping strategies which suggest a focus on negative emotions. This is different from the findings for men, who, in addition to Self-Blame, also used Looking on the Bright Side when they had experienced greater pile-up of stressors.

Couples as the Unit of Analysis

To test Hypothesis C.1, couples were placed into one of six "couple coping" groups according to the scores of both spouses on the second-order factors, and it appeared that there was no consistent pattern to the scores of spouses. Thus, wives whose highest second-order factor score was on Positive Action were equally likely to have husbands who had higher scores on either of the second-order factors for men. This finding may be due to the level of abstraction of these second-order factors. Since the second-order factors for men and women reflected different patterns of behavior, it was difficult to predict likely patterns of combinations of spouses' scores. Thus,

the substantive meaning of these combined couple coping groups is unclear. In addition, because there were six groups for only 54 couples, some groups contained few couples, and this distribution may have limited the power of the statistical analyses.

Summary. Consistent with the theoretical framework for this study, there is evidence to indicate that the ways in which people coped with this stressful situation were not separate from other parts of their lives, but, rather, were integrated into other apsects of their history, experiences, perceptions, relationships, and social environment. Use of specific coping strategies appears to have been influenced by previous stressful life-events, perceived family structure, socioeconomic status, and gender.

These various findings, when viewed within the context of an interactive theoretical framework, have more importance than when viewed as isolated significant correlations. The dimensions of the individual's life which have been shown to be associated with coping may be viewed as the psychological, social, and situational context in which coping occurs. Not only does the individual's cognitive assessment of the stressful situation influence coping efforts individuals use, as Lazarus and his co-workers have emphasized (e.g., Lazarus & Launier, 1978), but other dimensions also influence coping

efforts. These include "objective" dimensions such as gender and socioeconomic status, "partially subjective" dimensions such as other stressful life events, and "perceptual" dimensions such as perceptions of family relationships.

The interpretation of directionality of causation does not rule out the influence of circular influence, such that coping may in turn influence perceived family relationships, social network, life events, and measures of outcome. Such circular influences were not, however, investigated in this study. In that they serve as the context in which coping occurs, the aspects which have been found to influence coping may be viewed as similar to the coping "resources" described by Moos and Billings (1982). The aspects studied here, however, include social as well as intra-individual dimensions, whereas the coping resources described by Moos and Billings (1982) were exclusively intra-individual dimensions.

The finding that the use of coping strategies is associated with perceived family relationships is of particular interest. Previous studies of individual coping strategies have not addressed the role of the family as the social context in which coping occurs. Although the findings for couple coping groups were not significant, there were significant associations between perceived family structure and individual use of coping strategies,

indicating that there may be important associations between perceived family relationships and individual use of coping strategies. This finding is consistent with the ABC-X model of family stress (McCubbin & Patterson, 1981, 1982), but it represents an expansion of that model to include measurement of the association between perceived family relationships and the coping strategies of individuals.

A major difference between the framework for the current study and the ABC-X formulation is that the current study utilizes the individual as the unit of measurement, and includes as a dimension of individuals' experience their perceptions of their family relationships. In addition, the positive findings for associations between coping and both gender and socioeconomic status indicate that the addition of these demographic variables to the interactional model of stress may be a useful contribution. The findings regarding gender are consistent with previous research on coping and gender (e.g., Billings and Moos, 1981), and they point to the potential value of studying the individual, as well as the family, as the unit of analysis.

## Predictors of Adjustment

### The Individual as the Unit of Analysis

Following the theoretical framework which distinguishes between background variables, such as gender and socioeconomic status; stressors, such as other

stressful life events and aspects of the current stressful situation; and psychological resources, such as coping, the social network, and family relationships, a set of multiple regression analyses were run to assess the relative importance of these dimensions in predicting the adjustment of parents following the premature birth of a baby. Because analyses were performed separately for men and women, they will be discussed by gender, and comparisons of findings between men and women then will be made. The important associations found between each measure of adjustment and the other variables will be discussed in turn.

Women. Of the major measures of adjustment utilized in this study, the Symptom Checklist-90 and the Parent and Child Domains of the Parenting Stress Index were most strongly associated with the dependent variables for women. The Symptom-Checklist-90 (SCL-90) was found to be associated with the the number of negative life-events women had experienced. This result was obtained after the severity of the child's illness statistically had been taken into account. This association is of interest both because it was important, accounting for 16% of the variance in the SCL-90, and in light of previous research findings regarding the time-limited nature of the effects of stressful life-events (e.g., Thoits, 1982). This

measure of life-events was derived from a report of events given shortly after the baby's birth, reflecting events which had occurred during the previous year. The SCL-90 score was obtained one year after the report of the events. Therefore, the events could have occurred as long as two years before the SCL-90 score was obtained. Given data which suggest that reports of life-events are reliable only for six months (e.g., Jenkins et al., 1979), or that the negative consequences of the events may diminish within a few months (e.g., Thoits, 1982), it is striking that the effects of negative life events were still felt up to two years later.

It may be that the birth of a premature baby, when experienced within the context of other stressful life-events, led to broader consequences and affected more aspects of parents' lives than when experienced as an isolated stressor. If, for example, a parent had had financial problems shortly prior to the premature birth of a baby, the effects of both problems would likely be magnified. Both financial problems and concerns about the baby could have been experienced as more serious when both problems occurred simultaneously. This possibility seems to be reflected in the finding of more symptomatology as measured by the SCL-90 among mothers who had experienced more negatively evaluated life events.

The findings regarding associations between the Parenting Stress Index and the dependent variables are of particular interest, since this measure of adjustment is most closely tied to the specific situation being studied. For women, both the Parent Domain and the Child Domain of this measure were associated with the health of the child at follow-up and with negative life-events. Several aspects of this finding deserve attention.

First, the finding of an association between the number of negative life-events and parenting stress emphasizes the importance of the discussion above regarding the effects of life-events. Women who had experienced more negatively evaluated life-events prior to their baby's birth reported poorer psychological adjustment as measured by the Parenting Stress Index.

Second, it is interesting that none of the coping scales or other psychological resources (e.g., social network, family relationships) were associated with adjustment as measured by the Parenting Stress Index. Two possible interpretations could account for this finding. First, it may be that mothers were so involved with their infants that the health of the infant was overwhelmingly the most important predictor of stress. It could be, in fact, that in general mothers whose premature babies were healthy one year later were themselves relatively well adjusted to parenthood. Many parents reported during the

follow-up interviews that their newborn babies were special because of their hospital experiences. Perhaps after their babies had had a tenuous hold on life, the mothers were most concerned with their children's health. Thus, independent of how mothers coped with having their babies in the hospital or how close or well-structured their families are, the health of their children may have been most important. Alternatively, the lack of association between coping and adjustment may have been due to the timing of the measure of adjustment. One year after the stressful event may have beeb too late to measure the effects of coping on adjustment. Thoits (1982) points out that measures of adjustment are often made too long after stressful events to measure the effects of the events, resulting in spurious negative findings. A third possibility is that mothers inaccurately reported their perceptions of their children, with a bias toward positive reporting. The mothers' reports of their babies as "special because of all he (she) has been through" may have led to an underreporting of negative perceptions, either because mothers did not want to admit these perceptions to the investigator or to themselves. Given the data, it is difficult to distinguish among these alternatives.

Another interesting finding is that while the health of the child at one year was associated with mothers' reports of parenting stress, with the exception of two

parent domain scales, the severity of the child's illness at birth was not associated with mothers' adjustment as indicated by the Parenting Stress Index. It appears that, on the whole, mothers' perceptions of their children and their adjustment as parents were related to the current health of their children. To the extent that this reflected reality, it is encouraging regarding the long-term effects of prematurity.

The exceptions to this finding that the children's health at follow-up was associated with parenting stress, however, deserve attention. Mothers' scores on two parent domain scales, depression and attachment, reflected an association between poor adjustment and the severity of the child's illness at birth, independent of any association with the child's current health status. This finding is in accord with other studies which have found a positive association between the extent of early maternal contact with infants and attachment (e.g., Klaus & Kennell, 1982; Siegel, Bauman, Schaefer, Saunders, & Ingram 1980). Although the current study seems to indicate that the most important predictor of adjustment among mothers of premature babies was their babies' health over time, there is some indication that more severe illness or prolonged hospitalization may have prolonged effects on mothers' attachment with their infants and on their affective

states. Extended longitudinal studies would be required to determine the duration of these effects.

Men. The Parent and Child Domains of the Parenting Stress Index were most strongly associated with the dependent variables for men. Both the Parent Domain and the Child Domain were associated with aspects of coping and social network size, but, in contrast to women, not with the health of the babies at the initial or follow-up assessments. Examination of the subscales in each domain revealed that men who used more Wishing to Undo and less Taking Action were more depressed, and that men who had experienced more negative life events felt less competent as parents. It seems possible that these fathers may have felt overwhelmed by their other life-events and therefore less able to be responsive toward the demands of a new baby. In the Child Domain, fathers who used more Wishing to Undo and less Taking Action found their children less "acceptable," and those who had larger social networks found their children more demanding.

These findings deserve examination. Overall, the use of Wishing to Undo as a coping strategy seems to be associated with parenting stress among fathers. Fathers who coped by wishing to undo may not have accepted their child and his or her health problems, and may have felt overwhelmed by the situation. In contrast, those fathers who used Taking Action, even in this situation in which

little could actually be done, reported better adjustment, as measured by the Parenting Stress Index.

Finally, the finding that fathers who had larger social networks found their children more demanding was unexpected. It seems that fathers who had more social connections outside their families may in fact have found their babies more demanding. For fathers with fewer social connections outside the family, it may have been less of a burden to have a baby making demands on them at home. The results of the test of Hypothesis D.4 lend further support to this interpretation. Regression analyses were run with Parenting Stress Index scales as dependent variables and the child's health at both assessments as independent variables entered into the equation before family cohesion and structure. They revealed that men who perceived their families as more structured found their babies less demanding. These men may have been more home-centered, and thus have found the demands of a baby less taxing than men who had more extra-familial commitments.

Differences between men and women. Given that the predictors of adjustment for men and women were found to be different in important ways, it is interesting to speculate on the meaning of these findings and their implications for research on the consequences of stressful life-events. The general finding was that for women, the health of their babies at the follow-up assessment was the most important

predictor of adjustment, followed by other negative life-events they had experienced and the severity of the child's illness at birth. For men, however, these variables were not predictive of adjustment. Rather, the coping strategies they used to manage the stress of having their premature babies in the hospital and their perceptions of the level of structuredness of their families were predictive of adjustment for men, after controlling for the health of their children and other life-events.

From the general impression gathered from interview data, it seems likely that the health of the babies was more salient for mothers than for fathers. Evidence in support of this may be found in the Billings and Moos (1981) study of a community sample. They asked subjects to report a recent stressful event and found that women were more likely than men to select events related to illness or children, whereas men were more likely than women to select events which were economic in nature. Events related to illness and children, it appears, were more salient for women than for men. Nye (1976) found, in assessing the actual time spent in childcare, that mothers assumed most of the parenting responsibility in all areas except protection from danger, which was shared equally. In the current study, mothers, on the whole, spent more time with their babies than fathers. Particularly when their children were not healthy, the mothers took more

responsibility for child care than the fathers. There was only one family in which the mother worked and the father stayed home, and in this family the infant was cared for by a babysitter outside the home while the mother worked. The father, in fact, reported that only his wife could calm their crying baby. Thus, although he did not work and had time to spend with his baby, he stated in response to interview questions that he perceived his wife to be a more "competent" parent for the baby than he was.

