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# An analysis of coping processes in high-risk pregnant women

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# AN ANALYSIS OF COPING PROCESSES IN HIGH-RISK PREGNANT WOMEN

by

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## Abstract

AN ANALYSIS OF COPING PROCESSES

IN HIGH-RISK PREGNANT WOMEN

by

Renée Feldman

Advisor: Professor Suzanne Ouellette

This study examined the process of coping as one means by which personality and social support buffer the maladaptive impact of stressful life events. Two scales were developed to measure the theoretically-derived constructs of transformational and regressive coping in a sample of 61 pregnant women who experienced premature labor. Psychological adjustment of respondents was measured as their reported levels of anxiety and depression, and positive and negative affect.

The research explicates the coping processes used to deal with specific aspects of the premature labor experience, and the determinants of those processes. I examined the influence of the following variables on psychological adjustment during and after the

high-risk pregnancy, and on self-reported postpartum complications: personality hardiness, social support from one's spouse, physician, co-workers, and boss, transformational and regressive coping, and the perceived impact of the situation.

The conceptual model which guided the research suggested that hardiness, coping, and social support would have a direct effect on the outcome of high-risk pregnancy. According to the theory, hardiness is the antecedent of coping processes, and is the most important variable in the process of stress-resistance.

As predicted, regressive coping was used most often by respondents low in hardiness, though one's general perception of social support had no influence on coping. The variables of regressive coping, physician support, and the perceived impact of the situation explained a significant amount of the variance in psychological symptoms during the premature labor experience. Postpartum psychological adjustment was significantly associated with personality hardiness, regressive coping, and the perceived impact of the premature labor experience. The failure of transformational coping to predict psychological symptoms is explained with reference

to the context at hand.

The findings suggest that transformational and regressive coping should be examined in future research concerning the impact of stress-resistance resources. Furthermore, the research illustrates the complexity of the coping process, specifically, the importance of examining the context in which coping occurs.

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Many friends were constantly supportive of me during my years in school. These special people know who they are, and I would like to thank them. My mother and sister deserve special thanks, for always believing in me; my mother has for years also acted as a sounding board for rough drafts of my writing.

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The purpose of this study was to investigate the process of coping with the stressors or problems associated with pregnancies that are medically diagnosed as at-risk. "High-risk" is a term formally applied to those pregnancies which might present a threat to the well-being of the woman and/or the fetus during the course of pregnancy, labor, and/or delivery. The proposed study focuses on pregnant women who are labeled "high-risk" because they experience premature labor.

More specifically, the major aims of the study were threefold: 1) to explicate the coping processes used by women to manage the various problems posed by the premature labor experience, and the determinants of those processes; 2) to determine the influence of personal and social factors, as well as coping processes and biomedical risk factors, on postpartum complications and psychological well-being during and after pregnancy; and 3) to further our understanding of the stress process and the mediating influence of personality, social support, and coping on the relationship between stress and subsequent maladaptive outcomes.

Most previous studies neither stem from, nor contribute to, a conceptual model which explains how psychosocial factors influence the course and outcome of pregnancy. In the present study, pregnancy

was examined as a stressor in a theoretical model of the stress and coping process. In so doing, the research attempted to clarify the mechanisms through which pregnancy affects psychological and physical functioning, and through which moderating variables such as personality, social support, coping strategies, and situational appraisals influence the effects of the stressor on the woman and the baby. This enriches theoretical development in the area of stress, health, and functioning, in addition to increasing knowledge about high-risk pregnancy. Figure 1 depicts the conceptual model which guided the present work.

The research focuses on the box labeled 'stress-resistance resources'. Stress-resistance resources are those psychosocial factors which distinguish between individuals who do and do not suffer maladjustment in the wake of stressful events. Previous empirical research has not determined the *manner* by which the stress-resistance resources of personality and social support exert their buffering powers. I examined coping as a means of identifying at least part of the process by which hardiness and social support buffer the impact of stress.

Initial analyses investigated whether individuals who differ in

personality and social support use different types of coping. In other words, I examined whether such individuals differ in the way they think and act when confronted by the stressful experience of premature labor. The conduct of such a study required examining coping in a manner different than that found in previous research. I built on the existing theoretical and empirical foundations of coping and appraisal in an attempt to provide a more complete explanation of the stress-resistance process.

It is necessary to note at the onset that although the present study focuses on pregnant women who experience premature labor, the results will enhance our general understanding of the stress and coping process in important ways. First, as noted above, previous research has failed to address the question of how particular stress-resistance resources, such as personality hardiness, act to protect an individual from the harmful effects of stress. The present study examined the coping process as one possible means by which hardiness exerts a stress buffering effect.

Second, the coping instrument used may be altered to fit other crisis situations, since it was developed according to a theoretical framework. Only a theoretically-derived assessment device allows

generalizations to other contexts and provides explanations for different findings and directions for modifications.

Third, the present study represents one of the few to employ a longitudinal design, to determine the impact of coping on subsequent medical and psychological outcomes. Most past studies have relied on a cross-sectional analysis of coping and adjustment, which tells us little about the later consequences of coping behavior. By clarifying the coping process, including the determinants of one's thoughts and actions, and the resulting impact, the present research provides much needed information for an empirically grounded theory of the stress and coping process.

*Psychosocial Aspects of High-Risk Pregnancy*

The empirical and theoretical literatures on stress and illness, and on "normal" pregnancy, as well as clinical reports of high-risk pregnancy, indicate the need for the present study. Published reports by clinicians, as well as anecdotes by patients and health care professionals, suggest that a variety of psychosocial factors influence the psychological and medical course and outcome of high-risk pregnancy. However, these suggestions have not been empirically tested.

High-risk patients have been depicted as facing stresses above and beyond those of normal pregnancies (Freeman & Pescar, 1982; Gyves, 1985; Hales & Creasy, 1982; Weil, 1982). The high-risk pregnancy involves more precautions, more monitoring, and more high-powered medical technology (Hales & Creasy, 1982). Women have to deal with fears that they will lose the unborn baby (e.g. Weil, 1982) or have a baby with severe abnormalities (e.g. Freeman & Pescar, 1982; Gyves, 1985) to a greater extent than do other pregnant women. Additional stresses faced by high-risk women include hospitalization, and the time and money spent on additional care. While studies have examined the psychological experience of pregnancy in women with chronic conditions such as diabetes (e.g. Leeman, 1970; Barglow, Hatcher, Wolston, Phelps, Burns, & Depp, 1981), no research has addressed the psychological impact of acute pregnancy problems such as premature labor.

Premature labor is defined as uterine contractions at least every 10 minutes, associated with progressive dilation and/or effacement of the cervix, in a woman who is less than 38 weeks pregnant. The condition occurs in over 10 percent of all pregnancies, and accounts for nearly two-thirds of infant deaths (Babson, Benson, Pernoll, & Benda,

1975). Premature labor can occur in any pregnancy, regardless of whether a woman is initially labeled at high-risk or whether previous complications occurred.

The severity of this condition may be made clearer by focusing on one of the outcomes of premature labor, namely, premature delivery. Serious complications occur in more than 12 percent of premature deliveries, compared with three percent of deliveries at term. The incidence of neurological and psychological abnormalities occurring during the first year of life is four times as high for small premature infants as it is for full-term infants (Schwartz & Schwartz, 1977). A reduction in the incidence of early death and a predisposition to disease should follow a decrease in the rate of prematurity. This goal may in part be realized by the effective treatment of premature labor.

The objective in treating premature labor is to maintain pregnancy until as close to term (40 weeks) as possible. Treatment begins when the woman enters the hospital, and is connected to a fetal monitor which continuously records the fetal heart rate and uterine contractions. Intraveneous therapy consists of the administration of the drug ritodrine or magnesium sulfate, which is given until the contractions stop. After intraveneous treatment is completed, patients

are sent to the antenatal ward and instructed to stay in bed. Following an average hospital stay of five days, the attending obstetrician either releases the patient for rest at home, or keeps her in the hospital for closer observation and a more restricted activity level.

The treatment regimen contains several components, all of which appear stressful. Patients must take oral doses of ritodrine, usually every four hours, around the clock. In most cases, physicians tell patients to stop taking the drug at 36 weeks. Most patients must maintain complete bed rest, or severely reduced activity, which entails not working, for the rest of the pregnancy. In addition, the drug ritodrine produces side effects, which are most severe during intravenous therapy, but persist during oral administration. The side effects include tachycardia, or increased heart beat, shakiness, and shortness of breath (Caritis, Toig, Heddinger, & Ashmead, 1984).

The prescribed treatment regimen represents a relatively recent attempt to stop premature labor and prevent premature delivery in the United States. The drug ritodrine was approved for use in the treatment of premature labor in the United States only six years ago, though by that time it had been incorporated into standard practice in Europe (Boylan & O'Driscoll, 1983). Knowing this, some women express

reservations about taking the drug during their pregnancies.

In addition, all patients must undergo periodic fetal monitoring at the hospital and/or at home through the use of portable monitors. In the procedure, women must lie flat on a bed, attached to a monitor, which records the fetal heart rate and uterine contractions. The hospital fetal monitoring environment contains sensors, wires, recording equipment, and continuous mechanical sounds. In a study of both high and low risk women for whom the fetal monitor was used during labor, most reported both positive and negative responses to the monitor (Starkman, 1976). It is important to note that these responses included reactions to the monitor during labor, and do not reveal anything about the response of women to repeated fetal monitoring during a high-risk pregnancy.

The only work on premature labor which has included psychosocial factors centered on predicting the onset of the condition (e.g. Newton, Webster, Binn, Maskrey, & Phillips, 1979). In the retrospective research, women who delivered prematurely reported a higher incidence of major life events during pregnancy than did women whose pregnancies went to term.

Although no systematic empirical work could be found on the

psychological aspects of the high-risk pregnancy experience, a considerable amount of research has been devoted to the study of "normal" pregnancy. The research literature on pregnancy may be used to identify psychological factors which may influence the course and outcome of high-risk pregnancy. However, the psychological work on pregnancy in general is by no means all conceptually or methodologically sound. Despite the fact that investigators as far back as Bibring (1959, 1961) have been studying the changes a woman undergoes during pregnancy, the personal and social experience has not been well documented.

*The General Pregnancy Literature: Its Implications for the Psychological Study of High-Risk Pregnancy*

Empirical research and clinical reports document pregnancy as a stressful event. In normal pregnant women, researchers have found widespread emotional disturbance, especially manifested as anxiety (Robin, 1962; Jarrahi-Zadeh, Kane, Van de Castle, Lachenbruch, & Ewing, 1969; Pines, 1972; Leifer, 1977; Zajicek, & Wolkind, 1978), and depression (Jarrahi-Zadeh et al., 1969; Zajicek & Wolkind, 1978; Ballinger, 1982; Kumar & Robson, 1984). Two factors which tend to be associated with psychological symptomatology during and after

pregnancy are high life stress and low social support (Kumar & Robson, 1978; Norbeck & Tilden, 1983; Paykel, Emms, Fletcher, & Rassaby, 1980).

One problem with the research on social support and pregnancy is the failure to consider aspects of the work environment. As an increasing proportion of women work throughout their pregnancies, it seems important to determine the impact of work on the course and outcome of pregnancy. One way to examine the effects of working during pregnancy is to concentrate on the supportive aspects of the work context. Also lacking from studies of social support during pregnancy is an examination of perceptions of support from health care providers involved in women's prenatal care. Yet, it seems useful to ask about support from the obstetrician, since he or she is often perceived as the provider of information and reassurance as well as medical care.

Little is presently known about the antecedents of postpartum depression, a disorder said to affect a substantial proportion of childbearing women (Kumar & Robson, 1984 ; Paykel et al., 1980). Research reports have placed the incidence of postpartum depressive neurosis at between 10 and 20 percent (Kumar & Robson, 1984 ; Paykel

et al., 1980). Although several studies have indicated an association between high levels of psychiatric symptomatology during pregnancy and emotional disturbance following delivery (e.g. Ballinger, 1982; Zajicek & Wolkind, 1978), others (e.g. Kumar & Robson, 1984) have found no significant relationships between the variables. No studies could be found on the postpartum psychological functioning of women who experience high-risk pregnancies.

The role of psychological factors in the *outcome* of pregnancy has been the subject of considerable research over the past two decades. This research has mainly been directed at predicting which women will experience complications during pregnancy and childbirth (cf. Chalmers, 1982). The psychological variables that have been associated with complications of pregnancy are: anxiety (Crandon, 1979; Gorsuch & Key, 1974; cf. McDonald, 1968); stressful life events (Gorsuch & Key, 1974; Jones, 1978; Smilkstein, Helsper-Lucas, Ashworth, Montano, & Pagel, 1984; Williams et al., 1975); social support and psychosocial assets ( Norbeck & Tilden, 1983; Nuckolls, Cassel, & Kaplan, 1972; Smilkstein et al., 1984); and attitudes (Blau, Welkowitz, & Cohen, 1964).

Pregnancy complications have been found to be best predicted by the joint assessment of biomedical and psychosocial risk factors

(Smilkstein et al., 1984). Biomedical risk assessment entails the examination of medical factors that have been associated with outcome complications of pregnancy, such as prolonged labor, low birth weight, and maternal hypertension. To determine psychosocial risk, researchers have examined factors such as life events, anxiety, attitudes, and social support.

One study found that biomedical risk alone was not significantly related to delivery or postpartum complications, whereas psychosocial risk was related to both problems (Smilkstein et al., 1984). In the study, psychosocial risk was identified through an analysis of life events, perception of family function, and social support. Biomedical risk was assessed as a function of previous pregnancy complications, acute and chronic medical problems, life style behaviors, and physical examination abnormalities. Women with higher levels of biomedical risk and poor family function were most likely to experience postpartum complications.

In sum, the general pregnancy literature suggests that the stresses associated with high-risk pregnancy may influence a woman's mental health, as well as obstetrical, labor, and delivery complications. On a more positive note, past research suggests several

factors which may moderate the maladaptive impact of high-risk pregnancy. One factor which has been overlooked in past research entails the process by which women cope with the problems of pregnancy.

*Stress and Coping Processes*

Previous work on stress and coping is contained in two research literatures, those on stressful life events and specific life crises. The most frequently cited theory behind the stressful life events studies states that life events which cause change or demand readjustment are stressful and increase one's susceptibility to illness. Research on life events stems from the work of Cannon (1929) and Selye (1955), who maintained that events lead to stress because the organism is fundamentally intolerant of change. These theorists held that life change creates a state of disequilibrium which requires a readjustment period during which the individual is vulnerable to stress and its consequences.

For the first approximate two decades of stress research, most studies attempted to show a connection between the occurrence of stressful life events and the onset of physical and mental illness (see Dohrenwend & Dohrenwend, 1974; 1981, for a review of such studies).

The early stress and illness studies tended to ignore individual differences in response to stress, and treated individuals as passive entities victimized by too much environmental change (cf. Kobasa, 1982). About 10 years ago, it became clear that many individuals do not suffer increases in symptomatology as a result of stress; the correlation between stress and illness tended to hover about .30 (Rabkin & Streuning, 1976). This finding led to the more recent emphasis on variables which mitigate the effects of stressful life events, such as social support.

The other pertinent research literature is that on individual response to specific life crises. Most studies in this area have focused on the adjustment of individuals to undesirable events, such as severe physical illness, death, and job loss. Moos and Tsu (1977) have presented a conceptual framework in which acute serious physical illness is understood as a life crisis. In this conceptualization, background and personal characteristics, illness-related factors, and features of the physical and sociocultural environment determine the outcome of life crises. These factors are said to exert their impact by influencing the cognitive appraisal of the illness, perception of tasks involved, and the choice of relevant coping strategies. Isolated studies

have each examined the role of one factor, such as social support, in adjustment to illness, but neglect to consider the total picture.

The present research enriches theoretical development by clarifying the mechanisms through which personality hardiness protects people from the deleterious effects of stress. For example, I examined whether personality hardiness influences subsequent well-being by influencing coping processes, or by facilitating the use of social support. Hardiness is defined as a composite of the personality dispositions of commitment, control, and challenge. According to Kobasa (1982), hardiness represents a way of perceiving, evaluating, and coping which enables one to remain healthy despite the occurrence of stressful events. Persons high in hardiness tend to involve themselves in whatever they do (commitment), generally feel and act as if they can influence the events of life (control), and view change as the normal route of life which is conducive of growth (challenge).

The commitment disposition refers to feeling a sense of purpose and involvement in life, which leads to the perception and evaluation of events as meaningful and to persistence under pressure. Hardy individuals also construe events as consequences of their own actions,

reflecting a belief in control. The belief that change is normal leads hardy persons to perceive stressful events as stimulating rather than threatening, and to try to turn these situations into opportunities for personal growth.

A number of studies, on both executive and nonexecutive groups, have shown that hardy individuals remain significantly healthier in the wake of stressful events than do those low in hardiness (Kobasa, 1979, 1982; Kobasa, Maddi, & Kahn, 1982; Kobasa & Puccetti, 1983). In a prospective study, hardiness was found to predict changes in self-reported illnesses over a two year period (Kobasa et al., 1982). When prior illness was controlled, a significant stress-X-hardiness interaction revealed that being hardy especially protects subsequent health when one experiences a great deal of stressful events.

The present research also examined whether social support influences postpartum complications and psychological well-being during and after a high-risk pregnancy. Most studies have measured social support as the extent to which interpersonal relationships provide one or more of the following functions: a) emotional support, or information that one is accepted and valued; b) information or advice; c) tangible support, such as financial aid; and d) social companionship,

which may encourage positive feelings (Cohen & Wills, 1985; Krantz et al., 1985).

Although the majority of studies have found that social support keeps people healthy in the face of stressful life events and particular life crises (see Cassel, 1976; Cobb, 1976; Dean & Lin, 1977, for reviews), this relationship has not always been supported (e.g. Pearlin, Lieberman, Menaghan, & Mullen, 1981; cf. Wallston et al., 1983). The importance of emotional support, and of the perception that one has access to a wide range of support, has been found in methodologically rigorous studies in which measures are taken at two time points (cf. Kessler et al., 1985).

Problems with the social support literature make it difficult to interpret evidence for the influence of social support on well-being (cf. Thoits, 1982). The inconsistent findings concerning the impact of social support may in part stem from the reliance on social support alone to explain an outcome. Recent studies have found that social support interacts with personality hardiness (e.g. Kobasa & Puccetti, 1983) to influence an individual's response to stress, thus making it necessary to examine both factors together when predicting outcomes.

Further evidence for the effectiveness of social support stems

from research reports of a positive association between the quality of the patient's interpersonal relationships and adjustment to illness ( Cobb, 1976; Visotsky, Hamburg, Goss, & Lebovitz, 1961; Silver & Wortman, 1980; cf. Wortman & Dunkel-Schetter, 1979). The doctor-patient relationship is one social factor that deserves further examination for its influence on adjustment to and outcome of illness. In breast cancer patients, the quality of the preoperative physician-patient relationship has been related to better adjustment to surgery (Bard & Sutherland, 1955). In the present study, the quality of the doctor-patient relationship was measured in terms of perceived support from the physicians involved in the woman's high-risk care.

In a large-scale review of the social support literature, Cohen and Wills (1985) posited two points at which social support may influence the causal link between stressful events and illness. They suggest that support may prevent one from appraising a particular situation as highly stressful. After the stressor has occurred, support may alleviate the impact of stress by leading to reappraisal of the situation, by directly influencing physiological processes, or by facilitating adjustive counter responses. However, since these processes have not been systematically tested, the mechanisms

through which social support exerts its impact remain unclear.

The initial theoretical work on coping stemmed from a psychoanalytic framework, in which coping and defense were conceptualized as mainly unconscious responses to primarily internal conflicts (e.g. Haan, 1977). In contrast, most of the recent work on coping concerns the conscious process of dealing with external stressors (e.g. Lazarus and Folkman, 1984).

Along with coping, the cognitive process of appraisal has been said to mediate the relationship between a threat and one's emotional reaction to it (e.g. Lazarus & Folkman, 1984). Primary appraisal refers to an evaluation of the stakes involved in a particular encounter. Secondary appraisal refers to an evaluation of coping options, or one's ability to master the situation. According to the frequently cited and adopted conceptualization of Lazarus and his colleagues, primary and secondary appraisals together determine whether a transaction is perceived as significant for well-being, and if so, whether it is threatening or challenging.

*Coping Typologies*

The most commonly used classification of coping divides strategies according to their functions: those directed at the

situation, labeled "problem-focused coping", and those aimed at managing the emotional response to it, or "emotion-focused coping" (e.g. Folkman & Lazarus, 1980; Lipowski, 1970). In the present study, coping is classified as either transformational or regressive. The distinction between transformational and regressive coping stems from the work of Kobasa and her colleagues (e.g. Maddi & Kobasa, 1984). Transformational coping includes attempts to change events in order to render them less stressful. Persons who use transformational coping tend to interact with events, appraise them optimistically, and act in a decisive manner toward them. In contrast, persons who use regressive coping tend not to try to change stressful events. Instead, they think about the events pessimistically, try to avoid contact with them, and try to distract themselves.

The examination of transformational and regressive coping extends the widely used approach-avoidance distinction (e.g. Roth & Cohen, 1986). For example, transformational coping includes, in addition to tendencies to approach a stressor, actions to control some aspect of it, goal setting, and optimistic appraisal. Although control and approach activity may at first glance appear similar, further examination reveals that an individual may approach a threat, such as

by asking questions, without trying to control some aspect of the situation. In addition, information gain as a result of approaching an event does not necessarily constitute a form of control, since information can often lead one to believe an event is uncontrollable (Thompson, 1981).

*The Need For a New Coping and Appraisal Measure*

The instruments that have been used to measure coping and appraisal have limited the empirical and theoretical questions we could ask. A review of the available coping measures found them inadequate for use in an empirical test of the proposed theoretical link between resources and coping. Therefore, the present research began with the construction of an appropriate scale.

In the present study, coping is defined as an individual's thoughts and actions in response to a stressful situation. This definition allows us to distinguish coping from personality dispositions, which reflect one's general perceptions, beliefs, and actions.

Before detailing the construction of the new coping instrument, it is necessary to describe the problems which plague the available measures. First, existing coping inventories tend to measure the use of specific behaviors in response to stressful transactions (e.g. Billings &

Moos, 1981, 1984; Felton & Revenson, 1984; Folkman & Lazarus, 1980; Pearlin & Schooler, 1978). However, of importance are not only the specific behaviors or strategies used, but also the purpose behind the behavior. For example, knowing that a person tried to relax reveals nothing about why the person did so. In fact, relaxation may be used for several purposes, each of which may tap a different dimension of behavior with a unique impact on the outcome of an encounter. For example, a woman who has experienced premature labor may relax to avoid thinking of the problem, or because she decided, on the basis of research, that relaxation is the best way to prevent further contractions. The former behavior reflects 'avoidance', while the latter reflects 'approach'. In fact, in the preliminary development of a coping checklist of behaviors, Stone and Neale (1984) found that different thoughts and actions were used in different ways, to serve different functions. The ambiguity of the individual coping items led Stone and Neale to abandon the behavior checklist approach.

Problems have also been found with an open-ended coping instrument, which asks subjects to describe their particular thoughts and actions with respect to eight general coping categories (Stone & Neale, 1984). In a pilot study of high-risk pregnancy (Feldman &

Kobasa,1986), the Stone and Neale instrument provided little information on the coping behaviors used by women who experience premature labor. We originally used the measure because it allowed women to describe their coping behaviors in their own words. However, women did not respond in sufficient detail to the one sentence descriptions of general types of coping to allow us to understand what they did to handle the situation. We hypothesized that the lack of detail from the respondents stemmed from their failure to label all their efforts as "coping". However, if such efforts were presented as examples of possible coping activities, we would know whether a person did not do something rather than simply neglected to write it down.

A third problem concerns the possibility that a woman may not act in the same exact manner across different situations, although her underlying goal is the same. This possibility cannot be tapped by measures which present a set list of strategies for use across stressful situations. No measures exist to tap the same dimensions using actions or thoughts specific to the situation at hand.

The final two problems concern the reference point for coping, that is, the situation to which respondents allegedly refer when they

describe their coping efforts. In the majority of studies on coping with stressful life events, subjects are asked to describe the most stressful event they have recently experienced, then check the behaviors which correspond to their efforts to handle the situation. However, we do not know for sure that individuals always respond with reference to the situation they described earlier. It is possible that as subjects progress through a list of up to 67 items, they stop referring to the specific situations and instead describe their typical mode of response. Should subjects respond in this manner, we cannot consider their responses as representative of their coping behavior in a specific situation.

Studies in which individuals are asked to describe how they coped with a specific life crisis such as an illness share a common problem with those which ask about the most stressful recent event. In both cases, we cannot compare the coping responses of individuals, since they may all have referred to different events. Individuals who encounter the same life crisis may each experience different problems. In fact, when women in our previous study on premature labor were asked to describe their most bothersome recent experience, a variety of problems were noted. In a study such as the present one which

analyzes relationships between coping and outcome, it is important that subjects refer to the same general problems.

With reference to appraisal, a new measure is needed, to help us better determine the context in which coping occurs. The few studies that have measured appraisal have not provided a comprehensive account of the process. The items used do not seem appropriate to all stressful situations, nor do they seem fully to capture the personal significance or meaning of the situation. Particularly lacking is the assessment of the perceived impact of a stressful event on other life concerns, a factor of obvious importance in determining the personal significance of an event. In addition, prior research has failed to consider the extent to which a person's goals or values are threatened by the situation at hand.

*The Need for Research on the Determinants of Coping Processes*

Another problem with most prior research on coping is that it provides little empirical evidence concerning the determinants of coping processes. Although theorists have argued that personal and social factors shape coping through their impact on the appraisal, or meaning, of a stressful event (e.g. Lazarus, 1966; Lazarus & Folkman, 1984; Lipowski, 1970; Mages & Mendelsohn, 1979; Moos, 1982), this

process has not been adequately examined in past research.

Appraisal of an encounter has been found to determine the relative proportions of different types of coping (cf. Folkman, 1984; Folkman & Lazarus, 1980; Folkman & Lazarus, 1985; Folkman et al., 1986a, b; McCrae, 1984; Stone & Neale, 1984). Similarly, it has been argued that the meanings persons attribute to illness are associated with coping activity (Lipowski, 1970). For example, viewing illness as a challenge or as an opportunity to expand personality through growth has been said to encourage active rather than passive coping efforts.

However, the causal relationship between appraisal and choice of coping strategies is difficult to determine, since the two factors are often confounded (Folkman & Lazarus, 1985). For example, many coping strategies may act as appraisals by influencing the meaning of an event; appraisals may act as coping variables by regulating distress.

Most empirical work has ignored the impact of psychosocial variables on appraisal of the situation or actual coping behavior. Evidence suggests that personality, particularly mastery and locus of control, is related to coping activity (Fleishman, 1984; Strickland, 1978), though conflicting results have been found (cf. Folkman, 1984; Folkman et al., 1986a).

Researchers must recognize that personal dispositions need not lead one to use the same coping strategies across situations. In fact, the observed variability in appraisal and coping processes across situations makes it necessary to consider the respective roles of personal and environmental factors in determining individual responses. Personological theory also instructs researchers to examine the transaction between personality and life situations or contexts (cf. Kobasa, 1984). A personologist would not expect an individual to show the same thoughts and actions across different settings. Instead, persons may be expected to act toward the same goals, or according to some general mode of response, which may be expressed differently across situational contexts. Therefore, it might be easier to see the importance of personal factors if we view coping not as specific strategies, but rather as behavior aimed at accomplishing certain goals.

*The Impact of Coping and Appraisal on Reactions to Stress*

Research indicates that specific coping strategies and appraisals are associated with psychological symptomatology, subjectively-rated encounter outcomes, emotions and psychological adjustment to illness (Billings & Moos, 1981, 1984; Felton & Revenson, 1984; Folkman &

Lazarus, 1985; Folkman et al., 1986a,b; Lazarus, 1968; Pearlin & Schooler, 1978). However, coping strategies have not been able to explain a significant amount of the variance in physical symptomatology (Folkman et al., 1986a). In addition, researchers have made little or no reference to theory in predictions or explanations of findings (cf. Silver & Wortman, 1980).