It may be that the importance of the babies' health outweighed any effects of coping or other psychological resources for mothers. Some mothers reported that while their babies were hospitalized, their moods followed their child's health. If the baby had a good day, the mother had a good day. According to this interpretation, the mothers of children who were less healthy experienced more stress, and this is not surprising. It would be of interest specifically to study the mothers of the children who were not healthy, to determine aspects of their ongoing coping strategies and social relationships which may be associated with their relative levels of adjustment. The sample of these mothers in the current study, however, was too small to allow such analyses.

An alternative interpretation of this finding for women deserves mention. It may be that the health of the child is the strongest predictor of adjustment for mothers

because it is the most immediate stressor. Coping was measured one year earlier than adjustment, and it may be that this temporal difference was too great for the effects of coping to be perceived. Since effects of coping and family structure on adjustment were, however, detected for men, it seems more likely that the salience of the child's health for mothers or a combination of the temporal issue and the importance of the child's health is related to this finding. Thus, the psychological adjustment over time for mothers may be intimately connected with the ongoing health status of their children and with the occurrence of ther life events.

Couples as the Unit of Analysis

Associations between family relationships and the adjustment of couples. Although mothers' perceptions of their families did not predict adjustment for the couple, fathers' perceptions of the organization and cohesiveness of their families significantly predicted couples' membership in the well-adjusted versus poorly adjusted group. This difference may be accounted for by the variation in roles that mothers and fathers tend to have within the family. It may be that mothers and fathers had different patterns of interaction with their families during the first year of their babies' lives. Nearly all mothers may have been strongly oriented toward their families during the first year of their child's life.

Fathers, however, may have developed more varied patterns of involvement with their families over the course of this year. It may be that fathers' perceptions of their families as organized and cohesive reflected their own orientation toward and involvement with their families. Thus, the fathers' scores on the measures of family relationships may better reflect the degree of family organization than mothers' scores, and thus may predict the couples' level of psychological adjustment.

Summary. The major finding regarding the prediction of adjustment following the birth of a premature baby is that the predictors of adjustment for mothers and fathers differ in important ways. For mothers, the major predictor of adjustment was the current health of the child. For fathers, the major predictors of adjustment were coping strategies used to manage the premature birth and family relationships. This gender difference emphasizes the importance of considering the individual's specific relationship to a stressful experience in understanding how she or he copes with the experience and adjusts following it. Thus, the implications for adjustment of a specific stressful event and the associated coping efforts depend critically on the detailed consequences of the event for the individual's life.

This finding has particular relevance for the expansion of the ABC-X model of family stress (McCubbin & Patterson, 1981, 1982). Whereas the ABC-X model addresses only the family in relation to stressful events, the current study addressed focussed on individuals, while including family relationships as a dimension of the individual's experience. Research which addresses only the family as a unit, as suggested by McCubbin and Patterson (1981, 1982) in the ABC-X model, necessarily overlooks these individual differences between family members. The finding of an important difference between mothers and fathers in the predictors of adjustment emphasizes the value of studying individual family members in addition to connsideration of the family as a unit.

The only variables which significantly predicted couples' adjustment were fathers' perceptions of the organization and cohesion of their families. Methodological problems and the complexity of the measurement of couples may, however, account for the lack of further positive findings. In accord with the theoretical framework for this study, however, the association between fathers' perceptions of family relationships and adjustment draws attention to the importance of considering family relationships in understanding the adjustment of individuals following stressful events. In addition, this finding, when viewed

along with the finding of gender differences in the predictors of adjustment, points to the importance of understanding the individual and his or her specific situation in relation to the measure used. The interpretation of the association between fathers' perceptions of their family relationships and "couple adjustment," for example, suggests that mothers' and fathers' perceptions of family relationships may have different implications for the family.

## Overview of Findings in Relation to the Theoretical Framework

The diverse findings from this study are viewed best within the theoretical framework of an interactional model of family stress. Aspects of the framework which were confirmed and the implications of these findings for future research will be discussed. The framework utilized in this study is multidimensional, reflecting the complexity of adjustment to stress. The various findings of parental adjustment to a premature birth also reflect this complexity, and indicate the intricate relationships among dimensions of individuals' lives which mutually influence the course and outcome of adjustment. Research necessarily involves isolation and measurement of specific dimensions within the complex process, and a major aim of the current study was to identify dimensions of particular importance to the coping process and to adjustment.

Overall, the findings of associations between coping and other stressful life-events, demographic variables, and family relationships indicate the importance of the life context in which a stressful event is experienced. Thus, as Pearlin (1983) has emphasized, it is through the effects on the ongoing roles of individuals that stressful events exert their influence. In this study, the ongoing context of the individual's life, including roles, appears to influence a major mediator of stress, coping. Thus, a person who experiences a stressful life-event, such as the birth of a premature baby, does not enter the situation as a blank reactive and interpretive box, but rather within a context of previous experiences, roles, and relationships which, at least in part, influence the reactions to and interpretations of each new experience.

This formulation does not minimize the importance of interpretations of the stressful situation made by individuals, such as Lazarus' (Lazarus & Launier, 1978) conceptualization of cognitive appraisal. Rather, it expands this perspective and includes other aspects of the individual's life which also may influence coping. These aspects include both objective and perceptual dimensions. As Pearlin, Lieberman, Menaghan, and Mullan (1981) explain, coping involves "specific behaviors that vary with the substance of people's problems and with the social roles in which the problems emerge" (p. 341). The findings of this

study emphasize the effect on the coping process of the demographic, personal, and social context in which the stressful experience occurs. Although the findings in relation to measures of couples were limited, the role of family relationships in influencing coping points to the value of considering the social environment of the family as a major aspect of the context in which stressful events occur and are managed.

The relative contribution to adjustment of multiple aspects of the stressful situation and individual reactions to it were asessed in the second part of this study. The major finding, that the predictors of adjustment were different for mothers and fathers, emphasizes the importance of the context in which the stressful situation occurs. In this case, the stressful situation occurs within the parenting roles of mother and father. It appears that differences in these roles may have contributed to differential involvement in the situation for mothers and fathers, and therefore to different predictors of adjustment. Thus, although in many ways the objective situation of the child's illness was the same for mothers and fathers, their specific daily involvement with the situation was not the same, and this may have contributed to the differences found in the prediction of adjustment. In terms of the theoretical framework for this study, the finding regarding gender differences suggests

the importance of the individual's specific and ongoing relationship to the situation in understanding adjustment to a stressful situation. Thus, the situation itself, in terms of its specific inplications for the individual's life, may in part determine the relative importance of other aspects of the individual's life to adjustment.

General Methodological Issues

Five methodological issues are relevant to this study. Some of them have been discussed previously, but each will be mentioned here, and references to the previous discussion will be made when necessary. Concerns regarding individual measures will be discussed first, followed by broader issues related to the study design.

First, the measure of coping utilized in this study suffers from the same problems present in all current measures of coping. There is little agreement among coping researchers regarding which aspects of coping are most important to study. While the measure used indicates some categories of coping strategies, it does not provide for a comprehensive understanding of precise coping behaviors and their temporal relationship to the stressful event. Studies such as this one, however, contribute to the gradual development of greater understanding of important aspects of coping, and point to the potential value of repeated measures of coping over time.

Second, measures of the social network may need to be more complex than a simple count of network members. To understand how the social network functions to mediate the negative effects of stressful experiences, it may be necessary assess several aspects or dimensions of the social network, such as measures of kin and non-kin, frequency of contact, and intimacy of relationship. As one aspect among many in the multidimensional framework of this study, it was not possible to include sufficiently intricate measures of the social network. Given the findings of the present research, perhaps measures of perceived support or the availability of others would be most informative. Also, given the findings of recent research indicating the varying membership of the social network over time following a stressful event (Bankoff, 1983), a multiple assessment strategy also might be useful.

Third, it seems that subjects in this study may have under-reported symptoms, particularly in the Child Domain of the Parenting Stress Index. This would have resulted in weaker associations between adjustment and other variables. Data gathered from interviews revealed that parents were eager to perceive their children in a positive light. Several parents of children who were developing slowly, for example, indicated nothing was wrong with their children, or that they did not understand why their child

needed physical therapy or further medical attention. This "denial" on their part may have led to a minimization of their child's problems on the self-report measures. In addition, parents seemed motivated to appear in a positive light as parents, resulting in under-reporting of negative aspects of parenting. It would be useful in future studies to include a measure to assess parents' tendency to under-report children's problems.

Fourth, the optimal timing of the follow-up assessment is a critical aspect of longitudinal research. One year following the premature birth may have been too long to assess the specific effects of coping on adjustment. It may be that at the one year follow-up assessment, the adjustment that subjects reported was associated more with chronic strains related to parenting than with the critical event of the premature birth and associated hospitalization of the child. If this is so, the positive findings for associations between coping and adjustment for men are more surprising than the null findings for women. This points to the value for future research of multiple assessments of adjustment.

The fifth concern addresses the general issue of research designs that attempt to incorporate diverse constructs at various levels of abstraction. Although measures of couples and families represent essential dimensions involved in the stress process, these constructs

are generally less well defined than measures of individuals, and they represent a different level of abstraction. Measurement of these more abstract constructs and utilization of the derived measures within theoretical frameworks which combine data representing a broad array of dimensions remains a challenge for research in the social sciences. Thus, our understanding of the dimensions which contribute to adjustment following stressful experiences is complex, but it is difficult to implement research designs which adequately incorporate these comprehensive conceptualizations.

## Conclusion

Findings from this study fall into two major categories: dimensions which are associated with coping efforts and those which are associated with adjustment. It was found that demographic variables, the pile-up of stressful life-events, and family relationships together serve as the context in which coping occurs, and that these diverse aspects of the individual's life influence coping efforts. Second, it was found that the predictors of adjustment were different for the mothers and fathers of premature babies. It appears that the intimate, daily, and ongoing effects of a stressful situation on the individual's life may in part determine which aspects of

the situation and efforts to manage it are most strongly associated with adjustment.

These findings, together with an interactional conceptual framework for understanding stress and adjustment, point to the importance of understanding diverse aspects of the individual, the family, and the detailed effects of a stressful situation on the daily life of the individual in order to understand the process of adjustment to a stressful situation. Future research should consider these broad dimensions, in order to contribute to our developing understanding of how individuals, within the social context of their families, manage stressful experiences.

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# APPENDIX A

INTERVIEW #1

I. Introduction

I would like to talk with you about your experience of having your baby born prematurely. Doctors know very little about what it is actually like for parents to have premature babies in the intensive care nursery. I am not a part of the care delivery team for your baby and I won't be talking to them about what we discuss. That is so that you can speak freely to me about your experience, and about how you have been thinking about it. When this study is complete, I will share the results of what I have learned with the doctors and the intensive care nursery staff, but I will not tell them anything about any specific person. Everything you tell me is confidential. By sharing your thoughts about this experience with me, you will be helping us understand more about what it is like for parents to have a baby in the intensive care nursery and to find ways to be more helpful to parents in your situation.

II. General experience

I am interested to know in general what it has been like for you to have a premature baby. I'd like to go back to when you first knew that you/your wife was in labor, and just trace what happened. When did you first know you were (she was) in labor? What did you do? What were you told about the baby after she/he was born? Did you see or touch the baby before she/he was taken to the intensive care

nursery? What was the ICN like for you? Had you ever been in that nursery before? Did you get the information you wanted about the baby? Who told you about the baby's progress? Did you expect the baby to be born prematurely or was it a surprise? How often have you been visiting the baby in the ICN? How many times per week? How long do you usually spend there? Has this changed during the time the baby has been in the ICN? Have you held your baby? Have you fed him/her? How was it to hold the baby for the first time (if this has occurred)?

III. Meaning

People often have ideas about how things happen. What thought do you have now about what caused your baby to be born prematurely? (Probes to use if necessary: something your doctor did or did not do; something wrong with the baby; chance or God's influence). How do you think these things could be related to the baby's birth? In thinking about the events which led up to the baby's birth, do you think there is anything that you could have done which would have influenced what happened? How about your husband/wife--is there anything she/he could have done? Is there anything anyone else could have done which would have affected what happened? How about the doctor?

We have talked now about various things which may have affected what happened. What do you think was the most important influence in the baby's being born prematurely? What would you say was the next most important influence?

Think now about how difficult this experience of having a premature baby has been for you, about how upsetting it has been, how serious it has been for you in affecting your life now and your everyday functioning. If you were to rate how serious this has been on a scale of 1 to 10, with 1 meaning not very serious, a minor problem, and 10 being very serious with major effects on your life, how would you rate having your baby born prematurely?

In thinking about how this might affect your future life over the next couple of years, how serious do you think having your baby born prematurely will be? Again, please rate this on a scale from 1 to 10.

IV. <u>Future implications</u>

Let's move now a bit into the future. Thinking about your life six months from now, how do you think having your baby born prematurely will affect your life? Will it affect your or your spouse's career plans? How? Will it affect whether or not you will have another baby? How will it affect any other children at home? How do you think that being born prematurely will affect your baby's development? How do you expect this experience to affect your marriage in the future? Could it bring you and your

husband/wife closer together? Are there ways in which it could make you ;feel less close in the future? Are there any other ways you think this experience could affect you or your child's life in the future?

V. Marital relationship

Going back to the present time, I would like to ask you a few questions about your marriage. When something is troubling you, do you find your husband/wife an easy person to talk to? If you were to rate this on a scale from 1 to 5, with one being never, 3 being sometimes, and 5 being always, how would you rate how easy it is for you to talk to your husband/wife when something is troubling you? Are there some areas in which it is easier to talk to your husband/wife than others? What are the easier subjects? What are the more difficult ones? Would your say that you get the support you would like from your husband/wife? Again rating this on a scale from 1 to 5, how often do you get the support you would like to get from your husband/wife?

## CONSENT TO BE A RESEARCH SUBJECT

Linda Nakell, M.A. is conducting a study of families adapting to the birth of a premature baby. The purpose of the study is to learn more about the experience of parents who have a premature baby in the intensive care nursery, and about their reactions to this event.

If I agree to participate, I will be involved in a series of two interviews a year apart. Each interview will take about one half hour to one hour. The first interview will take place at Children's Hospital Medical Center and the second will be in my home or another place of my choice. If I agree, the interviews will be tape-recorded.

I will also be asked to complete some questionnaires that ask about my family life, my thoughts, and my feelings. If I agree, I will complete these questionnaires at the time of each interview.

There is no known risk involved in being in the study other than some inconvenience or the potential loss of some privacy. The tapes and records will be codes as soon as they are taken. The codes will be available only to Ms. Nakell, and all names will be kept in a locked file cabinet. All tapes will be destroyed at the conclusion of the study.

There is no benefit to me other than that which might come about from being able to talk about my experiences. The study may provide new information about how parents experience having a premature baby in the intensive care nursery and about how families adapt to this experience. This new information could help families in the future.

Participation in research is voluntary. I have the right to refuse to participate and to withdraw at any time or to refuse to answer any question. If I refuse or withdraw there will be no jeopardy of the medical care for my child and his/her physician will never know.

If I have any questions, the researchers want and expect me to ask. If I think of any questions later, Ms. Nakell, whose telephone number is (415) 666-1482, will be happy to answer them.

I am fluent in the English language.

_____ _____

Date Signature

## FAMILY LIFE RESEARCH SCALES

The items in this questionnaire are events which may have occurred in your family in the last year. Please read down the list and for each event that happened to your family in the past year indicate three things:

(1) Put "X's" in the appropriate WHEN column showing how long ago each event occurred: since the baby's birth, during the pregnancy, or within three months before the pregnancy.

(2) Put "X's" in the EFFECT ON FAMILY column to indicate how your family felt about the event when it occurred, ie., whether your family felt very negative, somewhat negative, somewhat positive, or very positive about the event.

(3) Put "X's" in the appropriate column to indicate whether your family still thinks about the event now: a lot, some, or little or not at all.

Below is an example of a family which had a child start school six months ago, during the pregnancy, felt somewhat positive about it, and thinks about it some now.

EXAMPLE

| | WHEN | | | | EFFECT ON FAMILY | | | | STILL THINK ABOUT IT NOW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Did Not Occur | Since Baby's Birth | During Preg. | 3 mos. Before Preg. | Very Negative | Somewhat Negative | Somewhat Positive | Very Positive | A lot | Some | Little or Not at all |
| Child started school | | | X | | | | X | | | X | |

If the event did not occur, place an "X" in the first column to the right of the item labeled DID NOT OCCUR. If the event did occur, fill out all appropriate columns.

| | WHEN | | | | EFFECT ON FAMILY | | | | STILL THINK ABOUT IT NOW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Did Not Occur | Since Baby's Birth | During Preg. | 3 mos. Before Preg. | Very Negative | Somewhat Negative | Somewhat Positive | Very Positive | A lot | Some | Little or Not at all |
| 1. Loss or damage to valued personal property. | | | | | | | | | | | |
| 2. Gave up a child for adoption or placement. | | | | | | | | | | | |
| 3. Major weight loss. | | | | | | | | | | | |
| 4. Decrease in arguments between spouses. | | | | | | | | | | | |
| 5. Sexual difficulties. | | | | | | | | | | | |
| 6. Court appearance. | | | | | | | | | | | |
| 7. Miscarriage. | | | | | | | | | | | |
| 8. Increase in number of friends. | | | | | | | | | | | |
| 9. Death or loss of a loved pet. | | | | | | | | | | | |
| 10. Victim of a criminal act (e.g. rape, assault). | | | | | | | | | | | |
| 11. Increased visits to health facility for physical problems. | | | | | | | | | | | |
| 12. Increased visits for emotional or psychological problems. | | | | | | | | | | | |
| 13. Decrease in smoking. | | | | | | | | | | | |
| 14. Decrease in religious activities and/or attendance. | | | | | | | | | | | |
| 15. Changed school or college. | | | | | | | | | | | |
| 16. Headaches, coughs, nausea, diarrhea, rash, abdominal or chest pain. | | | | | | | | | | | |
| 17. Decrease in amount or frequency of drinking. | | | | | | | | | | | |

| | WHEN | | | | EFFECT ON FAMILY | | | | STILL THINK ABOUT IT NOW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Did Not Occur | Since Baby's Birth | During Preg. | 3 mos. Before Preg. | Very Negative | Somewhat Negative | Somewhat Positive | Very Positive | A lot | Some | Little or Not at all |
| 18. Change in family residence. | | | | | | | | | | | |
| 19. Extramarital affair. | | | | | | | | | | | |
| 20. Major physical illness. | | | | | | | | | | | |
| 21. Major physical injury. | | | | | | | | | | | |
| 22. Abortion. | | | | | | | | | | | |
| 23. Decrease in conflicts with others outside the family (neighbors, etc.) | | | | | | | | | | | |
| 24. Major weight gain. | | | | | | | | | | | |
| 25. Marital separation. | | | | | | | | | | | |
| 26. Problems with either spouse's parents. | | | | | | | | | | | |
| 27. Divorce of a family member. | | | | | | | | | | | |
| 28. Fired, laid off, or expelled/suspended from school or job. | | | | | | | | | | | |
| 29. Decrease in in-take of drugs or medications. | | | | | | | | | | | |
| 30. Increased smoking. | | | | | | | | | | | |
| 31. Increased working hours. | | | | | | | | | | | |
| 32. Sleeping more than usual. | | | | | | | | | | | |
| 33. Confined in jail. | | | | | | | | | | | |
| 34. Stopping hobby or sport. | | | | | | | | | | | |

| | WHEN | | | | EFFECT ON FAMILY | | | | STILL THINK ABOUT IT NOW | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Did Not Occur | Since Baby's Birth | During Preg. | 3 mos. Before Preg. | Very Negative | Somewhat Negative | Somewhat Positive | Very Positive | A lot | Some | Little or Not at all |
| 35. Change to a new job. | | | | | | | | | | | |
| 36. Increase in intensity of political views. | | | | | | | | | | | |
| 37. Loss of contact with friend(s). | | | | | | | | | | | |
| 38. Purchase of a gun, rifle, or other weapon. | | | | | | | | | | | |
| 39. Major business set-back. | | | | | | | | | | | |
| 40. Increase in arguments between spouses. | | | | | | | | | | | |
| 41. Decrease in food eaten. | | | | | | | | | | | |
| 42. Change to a different type of work. | | | | | | | | | | | |
| 43. Increase in family disagreements. | | | | | | | | | | | |
| 44. Increase in number of traffic tickets received. | | | | | | | | | | | |
| 45. Death of a current family member. | | | | | | | | | | | |
| 46. Death of a close extended family member (grandparent, aunt, etc.). | | | | | | | | | | | |
| 47. Increase in conflicts with others outside the family (neighbors, etc.) | | | | | | | | | | | |
| 48. Increase in amount or frequency of drinking. | | | | | | | | | | | |
| 49. Family member left home (marriage, college, long trip, etc.). | | | | | | | | | | | |
| 50. Increased frequency of minor accidents around the house. | | | | | | | | | | | |
| 51. Worsening of physical condition or long-term illness. | | | | | | | | | | | |

| | WHEN | | | | EFFECT ON FAMILY | | | | STILL THINK ABOUT IT NOW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Did Not Occur | Since Baby's Birth | During Preg. | 3 mos. Before Preg. | Very Negative | Somewhat Negative | Somewhat Positive | Very Positive | A lot | Some | Little or Not at all |
| 52. Separation from family due to work. | | | | | | | | | | | |
| 53. Involvement in a law suit. | | | | | | | | | | | |
| 54. Increase in food eaten. | | | | | | | | | | | |
| 55. Increase in bad dreams. | | | | | | | | | | | |
| 56. Decrease in work responsibilities. | | | | | | | | | | | |
| 57. Difficulty sleeping. | | | | | | | | | | | |
| 58. Automobile accident. | | | | | | | | | | | |
| 59. Major purchase (home, car, business). | | | | | | | | | | | |
| 60. Drop in level of physical energy. | | | | | | | | | | | |
| 61. Increase in use of drugs or medication. | | | | | | | | | | | |
| 62. Problems at work or school. | | | | | | | | | | | |
| 63. Increased contact with social agencies (welfare, social security, etc.) | | | | | | | | | | | |
| 64. Drug use problems. | | | | | | | | | | | |
| 65. Decrease in family disagreements. | | | | | | | | | | | |
| 66. Change to a new work schedule or shift. | | | | | | | | | | | |
| 67. Major psychological or emotional problems. | | | | | | | | | | | |
| 68. Decrease in intensity of political views. | | | | | | | | | | | |

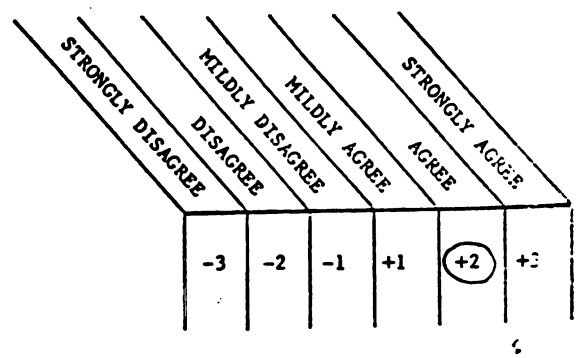
| | WHEN | | | | EFFECT ON FAMILY | | | | STILL THINK ABOUT IT NOW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Did Not Occur | Since Baby's Birth | During Preg. | 3 mos. Before Preg. | Very Negative | Somewhat Negative | Somewhat Positive | Very Positive | A lot | Some | Little or Not at all |
| 69. Increase in work responsibilities. | | | | | | | | | | | |
| 70. Becoming more involved in a hobby or sport. | | | | | | | | | | | |
| 71. Increase in religious activities or attendance. | | | | | | | | | | | |
| 72. Starting or stopping work outside the home. | | | | | | | | | | | |
| 73. Decrease in contact with social agencies (welfare, social security,) | | | | | | | | | | | |
| 74. Quit a job. | | | | | | | | | | | |
| 75. Child management problems. | | | | | | | | | | | |

FAMILY LIFE RESEARCH SCALES

The items in this questionnaire will tell us about your family's attitudes and beliefs. Please circle the number that corresponds to your view of your current family's attitude toward each statement. Please use the following scale:

| STRONGLY DISAGREE | DISAGREE | MILDLY DISAGREE | MILDLY AGREE | AGREE | STRONGLY AGREE |
|---|---|---|---|---|---|
| -3 | -2 | -1 | +1 | +2 | +3 |

SAMPLE:




By circling number +2, this person told us that he agrees with the statement that his family likes to go fishing.