Although recent studies have documented the impact of specific coping strategies on psychological adjustment to illness (Cohen & Lazarus, 1979; Moos, 1982), this work is plagued by several problems. First, many of these studies are based on small groups of subjects often predetermined to be coping well or not (e.g. Hackett & Cassem, 1975). Second, few studies have used standardized assessment devices to make predictions concerning the link between coping and subsequent adjustment. A third major problem with the research on coping and health outcomes in general concerns the cross-sectional design of most prior studies (see Felton & Revenson, 1984, for an exception). Such research makes it impossible to make causal statements concerning the impact of coping on psychological symptomatology, or to predict subsequent adjustment.

Most prior research on coping has neglected to consider the

situational context, or the problem to which coping strategies are directed. Preliminary evidence of the importance of the situation stems from research conducted by Pearlin and Schooler (1978), who found that the effectiveness of coping strategies depended on the particular stressful situation. For example, "selective ignoring" buffered the effects of financial problems, but actually exacerbated stress in marriage and parenting areas. In addition, coping responses had the greatest effects on the relationships between strain and distress in marital roles, smaller effects in parental and economic roles, and made no difference with regard to occupation.

The rather modest impact of coping strategies on adjustment may stem from the fact that respondents are dealing with different sources and degrees of stress. Past studies have ignored differences among subjects with respect to the amount and type of stress experienced from a particular event such as illness.

*The Need for a Unifying Theoretical Framework*

Researchers must theoretically and empirically determine the mechanisms through which stress exerts its impact, and through which certain factors protect persons from its deleterious consequences. The stress and coping field has been plagued by the lack of a theoretical

framework from which to make predictions, explain outcomes; and design future research.

In contrast to other coping formulations, the distinction between transformational and regressive coping fits into a larger theoretical framework. Transformational and regressive coping have been proposed to explain the buffering impact of personality hardiness on the relationship between stressful events and maladaptive outcomes. The hardiness construct was derived from some of the principles of existential personality theory. The theory provides us with a way of distinguishing between different types of behavior, namely, according to the degree of authenticity or inauthenticity involved. The three tendencies tapped by the hardiness construct describe some characteristics of an authentic being: tendencies toward commitment rather than alienation; toward control rather than powerlessness; and toward challenge, rather than threat (Kobasa, 1979, 1982; Kobasa et al, 1982; Maddi & Kobasa, 1984).

The theory predicts that transformational coping rather than regressive coping decreases the maladaptive effects of stressful events. It is important to consider the possibility that regressive coping may initially be effective, acting to decrease strain by helping

one avoid interaction with the stressful event. However, in longer-term adjustment and outcome, regressive coping will be ineffective because it does nothing to change any aspect of the stressful event, allowing it to once again create strain (Maddi & Kobasa, 1984). These predictions are consistent with evidence indicating that coping strategies such as denial or avoidance may be effective only during a certain time, and may be detrimental later on (e.g. Lazarus, 1983; Visotsky et al., 1961). Even in apparently uncontrollable situations, strategies such as avoidance may prove detrimental by preventing one from working through the problem (cf. Roth & Cohen, 1986). In conclusion, the constructs of transformational and regressive coping permit us to make predictions and explain results, due to the presence of a unifying theoretical framework.

*Related Work in Progress*

I developed a coping instrument based on the principles of existential personality theory, the related work on personality hardiness, the results of past coping research, and our previous study on high-risk pregnancy. Before describing the transformational and regressive coping scales, it is necessary to note their underlying conceptual dimensions.

Conceptual Dimensions. As noted earlier, transformational coping involves attempts to alter events so they are less stressful. Regressive coping entails attempts to deny, avoid, or escape stressful situations (Maddi & Kobasa, 1984).

On the basis of the theoretical and empirical work on hardiness and existential personality theory, I conceptualized the dimensions underlying the constructs of transformational and regressive coping as the following: 1) approach vs. avoidance; 2) control vs. no control; 3) optimistic outlook vs. pessimistic outlook; and 4) setting one's own goals vs. no goals or the adoption of the goals of others. The dimensions encompass those found in most typologies, namely, directly changing the problem, changing one's interpretation of the problem, and managing the emotional distress caused by it (Billings & Moos, 1984; cf. Moos & Billings, 1982; Pearlin & Schooler, 1978).

Transformational coping is characterized by behaviors indicative of approach, control, optimistic outlook, and the setting of one's own goals. In contrast, regressive coping is characterized by avoidance, no control, pessimistic outlook, and no goals or the adoption of the goals of others. Transformational and regressive coping are conceptualized as separate, but related constructs. In other words, regressive coping

is not conceived of as merely the absence of efforts to transform the situation. Instead, regressive coping entails distinct thoughts and actions.

- The approach dimension assesses the extent to which the individual is willing to accept rather than avoid the anxiety that stems from dealing with a stressful event. The dimension in part reflects the existential concept of authenticity, which involves accepting anxiety rather than avoiding it (Kobasa & Maddi, 1977). To approach a stressful situation entails interacting with it, specifically, active and persistent efforts to handle the problem. Avoidance involves evasive actions taken to avoid contact with a stressful event.

The control dimension taps whether one tries to control certain aspects of the situation, or recognizes the steps that need to be taken to maintain or regain personal control. In response to an event that cannot be changed, a person using transformational coping may accept the event, then look for aspects which can be influenced. In doing so, the individual will have transformed the event into a less stressful form by reducing both her preoccupation with it and the intensity of the event. Similarly, the authentic being in existential theory believes she can influence the events in her life through her thoughts and actions,

and recognizes the steps that need to be taken to increase personal control over specific situations. A response indicative of regressive coping entails not looking beyond the immediate appearance of a situation, and feeling and acting as if one can do nothing to influence the event(s) taking place.

Optimistic outlook involves perceiving a stressful event as stressful, but also as important or meaningful. It often involves evaluating a situation as less serious than one originally believed it to be. An individual who engages in transformational coping is likely to perceive a stressful event as an opportunity for personal growth, or of potential value for personal development. In other words, transformational coping involves perceiving a stressful event optimistically, for example, by setting it in perspective. This activity corresponds to the emphasis in authenticity on the creation of or search for meaning from experiences. In contrast, regressive coping involves pessimistic thoughts about a stressful situation.

According to existential personality theory, an authentic being develops his own values, preferences, and goals in life (Kobasa & Maddi, 1977). In a stressful situation, an authentic being sets her own goals, either toward the resolution of the experience or for dealing with the

associated demands. An inauthentic being either sets no goals or adopts the goals of others, instead of developing goals through interaction with the situation or others (Kobasa & Maddi, 1977). Transformational and regressive coping with respect to goal setting correspond respectively to the distinction on the basis of authenticity vs. inauthenticity.

Some of the dimensions enumerated above have been explored in previous theoretical and empirical research on reactions to stressful events. For example, Moos and his colleagues have found that avoidance coping is associated with increased levels of distress (Billings & Moos, 1981; Holahan & Moos, 1985). In addition, coping strategies involving avoidance have been associated with poor psychological adjustment to illness, whereas more active strategies have been linked to better adjustment (Felton & Revenson, 1984; Manne & Sandler, 1984; Weisman, 1979). The approach dimension corresponds to White's (1974) emphasis on the importance for adaptation of securing adequate information about the environment. In addition, successful adaptation to breast cancer in both French and American patients has been associated with a more active and optimistic response to the disease (Mendelsohn, de la Tour, Coudin, & Raveau, 1984). More depressed breast cancer patients

have been found to report feeling little control over their fate or over their own negative thoughts and feelings (Mendelsohn et al., 1984), which corresponds to the regressive coping dimension of no control. The control dimension also parallels the process of maintenance of autonomy or freedom of action, which has been proposed as necessary for adaptation under difficult conditions (Murphy, 1974; White, 1974).

Finally, with respect to the optimistic outlook dimension, college students who initially report being highly optimistic have been found subsequently to report less physical symptomatology than do those who are initially less optimistic (Scheier & Carver, 1985). In addition, people who discover something positive in a negative situation have been found to show less distress than those who do not (Silver & Wortman, 1980). To discover something positive is similar to having an optimistic outlook. Negative thoughts about the outcomes of recent events that have ended have been associated with more negative affect and psychological symptomatolgy, both immediately and eight weeks later (Goodhart, 1985). Positive thinking has been associated with more positive well-being, though only in short-term.

Several of the dimensions underlying transformational and regressive coping have been empirically linked with personality

factors. In one of the few attempts to examine the influence of personality on coping, Fleishman (1984) found that mastery, or a sense of control, was significantly negatively related to the use of selective ignoring, a category of behaviors similar to avoidance. In the study, selective ignoring was also significantly related to the personality variables of self-denial, self-esteem, and nondisclosure. In addition, coping behaviors indicative of direct action, or what I call approach, were significantly positively related to mastery and self-esteem, and negatively related to nondisclosure. The coping categories of passive acceptance and resignation, which appear similar to the "no control" dimension, were significantly negatively related to mastery. Finally, positive comparisons coping, the strategies of which appear similar to those I include under the optimistic outlook dimension, were significantly positively related to mastery.

It is important to note that the evidence of a link between personality and coping must be taken as preliminary, given the paucity of research in this area. Much research on the stress-buffering impact of personality has been based on the assumption that personality influences the use of coping behaviors, which then reduce the impact of stress. However, this assumption has not been tested, since most

researchers fail to include measures of coping in their studies.

*Development of a new Coping Instrument*

The study measured coping behaviors in response to specific problems involved in the stressful experience of premature labor. Responses are anchored in specific situations so all persons respond with reference to the same context.

*Pilot Work*

The five situations or problems included in the present coping measure stem from responses to interviews conducted as part of our previous study on high-risk pregnancy. In response to open-ended questions, 92% of the respondents said that the experience of premature labor came as an unexpected shock, as did the emergency procedures used by physicians in an attempt to stop the contractions. Therefore, in the present coping measure, women were asked to indicate how they were dealing with the fact that they experienced premature labor.

In the previous study, 23% of the women spontaneously reported feeling bothered by the experience of being in the hospital. This situation constitutes the second problem posed in the present measure. It is important to note that respondents may not have cited the

hospitalization as a stressful event in response to the coping questions because the coping instrument was administered after most subjects had left the hospital.

In the previous study, each woman was asked to describe the most bothersome event that occurred during the two week period prior to the interview. The most commonly reported problems, which have been incorporated into the present coping measure were: 1) thinking about the possibility that the baby will be born prematurely and/or with some complications (reported by 29% of subjects); 2) feeling bothered by the treatment regimen (reported by 31% of subjects); and 3) feeling unprepared for the birth of the baby (reported by 7% of subjects). Although only 7% of the women identified feeling unprepared as the most bothersome event they had experienced, other women spoke of this feeling at points during the interview. Therefore, the situation merits inclusion in the new coping measure. The size of the percentages is substantial considering that subjects could choose any event that occurred during the past two weeks.

*Development of a Contextual Measure*

I designed a contextual measure to provide information on women's perceptions of the personal significance of events. The

measure builds on previous work on appraisal by Lazarus and his colleagues, and incorporates changes based on criticisms of that earlier work. The appraisal construct, as conceptualized by Lazarus (1966), describes a critical aspect of the stress process, namely, the perceived threat involved in a transaction. In the present research, I expanded the Lazarus notion of primary appraisal to include not just the stakes involved in an encounter, but also the perceived impact of the encounter on other aspects of one's life.

The contextual measure does not attempt to measure perceived coping options, or what researchers have called "secondary appraisal", due to the problem of confounding with coping measures. For example, it would be repetitive to ask subjects how much control they have in a situation, followed by a coping item asking about thoughts and actions indicative of control.

## HYPOTHESES AND SPECIFIC AIMS

The main objective of the present study was to examine the process of coping in pregnant women who experience premature labor. One major aim of the research was to examine whether personality

hardiness leads one to think or act in a particular manner in the stressful situation of premature labor. I examined coping as a possible link between personality hardiness and the course and outcome of a stressful event.

The other major aim of the study was to determine the significant predictors of psychological symptomatology during and after the high-risk pregnancy, and postpartum complications. Following a personological approach (cf. Kobasa, 1984), I examined the impact of personality on women's responses to the premature labor experience. In accordance with the theory, I also assessed the medical, family, and work environments these women interact with, for their impact on outcome.

To begin to establish the construct validity of the transformational and regressive coping scales, I examined the relationships between these scales and the other variables in the conceptual model. On the basis of the theoretical analysis underlying the proposed research, I expected to find specific relationships between transformational and regressive coping and the other variables in the model. For example, I used the regressive coping scale to predict psychological symptomatology and postpartum

complications.

I expected to find no relationship between women's scores on transformational and regressive coping. It must be stressed that I did not expect women to use either transformational or regressive coping exclusively.

*Specific Hypotheses*

The first set of hypotheses concern the determinants of coping. I examined the coping scores of women who differed on the following variables: personality hardiness, and social support from their bosses and co-workers, their husbands, and from their physicians and nurses in the hospital.

I predicted that high risk women who scored high on hardiness would use much transformational and little regressive coping. Social support, as defined and measured in the present study, was not hypothesized to be highly related to coping. While certain aspects of social support may be related to coping, those specific behaviors were not tapped by the instrument used in the present study. For example, specific behaviors on the part of one's spouse may lead the high risk pregnant woman to think or act in a manner that may be termed "transformational" or "regressive". For example, if her

husband tells her not to think about the stressful situation, and tries to distract her, she may then use much regressive coping. Since such spousal behaviors were not under consideration in the present study, I expected no strong relationship between social support and coping. However, the measures of social support were included in the study to test hypotheses concerning the predictors of symptomatology.

In the test of the overall conceptual model, I examined the significant predictors of psychological adjustment during and after high risk pregnancy. It was hypothesized that a woman would show better psychological adjustment and fewer postpartum complications to the extent that she uses transformational coping in the face of problems associated with premature labor. Therefore, negative relationships between transformational coping and psychological symptomatology, negative well-being, and postpartum complications, as well as positive relationships between transformational coping and positive well-being, were expected to emerge from analyses. Positive relationships were expected between regressive coping and each of the outcome measures indicative of negative outcome, and a negative relationship between regressive coping and positive well-being.