This is not a test and there are no right or wrong answers. Please answer all the items in order.

Remember, please answer the items according to your FAMILY'S OPINION, which may or may not be the same as your own.

| | STRONGLY DISAGREE | DISAGREE | MILDLY DISAGREE | MILDLY AGREE | AGREE | STRONGLY AGREE |
|---|---|---|---|---|---|---|
| 1. Family members have regular bedtimes. | -3 | -2 | -1 | +1 | +2 | +3 |
| 2. Our family believes that people are naturally troublesome. | -3 | -2 | -1 | +1 | +2 | +3 |
| 3. Our family believes that children come first. | -3 | -2 | -1 | +1 | +2 | +3 |
| 4. You can count on dinner being ready at a certain time most nights. | -3 | -2 | -1 | +1 | +2 | +3 |
| 5. Our family believes that children are the mainstays of a family. | -3 | -2 | -1 | +1 | +2 | +3 |
| 6. Our family believes that parents must have a life separate from their children. | -3 | -2 | -1 | +1 | +2 | +3 |
| 7. It is never clear what other members of the family want. | -3 | -2 | -1 | +1 | +2 | +3 |
| 8. Our family often tries new foods and ways of cooking. | -3 | -2 | -1 | +1 | +2 | +3 |
| 9. Our family believes that getting what one wants has little or nothing to do with luck. | -3 | -2 | -1 | +1 | +2 | +3 |
| 10. In our family we are alike in how we think and feel. | -3 | -2 | -1 | +1 | +2 | +3 |
| 11. Our family is not easily threatened. | -3 | -2 | -1 | +1 | +2 | +3 |
| 12. Our family believes that children should go with their parents on vacation. | -3 | -2 | -1 | +1 | +2 | +3 |
| 13. We are expected to have the approval of the family before making decisions. | -3 | -2 | -1 | +1 | +2 | +3 |
| 14. In our family it is O.K. to close the bedroom door if you want privacy. | -3 | -2 | -1 | +1 | +2 | +3 |
| 15. Our family prefers friends who are always doing new things. | -3 | -2 | -1 | +1 | +2 | +3 |
| 16. Family members know each others' close friends. | -3 | -2 | -1 | +1 | +2 | +3 |
| 17. We believe that no matter how hard we try, people often get hurt in life. | -3 | -2 | -1 | +1 | +2 | +3 |
| 18. Sometimes our family feels we don't have enough control over the direction our life is taking. | -3 | -2 | -1 | +1 | +2 | +3 |
| 19. In our family, parents spend alot of time thinking about the kids. | -3 | -2 | -1 | +1 | +2 | +3 |

| | STRONGLY DISAGREE | DISAGREE | MILDLY DISAGREE | MILDLY AGREE | AGREE | STRONGLY AGREE |
|---|---|---|---|---|---|---|
| 20. Family members solve thier problems on their own. | -3 | -2 | -1 | +1 | +2 | +3 |
| 21. Our family believes that we should enjoy life to the fullest. | -3 | -2 | -1 | +1 | +2 | +3 |
| 22. Members of our family are very involved with each other. | -3 | -2 | -1 | +1 | +2 | +3 |
| 23. Differences of opinion rarely occur in our family. | -3 | -2 | -1 | +1 | +2 | +3 |
| 24. In our house, each person has a place to keep personal things. | -3 | -2 | -1 | +1 | +2 | +3 |
| 25. Our family feels that it is best to be cautious with other people. | -3 | -2 | -1 | +1 | +2 | +3 |
| 26. Our family believes that things have a way of working out for the best. | -3 | -2 | -1 | +1 | +2 | +3 |
| 27. Our family is very well organized. | -3 | -2 | -1 | +1 | +2 | +3 |
| 28. Our family believes that children are the most important people in a family. | -3 | -2 | -1 | +1 | +2 | +3 |
| 29. Our family believes that most people should be able to enjoy life. | -3 | -2 | -1 | +1 | +2 | +3 |
| 30. Family members believe that one can control life events by taking an active part in community affairs. | -3 | -2 | -1 | +1 | +2 | +3 |
| 31. We frequently visit new places. | -3 | -2 | -1 | +1 | +2 | +3 |
| 32. Our family handles disagreements very well. | -3 | -2 | -1 | +1 | +2 | +3 |
| 33. Our family tends to do things pretty much the same way each time. | -3 | -2 | -1 | +1 | +2 | +3 |
| 34. We believe that people can be trusted. | -3 | -2 | -1 | +1 | +2 | +3 |
| 35. We cannot seem to agree on rules for the dinner table. | -3 | -2 | -1 | +1 | +2 | +3 |
| 36. Everyone has a special place for their own personal things at our house. | -3 | -2 | -1 | +1 | +2 | +3 |
| 37. We feel it is best to go along with what the family decides to do. | -3 | -2 | -1 | +1 | +2 | +3 |
| 38. If we have a choice, we usually prefer to try new restuarants rather than ones we've been to before. | -3 | -2 | -1 | +1 | +2 | +3 |
| 39. Our family believes that parents must make sacrifices for their children. | -3 | -2 | -1 | +1 | +2 | +3 |

| | STRONGLY DISAGREE | DISAGREE | MILDLY DISAGREE | MILDLY AGREE | AGREE | STRONGLY AGREE |
|---|---|---|---|---|---|---|
| 40. It is important to maintain consistency in our family. | -3 | -2 | -1 | +1 | +2 | +3 |
| 41. Our family believes that it is very important for parents to spend time away from the kids. | -3 | -2 | -1 | +1 | +2 | +3 |
| 42. We believe that it is not wise to plan too far ahead because many things turn out to be a matter of luck anyhow. | -3 | -2 | -1 | +1 | +2 | +3 |
| 43. It seems as if we agree on everything. | -3 | -2 | -1 | +1 | +2 | +3 |
| 44. Our family feels that most of life is pleasant. | -3 | -2 | -1 | +1 | +2 | +3 |
| 45. Our family is not particularly secure. | -3 | -2 | -1 | +1 | +2 | +3 |
| 46. Our family believes that it is a bad idea to stick your neck out in life. | -3 | -2 | -1 | +1 | +2 | +3 |
| 47. We know very little about each others' friends. | -3 | -2 | -1 | +1 | +2 | +3 |
| 48. We enjoy doing things alone as well as together. | -3 | -2 | -1 | +1 | +2 | +3 |
| 49. Our family believes that most people do not get what they want in life. | -3 | -2 | -1 | +1 | +2 | +3 |
| 50. It is O.K. in our family for everyone to have a different point of view. | -3 | -2 | -1 | +1 | +2 | +3 |
| 51. Our family seems to have a rule for almost everything. | -3 | -2 | -1 | +1 | +2 | +3 |
| 52. Our family believes that trusting to fate doesn't turn out as well as planning a definite course of action. | -3 | -2 | -1 | +1 | +2 | +3 |
| 53. In our family it seems as if we can never quite get ahead. | -3 | -2 | -1 | +1 | +2 | +3 |
| 54. It is clear about what is best for the children. | -3 | -2 | -1 | +1 | +2 | +3 |
| 55. Our family feels that life is positive. | -3 | -2 | -1 | +1 | +2 | +3 |
| 56. We all agree as to who does what around the house. | -3 | -2 | -1 | +1 | +2 | +3 |
| 57. When we go on a trip, our family always plans our route and timetable very carefully. | -3 | -2 | -1 | +1 | +2 | +3 |
| 58. When people disagree in our family, it is important that they keep it to themselves. | -3 | -2 | -1 | +1 | +2 | +3 |
| 59. We know where family members are at all times. | -3 | -2 | -1 | +1 | +2 | +3 |

| | STRONGLY DISAGREE | | MILDLY DISAGREE | MILDLY AGREE | | STRONGLY AGREE |
|---|---|---|---|---|---|---|
| | | DISAGREE | | | AGREE | |
| 60. Our family believes that variety is the spice of life. | -3 | -2 | -1 | +1 | +2 | +3 |
| 61. We never know who will be at dinner. | -3 | -2 | -1 | +1 | +2 | +3 |
| 62. There is never any place to be alone in our house. | -3 | -2 | -1 | +1 | +2 | +3 |
| 63. On an outing it is best to stay with the family most of the time. | -3 | -2 | -1 | +1 | +2 | +3 |
| 64. Our family believes that misfortune results more from mistakes people make than from bad luck. | -3 | -2 | -1 | +1 | +2 | +3 |
| 65. Family members understand each other very well. | -3 | -2 | -1 | +1 | +2 | +3 |
| 66. Our family believes that much of the parents' free time should be spent away from the children. | -3 | -2 | -1 | +1 | +2 | +3 |
| 67. Family members find it hard to be alone. | -3 | -2 | -1 | +1 | +2 | +3 |
| 68. Our family believes that most people do not make it through life easily. | -3 | -2 | -1 | +1 | +2 | +3 |
| 69. Our family has the view that life is satisfying. | -3 | -2 | -1 | +1 | +2 | +3 |
| 70. Family members feel guilty if they want to spend time alone. | -3 | -2 | -1 | +1 | +2 | +3 |
| 71. Our family has the view that if one thing doesn't go wrong in life, something else will. | -3 | -2 | -1 | +1 | +2 | +3 |
| 72.. Family members spend much of their free time together. | -3 | -2 | -1 | +1 | +2 | +3 |
| 73. Our family believes that many times we have little influence over the things that happen to us. | -3 | -2 | -1 | +1 | +2 | +3 |
| 74. Our family rarely discusses our differences. | -3 | -2 | -1 | +1 | +2 | +3 |
| 75. We believe that life is a struggle. | -3 | -2 | -1 | +1 | +2 | +3 |
| 76. We often go without the children. | -3 | -2 | -1 | +1 | +2 | +3 |
| 77. Family members should handle things themselves if they get into trouble. | -3 | -2 | -1 | +1 | +2 | +3 |
| 78. Parents in our family often have dinner without the children. | -3 | -2 | -1 | +1 | +2 | +3 |
| 79. Our family believes that without the right breaks, one cannot really succeed. | -3 | -2 | -1 | +1 | +2 | +3 |
| 80. Our family believes that it's O.K. to show one's weaknesses to others. | -3 | -2 | -1 | +1 | +2 | +3 |

| | STRONGLY DISAGREE | DISAGREE | MILDLY DISAGREE | MILDLY AGREE | AGREE | STRONGLY AGREE |
|---|---|---|---|---|---|---|
| 81. Our family believes that the world is a safe place. | -3 | -2 | -1 | +1 | +2 | +3 |
| 82. We believe that the old values are best. | -3 | -2 | -1 | +1 | +2 | +3 |
| 83. It is hard to know what the rules are in our family because they are always changing. | -3 | -2 | -1 | +1 | +2 | +3 |
| 84. In our family it is hard to do things on your own. | -3 | -2 | -1 | +1 | +2 | +3 |
| 85. In our family, attitudes will remain about the same as they have been in the past. | -3 | -2 | -1 | +1 | +2 | +3 |
| 86. Everyone has their own towel in the bathroom. | -3 | -2 | -1 | +1 | +2 | +3 |
| 87. Nothing ever seems to get done in our family. | -3 | -2 | -1 | +1 | +2 | +3 |
| 88. We believe that what happens to our family is our own doing. | -3 | -2 | -1 | +1 | +2 | +3 |
| 89. In our family the kids know what the parents expect of them. | -3 | -2 | -1 | +1 | +2 | +3 |
| 90. When a bedroom door is shut, family members knock before entering. | -3 | -2 | -1 | +1 | +2 | +3 |
| 91. It is hard for family members to keep track of their chores. | -3 | -2 | -1 | +1 | +2 | +3 |
| 92. Our family feels that most things usually work out well. | -3 | -2 | -1 | +1 | +2 | +3 |
| 93. Our family thinks that it's the new and different that makes life interesting. | -3 | -2 | -1 | +1 | +2 | +3 |
| 94. It is never clear who makes decisions about family activities. | -3 | -2 | -1 | +1 | +2 | +3 |
| 95. Meals are planned in advance in our family. | -3 | -2 | -1 | +1 | +2 | +3 |
| 96. It is hard to tell how others in our family will act. | -3 | -2 | -1 | +1 | +2 | +3 |
| 97. We share most interests and hobbies with each other. | -3 | -2 | -1 | +1 | +2 | +3 |
| 98. Family members do not turn to each other when they need help. | -3 | -2 | -1 | +1 | +2 | +3 |
| 99. People are often late for dinner at our house. | -3 | -2 | -1 | +1 | +2 | +3 |
| 100. People in our family change their minds a lot. | -3 | -2 | -1 | +1 | +2 | +3 |
| 101. Our family believes that there's not much use in trying to please people; if they like you, they like you. | -3 | -2 | -1 | +1 | +2 | +3 |
| 102. We share the same friends. | -3 | -2 | -1 | +1 | +2 | +3 |

A
12/1/82

# SOCIAL NETWORK QUESTIONNAIRE

This questionnaire will help us learn about your relationships with other people. Below is a list of questions. Please read each and write the name(s) or initials of the people who best fit the description on the lines following the questions. If two people have the same initials, use the first and second letters of each name so that you can tell them apart.

Please notice that some questions have different numbers of lines than others. You may use all or some of the lines but please place only one name on a line. Please print clearly.

** 1. Who would care for your home if you went out of town?

1._____ 5._____

2._____ 6._____

3._____ 7._____

4._____ 8._____

2. With whom do you talk about decisions regarding work?

1._____ 5._____

2._____ 6._____

3._____ 7._____

4._____ 8._____

3. Who has helped you with household tasks in the past 3 months?

1._____ 5._____

2._____ 6._____

3._____ 7._____

4._____ 8._____

** 4. With whom do you participate in social activities (such as having someone over for dinner or going to a movie)?

1._____ 6._____

2._____ 7._____

3._____ 8._____

4._____ 9._____

5._____ 10._____

5. Who do you talk to about what to do in your spare time?

1._____ 5._____

2._____ 6._____

3._____ 7._____

4._____ 8._____

6. Who is your best friend?

1._____

** 7. Who do you talk to about personal worries?

1._____ 5._____

2._____ 6._____

3._____ 7._____

4._____ 8._____

** 8. Whose advice do you consider in making important decisions?

1._____ 5._____

2._____ 6._____

3._____ 7._____

4._____ 8._____

** 9. From whom do you or could you borrow a large sum of money?

1._____ 3._____

2._____ 4._____

10. With whom do you just spend time or hang around?

1._____ 5._____

2._____ 6._____

3._____ 7._____

4. 8. _____

# NAME LIST

| NAME | HOW OFTEN USUALLY SEEN IN PERSON? | | | | | | Past 2 weeks-- Saw person more, same, or less than usual | | | CLOSENESS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Every day | Several times a week | At least once per week | 2-3 times per month | Once per month | Less Often | more | same | less | very close | some-what close | not too close | RELATIVE | FRIEND |
| | | | | | | | | | | | | | | |
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Name Grid

Name/Initial

| | | |
|---|---|---|
| 1. _____ | knows ____ does not know ____ | 4. _____ well |
| | knows ____ does not know ____ | 7. _____ well |
| | knows ____ does not know ____ | 8. _____ well |
| | knows ____ does not know ____ | 9. _____ well |
| 4. _____ | knows ____ does not know ____ | 7. _____ well |
| | knows ____ does not know ____ | 8. _____ well |
| | knows ____ does not know ____ | 9. _____ well |
| 7. _____ | knows ____ does not know ____ | 8. _____ well |
| | knows ____ does not know ____ | 9. _____ well |
| 8. _____ | knows ____ does not know ____ | 9. _____ well |
| 9. _____ | | |

_____

DEMOGRAPHIC DATA

DATE OF BIRTH: 19_____
Year Month Day

EDUCATION: What is the highest level in school or college you have completed. (Check one.)

_____ 1-8th grade
_____ 9-12th grade
_____ Vocational or some college
_____ College graduate
_____ Graduate or professional school

Total years in school (primary, college, etc.): _____

ETHNIC BACKGROUND: (Check one.)

_____ American Indian
_____ Asian
_____ Black
_____ Hispanic
_____ Caucasion
_____ Other _____
Specify

RELIGIOUS BACKGROUND: (Check one.)

_____ Protestant
_____ Catholic
_____ Jewish
_____ Buddhist
_____ Other _____
Specify

Please name the country where those in your family were born:

Father _____
Mother _____
Grandfather _____
Grandmother _____
Grandfather _____
Grandmother _____

FAMILY HISTORY:

Number of years in present marriage: _____

Number of years in previous marriages: 1. _____
2. _____
3. _____
4. _____

How old are the children now living in your home?

Girls: _____ _____ _____ _____ _____

Boys: _____ _____ _____ _____ _____

List any persons other than children who are living with you. (Please list age, sex, and relationship to you.)

_____

_____

_____

_____

EMPLOYMENT HISTORY:

Occupation: _____

Are you currently employed outside the home? _____ No
_____ Yes

If you are employed, what is your job title? _____

_____

Combined family income: (check one)

_____ $10,000 or under
_____ $10,000 to $20,000
_____ $20,000 to $30,000
_____ $30,000 to $40,000
_____ $40,000 to $50,000
_____ More than $50,000

# APPENDIX B

INTERVIEW #2

I. Introduction

It has been a year since we last met. Your baby is now a year old, and I would like to talk to you about how the past year has been for your and your family. I plan to put the information people give me during the second interview together with the information they have me during the first interviews, to learn more about the experience of having a premature baby in the intensive care nursery.

II. General experience

Thinking back to a year ago when your baby was in the intensive care nursery, I'd like to ask you some questions about that time. How long was your baby in the ICN? How often did your visit? How long did you stay each time? did that stay about the same while the baby was in the hospital, or did it change? When did you first get to hold the baby? When did you first get to feed the baby? How was that for you? Parents sometimes find that their baby does not seem like theirs right away. When would you say that the baby began to feel like she/he really belonged to you? Now about naming the baby...When did you give him/her his/her name? How has the baby's development been? Has she/he developed about as your expected? How about the other children in the family? How has it been for them to have this baby in the family? In thinking

about having any more children, how has the premature birth of your baby affected your thoughts about this? How has it affected other life plans? Your career or work?

III. Family life

How would you say that having your baby born prematurely has affected how you have been as a parent? Have you been more or less protective of him/her? How would you say this experience has affected your family life in general? How has it affected your marriage? Are there ways in which it has brought you closer together to your husband/wife? Are there ways in which it has made you further apart? What other ways do you think this experience has affected you? Are there other things about it that I have not asked you about?

INSTRUCTIONS: Below is a list of problems and complaints that people sometimes have. Read each one carefully, and circle the appropriate number according to HOW MUCH DISCOMFORT THAT PROBLEM HAS CAUSED YOU DURING THE PAST TWO WEEKS. Circle "0" for no discomfort, "1" for a little bit of discomfort, "2" for moderate discomfort, "3" for quite a bit of discomfort, and "4" for extreme discomfort.

| DURING THE PAST TWO WEEKS, HOW MUCH WERE YOU DISTRESSED BY: | NOT AT ALL | A LITTLE BIT | MODERATELY | QUITE A BIT | EXTEMELY |
|---|---|---|---|---|---|
| 1. Headaches | 0 | 1 | 2 | 3 | 4 |
| 2. Nervousness or shakiness inside | 0 | 1 | 2 | 3 | 4 |
| 3. Repeated unpleasant thoughts that won't leave your mind | 0 | 1 | 2 | 3 | 4 |
| 4. Faintness or dizziness | 0 | 1 | 2 | 3 | 4 |
| 5. Loss of sexual interest or pleasure | 0 | 1 | 2 | 3 | 4 |
| 6. Feeling critical of others | 0 | 1 | 2 | 3 | 4 |
| 7. The idea that someone else can control your thoughts | 0 | 1 | 2 | 3 | 4 |
| 8. Feeling others are to blame for most of your troubles | 0 | 1 | 2 | 3 | 4 |
| 9. Trouble remembering things | 0 | 1 | 2 | 3 | 4 |
| 10. Worries about sloppiness or carelessness | 0 | 1 | 2 | 3 | 4 |
| 11. Feeling easily annoyed or irritated | 0 | 1 | 2 | 3 | 4 |
| 12. Pains in the heart or chest | 0 | 1 | 2 | 3 | 4 |
| 13. Feeling afraid in open spaces or on the streets | 0 | 1 | 2 | 3 | 4 |
| 14. Feeling low in energy or slowed down | 0 | 1 | 2 | 3 | 4 |
| 15. Thoughts of ending your life | 0 | 1 | 2 | 3 | 4 |
| 16. Hearing voices that other people do not hear | 0 | 1 | 2 | 3 | 4 |
| 17. Trembling | 0 | 1 | 2 | 3 | 4 |
| 18. Feeling that most people cannot be trusted | 0 | 1 | 2 | 3 | 4 |
| 19. Poor appetite | 0 | 1 | 2 | 3 | 4 |
| 20. Crying easily | 0 | 1 | 2 | 3 | 4 |