The predictions concerning the relationship between coping and outcome were based in part on certain characteristics of the premature labor experience. Transformational coping is hypothesized to exert the most impact on adjustment in the face of an event that requires continual adaptation. The premature labor experience, while of a relatively short duration, does constitute a continuous event. In contrast, regressive coping may prove most effective in a short-term situation, such as an invasive medical examination. This last possibility will have to be tested in future studies.

In addition, the model suggests that hardiness and social support will have a direct effect on the outcome of high risk pregnancy. Specifically, persons scoring high on hardiness and on each type of social support were expected to show fewer negative outcomes and more positive outcomes of high-risk pregnancy.

*Exploratory Questions*

The relationships between biomedical severity and contextual concerns, and the other variables in the model were examined in an exploratory manner. High scores on biomedical severity and contextual concerns were hypothesized to be associated with more psychological symptomatology, negative well-being, and postpartum

complications. On the basis of previous theoretical and empirical research, I found no reason to predict different relationships between contextual concerns and transformational and regressive coping.

I also hypothesized that hardiness, social support, and transformational and regressive coping would buffer the impact of contextual concerns and biomedical severity on the outcome variables. I reasoned that the effectiveness of transformational and regressive coping may depend on the level of contextual concerns involved in an encounter. For example, I hypothesized that regressive coping would be associated with more psychological symptomatology and poorer medical outcome only in situations rated by respondents as having a great impact on their lives. In a similar vein, I hypothesized that regressive coping would be more detrimental to women who score high on biomedical risk.

Given previous findings of a situational influence on coping strategies, I examined the relationships among the transformational and regressive coping scores across the five situations women were asked to consider. However, since the situations are all aspects of the same stressful health experience, I expected to find moderately high correlations among coping scores across the situations.

# METHOD

## Respondents

Respondents were 61 pregnant women who had experienced premature labor. Women were selected who had experienced premature labor but had not delivered within one week of their admission to the hospital.

Three criteria were used in selecting the sample. The first criterion required that the sample include only women who were either married or involved in an ongoing relationship. The second and third criteria concerned age and education level. Only women between the ages of 18 and 40, who had received at least a high school diploma, were asked to participate in the study. A homogeneous sample was necessary given the findings that show marital and socioeconomic status, and education level influence the course and outcome of pregnancy (cf. McDonald, 1968).

Respondents were patients at a large urban teaching hospital when they were asked to participate in the study. They were recruited through the obstetrical residents in charge of the antepartum unit at

the hospital. Each day of the eight-month study period, the resident in charge gave me the names of patients admitted to the floor for the treatment of premature labor. By the time these patients entered the antepartum unit, their uterine contractions had either been stopped or had significantly decreased in frequency and intensity through the use of intravenous and/or oral medications.

To identify women who met the eligibility requirements of the study, I reviewed the medical charts of the women identified by the obstetrical residents. The attending obstetrician working on the study gained permission for me to interview each private patient from her physician. I contacted the potential respondents in their hospital rooms, explained the research to them, and answered any questions. I then explained that participation in the study was voluntary, and that even if they chose to participate, they could withdraw at any time. Women who agreed to participate provided oral and written informed consent. The informed consent form is included in Appendix A. Of the four women who refused to participate, three stated that they did not like to talk about things. The other woman said she was too tired; when I went back the next day, she had been discharged.

## Description of the Sample

Demographic Variables. Table 1 presents the demographic characteristics of the sample. Of the 61 respondents, 50 (82%) were married, and the others (18%) were involved in a significant ongoing relationship. Thirty-five (57%) of the women were pregnant with their first child, 19 (31%) had one other child, 4 (7%) had two other children, and the remaining 3 women (5%) had more than two other children.

Respondents ranged in age from 18 to 41 years. Thirty women were between the ages of 18 and 29 years old; thirty-one were over 30 years old. The majority (29, or 47%) of the respondents were Catholic, 9 (15%) were Protestant, 6 (10%) were Jewish, 9 (15%) said they followed no religion, and 8 (13%) said they followed a religion other than Catholicism, Protestantism, or Judaism.

Regarding work, the majority of respondents (43, or 71%) said they had been working during the present pregnancy. Of the remaining women, 16 (26% of the total sample) were homemakers, and 2 (3%) were unemployed students. Eleven of the respondents (18%) were professionals, one-third were white collar workers, and 12 (20%) were skilled laborers.

Regarding education, 22 (36%) of the women in the sample had completed high school, but had obtained no further schooling. Fifteen (25%) of the respondents had some college training, 12 (20%) had graduated from college, one woman had received some graduate training, and 11 (18%) held a graduate degree. The distribution of respondents on work status and education indicates the sample consists primarily of middle to upper-middle class women. The sample includes women of White, Black, Hispanic, and Asian descent.

Data Collection

The protocol includes standardized questionnaires, and structured and unstructured interview schedules. Respondents were interviewed during their pregnancies, as well as postpartum. Table 2 lists the measures which were administered at each of the data collection points.

The initial contact took place within one week of admission to the hospital with premature labor, at which time the average subject was 30 weeks pregnant. Respondents were interviewed in their hospital rooms. At that time, I collected baseline data from the women on such factors as personality, perceived social support, demographics,

women were asked to complete the first and second sections of the coping and contextual concerns scales developed for the study. Respondents were asked to indicate how they were coping with the hospital experience and with the fact they had experienced premature labor. Biomedical data concerning the current pregnancy, and data on previous medical history, especially gynecological and obstetrical problems, was collected from medical records at time 1.

The second interview was conducted two weeks after the first. Forty-three of the 61 respondents (70%) completed interview 2. The remaining 18 either delivered before the scheduled interview, or could not be contacted in time. For those women who were still inpatients at the time (N=15), the second interview took place in the hospital. For the remaining women (N=28), the interview was conducted over the telephone. During the second interview, the women were asked to complete the remainder of the coping and contextual concerns measures developed for the study. Specifically, they were asked to indicate their thoughts and actions with regard to the following three potential problems: the possibility of the baby being born prematurely; treatment issues; and feeling unprepared for the birth of the baby. The two week time lag from the first interview

was necessary to give participants the opportunity to consider the problems asked about in the measures. Data collected during both interviews was later used to predict postpartum adjustment.

The third interview, at four weeks postpartum, was conducted over the telephone. The postpartum interview included a readministration of the psychological symptom checklist and well-being scale, as well as structured questions concerning specific postpartum complications, and open-ended questions concerning the premature labor experience and thoughts about the study. Fifty-three respondents completed the postpartum interview. Of the remaining eight, six could not be contacted and two were contacted more than one month following the delivery.

In describing the results, I will refer to all measures administered during the pregnancy as Time 1 data, and those after pregnancy as Time 2, or postpartum data.

The interviews were administered by the author, under the supervision of Dr. Milton Viederman, chief of liaison psychiatry at New York Hospital, and Dr. Suzanne Ouellette, associate professor of psychology at the Graduate Center.

The initial research protocol called for the extraction of

biomedical outcome data, such as delivery progress, from patient medical records. However, the plan to include such a measure of objective biomedical outcome as a dependent variable was dropped, on the basis of conversations with medical collaborators, personal communication with a prominent researcher in the field of psychological aspects of pregnancy (Smilkstein, 1987), and difficulty securing medical records containing all the relevant data. Instead, I administered a measure of self-reported postpartum complications which includes such biomedical factors as bleeding and infection since delivery.

It should be noted that number of subsequent hospital admissions was not included as a variable in the proposed study. The decision to exclude this variable stems from reports by obstetricians of the subjective nature of hospital admissions for monitoring women who experience premature labor. Obstetricians report that they each hold different criteria for determining whether to admit a patient to monitor her in the hospital. Some take a more cautious approach, while others leave the decision-making to the patient and her family. The subjective nature of these admissions precluded their consideration in the study.

Measures

I used reliable and valid assessment instruments in a systematic attempt to avoid the conceptual and methodological weaknesses of previous work on pregnancy. In addition, measures developed specifically for the study were used.

Biomedical Severity. The obstetrician working on the study assigned each woman a biomedical risk score, on the basis of the current pregnancy, and her past obstetrical and gynecological history. The biomedical severity score reflects the overall degree of threat the obstetrician found to both the woman and the fetus. Specific factors which determine the score include the following: previous premature labor and/or delivery; previous pregnancy complications; cervical dilation and effacement; the course of intraveneous treatment; previous admission for premature labor; and other pregnancy complications, such as hypertension or diabetes. A count of items obtained from each patient's hospital chart was used as the biomedical risk score. The items are presented in Appendix B. Respondents' scores ranged from 0 to 6, with a mean of 2.6, and a median of 2.0.

Personality. Hardiness was assessed by the Hardiness Test

(Kobasa et al., 1982). The measure is actually a composite of items from five scales. The Alienation from Work and Alienation from Self scales of the Alienation Test were chosen to measure commitment. Indicators of control were taken to be the Locus of Control Scale and the Powerlessness scale of the Alienation Test. For challenge, the Security scale from the California Life Goals Evaluation Schedule was used.

The five scales of this composite have shown moderately high intercorrelations and jointly define the first and only large factor in a principal components factor analysis (Kobasa et al., 1982). The hardiness measure has been found to have high internal consistency and a stability correlation of .61 over a five-year period.

For the study, I used a modified version of the Hardiness Test, developed and used for the pilot high-risk pregnancy study. In pilot interviews for the pilot study, many subjects had difficulty understanding the meaning of several items on the original Hardiness Test. The problem led us to change the wording of some items to make them easier to understand, and to replace several other items. In addition, we converted the statements into question format, to make them more accessible to an interview administration. The

revised Hardiness Test is depicted in Appendix C.

The level of internal consistency for the revised Hardiness Test was found to adequate, as evidenced by an alpha coefficient of .79 in the sample.

Social Support. The Moos environment scales (Moos et al., 1974) were modified to tap the extent to which women feel they are being supported by their husbands and significant others at work. The social support scales are listed in Appendix D. To measure perceived support from health care providers involved in their high-risk care, I developed and administered a scale using the same format as the Moos scales (see Appendix E).

The pregnant women were asked to complete two subscales of the Family Environment Scale (FES), a 90-item true-false test that evaluates the social climate of families. The family cohesion subscale measures the extent to which family members are perceived as concerned, helpful, and supportive of each other. The family expressiveness subscale assesses the extent to which family members are able and willing to act openly and to express their feelings directly. The two subscales were modified to ask about husbands only.

Perceived support at work was assessed through two subscales of the Work Environment Scale (WES), a 90-item true-false questionnaire that taps individuals' perceptions of the social climate of their work environments. The staff support subscale measures the extent to which employees perceive their supervisors as supportive. The peer cohesion subscale assesses the extent to which employees perceive each other as friendly and supportive.

Moos and his colleagues have used the scales with a variety of occupational groups and found them to have good internal psychometric properties as well as good construct validity (Holahan & Moos, 1983). For the FES, the internal consistency is .78 for the cohesion subscale and .71 for the expressiveness subscale. The WES has an internal consistency of .70 for the peer cohesion subscale, and .78 for the staff support subscale. Scores for each support scale were computed as the sum of ratings on the respective subscales.

The family and work environment scales have been used extensively in research, including studies on stress and stress-resistance. Researchers using the scales have found a significant impact of social support on the individual's reaction to stressors (e.g. Billings & Moos, 1981; Holahan & Moos, 1985).

The measure of perceived support from health care providers was developed by the author for use in a previous study of high-risk pregnancy. On the basis of subject responses from both studies, the physician support scale was found to have a high degree of internal consistency. The alpha coefficient in the present study was .90; in the pilot study, the scale had an alpha coefficient of .89.

Coping Processes. As noted earlier, these scales were developed by the author for use in the present study. Items for the coping scales were written to reflect each of the conceptual domains of coping outlined earlier. In this manner, the items provide information as to why the women acted in specific ways to deal with particular stressful situations. Many of the items stem from the actual coping responses of women in the previous study. An equal number of positively worded and negatively worded statements were written.

Different items were developed to tap the same coping dimensions within each of the five problem situations. In other words, in each case the items reflect the specific situation or problem at hand. For example, I reasoned that behavior indicative of approach in one situation may not accurately tap the same dimension in a different situation. In addition, presenting items specific to each situation

increases the likelihood that the individual will respond with reference to her behavior in the situation, and not with her usual behavior.

In sum, the transformational and regressive coping measures consist of five problem situations, with eight items targeted at each situation (four transformational and four regressive). Each of the eight items taps a single coping dimension. Respondents were asked to indicate the extent to which each of the items describes their thoughts and actions in response to the specific problem, using the following response format: 0=not at all; 1=a little; 2=quite a bit; 3=a lot. The coping scales are listed in Appendix F.

Each woman's transformational coping score reflects the sum of her responses, across the five situations, to the coping items tapping control, approach, optimistic outlook, and goal setting. Regressive coping is computed as the sum of each woman's responses to the items tapping no control, avoidance, pessimistic outlook, and no goals.

The decision to assign each respondent a score based on her reported thoughts and actions *across* situations reflects the theoretical importance of the total coping experience, rather than

coping with a particular aspect of a situation. As noted earlier, the situations listed in the scale should serve as anchors for an individual's responses, not as a test of whether certain types of coping are better or worse in particular situations. Instead, the five situations enable us to elicit from respondents the full range of their thoughts and actions during the premature labor experience. The decision to sum across situations reflects a belief in cross-situational consistency in coping. For example, I predicted that the amount of transformational coping in situation one would be positively correlated with the amount of transformational coping in the other four situations.

The intercorrelation matrix for the transformational and regressive coping variables in each of the five situations was examined to test the assumption concerning cross-situational consistency in coping. Table 3 presents the intercorrelation matrix of transformational and regressive coping scores. The significant moderate intercorrelations suggest that the amount of each type of coping used in one situation is related to that used in the other situations. The average correlation between transformational coping scores across situations was .38; the intercorrelation of regressive

coping across situations averaged .40.

The coping data were next tested to determine whether the transformational and regressive coping items are best treated as a unidimensional scale, or as two separate halves of a scale. On the basis of the theoretical framework underlying this work, transformational and regressive coping were conceptualized as two factors. Therefore, using the scales developed for the study, each respondent receives a transformational and a regressive coping score, each based on 20 items. Empirical justification for assigning separate scores is found in the lack of a significant correlation between transformational and regressive coping across all situations ($r=.16$, $p > .10$).