| HOW MUCH WERE YOU DISTRESSED BY: | NOT AT ALL | A LITTLE BIT | MODERATELY | QUITE A BIT | EXTREMELY |
|---|---|---|---|---|---|
| 21. Feeling shy or uneasy with the opposite sex | 0 | 1 | 2 | 3 | 4 |
| 22. Feelings of being trapped or caught | 0 | 1 | 2 | 3 | 4 |
| 23. Suddenly scared for no reason | 0 | 1 | 2 | 3 | 4 |
| 24. Temper outbursts that you could not control | 0 | 1 | 2 | 3 | 4 |
| 25. Feeling afraid to go out of your house alone | 0 | 1 | 2 | 3 | 4 |
| 26. Blaming yourself for things | 0 | 1 | 2 | 3 | 4 |
| 27. Pains in lower back | 0 | 1 | 2 | 3 | 4 |
| 28. Feeling blocked in getting things done | 0 | 1 | 2 | 3 | 4 |
| 29. Feeling lonely | 0 | 1 | 2 | 3 | 4 |
| 30. Feeling blue | 0 | 1 | 2 | 3 | 4 |
| 31. Worrying too much about things | 0 | 1 | 2 | 3 | 4 |
| 32. Feeling no interest in things | 0 | 1 | 2 | 3 | 4 |
| 33. Feeling fearful | 0 | 1 | 2 | 3 | 4 |
| 34. Your feelings being easily hurt | 0 | 1 | 2 | 3 | 4 |
| 35. Other people being aware of your private thoughts | 0 | 1 | 2 | 3 | 4 |
| 36. Feeling others do not understand you or are unsympathetic- | 0 | 1 | 2 | 3 | 4 |
| 37. Feeling that people are unfriendly or dislike you | 0 | 1 | 2 | 3 | 4 |
| 38. Having to do things very slowly to insure correctness | 0 | 1 | 2 | 3 | 4 |
| 39. Heart pounding or racing | 0 | 1 | 2 | 3 | 4 |
| 40. Nausea or upset stomach | 0 | 1 | 2 | 3 | 4 |
| 41. Feeling inferior to others | 0 | 1 | 2 | 3 | 4 |
| 42. Soreness of your muscles | 0 | 1 | 2 | 3 | 4 |
| 43. Feeling that you are watched or talked about by others | 0 | 1 | 2 | 3 | 4 |
| 44. Trouble falling asleep | 0 | 1 | 2 | 3 | 4 |
| 45. Having to check and doubecheck what you do | 0 | 1 | 2 | 3 | 4 |

| HOW MUCH WERE YOU DISTRESSED BY: | NOT AT ALL | A LITTLE BIT | MODERATELY | QUITE A BIT | EXTEMELY |
|---|---|---|---|---|---|
| 46. Difficulty making decisions | 0 | 1 | 2 | 3 | 4 |
| 47. Feeling afraid to travel on buses, subways, or trains | 0 | 1 | 2 | 3 | 4 |
| 48. Trouble getting your breath | 0 | 1 | 2 | 3 | 4 |
| 49. Hot or cold spells | 0 | 1 | 2 | 3 | 4 |
| 50. Having to avoid certains things, places, or activities because they frighten you | 0 | 1 | 2 | 3 | 4 |
| 51. Your mind going blank | 0 | 1 | 2 | 3 | 4 |
| 52. Numbness or tingling in parts of your body | 0 | 1 | 2 | 3 | 4 |
| 53. A lump in your throat | 0 | 1 | 2 | 3 | 4 |
| 54. Feeling hopeless about the future | 0 | 1 | 2 | 3 | 4 |
| 55. Trouble concentrating | 0 | 1 | 2 | 3 | 4 |
| 56. Feeling weak in parts of your body | 0 | 1 | 2 | 3 | 4 |
| 57. Feeling tense or keyed up | 0 | 1 | 2 | 3 | 4 |
| 58. Heavy feelings in your arms or legs | 0 | 1 | 2 | 3 | 4 |
| 59. Thoughts of death or dying | 0 | 1 | 2 | 3 | 4 |
| 60. Overeating | 0 | 1 | 2 | 3 | 4 |
| 61. Feeling uneasy when people are watching or talking about you | 0 | 1 | 2 | 3 | 4 |
| 62. Having thoughts that are not your own | 0 | 1 | 2 | 3 | 4 |
| 63. Having urges to beat, injure, or harm someone | 0 | 1 | 2 | 3 | 4 |
| 64. Awakening in the early morning | 0 | 1 | 2 | 3 | 4 |
| 65. Having to repeat the same actions such as touching, counting, washing | 0 | 1 | 2 | 3 | 4 |
| 66. Sleep that is restless or disturbed | 0 | 1 | 2 | 3 | 4 |
| 67. Having urges to break or smash things | 0 | 1 | 2 | 3 | 4 |
| 68. Having ideas or beliefs that others do not share | 0 | 1 | 2 | 3 | 4 |

| HOW MUCH WERE YOU DISTRESSED BY: | NOT AT ALL | A LITTLE BIT | MODERATELY | QUITE A BIT | EXTREMELY |
|---|---|---|---|---|---|
| 69. Feeling very self-conscious with others | 0 | 1 | 2 | 3 | 4 |
| 70. Feeling uneasy in crowds, such as shopping or at a movie | 0 | 1 | 2 | 3 | 4 |
| 71. Feeling everying is an effort | 0 | 1 | 2 | 3 | 4 |
| 72. Spells of terror or panic | 0 | 1 | 2 | 3 | 4 |
| 73. Feeling uncomfortable about eating or drinking in public | 0 | 1 | 2 | 3 | 4 |
| 74. Getting into frequent arguments | 0 | 1 | 2 | 3 | 4 |
| 75. Feeling nervous when you are left alone | 0 | 1 | 2 | 3 | 4 |
| 76. Others not giving you proper credit for your achievements | 0 | 1 | 2 | 3 | 4 |
| 77. Feeling lonely even when you are with people | 0 | 1 | 2 | 3 | 4 |
| 78. Feeling so restless you couldn't sit still | 0 | 1 | 2 | 3 | 4 |
| 79. Feelings of worthlessness | 0 | 1 | 2 | 3 | 4 |
| 80. The feeling that something bad is going to happen to you | 0 | 1 | 2 | 3 | 4 |
| 81. Shouting or throwing things | 0 | 1 | 2 | 3 | 4 |
| 82. Feeling afraid you will faint in public | 0 | 1 | 2 | 3 | 4 |
| 83. Feeling that people will take advantage of you if you let them | 0 | 1 | 2 | 3 | 4 |
| 84. Having thoughts about sex that bother you a lot | 0 | 1 | 2 | 3 | 4 |
| 85. The idea that you should be punished for your sins | 0 | 1 | 2 | 3 | 4 |
| 86. Thoughts and images of a frightening nature | 0 | 1 | 2 | 3 | 4 |
| 87. The idea that something serious is wrong with your body | 0 | 1 | 2 | 3 | 4 |
| 88. Never feeling close to another person | 0 | 1 | 2 | 3 | 4 |
| 89. Feelings of guilt | 0 | 1 | 2 | 3 | 4 |
| 90. The idea that something is wrong with your mind | 0 | 1 | 2 | 3 | 4 |

PARENTING QUESTIONNAIRE

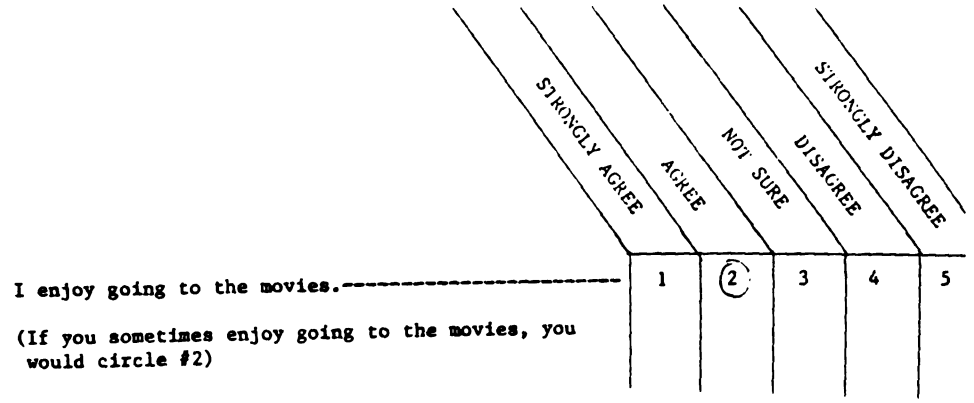
Instructions:

In answering the following questions, please think about the child who was born prematurely. If you have twins, please think about the one who had more health problems after birth.

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. YOUR FIRST REACTION TO EACH QUESTION SHOULD BE YOUR ANSWER.

Please mark the degree to which your agree or disagree with the following statements by circling the number which best matches how you feel. If you are not sure, please circle #3.

Example:



| | STRONGLY AGREE | AGREE | NOT SURE | DISAGREE | STRONGLY DISAGREE |
|---|---|---|---|---|---|
| 1. When my child wants something, my child usually keeps trying to get it. | 1 | 2 | 3 | 4 | 5 |
| 2. My child is so active that it exhausts me. | 1 | 2 | 3 | 4 | 5 |
| 3. My child appears disorganized and is easily distracted | 1 | 2 | 3 | 4 | 5 |
| 4. My child will often stay occupied with a toy for more than ten minutes. | 1 | 2 | 3 | 4 | 5 |
| 5. Compared to most, my child has more difficulty concentrating and paying attention. | 1 | 2 | 3 | 4 | 5 |
| 6. My child is much more active than I expected. | 1 | 2 | 3 | 4 | 5 |
| 7. My child squirms and kicks a great deal when being dressed or bathed. | 1 | 2 | 3 | 4 | 5 |
| 8. My child can be easily distracted from wanting something. | 1 | 2 | 3 | 4 | 5 |
| 9. My child rarely does things for me that make me feel good. | 1 | 2 | 3 | 4 | 5 |
| 10. Most times I feel that my child likes me and wants to be close to me. | 1 | 2 | 3 | 4 | 5 |
| 11. Sometimes I feel my child doesn't like me and doesn't want to be close to me. | 1 | 2 | 3 | 4 | 5 |
| 12. My child smiles at me much less than I expected. | 1 | 2 | 3 | 4 | 5 |
| 13. When I do things for my child I get the feeling that my efforts are not appreciated very much. | 1 | 2 | 3 | 4 | 5 |
| 14. My child seems to cry or fuss more often than most children. | 1 | 2 | 3 | 4 | 5 |
| 15. When playing, my child doesn't often giggle or laugh. | 1 | 2 | 3 | 4 | 5 |
| 16. My child generally wakes up in a bad mood. | 1 | 2 | 3 | 4 | 5 |
| 17. I feel that my child is very moody and easily upset. | 1 | 2 | 3 | 4 | 5 |
| 18. My child looks a little different than I expected and it bothers me at times. | 1 | 2 | 3 | 4 | 5 |
| 19. My child doesn't seem to learn as quickly as most children. | 1 | 2 | 3 | 4 | 5 |