In addition, a principal components factor analysis was also used to examine the factor loadings of the transformational and regressive coping scores across all situations. A two factor solution in which an orthogonal rotation was used to achieve a final solution revealed factors that resembled transformational and regressive coping. All of the transformational coping scores loaded highly on one factor, and the regressive coping scores loaded highly on the other factor. An N of 61 made it impossible to conduct a factor analysis of the 40 coping

*items* to determine their respective factor loadings. However, the factor analysis of coping *scores* does indicate that transformational and regressive coping are two separate factors.

The transformational and regressive coping scales appear to have an adequate level of internal consistency, as evidenced by Cronbach's alphas of .77 and .79, respectively. Corrected item-scale correlations for the transformational and regressive coping scales were in the moderate range, suggesting that each of the items in each scale is measuring the same underlying construct. In addition, all of the items contribute equally to Cronbach's alpha, as apparent by the finding that the alpha levels remained relatively unchanged when individual items were systematically removed from the scales.

Contextual Concerns. The contextual measure includes items used in past studies of appraisal and coping (Folkman et al., 1986a, b), as well as other items written to tap the extent to which the stressful event exerts an impact on other aspects of the person's life. The items borrowed from Folkman and her colleagues tap perceived threats to self-esteem, and threats to one's own or a loved one's well-being.

The other scale items were written to tap some of the dimensions

described by Little (1983), in his research on personal projects, as important characteristics of one's activities. These project characteristics seem to tap the stakes involved in an encounter. The dimensions used include the importance of the event to oneself and to others; the impact of the situation on other plans, activities, concerns, or goals; and the threat posed by the situation to the values which guide one's life. In addition, the item which reads, "the possibility of losing your autonomy or independence" was written to tap White's (1974) definition of a threatening situation.

The contextual concerns instrument consists of 15 items. Respondents were asked to indicate the extent to which each item describes their thoughts on a scale of 0 to 10, with 0 representing not at all, and 10 representing a great deal. Respondents completed the contextual concerns scale for each of the five situations. In each case, the contextual measure was administered prior to the coping scale for the situation. The contextual concerns score is computed as the sum of each woman's responses, across the five situations, to the items. The scale is listed in Appendix G.

Demographics. I used items from the Social Assets Scale (Luborsky, Todd, & Katcher, 1973) to assess specific demographic

characteristics of the respondents. Subjects answered questions about their age, occupation, marital status, education level, religion, and the number of children they had. The items are presented in Appendix H.

Psychological Symptomatology. Psychological symptomatology was assessed by the Hopkins Symptom Checklist (HSCL), a 58-item self-report scale developed by Derogatis and his colleagues (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). For the present study, I dropped from the scale one item which asks about loss of sexual interest or pleasure, since respondents were told by their physicians to abstain from sexual relations. The HSCL is listed in Appendix I.

The HSCL is comprised of the following five symptom dimensions, as established by factor analysis: somatization; obsessive-compulsive; interpersonal sensitivity; depression; and anxiety. Respondents were instructed to rate themselves on each symptom using a four-point scale of distress, ranging from "not at all" to "extremely". Because of high intercorrelations among the subscales, and a similar patterning of relationships between the subscales and the other variables in the study, I used the sum of

ratings as a single score.

The HSCL has demonstrated a sensitivity to low levels of symptomatology in normal populations (Rickels, Lipman, Garcia, & Fisher, 1972; Uhlenhuth, Lipman, Balter, & Stern, 1974). One normative sample for the scale consists of individuals who were administered the HSCL as part of a more extensive health survey study (Uhlenhuth et al., 1974). Included in this group are a very high proportion of normal subjects, in contrast to the other two normative samples, which were developed around neurotic disorders (cf. Derogatis et al., 1974b).

That the HSCL has been found useful in detecting emotional distress in obstetric-gynecologic patients makes it appropriate for the present study (Rickels, Garcia, Lipman, Derogatis, & Fisher, 1976). In addition, the scale has been used as a measure of psychological symptomatology in studies of stress, coping, and illness (e.g. Folkman et al., 1986a).

The HSCL symptom subscales have been found to be reliable, as evidenced by internal consistency reliability coefficients ranging from .85 to .87, and high item-total correlations. The scale has also been validated in several studies. As one example of its sensitivity

to clinical status, the HSCL has been found to be sensitive to changes in emotional status in normal postpartum patients with very low initial symptom scores (cf. Derogatis et al., 1974b). In the study, scores on the dimensions of somatization, depression, and anxiety were significantly lower at six weeks postpartum than one day after delivery. The scale also detected change in emotional distress in breastfeeding and lactation suppression patients from immediate postpartum to five weeks later. In other work demonstrating validity, physician ratings paralleled the rank ordering of patients on the HSCL dimensions (Rickels et al., 1972).

Positive and Negative Well-Being. The Well-Being Scales (Bradburn, 1969), separate five-item measures of positive and negative affect, were used to measure psychological well-being (see Appendix J). Each item asks whether in the past few weeks a respondent has felt a specific feeling, to which she states "yes" or "no". Scores are in terms of the number of positive or negative feelings experienced in the past few weeks. Bradburn (1969) found that instead of an expected tendency for positive and negative well-being to be negatively correlated, the measures were independent of one another.

The scales have been found to have good internal psychometric properties, as evidenced by moderate levels of internal consistency (Bradburn, 1969; Harding, 1982). Inter-item correlations for each of the scales have been found to be adequate, as have item-scale correlations.

The items in the scales were written to be as general as possible, with attention focused on the affective tone of the feelings rather than on the particular experiences that gave rise to the feelings. The grouping of items into positive and negative feelings in the scale is based on a cluster analysis of responses in a pilot study of men between the ages of 25 and 49 (Bradburn, 1969).

In the initial work on the measures, Bradburn found that the scales were equally good predictors of psychological well-being in different samples. Additional evidence for the construct validity of the scales stems from their differential correlations with other variables (Bradburn, 1969; Diener, Larsen, Levine, & Emmons, 1985). For example, negative affect as measured by the Bradburn scale has been significantly associated with physical symptomatology and anxiety, but positive affect has not (Bradburn, 1969; Harding, 1982). In contract, positive but not negative affect has been associated with

more social participation and higher education levels (Bradburn, 1969).

In the present study, a slight positive correlation (r=.20) was found between scores on positive and negative well-being. The low positive correlation, which was not significant, indicates that the scales are not measuring the same construct. Therefore, both the positive and negative Bradburn scores were included in the analyses.

Postpartum Complications. A measure of self-reported postpartum complications was administered during the postpartum interview (see Appendix K). At that time, women were asked about the following post-hospital discharge problems: bleeding, infection, pain, fever, depression, difficulty with infant feeding, and infant ill health. For each symptom the woman reported, she received a score of one. Thus, the total score consisted of the number of postpartum complications. Table 4 presents the percentage of women who reported each complication. This postpartum complications measure was used in a previous study on the impact of psychosocial factors on pregnancy complications (Smilkstein et al., 1984). In that study, about 40% of the women had no postpartum complications, whereas in the present study, only 10% reported none.

# RESULTS

## The Stressfulness of the High Risk Pregnancy Experience

High risk pregnancy, specifically, the experience of premature labor, entails multiple stresses. Although the contextual concerns scale developed for the present study was included as an exploratory variable, responses to the scale can be considered as indicators of the stressfulness of the premature labor experience. The contextual concerns scale asks respondents to indicate their reaction to five specific problems or situations, specifically, the extent to which the situations pose a threat, impact on their lives, and are of concern to them.

Means and standard deviations for the contextual concerns scale within each situation and when all five situations were summed and averaged are presented in Table 5. Mean scores on the contextual concerns scale for each situation range from 25.32 in response to questions concerning feeling unprepared for the birth of the baby, to 49.71 for questions tapping a woman's response to the fact that she experienced premature labor. The mean contextual concerns score

observed when all the situations reported on were summed and averaged was 39.79, with a standard deviation of 14.88. Clearly, the women in the study perceived the premature labor experience as having an impact on their lives.

The stressfulness of the premature labor experience is also evident in the scores on the psychological adjustment measures. The mean score on the Hopkins Symptom Checklist (HSCL) at the time of premature labor (time 1) was 1.80, with a standard deviation of .33. Of the factor scores, the highest mean score was found for anxiety (mean=2.11, standard deviation=.60); the mean score for depression was 1.78, with a standard deviation of .45.

These HSCL scores are meaningful in that researchers have suggested that scores greater than 1.55 on the total scale, or on the anxiety or depression factors, indicate measurable emotional distress (Rickels et al., 1976). In addition, the women appear to be experiencing significantly more distress than that reported by private gynecologic patients and women in a contraceptive study, whose scores ranged from 1.40 to 1.50 (cf. Rickels et al., 1976).

As for the other measures of psychological adjustment, the mean

score on the Bradburn negative well-being scale was 3.20, with a standard deviation of 1.25; the mean score on the positive well-being scale was 3.12, with a standard deviation of 1.32. Both the positive and negative affect scores are substantially higher than those found in previous samples (e.g. Gaitz & Scott, 1972; Harding, 1982). In a representative national British sample, the mean negative affect score for nonpregnant women was 1.21, and the mean positive affect score was 2.40 (Harding, 1982). The most striking difference between the scores in the present study and those in the probability sample of 932 people is that between average negative affect scores (3.20 vs. 1.21, respectively).

It is possible that part of the observed difference in affect scores between the present sample and women in the British group may stem from pregnancy in general, in addition to the premature labor experience. For example, even pregnant women at low risk have been found to report anxiety and depression (e.g. Ballinger, 1982; Jarrahi-Zadeh et al., 1969; Kumar & Robson, 1984).

Although I could find no Bradburn scores for samples of pregnant women, I would expect their negative affect scores to be higher than

those of nonpregnant women. While it is impossible at this point to determine the differential contribution of pregnancy and premature labor to the observed difference in affect scores between women in the present study and those in previous samples, it is important to acknowledge the potential contribution of both factors.

Similar differences are apparent when one compares the affect scores in the present sample with those obtained in a sample of 489 respondents, aged 20 to 39, selected from communities in Houston, Texas (Gaitz & Scott, 1972). For example, while 71% of the women scored 3 or higher on the negative affect scale during the premature labor experience, only 26.3% of the Houston sample did so. In addition, although only one woman in the present sample said "no" to all the negative affect items, 34% of the community residents reported no negative feelings. Thus, the women in the present sample appear to be experiencing at least some degree of emotional distress, which probably reflects the stressfulness of the premature labor experience.

That these women are experiencing a crisis, or a particularly stressful situation, also becomes evident when one compares the

level of psychological symptomatology and well-being reported at time 1 with that reported at time 2, or postpartum. A t-test revealed that the postpartum negative well-being scores were significantly lower (M=2.02), and the positive scores were significantly higher (M=3.58) than those reported at time 1(t=-2.34, df=52, p<.05 for positive well-being scores; t=5.20, df=52, p<.001 for negative well-being scores).

The mean score on the HSCL at time two was 1.47, with a standard deviation of .32. A t-test revealed that the two symptomatology scores were significantly different from each other (t=6.08, df=52, p<.001). Although the time 1 HSCL mean score is high enough to indicate significant emotional distress (Rickels et al., 1976), the mean score at time 2 is comparable to that found in normal gynecologic and obstetric patients (Derogatis et al., 1974).

A comparison of scores from the present sample with those of postpartum patients assessed within one week of delivery and again at five weeks postpartum reveals several interesting findings (cf. Derogatis et al., 1974). First, the mean postpartum HSCL score for women in the present study was more like that found in other women

assessed within one week of delivery than at five weeks postpartum. Still, the more appropriate comparison for the one month postpartum scores in the present sample lies in the five-week postpartum scores. Women in the present study scored higher on the HSCL subscales of somatization and obsessive-compulsive than did the women in the study reported by Derogatis and his colleagues. However, scores on the dimensions of interpersonal sensitivity, depression, and anxiety were comparable in both groups.

Coping Responses

Before describing the coping responses, it must be noted that not all 61 respondents completed all aspects of the coping scales. Eighteen women did not complete interview two, and so did not provide coping information for situations three, four, and five. In addition, nine women who completed interviews one and two said that situation five, feeling unprepared for the birth of the baby, was not a problem for them, and do not have coping scores for that situation. In sum, all 61 women provided coping data for situations one and two; 43 women completed situations one through four, and 34 women completed all five situations. In order to include all respondents in

the analyses based on coping across the situations, I assigned each woman a mean transformational and a mean regressive coping score that reflects the sum of her situational coping scores divided by the number of situations she experienced.

Means and standard deviations for the transformational and regressive coping indices within each situation and across situations are presented in Table 6. In dealing with the five stressful aspects of the premature labor experience, respondents tended to use more transformational coping than regressive coping. Transformational coping was used more often in each situation, as well as in the five situations as a whole.

Regressive coping was reported least often by women when they were asked how they thought and acted in response to the fact that they experienced premature labor (situation one); women used the most regressive coping in dealing with the hospitalization (situation two). As for transformational coping, respondents said they least often used techniques of control, approach, optimistic outlook, and goal setting in response to the hospitalization. They reported using the most transformational coping when dealing with the possibility

of the baby being born prematurely (situation three) and with the treatment (situation four).

The relationship between the five specific situations and coping was examined with two multivariate analyses for repeated measures, one for transformational and one for regressive coping. The dependent variables consisted of the mean scores on the coping scales for each of the five situations. A multivariate analysis of variance for repeated measures was used to determine whether there was a significant difference in coping among the five problems. The number of subjects in the analyses was 34, since only those who responded to all five situations could be used.

The multivariate F statistic was significant for both transformational ($F(4,30)=15.93$, $p<.001$) and regressive coping ($F(4,30)=6.18$, $p<.01$). The significant statistics indicate that there were differences in coping across the specific aspects of the premature labor experience. The univariate tests revealed that the mean level of transformational coping in situation 2, the hospitalization, was significantly different than that found in the other four situations. In addition, the mean levels of

transformational coping in situations one and five, which ask about how a woman deals with the fact she experienced premature labor and with feeling unprepared for the birth of the baby, were significantly different ($p<.001$) than those found for situations three and four, the possibility of the baby being born prematurely and the treatment ($M=8.06, 7.65$, for situations one and five; $M=9.53, 9.32$, for situations three and four).

With respect to regressive coping, the univariate tests indicated that the difference among the five situations was due to significantly lower ($p<.001$) levels of regressive coping in situations one and four ($M=2.59, 2.91$) than in situations two and five ($M=4.03, 4.06$).

The results of the multivariate analyses of variance should be interpreted with caution, given the fact that only 34 of the 61 respondents could be used in the analyses. In addition, finding that the levels of coping varied across situations supports the approach of the study, in which each respondent's scores in all five situations are summed to create total transformational and regressive coping scores. Since several situations elicit different levels of coping, it is important to consider all five in an examination of the premature

labor experience.

Intercorrelations of Hardiness, Social Support, Coping, Contextual Concerns, and Demographic Characteristics

Table 7 presents the Pearson correlations between hardiness, social support, coping, and contextual concerns. Six of the 21 intercorrelations among the predictor variables were significant, with three of these exceeding .30. The moderate intercorrelations indicate that the variables are measuring different constructs. The strong associations between contextual concerns and transformational and regressive coping raise the possibility of an overlap between the two sets of variables. The overlap is consistent with previous findings of strong relationships between primary appraisal, or the stakes involved in an encounter, and coping (Folkman et al., 1986a,b). In the work of Folkman and her colleagues, primary appraisal was associated with seven of the eight forms of coping identified by the Ways of Coping, an instrument whose items describe a broad range of general strategies people use to manage the demands of stressful encounters (Folkman & Lazarus, 1985).

Despite a significant positive correlation of .30 between family

support and hardiness, I maintained the two as separate variables in all analyses for two reasons. First, both measures have been used extensively in previous research and found to be independent predictors of adjustment.

Second, in the present study, the two variables show different relationships with the other variables in the model. For example, family support is significantly related to transformational coping, but is not related to regressive coping.

The demographic variables of number of children and education level showed significant moderate relationships with two predictor variables. Specifically, the number of children a woman had was significantly negatively related to her score on hardiness ($r=-.25$, $p<.05$). In addition, higher levels of education were significantly associated with higher scores on hardiness ($r=.32$, $p<.01$) and with less reported use of regressive coping ($r=-.23$, $p<.05$). Given that only three of the 21 correlations between predictor variables and demographics reached significance, there is little reason to suspect that the effectiveness of the predictor variables can be attributed solely to demographics. Further, the variables involved in the three

significant relationships show different relationships to the other variables in the model.

The finding that almost half of the respondents were Catholic led me to examine whether religion had an impact on the scores observed for the variables in the model. A t-test revealed no differences between respondents who were Catholic and those of other religions on the predictor variables and outcome measures. Therefore, I argue that the relationships observed between variables in the present study would also be found in a sample comprised of a smaller number of Catholics.

The predicted correlation between biomedical risk and contextual concerns was not found in the analyses. Thus, the perceived impact of the premature labor experience was not associated with the objective measure of biomedical risk. In addition, biomedical risk was not significantly related to any of the other predictor variables.

Predictors of Transformational and Regressive Coping

The bivariate correlations in Table 7 reveal variables which were associated with transformational and regressive coping.

Contextual concerns were significantly positively associated with both types of coping, such that women who reported a great deal of concern about the premature labor experience thought and acted in both a transformational and a regressive manner. Respondents who scored high on hardiness reported less regressive coping; those who reported high levels of family support used more transformational coping.

Correlations Among the Outcome Measures

Table 8 presents the correlations among the outcome measures. The measures of psychological symptomatology administered at time 1 were significantly positively correlated with each other. Specifically, Bradburn negative well-being scores were positively correlated with scores on the Hopkins Symptom Checklist (HSCL). No relationship was found between scores on the HSCL and Bradburn positive well-being scores. In addition, a nonsignificant positive relationship was found between Bradburn positive and negative well-being scores.

Next, I compared symptomatology as measured at times 1 (during the premature labor experience) and 2 (one month postpartum).

Scores on the HSCL at time 2 were positively correlated with those reported at time 1, as well as with negative well-being at times 1 and 2. In addition, significant positive correlations were found between negative well-being scores at times 1 and 2, as well as between positive well-being scores at the two time periods. No relationship was found between postpartum measures of positive and negative well-being.

The moderate correlations between time 1 and time 2 outcomes indicate that factors other than her symptomatology level during the premature labor experience must be examined when trying to predict a woman's postpartum symptomatology.

Correlations Between Predictor Variables and Outcome Variables

Pearson correlations between the predictor variables and the three measures of psychological adjustment are presented in Tables 9 and 10.

*Correlations at the Time of Premature Labor.* Cross-sectional analyses revealed significant correlations between several variables and psychological adjustment at time 1, as presented in Table 9. Before detailing the significant correlations, it should be noted that

biomedical risk was not associated with any measure of symptomatology.

Physician support was significantly negatively related to psychological symptomatology. In addition, higher psychological symptomatology was associated with the use of more regressive coping and high contextual concerns with respect to the fact that one experienced premature labor and the hospitalization.

Negative well-being, as measured by the Bradburn scale, was significantly positively associated with contextual concerns ($r=.27$, $p<.05$). None of the predictor variables showed a significant association with positive well-being.

Three of the demographic variables were significantly related to psychological adjustment as measured at time 1. Scores on the HSCL were significantly negatively correlated with age ($r=-.21$, $p=.05$) and years of education ($r=-.26$, $p<.05$), such that the older the respondent and the more schooling she had completed, the less her reported level of symptomatology at the time of the premature labor. The number of children a woman had was significantly negatively related to positive well-being at time 1 ($r=-.25$, $p<.05$), indicating that women with more

children reported the fewest positive emotions.

*Postpartum Correlations.* As found at time 1, biomedical risk was not significantly related to any of the measures of psychological adjustment. Self-reported postpartum complications were not significantly associated with either biomedical risk or any other predictor variable.

Postpartum psychological symptomatology was significantly associated with three of the predictor variables assessed during the premature labor experience, as presented in Table 10. Regressive coping and contextual concerns were significantly positively related to symptomatology as measured by the HSCL at time 2. In addition, persons who scored high on the hardiness scale showed less symptomatology postpartum than those who scored low on hardiness.

None of the demographic variables showed significant relationships with scores on the HSCL at time 2.

Multiple Regression Analyses

*Psychological Symptomatology at Time 1.* Using psychological symptomatology as measured by the HSCL as the dependent variable, I performed a series of multiple regression analyses. Six predictor

variables were entered hierarchically, in an order determined by the theoretical framework which underlies the study.

Personality hardiness was entered first, because according to the theory it is the antecedent of coping processes, and is also the most important variable in the process of stress-resistance. The remaining variables were entered in the following order: regressive coping, transformational coping, family support, physician support, and contextual concerns. Regressive and transformational coping were entered immediately after hardiness because they are the manifestations of personality in a given situation. Contextual concerns was entered last because the construct is not as important as the other variables in the theoretical model. The regression analysis is summarized in Table 11.

Together, these six variables explained 43% of the variance ($F=6.55$, $p<.001$). Regressive coping was found to explain a significant amount of the variance in psychological symptomatology, beyond that accounted for by hardiness ($\Delta R^2=7\%$, $p<.05$). In addition, physician support accounted for 6% ($p<.05$) of the variance beyond that accounted for by hardiness, transformational and regressive coping,

and family support. Finally, contextual concerns accounted for an additional 24% of the variance ($p<.001$).

Hardiness, transformational coping, and family support each did not significantly explain variance in the outcome variable. Transformational coping was not a significant predictor of outcome even when it was entered in a regression equation before regressive coping.

Separate regression equations were computed to test for interactions between contextual concerns and each of the following variables: hardiness, transformational coping, and regressive coping. None of the interaction terms explained a significant amount of variance in symptomatology at time 1. Therefore, the impact of coping appears to be the same regardless of the perceived impact of the situation. In other words, regressive coping is associated with an increase in symptoms even for women who report a low level of contextual concerns.

Given the significant bivariate correlations between scores on the HSCL at time 1 and age and education level, a regression analysis was performed in which the set of demographic variables was entered

on the first step of the analysis. Entering age and education before the other predictor variables enables one to determine whether coping, social support, and contextual concerns explain a significant amount of variance beyond that explained by demographics. In this manner, I controlled statistically for the impact of the two demographic variables.

The predictor variables were entered in the following order: demographic variables, regressive coping, physician support, and contextual concerns. Together, these variables explained 53% of the variance ($F=12.28$, $p<.001$). The demographic variables explained 8% of the variance ($p=.09$), whereas regressive coping accounted for an additional 10% ($p<.05$). Physician support did not significantly explain variance in the HSCL, but contextual concerns accounted for an additional 32% ($p<.001$). The failure of physician support to explain a significant amount of variance may stem from its association with age ($r=.20$, $p=.06$). Since age was entered before support, variance accounted for by support may have been included in the equation by the age variable.

Negative and positive well-being were not used as dependent

variables in any regression analyses, given the lack of significant correlations between these outcome variables for time 1 and the predictor variables. For example, only contextual concerns was significantly correlated with negative well-being at time 1; positive well-being was not significantly associated with any of the independent variables. Since multiple regression analysis is performed to determine the proportion of the dependent variable's variance accounted for by two or more independent variables (Cohen & Cohen, 1975), the analysis was not appropriate in the case of these two outcome variables.

*Psychological Symptomatology at Time 2.* A series of multiple regression analyses were performed, using HSCL scores obtained one month postpartum as the dependent variable. As in the cross-sectional analyses, the six predictor variables were entered hierarchically, in the following order: hardiness, regressive and transformational coping, family support, physician support, and contextual concerns. The multiple regression analysis is summarized in Table 12.

Together, these variables explained 24% of the variance (F=2.39,

p<.05). Hardiness accounted for 11% of the variance (p<.05), and regressive coping accounted for an additional 8% (p<.05). None of the other variables significantly explained variance in postpartum psychological symptoms.

The failure of contextual concerns to significantly explain variance was surprising, given its strong association with symptomatology during the premature labor experience. Since the contextual concerns variable may be considered an indication of the respondent's personal experience of premature labor, I decided to enter the variable in step two, following hardiness. When contextual concerns was entered after hardiness and before regressive coping, it explained an additional 8% of the variance (p<.05). However, in the equation regressive coping did not explain significant variance in HSCL scores at time 2. The finding that context explained a significant amount of the variance when it was entered before but not after regressive coping may be attributed to the overlap between the two variables (zero-order correlation was .42, p<.001).

The decision as to whether to enter coping or contextual concerns first in the equation depends on the question being asked.

For example, if we want to determine the power of the independent variables to predict postpartum psychological adjustment beyond that attributed to the subjective experience of premature labor, we would enter contextual concerns first. The results of the multiple regression analysis are summarized on the bottom half of Table 12.

The variables of contextual concerns, hardiness, and regressive coping, entered in that order, together explained 22% of the variance in postpartum psychological symptoms ($F=4.52$, $p<.01$). In this case, contextual concerns explained 10% of the variance ($p<.05$), and hardiness explained an additional 8% ($p<.05$). Regressive coping did not explain a significant additional amount of the variance ($\Delta R^2=3\%$).

Interactions between several of the independent variables were examined in separate regression equations. I tested the interaction of hardiness and regressive coping, which was not significant. The interaction was an especially important one to test, given the finding that both variables were associated with each other and with outcome. No significant interactions were found between context and hardiness, or context and regressive coping. In addition, no significant interaction was found between physician support and

coping.

Readers may ask why respondents' psychological symptomatology scores at time 1 were not controlled for in analyses of time two data. The decision not to enter time one scores on the first step in multiple regression analyses was based on the belief that different situations elicited the symptomatology observed at times one and two. More specifically, symptomatology at time 1 reflects the experience of premature labor, whereas time 2 symptomatology reflects the experiences of birth and parenting. The question being asked was not what variables predict change in symptomatology over time, but rather what variables account for psychological adjustment at each point in time.

Finally, I performed two multiple regression analyses, using postpartum positive well-being, as measured by the Bradburn scale, as the dependent variable. When the six independent variables outlined in the theoretical model were entered hierarchically, only hardiness accounted for a significant amount of the variance (9%, $p<.05$). In fact, the regression equation based on hardiness, coping, support, and context did not achieve significance.

In the second analysis, education level and number of children were entered together on the first step, since they were each significantly associated with postpartum well-being; hardiness was entered on the second and final step. Although together the three variables accounted for 28% of the variance ($F=6.434$, $p=.001$), hardiness was not a significant predictor.

Postpartum negative well-being was not used as a dependent variable in any multiple regression analyses, since it was significantly correlated with only one independent variable.

Although self-reported postpartum complications was not significantly correlated with any of the predictor variables, the importance of this outcome led me to perform a multiple regression analysis using the measure as a dependent variable. The regression equation based on hardiness, transformational and regressive coping, family and physician support, and contextual concerns did not achieve significance.

# DISCUSSION

The purpose of the present study was to examine the mechanisms through which the stress-resistance resources of personality hardiness and social support influence the impact of stressful events on individuals. The central issue concerns whether hardiness and social support influence the ways in which women cope with a high risk pregnancy, and whether coping processes are related to psychological adjustment during and after the pregnancy.

Using a theoretical model of the stress and coping process, this research addressed the following major questions: 1)How do women cope with the various problems associated with the premature labor experience? 2)Can individual differences in coping be accounted for by personality hardiness and social support? 3)What is the impact of psychosocial variables and biomedical risk factors on psychological adjustment during and after high-risk pregnancy, and on postpartum complications?

Since the process of coping was measured as responses to scales developed for this research, I will begin with the findings regarding

the basic psychometric properties of the transformational and regressive coping scales. Then, I will turn to the relationships among personality, social support, coping, and the perceived impact of the situation. Finally, I will focus on the significant predictors of responses to the premature labor experience.

I reported on the development of a theoretically derived self-report measure of coping which consists of separate 20-item scales for transformational and regressive coping. To review, transformational coping involves attempts to alter events so they are less stressful. Regressive coping entails attempts to deny, avoid, or escape stressful situations (Maddi & Kobasa, 1984).

Transformational coping is characterized by behaviors indicative of approach, control, optimistic outlook, and the setting of one's own goals. In contrast, regressive coping is characterized by avoidance, no control, pessimistic outlook, and no goals or the adoption of the goals of others.

The transformational and regressive coping scales were found to have good internal psychometric properties, as evidenced by high levels of internal consistency and moderate item-scale correlations.