| | STRONGLY AGREE | AGREE | NOT SURE | DISAGREE | STRONGLY DISAGREE |
|---|---|---|---|---|---|
| 20. My child doesn't seem to smile as much as most children. | 1 | 2 | 3 | 4 | 5 |
| 21. My child does a few things which bother me a great deal. | 1 | 2 | 3 | 4 | 5 |
| 22. My child is not able to do as much as I expected.-------- | 1 | 2 | 3 | 4 | 5 |
| 23. My child does not like to be cuddled or touched very much. | 1 | 2 | 3 | 4 | 5 |
| 24. When my child came home from the hospital, I had doubtful feelings about my ability to handle being a parent.----- | 1 | 2 | 3 | 4 | 5 |
| 25. Being a parent is harder than I thought it would be.----- | 1 | 2 | 3 | 4 | 5 |
| 26. I feel capable and on top of things when I am caring for my child.---------- | 1 | 2 | 3 | 4 | 5 |
| 27. 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.---------- | 1 | 2 | 3 | 4 | 5 |
| 28. My child reacts very strongly when something happens that my child doesn't like.---------- | 1 | 2 | 3 | 4 | 5 |
| 29. Leaving my child with a babysitter is usually a problem.- | 1 | 2 | 3 | 4 | 5 |
| 30. My child gets upset easily over the smallest thing.------- | 1 | 2 | 3 | 4 | 5 |
| 31. My child easily notices and overreacts to loud sounds and bright lights.---------- | 1 | 2 | 3 | 4 | 5 |
| 32. My child's sleeping or eating schedule was much harder to establish than I expected.---------- | 1 | 2 | 3 | 4 | 5 |
| 33. My child usually avoids a new toy for a while before beginning to play with it.---------- | 1 | 2 | 3 | 4 | 5 |
| 34. It takes a long time and it is very hard for my child to get used to new things.---------- | 1 | 2 | 3 | 4 | 5 |
| 35. My child doesn't seem comfortable when meeting strangers. | 1 | 2 | 3 | 4 | 5 |
| 36. There are some things my child does that really bother me a lot.---------- | 1 | 2 | 3 | 4 | 5 |
| 37. My child has had more health problems than I expected.--- | 1 | 2 | 3 | 4 | 5 |
| 38. My child turned out to be more of a problem than I had expected.---------- | 1 | 2 | 3 | 4 | 5 |

| | STRONGLY AGREE | AGREE | NOT SURE | DISAGREE | STRONGLY DISAGREE |
|---|---|---|---|---|---|
| 39. My child seems to be much harder to care for than most. | 1 | 2 | 3 | 4 | 5 |
| 40. My child is always hanging on me. | 1 | 2 | 3 | 4 | 5 |
| 41. My child makes more demands on me than most children. | 1 | 2 | 3 | 4 | 5 |
| 42. I can't make decisions without help. | 1 | 2 | 3 | 4 | 5 |
| 43. I have had many more problems raising children than I expected. | 1 | 2 | 3 | 4 | 5 |
| 44. I enjoy being a parent. | 1 | 2 | 3 | 4 | 5 |
| 45. I feel that I am successful most of the time when I try to get my child to do or not do something. | 1 | 2 | 3 | 4 | 5 |
| 46. Since I brought my 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. | 1 | 2 | 3 | 4 | 5 |
| 47. I often have the feeling that I cannot handle things very well. | 1 | 2 | 3 | 4 | 5 |
| 48. It takes a long time for parents to develop close, warm feelings for their children. | 1 | 2 | 3 | 4 | 5 |
| 49. I expected to have closer and warmer feelings for my child and this bothers me. | 1 | 2 | 3 | 4 | 5 |
| 50. Sometimes my child does things that bother me just to be mean. | 1 | 2 | 3 | 4 | 5 |
| 51. When I was young, I never felt comfortable holding or taking care of children. | 1 | 2 | 3 | 4 | 5 |
| 52. My child knows I am his or her parent and wants me more than other people. | 1 | 2 | 3 | 4 | 5 |
| 53. The number of children that I have now is too many. | 1 | 2 | 3 | 4 | 5 |
| 54. Most of my life is spent doing things for my child. | 1 | 2 | 3 | 4 | 5 |
| 55. I find myself giving up more of my life to meet my children's needs than I ever expected. | 1 | 2 | 3 | 4 | 5 |
| 56. I feel trapped by my responsibilities as a parent. | 1 | 2 | 3 | 4 | 5 |
| 57. I often feel that my child's needs control my life. | 1 | 2 | 3 | 4 | 5 |

| | STRONGLY AGREE | AGREE | NOT SURE | DISAGREE | STRONGLY DISAGREE |
|---|---|---|---|---|---|
| 58. Since having this child I have been unable to do new and different things. | 1 | 2 | 3 | 4 | 5 |
| 59. Since having a child I feel that I am almost never able to do things that I like to do. | 1 | 2 | 3 | 4 | 5 |
| 60. It is hard to find a place in our home where I can go to be by myself. | 1 | 2 | 3 | 4 | 5 |
| 61. When I think about the kind of parent I am, I often feel guilty or bad about myself. | 1 | 2 | 3 | 4 | 5 |
| 62. I am unhappy with the last purchase of clothing I made for myself. | 1 | 2 | 3 | 4 | 5 |
| 63. When my chld misbehaves or fusses too much I feel responsible, as if I didn't do something right. | 1 | 2 | 3 | 4 | 5 |
| 64. I feel everytime my child does something wrong it is really my fault. | 1 | 2 | 3 | 4 | 5 |
| 65. I often feel guilty about the way I feel towards my child. | 1 | 2 | 3 | 4 | 5 |
| 66. There are quite a few things that bother me about my life. | 1 | 2 | 3 | 4 | 5 |
| 67. I felt sadder and more depressed than I expected after leaving the hospital with my baby. | 1 | 2 | 3 | 4 | 5 |
| 68. I wind up feeling guilty when I get angry at my child and this bothers me. | 1 | 2 | 3 | 4 | 5 |
| 69. After my child had been home from the hospital for about a month, I noticed that I was feeling more sad and depressed than I had expected. | 1 | 2 | 3 | 4 | 5 |
| 70. Since having my child, my spouse has not given me as much help and support as I expected. | 1 | 2 | 3 | 4 | 5 |
| 71. Having a child has caused more problems than I expected in my relationship with my spouse. | 1 | 2 | 3 | 4 | 5 |
| 72. Since having a child my spouse and I don't do as many things together. | 1 | 2 | 3 | 4 | 5 |
| 73. Since having my last child, I have had less interest in sex. | 1 | 2 | 3 | 4 | 5 |
| 74. Having a child seems to have increased the number of problems we have with in-laws and relatives. | 1 | 2 | 3 | 4 | 5 |
| 75. Having children has been much more expensive than I had expected. | 1 | 2 | 3 | 4 | 5 |

| | STRONGLY AGREE | AGREE | NOT SURE | DISAGREE | STRONGLY DISAGREE |
|---|---|---|---|---|---|
| 76. I feel alone and without friends. | 1 | 2 | 3 | 4 | 5 |
| 77. When I go to a party I usually expect not to enjoy myself. | 1 | 2 | 3 | 4 | 5 |
| 78. I am not as interested in people as I used to be. | 1 | 2 | 3 | 4 | 5 |
| 79. I often have the feeling that other people my own age don't particularly like my company. | 1 | 2 | 3 | 4 | 5 |
| 80. When I run into a problem taking care of my child(ren) I have a lot of people to whom I can talk to get help or advice. | 1 | 2 | 3 | 4 | 5 |
| 81. Since having children I have a lot fewer chances to see my friends and to make new friends. | 1 | 2 | 3 | 4 | 5 |
| 82. During the past six months I have been sicker than usual or have had more aches and pains than I normally do. | 1 | 2 | 3 | 4 | 5 |
| 83. Physically, I feel good most of the time. | 1 | 2 | 3 | 4 | 5 |
| 84. Having a child has caused changes in the way I sleep. | 1 | 2 | 3 | 4 | 5 |
| 85. I don't enjoy things as I used to. | 1 | 2 | 3 | 4 | 5 |
| 86. Since having my child, my spouse and I don't spend as much time together as a family as I had expected. | 1 | 2 | 3 | 4 | 5 |

87. Which statement best describes your child?(Circle the number)

1. almost always likes to play with me,
2. sometimes likes to play with me,
4. usually doesn't like to play with me,
5. almost never likes to play with me.

88. My child cries and fusses:

1. much less than I had expected
2. less than I expected,
3. about as much as I expected,
4. much more than I expected,
5. it seems almost constant.

89. When upset, my child is:

1. easy to calm down,
2. harder to calm down than I expected,
3. very difficult to calm down,
5. nothing I do helps to calm my child.

90. Think carefully and count the number of things which your child does that bother you. For example, refuses to listen, refuses food, overactive, cries, whines, doesn't cuddle, etc. Please circle the number which includes the number of things you counted.

1. 1-3
2. 4-5
3. 6-7
4. 8-9
5. 10+

91. When my child cries it usually lasts:

1. less than 2 minutes,
2. 2-5 minutes,
3. 5-10 minutes,
4. 10-15 minutes,
5. more than 15 minutes.

92. When I think about myself as a parent I believe:

1. I can handle anything that happens,
2. I can handle most things pretty well,
3. sometimes I have doubts, but find that I handle most problems,
4. I have some doubts about being able to handle things,
5. I don't think I handle things very well at all.

93. I feel that I am:

1. a very good parent,
2. a better than average parent,
3. an average parent,
4. a person who has some trouble being a parent,
5. not very good at being a parent.

94. How easy is it for you to understand what your child wants or needs?

1. very easy,
2. easy,
3. somewhat difficult,
4. it is very hard,
5. I usually can't figure out what the problem is.

95. Since I've had my child:

1. I have been sick a great deal,
2. I haven't felt as good,
4. I haven't noticed any change in my health,
5. I have been healthier.

96. I have found that getting my child to do something or stop doing something is:

1. much harder than I expected,
2. somewhat harder than I expected,
3. about as hard as I expected,
4. somewhat easier than I expected,
5. much easier than I expected.

These questions are about how you feel and how things have been going with you. Circle a number for the answer which best applies to you DURING THE PAST MONTH.

1. How have you been feeling in general?

| | |
|---|---|
| In excellent spirits | 1 |
| In very good spirits | 2 |
| In good spirits mostly | 3 |
| I have been up and down in spirits a lot | 4 |
| In low spirits mostly | 5 |
| In very low spirits | 6 |

2. How often were you bothered by any illness, bodily disorder, aches or pains?

| | |
|---|---|
| Every day | 1 |
| Almost every day | 2 |
| About half of the time | 3 |
| Now and then, but less than half of the time | 4 |
| Rarely | 5 |
| None of the time | 6 |

3. How much energy, pep, or vitality did you have or feel?

| | |
|---|---|
| Very full of energy--lots of pep | 1 |
| Fairly energetic most of the time | 2 |
| My energy level varied quite a bit | 3 |
| Generally low in energy, pep | 4 |
| Very low in energy or pep most of the time | 5 |
| No energy or pep at all. I felt drained | 6 |

4. How happy, satisfied, or please have you been with your personal life?

| | |
|---|---|
| Extemely happy--could not have been more satisfied or pleased | 1 |
| Very happy most of the time | 2 |
| Generally satisfied--pleased | 3 |
| Sometimes fairly satisfied, sometimes fairly unhappy | 4 |
| Generally dissatisfied, unhappy | 5 |
| Very dissatisfied or unhappy most or all of the time | 6 |

5. Have you been in firm control of your behavior, thoughts, emotions or feelings? (During the past month)

   Yes, definitely so..... 1
   Yes, for the most part..... 2
   Generally so..... 3
   Not too well..... 4
   No, and I am somewhat disturbed..... 5
   No, and I am very disturbed..... 6

6. Did you feel healthy enough during the past month to carry out the things you like to do or had to do?

   Yes--definitely so..... 1
   For the most part..... 2
   Health problems limited me in some important ways..... 3
   I was only healthy enough to take care of myself..... 4
   I needed some help in taking care of myself. 5
   I needed someone to help me most of the time 6

7. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think feel, or of your memory? (During the past month)

   Not at all..... 1
   Only a little..... 2
   Some--but not enough to be concerned or worried about..... 3
   Some and I have been a little concerned.... 4
   Some and I am quite concerned..... 5
   Yes, very much so and I am very concerned.. 6

8. Have you been concerned, worried or had any fears about your health? (During the past month)

   Extremely so..... 1
   Very much so..... 2
   Quite a bit..... 3
   Some, but not a lot..... 4
   Practically never..... 5
   Not at all..... 6

9. Did you feel active, vigorous OR dull, sluggish? (During the past month)

| | |
|---|---|
| Very active, vigorous every day | 1 |
| Mostly active, vigorous, never really dull or sluggish | 2 |
| Fairly active, vigorous--seldom dull, sluggish | 3 |
| Fairly dull, sluggish--seldom active, vigorous | 4 |
| Mostly dull, sluggish--never active, vigorous | 5 |
| Very dull, sluggish every day | 6 |

10. Have you felt tired, worn out, used up, or exhausted?

| | |
|---|---|
| All of the time | 1 |
| Most of the time | 2 |
| A good bit of the time | 3 |
| Some of the time | 4 |
| A little of the time | 5 |
| None of the time | 6 |

11. Has your daily life been full of things that were interesting to you?

| | |
|---|---|
| All of the time | 1 |
| Most of the time | 2 |
| A good bit of the time | 3 |
| Some of the time | 4 |
| A little of the time | 5 |
| None of the time | 6 |

12. Have you been waking up feeling fresh and rested?

| | |
|---|---|
| All of the time | 1 |
| Most of the time | 2 |
| A good bit of the time | 3 |
| Some of the time | 4 |
| A little of the time | 5 |
| None of the time | 6 |

13. Have you been feeling emotionally stable and sure of yourself?

| | |
|---|---|
| All of the time | 1 |
| Most of the time | 2 |
| A good bit of the time | 3 |
| Some of the time | 4 |
| A little of the time | 5 |
| None of the time | 6 |

# APPENDIX C

COPING WITH PREMATURE BIRTH CHECKLIST FACTOR SCALES

| | Item | Factor Loading |
|---|---|---|
| **Factor 1: Wishing to Undo** (alpha=.75) | | |
| Q61. | I wished that I could change what happened. | .64 |
| Q64. | I wished that the situation would go away or somehow be over with. | .63 |
| Q59. | I daydreamed or imagined a better time or place than the one I was in. | .60 |
| Q58. | I wished I could change how I felt. | .59 |
| Q62. | I thought about fantastic or unreal things (like undoing what had happened. | .52 |
| **Factor 2: Seeking Social Support** (for women only) (alpha=.66) | | |
| Q34. | I let my feelings out somehow. | .72 |
| Q49. | I talked to someone about how I was feeling. | .69 |
| Q21. | I accepted sympathy or understanding from friends or relatives other than my spouse. | .69 |
| Q17. | I kept my feelings to myself. | -.60 |
| Q3. | I discussed the situation with my spouse. | .56 |
| **Factor 3: Self-Blame** (alpha=.81) | | |
| Q12. | I criticized or lectured myself. | .77 |
| Q9. | I blamed myself. | .69 |
| Q55. | I made a promise to myself that things would be different next time. | .49 |
| **Factor 4: Taking Action** (alpha=.66 | | |
| Q35. | I talked to someone who could do something specific about the problem. | .78 |
| Q33. | I made a plan of action and followed it. | .68 |
| Q8. | I talked to a nurse or doctor to find out more about the situation. | .47 |
| Q46. | I asked someone I respected for advice and followed it. | .44 |
| **Factor 5: Avoidance** (alpha=.70) | | |
| Q44. | I didn't let it get to me; I refused to think about it too much. | .75 |
| Q48. | I make light of the situation; refused to get too serious about it. | .66 |
| Q6. | I got busy with other things to take my mind off the problem. | .56 |
| Q15. | I went on as if nothing happened. | .47 |

Factor 6: Looking on the Bright Side (alpha=.58)

| | | |
|---|---|---|
| Q22. | I told myself things that helped me feel better. | .60 |
| Q11. | I concentrated on something good that could come out of the situation. | .56 |
| Q18. | I looked on the bright side of things. | .54 |

# APPENDIX D

TABLE 19

Regression of Avoidance and Initial Assessment Variables: Interactions between Socioeconomic Status and Main Effects

$R^2 = .152$, $F(17,97) = 2.34$, $p < .05$

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| SES-Gender | 0.044 | 0.224 | 0.44 |
| SES-Severity | 0.024 | 0.020 | 0.04 |
| SES-Social Network Size | 0.004 | -0.857 | -1.72 |
| SES-Negative Life Events | 0.004 | 0.564 | 1.30 |
| SES-Family Cohesion | 0.002 | -1.149 | 2.82** |
| SES-Family Structure | 0.002 | 0.385 | 0.74 |
| SES-Family Child-Centeredness | 0.002 | 1.023 | 2.47* |
| SES-Family Optimism | 0.002 | 0.328 | 0.67 |

* = $p < .02$.
** = $p < .01$.

TABLE 20

Regression of Wishing to Undo and Initial Assessment Variables

$R^2$ = .254, $F(9,105)$ = 3.98, $p < .0001$

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| Gender | -2.825 | -.386 | 4.17**** |
| SES | .084 | .263 | 2.63** |
| Severity | .718 | .185 | 2.05* |
| Social Network Size | -.048 | -.070 | 0.76 |
| Negative Life Events | .102 | .172 | 1.85 |
| Family Cohesion | .009 | .026 | 0.28 |
| Family Structure | -.031 | -.115 | 1.28 |
| Family Child-Centeredness | .027 | .079 | 0.87 |
| Family Optimism | -.020 | -.058 | 0.59 |

* = $p < .05$.
** = $p < .01$.
**** = $p < .0001$.

TABLE 21

Regression of Self-Blame and Initial Assessment Variables

$R^2$ = .231, $F(9,105)$ = 3.50, $p$ < .001.

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| Gender | -1.889 | -0.403 | 4.30**** |
| SES | 0.026 | 0.129 | 1.27 |
| Severity | 0.288 | 0.116 | 1.27 |
| Social Network Size | -0.064 | -0.146 | 1.57 |
| Negative Life Events | 0.077 | 0.201 | 2.13* |
| Family Cohesion | 0.012 | 0.053 | 0.59 |
| Family Structure | 0.012 | 0.068 | 0.75 |
| Family Child-Centeredness | 0.033 | 0.156 | 1.9 |
| Family Optimism | -0.021 | -0.094 | 0.94 |

* = $p$ < .05.
**** = $p$ < .0001.

TABLE 22

Regression of Looking on the Bright Side and Initial Assessment Variables: Main Effects

$R^2$ = .187, $F(9,105)$ = 2.69, $p < .01$

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| Gender | .317 | .079 | 0.82 |
| SES | -.036 | -.206 | 1.97 |
| Severity | -.037 | -.018 | 0.19 |
| Social Network Size | .056 | .149 | 1.56 |
| Negative Life Events | .019 | .059 | 0.60 |
| Family Cohesion | -.016 | -.084 | 0.90 |
| Family Structure | .038 | .261 | 2.78** |
| Family Child-Centeredness | -.012 | -.064 | 0.68 |
| Family Optimism | .070 | .362 | 3.53*** |

** = $p < .01$.
*** = $p < .001$.

TABLE 23

Regression of Looking on the Bright Side and Initial Assessment Variables: Interactions between Gender and Main Effects

$R^2$ = .120, $F(17,97)$ = 2.09, $p < .05$

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| Gender-SES | -.087 | -1.234 | 2.43* |
| Gender-Severity | -0.120 | -0.115 | 0.30 |
| Gender-Social Network Size | 0.017 | 0.081 | 0.24 |
| Gender-Negative Life Events | 0.171 | 0.831 | 2.73** |
| Gender-Family Cohesion | -0.570 | -0.494 | 1.64 |
| Gender-Family Structure | 0.019 | 0.210 | 0.70 |
| Gender-Family Child-Centeredness | 0.063 | 0.527 | 1.71 |
| Gender-Family Optimism | 0.034 | 0.285 | 0.89 |

* = $p < .05$.
** = $p < .01$.

TABLE 24

Regression of Seeking Social Support and Initial Assessment Variables (Women Only)

$R^2$ = .305, $F(8,49)$ = 2.69, $p$ < .02

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| SES | 0.028 | .102 | 0.73 |
| Severity | 0.252 | .074 | 0.56 |
| Social Network Size | -0.126 | -.226 | 1.72 |
| Negative Life Events | 0.076 | .137 | 1.07 |
| Family Cohesion | 0.058 | .195 | 1.47 |
| Family Structure | 0.060 | .266 | 2.06* |
| Family Child-Centeredness | -0.077 | -.291 | 2.26* |
| Family Optimism | 0.022 | .072 | 0.51 |

* = $p$ < .05.

TABLE 25

Regression of Postive Action and Initial Assessment Variables (Women Only)

$R^2$ = .342, $F(8,49)$ = 3.18, $p < .01$

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| SES | 0.008 | 0.102 | 0.75 |
| Severity | 0.087 | 0.084 | 0.65 |
| Social Network Size | 0.026 | 0.156 | 1.25 |
| Negative Life Events | -0.028 | -0.168 | 1.31 |
| Family Cohesion | 0.010 | 0.109 | 0.84 |
| Family Structure | 0.020 | 0.289 | 2.30* |
| Family Child-Centeredness | -0.016 | -0.205 | 1.64 |
| Family Optimism | 0.022 | 0.236 | 1.71 |

* = $p < .05$.

TABLE 26

Regression of Negative Emotion and Initial Assessment Variables (Women Only)

$R^2$ = .353, $F(8,49)$ = 3.34, $p$ < .01

| Variables in the Equation | B | beta | t |
|---|---|---|---|
| SES | 0.040 | 0.485 | 3.59*** |
| Severity | 0.184 | 0.170 | 1.38 |
| Social Network Size | -0.327 | -0.193 | 1.57 |
| Negative Life Events | 0.588 | -0.347 | 2.73** |
| Family Cohesion | 0.007 | 0.753 | 0.59 |
| Family Structure | -0.005 | -0.074 | 0.59 |
| Family Child-Centeredness | 0.019 | 0.237 | 1.91 |
| Family Optimism | -0.002 | -0.023 | 0.17 |

** = $p$ < .01.
*** = $p$ < .001.

TABLE 27

Correlations Between Family Structure and Coping Scales

| | Family Structure |
|---|---|
| Taking Action | .11 |
| Looking on the Bright Side | .27** |
| Self-Blame | .09 |
| Avoidance | -.01 |

** $p < .01$.

TABLE 28

Correlations Between Negative Life Events and Coping Scales

| | Negative Life Events |
|---|---|
| Wishing to Undo | .27** |
| Self-Blame | .24** |
| Avoidance | -.01 |

** $p < .01$.

TABLE 29

Regression Analysis With Child Domain of Parenting Stress Index as Dependent Variable for Men

Increment $R^2$ = .291, $F(8,38)$ = 2.21, $p < .05$.

| Variables in the Equation | | B | beta | t |
|---|---|---|---|---|
| SES | | 0.040 | 0.485 | 3.59*** |
| Severity | | 0.184 | 0.170 | 1.38 |
| Health at Follow-Up | | | | |
| Negative Life Events | 0.588 | -0.347 | 2.73** | |
| Wishing to Undo | | | | |
| Self-Blame | | | | |
| Avoidance | | | | |
| Looking on the Bright Side | | | | |
| Family Cohesion | | 0.007 | 0.753 | 0.59 |
| Family Structure | | -0.005 | -0.074 | 0.59 |
| Social Network Size | | -0.327 | -0.193 | 1.57 |

** = $p < .01$.
*** = $p < .001$.