Preliminary evidence for the construct validity of the regressive coping scale stems from its ability to predict a theoretically relevant outcome such as psychological symptomatology. The construct validity of the transformational coping scale is not evident from the data, and must be explored in future research. Possible explanations for the observed findings concerning the transformational coping scale are discussed in detail below.

The transformational and regressive coping scales were found to be independent of each other, which supports the hypothesis that a woman can score high or low on both scales. In other words, a woman who reports using much regressive coping does not necessarily also use little transformational coping. That transformational and regressive coping are two separate factors was further indicated by the results of a principal components factor analysis of coping scores across specific aspects of the premature labor experience.

As predicted, hardiness was significantly associated with less regressive coping. However, women who scored high in hardiness did not report the expected high level of transformational coping. Family support was the only stress-resistance resource associated with the

use of much transformational coping. Why did high hardy women not use more transformational coping than those low in hardiness? The answer may lie in the specific context posed by the premature labor experience. For example, there is not much that a woman high in hardiness, who in general feels committed, in control, and challenged, can do in this situation. In fact, physicians stress that what is important is for these women to do nothing, that is, to stay in bed and try not to worry. Perhaps the situation did not give women high in hardiness the opportunity to reveal a tendency to act in a transformational manner.

Particularly revealing is the finding that transformational coping was used least often by women in the present sample when they were dealing with the hospitalization. Recall that when women enter the hospital with contractions, they are given intravenous medication, are hooked up to a fetal monitor, and are forced to lie in bed and use a bedpan. The experience of premature labor is treated as a crisis situation, in which the patient is continually monitored by a nurse, and is seen at regular intervals by different residents as well as by an attending obstetrician. At the same time, tests are often

conducted to determine the status of the fetus as well as the pregnant woman.

At the time that women responded to the coping questions concerning the hospitalization, they were not permitted to shower, some still had to use a bedpan, and most could not walk around. In addition, they were told that they had to continue taking the oral medication, with its associated side effects, at scheduled intervals to prevent the baby from being born prematurely. Thus, a consideration of the situational context illustrates the lack of opportunities for the use of transformational coping.

Past findings of an association between personality and what some researchers term "active coping" may be due to the context on which subjects reported. For example, Scheier & Carver (1985) found that optimism was positively associated with active coping, but the situation respondents were coping with involved a "moderately high degree of stress" and is difficult to compare with the experience of premature labor.

In a study of recovery from coronary bypass surgery, Scheier & Carver (1987) found that optimists tried to find out as much as

possible about their prescribed treatment regimens following surgery. One possible reason why the high hardy women in the present sample may not have shown a similar high level of information seeking (as measured by transformational coping) may be due to the characteristics of the treatment regimen. After experiencing premature labor, a woman must take her medication according to a specific time schedule, usually every four hours. In addition, her fetal monitoring is scheduled by the doctors and nurses. She is instructed to lie in bed or walk as little as possible until the 36th week of the pregnancy.

In sum, the treatment regimen is not one that the woman can alter according to her wants or needs, nor is it one she can build up according to a self-derived plan. In contrast, the men in the bypass study had the potential for input into their regimens.

The context faced by the respondents may also help explain other findings in this research. To summarize the main findings briefly, regressive coping, physician support, and contextual concerns explained a significant amount of the variance in psychological symptomatology assessed during the premature labor experience.

Postpartum psychological adjustment was significantly associated with hardiness, regressive coping, and contextual concerns.

One apparent question with regard to the findings concerns why hardiness had no direct impact on psychological symptomatology during the high risk pregnancy, but was significantly associated with postpartum adjustment. One possible explanation entails considering the high risk pregnancy as a crisis situation. That the situation is stressful is indicated by the high scores reported for psychological symptomatology and negative affect at time 1, and by the high reported perceived impact of specific aspects of the premature labor experience. In addition, the situation constitutes a major change which requires readjustment in that women have to stop either working outside the home or caring for their children. An additional change entails the intense worry they feel about the well-being of their babies once they have experienced premature labor.

Perhaps one's general orientation is not as important in a stressful situation of such great magnitude as is what happens in the situation. This explanation is supported by the finding that hardiness did have an impact on time 1 psychological adjustment, through its

association with regressive coping, which entails specific thoughts and actions in response to the situation.

The differential association of hardiness and adjustment during the premature labor experience and postpartum offers many interesting questions to be addressed by future research. For example, researchers may test the explanation offered here, that the impact of hardiness may in part depend on characteristics of the situation one is forced to confront. Most of the previous research on hardiness has involved subjects who are asked to report on a series of stressful events that may have happened to them in the past approximate two years (e.g. Kobasa, 1979; Kobasa et al., 1982; Kobasa & Puccetti, 1983). Testing the ability of hardiness to predict subsequent illness in such a sample is different than the same test in a group of individuals who are encountering a major life crisis. It is necessary to test the stress-resistance impact of hardiness in other stressed groups, to examine whether the results are similar to those found in this sample of high-risk pregnant women.

The present study also differs from previous hardiness research in that it employs a sample of women. Previous work on the

hardiness construct has focused mainly on male executives and lawyers (e.g. Kobasa, 1982; Kobasa et al., 1982). The present findings indicate that hardiness acts as a stress-resistance resource for women as well as men. But, it is important to keep in mind that the respondents in this study differ from those in previous research in important ways in addition to gender.

The importance of specific situational characteristics may also explain why physician support, but not family or work support, was associated with adjustment during the premature labor experience. The only aspect of one's social environment that played a significant role was that which was specific to the situation. The finding that higher physician support was associated with less psychologial symptomatology during the high-risk pregnancy comprises a significant contribution of this research. Although the benefits of a supportive doctor-patient relationship have been greatly expounded, no studies on pregnancy could be found which directly measured physician support.

One mechanism through which physician support exerts its impact on psychological adjustment during high-risk pregnancy may

be the coping process. Women who rated their obstetricians as highly supportive used less regressive coping concerning aspects of the treatment regimen (situation four). In addition, these women scored lower in total contextual concerns, that is, they rated the five aspects of the experience as having less impact, and of less concern and threat. Thus, physician support was found to have an effect on psychological adjustment, perhaps through its association with regressive coping and contextual concerns.

An unexpected finding was that neither family nor work support was associated with psychological adjustment. Previous research has for the most part found both types of social support to be inversely related to physical and psychological symptoms (see Cohen & Wills, 1985; Holahan & Moos, 1983; Krantz et al., 1985, for reviews). In fact, family support has been found to buffer the impact of stress for women even when it has no impact on the well-being of men (Holahan & Moos, 1985).

Several spontaneous remarks made by the respondents in the present study suggest that their ratings on the Moos scale may not accurately reflect how supportive their husbands are during the

high-risk pregnancy. For example, a few women told me that their husbands "really came through" for them in this situation. Others said they had not expected their husbands to be as supportive as they actually were. Such comments suggest that the failure to find a relationship between family support and outcome may stem from the support measure used. It is possible that social support from one's husband *during* the pregnancy is associated with adjustment, but the relationship cannot be tested in the study.

In previous research, work support has been significantly negatively related to physical and psychological symptoms for men, but not for women (Holahan & Moos, 1983). Still, I had hypothesized that work support would be important for the highly educated working women in the present sample. However, it appears that relationships at work have little impact on a woman's adjustment to a medical crisis.

The failure to find a significant relationship between hardiness and psychological adjustment during the pregnancy may stem in part from the apparent low impact of work at the time. Many of the items on the Hardiness Test concern one's thoughts and actions with regard

to work (e.g. "Most of the time, my bosses or superiors will listen to what I have to say"; "When I'm reprimanded at work, it usually seems to be unjustified"). If the realm of work is not a salient one for these women, then their hardiness scores as measured by the current test should not be expected to predict their psychological adjustment.

Perhaps this problem has not been previously detected because researchers have tended to measure hardiness in men, and in groups who are neither ill nor facing a major stressor. It may be useful to modify the Hardiness Test by deleting the irrelevant items, and writing new items to reflect the salient aspects of the lives of individuals being treated for a medical condition. For example, some items to tap commitment, control, and challenge may be written to reflect relationships with health care professionals.

The finding that regressive coping was associated with increased psychological symptomatology both during the pregnancy and postpartum confirms the theoretically derived hypothesis. I expected regressive coping to have such a negative impact on adjustment because it entails doing nothing to confront the situation. A woman who reports using much regressive coping tends to avoid the

situation, feels no control over it, sets no goals, and views it pessimistically. However, the situation does not go away, and after doing these things, the woman is still faced with the same situation. The inverse relationship between regressive coping and good psychological adjustment is consistent with previous findings of an adverse impact of avoidance coping on depression (e.g. Billings & Moos, 1984).

The failure of transformational coping to predict psychological symptomatology was surprising. I had predicted that transformational coping would be associated with fewer psychological symptoms during and after the high-risk pregnancy. However, several possible explanations may account for the present finding. The first possibility once again concerns the context faced by the women in the sample. Women who experience premature labor cannot take active steps to deal effectively with the problems confronting them. During the experience, their actions and thoughts may have no impact on the situation. As mentioned above, to do something here is to do nothing. It seems that actively confronting the situation, trying to change certain aspects of it, does not make a

woman feel any better. However, doing nothing to confront the situation leads her to fare worse.

The present findings concerning transformational and regressive coping are similar to those found in a previous study using measures of approach and avoidance coping (Holahan & Moos, 1985). The researchers found that individuals who reported little physical or emotional strain when faced with high levels of life stress tended not to use avoidance coping responses. But, approach coping was not related to levels of physical or psychological symptoms (Holahan & Moos, 1985). Another similarity of the two studies is that women in the present sample used more transformational than regressive coping, and respondents in the Holahan & Moos sample used more approach than avoidance coping. However, the lack of specific information as to the stressful events their respondents were facing makes it impossible to make clear comparisons with the present study.

The failure of transformational coping to predict psychological adjustment either during or following the high-risk pregnancy may also stem from the dependent variables used in the present study. By

using only measures of psychological symptomatology (HSCL) and positive and negative affect, I may not have given transformational coping the opportunity to reveal its impact. Perhaps the impact of transformational coping will not be seen until the woman encounters another stressful situation, especially one involving the child.

Although transformational coping is not associated with symptomatology, it may be related to more positive psychological states such as self-esteem or self-confidence. Researchers have found significant associations between higher levels of self-confidence and a category of coping strategies termed logical analysis, which contains thoughts and actions which appear to be transformational (Billings & Moos, 1984). Whether transformational coping is associated with factors such as self-confidence needs to be addressed by future research.

The timing of the outcome assessment may also have influenced the results of the present research. Measures of coping with the fact that she experienced premature labor and with hospitalization were administered to each woman at the same time as were the measures of psychological adjustment. It is possible that the assessment

procedure did not leave sufficient time for an effect of transformational coping to be observed. Perhaps a measure of symptomatology administered two to four weeks after admission to the hospital for premature labor would reveal differences between women on the basis of their past reported use of transformational coping.

The final possibility concerns problems with the transformational coping scale. As noted above, the scale has good internal psychometric properties. In addition, the dimensions which items were written to tap stem from a strong theoretical conceptualization. A more likely explanation is that the construct may not be adequately measured by specific thoughts and actions, which forms the basis for the present scale. As Folkman and her colleagues suggest (1986a), coping may best be measured using a more abstract approach, which can tap the complexity of the coping process.

In sum, when faced with premature labor, most pregnant women use high levels of transformational coping, along with some regressive coping. Yet, it is the degree of regressive coping only,

which seems to be associated with psychological adjusment during the crisis and afterward. In addition, the independence of the two coping scales indicates that regressive coping acts on its own, and not by taking time away from an individual's attempts to transform the situation.

Contrary to the prediction, biomedical risk did not explain a significant amount of variance in psychological symptoms or postpartum complications. However, contextual concerns, or the amount of threat, concern, and the perceived impact of specific aspects of the premature labor experience, was significantly associated with psychological adjustment during the pregnancy and postpartum. Thus, the subjective experience of the situation was more important psychologically than was the objective assessment of risk. In a sample of pregnant women not identified as high risk, biomedical risk was also not related to delivery or postpartum complications (Smilkstein, 1984). However, no studies could be found which examined the relationship between biomedical risk and psychological outcome.

During the high-risk pregnancy, low physician support and much

regressive coping seem to combine in an additive manner with a high level of contextual concerns to adversely influence women's psychological adjustment. The impact of physician support and regressive coping was not greater among women who reported the premature labor experience as one of great threat, concern, and high perceived impact.

In a similar fashion, the impact of hardiness and regressive coping on postpartum adjustment did not differ according to the reported level of contextual concerns during the pregnancy. In addition, regressive coping was no worse for women high in hardiness than for those who reported low levels. The failure of hardiness, physician support, or coping to buffer the impact of contextual concerns may be explained by the high level of stress experienced by the respondents. Billings and Moos (1984) also found no evidence of an interaction between stressors, coping, and social support in a sample of patients who were experiencing "a relatively high level of stress"(p.868).

The present research extends the theoretical and empirical literature on factors that buffer the potentially negative health

effects of life stress. The study represents one of the first conceptual analyses concerning the mechanisms through which stress-resistance resources such as personality and social support act to mitigate the harmful effects of life stress. Many studies have examined the relationship between personality, social support, and symptomatology, but they have posited only post hoc explanations of the processes responsible for their findings. In contrast, the study presented a conceptual model of the stress and coping process; on the basis of theoretical reasoning, I hypothesized specific relationships among the variables.

The present study supports the theoretical and empirical claims of the importance of coping advanced by Lazarus and other stress researchers (e.g. Lazarus, 1966). However, I take coping one step further by examining its role as a mediator of the relationship between personality and social support, and adjustment. Thus, the present research helps further the conceptual understanding of stress and distress.

The results of the present study suggest that it is important to examine the links between personality, social support, and health, and

that coping is an important component of the stress-resistance process. In this manner, the results are consistent with the work of previous stress researchers (e.g. Billings & Moos, 1984; Folkman et al., 1986a,b; Kobasa, 1979; Lazarus, 1966).

The present research adds another important piece to the coping puzzle. I have argued that merely knowing an individual's specific thoughts and actions in a stressful encounter is not enough to accurately understand the coping process. It is also necessary to examine the purpose behind the strategies one uses. This represents a new way of looking at coping. An examination of the available measures revealed that none tapped why an individual thought or acted in a particular manner. I developed the present coping scales in part to answer the "why" question, but also because none of the available measures could be used to tap transformational and regressive coping.

The coping scales developed for the study have a strong conceptual base, which allowed me to test theoretically-derived hypotheses as to the impact of coping strategies on outcome. In contrast, most previous coping studies have tried only empirically to

determine those strategies that buffer the harmful effects of stress (see Holahan & Moos, 1985, for an exception).

*Limitations of the Study and Methodological Considerations*

Since the measures in the present study are based on self-report, it is necessary to consider the possibility that the empirical relationships among the measures merely reflect generalized tendencies to respond in a particular manner. I believe most of the measures in the study tap relatively objective aspects of the situation, rather than purely subjective perceptions. One obvious exception is the measure of contextual concerns, which taps personal perceptions of the premature labor experience.

As for the other measures, several observed relationships tend to support the argument for their objective nature. First, personality hardiness is not strongly associated with women's descriptions of the relatively objective aspects of their social environments. Even ratings on the subjectively-oriented contextual concerns measure are not significantly associated with personality. Further, though hardiness is significantly associated with regressive coping, the moderate relationship between the two variables indicates that they

are not measuring the same construct.

It is important, however, to mention the possibility that personality hardiness, regressive coping, and physician support may not have affected the actual level of psychological symptoms experienced, but rather only influenced the level of symptomatology reported. Due to the complexity of symptom reporting, such an alternative explanation cannot be ruled out with respect to the present findings or to other research on stress and illness.

It is important to note that in this study, as well as in other research on stress and stress-resistance, the association between adjustment and variables such as hardiness, social support, and coping is low to moderate, though statistically significant. For example, at time 1, regressive coping accounts for only eight percent of the variance in outcome. The association may be strengthened through a measurement strategy that includes a way of more fully capturing the complexity of the coping process.

However, the size of the separate effects in the study was not surprising. Psychological adjustment is influenced by a broad array of factors, many, but not all of which were measured in this study.

Hardiness, regressive coping, physician support, and contextual concerns are each only partial determinants of psychological adjustment. However, they each represent factors which reliably contribute to the experience of psychological symptoms during and following high-risk pregnancy.

The correlational relationships found among the variables during the pregnancy should be interpreted with caution. The cross-sectional nature of the time 1 data makes it impossible to conclude that the stress-resistance resources played a causal role in determining women's psychological health. It is possible that the causal direction among the variables was the reverse of what was hypothesized. For example, it is possible that the observed relationship between regressive coping and psychological symptoms indicates that feeling depressed and anxious during the experience of premature labor leads a woman to think and act in a regressive manner rather than the reverse.

The question of the causal direction among the variables cannot be conclusively resolved in the time 1 part of the present study. However, in the prospective end of the research, both regressive

coping and contextual concerns significantly predicted psychological symptoms postpartum, an average of 14 weeks after the initial measurement. Thus, regressive coping and contextual concerns appear to be empirically as well as conceptually distinct from psychological symptoms such as anxiety and depression.

*Future Research*

Despite the present argument for the objective nature of the measures, future research should use other measures in addition to those based on self-report. For example, ratings made by nurses and/or physicians as to the individual's manner of coping may provide useful information. However, such ratings should be used only as an adjunct to measures such as the transformational and regressive coping scales, since the complex nature of the construct makes it difficult to assess through a few short ratings.

The coping scales developed for this study can be used in future research with other groups. The interested researcher should write items to reflect the theoretical dimensions, with specific reference to the situation of concern.

There is a clear need for future research using the coping scales,

as this is the only study to have used them. An N of 61 in the present study made it impossible to conduct certain data analyses. First, we need to perform a factor analysis of the 40 items written to reflect the two constructs of transformational and regressive coping. A factor analysis would reveal whether the items load highly on the factors they were written to reflect.

In addition, it would be interesting to compare groups of respondents who use different combinations of transformational and regressive coping. For example, using cluster analysis, we could examine profiles of people who use different configurations of regressive and transformational coping. We could examine whether persons who use much regressive and little transformational coping experience more symptoms than do those who use much regressive and much transformational coping. Such analyses require a higher N than that in the present research.

As noted earlier, future research should examine the relationships among hardiness, social support, and coping with other groups who experience a major life crisis. It would be interesting to test the ability of transformational and regressive coping to predict

physical symptomatology or a more positive outcome such as self-confidence.

One practical implication of the present research concerns the treatment of women who experience premature labor. Given the present findings, doctors and nurses may suggest to patients that they try not to think and act in a manner which reflects no control, avoidance, a pessimistic outlook, and no personal goals with regard to the premature labor. Health care providers may discourage thoughts and behaviors indicative of regressive coping. Unfortunately, the results of this research do not provide additional information as to what these women should actively do to remain psychologically healthy throughout the situation. But, telling these women what not to do may be an important first step. In addition, the present results indicate the importance of identifying the degree to which a women perceives the situation as having a significant impact on her life, and feels threatened and concerned.

Many women in the present study asked me to tell them how best to deal with the premature labor. They wanted to know what previous research had been done, and what preliminary results I had obtained.

In other words, they were extremely eager to do anything they could to have an impact on the situation. Therefore, many women who experience premature labor would benefit from hearing the present findings concerning the impact of regressive coping.

The present study represents the first step in research on transformational and regressive coping, and one major attempt to identify the mechanisms through which hardiness and social support influence the impact of stressful events on individuals.

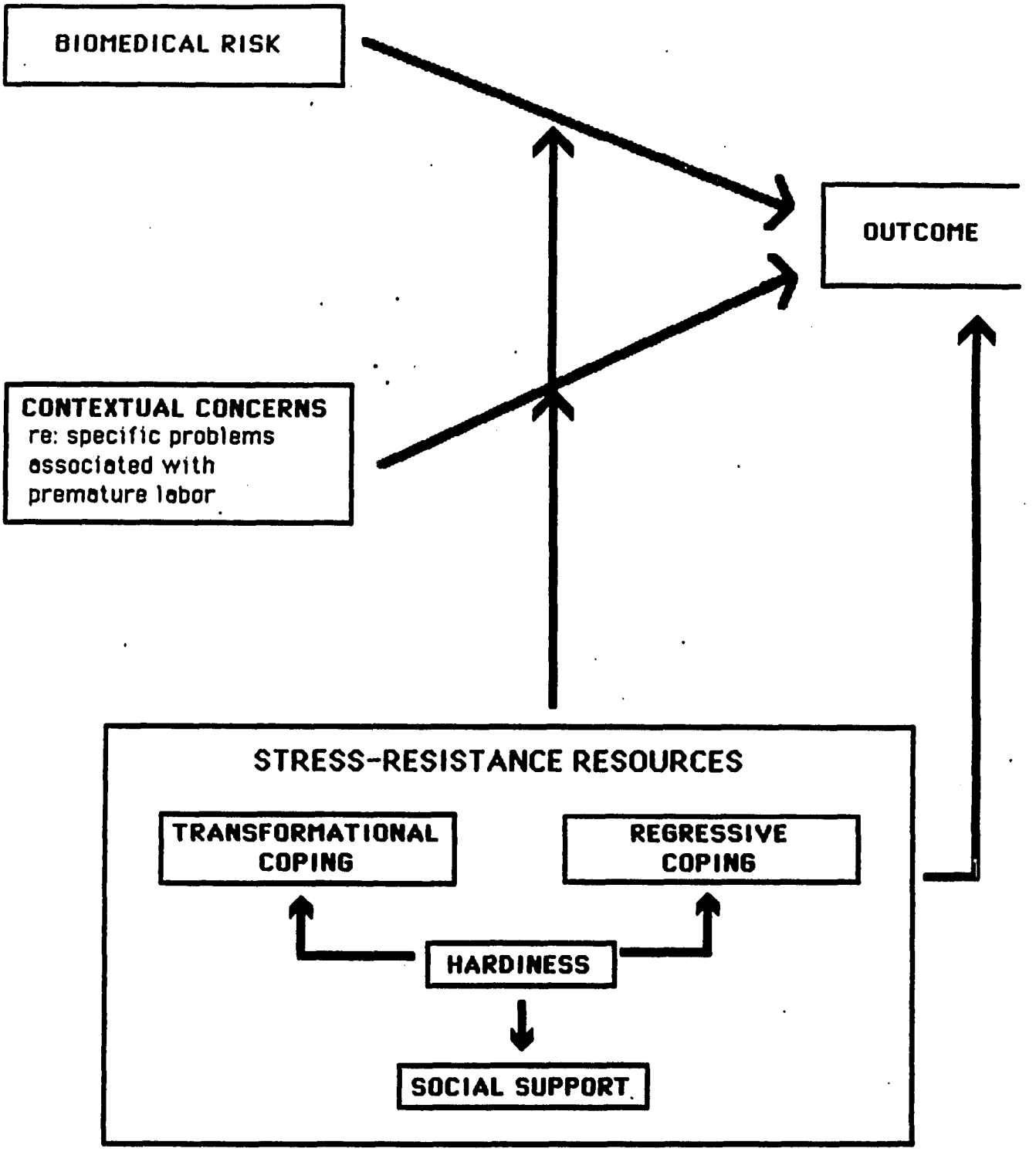
BIOMEDICAL RISK
OUTCOME
CONTEXTUAL CONCERNS
re: specific problems
associated with
premature labor
STRESS-RESISTANCE RESOURCES
TRANSFORMATIONAL COPING
REGRESSIVE COPING
HARDINESS
SOCIAL SUPPORT

Figure 1

Table 1
Demographic Characteristics of the Sample

| Variable | N | % of Sample |
|---|---|---|
| Age | | |
| 18 - 24 | 16 | 26 |
| 25 - 29 | 14 | 23 |
| 30 - 34 | 18 | 29 |
| 35 - 39 | 12 | 20 |
| 40 - 44 | 1 | 2 |
| Marital Status | | |
| Married | 50 | 82 |
| Single | 11 | 18 |
| Number of Children | | |
| 0 | 35 | 57 |
| 1 | 19 | 31 |
| 2 | 4 | 7 |
| More than 2 | 3 | 5 |
| Religion | | |
| Catholic | 29 | 47 |
| Protestant | 9 | 15 |
| Jewish | 6 | 10 |
| None | 9 | 15 |
| Other | 8 | 13 |
| Education | | |
| High School Graduate | 22 | 36 |
| Some College | 15 | 25 |
| College Graduate | 12 | 20 |
| Some Graduate School | 1 | 2 |
| Graduate Degree | 11 | 18 |
| Employment Status | | |
| Employed | 43 | 71 |
| Homemaker | 16 | 26 |
| Student | 2 | 3 |

Table.2
Measures and Research Schedule

| | Antepartum | | Postpartum |
|---|---|---|---|
| | Within 1 Week of PTL | 2 Weeks Later | 4 Weeks Post-Delivery |
| Measure | | | |
| Biomedical Risk | X | | |
| Hardiness | X | | |
| Social Support | X | | |
| Demographics | X | | |
| Contextual Concerns re: | | | |
| -experience of PTL | X | | |
| -hospitalization | X | | |
| Coping re: | | | |
| -experience of PTL | X | | |
| -hospitalization | X | | |
| Contextual Concerns re: | | | |
| -possibility of premature birth | | X | |
| -treatment regimen | | X | |
| -feeling unprepared | | X | |
| Coping re: | | | |
| -possibility of premature birth | | X | |
| -treatment regimen | | X | |
| -feeling unprepared | | X | |

| | Antepartum | | Postpartum |
|---|---|---|---|
| | Within 1 Week of PTL | 2 Weeks Later | 4 Weeks Post-Delivery |
| Hopkins Symptom Checklist | X | | X |
| Bradburn Well-Being Scales | X | | X |
| Postpartum Complications | | | X |

Table 3
Intercorrelation Matrix of Transformational and Regressive Coping in Each Situation

| Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Transformational Coping | | | | | | | | | |
| 1. Situation 1[a] | | | | | | | | | |
| 2. Situation 2 | .43*** | | | | | | | | |
| 3. Situation 3 | .28* | .37** | | | | | | | |
| 4. Situation 4 | .24 | .48** | .46** | | | | | | |
| 5. Situation 5 | .48** | .35* | .22 | .43** | | | | | |
| Regressive Coping | | | | | | | | | |
| 6. Situation 1 | .01 | .04 | .11 | .15 | .00 | | | | |
| 7. Situation 2 | .04 | .19 | .02 | .04 | .08 | .57*** | | | |
| 8. Situation 3 | .00 | .02 | .00 | .17 | .15 | .42** | .42** | | |
| 9. Situation 4 | .02 | .21 | -.02 | .33* | .00 | .39** | .35* | .42** | |
| 10.Situation 5 | .06 | .22 | .19 | .47** | .01 | .15 | .30* | .42** | .58*** |

*Note:* N=43 for all correlations involving situations 3 and 4; N=34 for all correlations involving situation 5. For all other correlations, N=61.
*p<.05. **p<.01. ***p<.001.

[a]Situation 1 = the fact that you experienced premature labor
Situation 2 = the hospitalization
Situation 3 = the possibility of the baby being born prematurely
Situation 4 = the treatment regimen
Situation 5 = feeling unprepared for the birth of the baby

Table 4
Percentage of Women Reporting the Occurrence of Each Type of Postpartum Complication

| Postpartum Complication | Percent of Women Reporting Complication |
|---|---|
| Bleeding | 34.0 |
| Infection | 18.9 |
| Pain | 56.6 |
| Fever | 18.9 |
| Depression | 49.1 |
| Difficulty with infant feeding | 32.1 |
| Health problems of infant | 35.8 |

Table 5
Means and Standard Deviations for the Contextual Concerns Responses

| Contextual Concerns | Mean[b] | Standard Deviation | N |
|---|---|---|---|
| Situation 1[a] | 49.71 | 17.03 | 61 |
| Situation 2 | 35.23 | 17.79 | 61 |
| Situation 3 | 42.07 | 18.52 | 43 |
| Situation 4 | 44.70 | 19.31 | 43 |
| Situation 5 | 25.32 | 16.88 | 34 |
| Mean Across Situations | 39.79 | 14.88 | 61 |

[a]Situation 1 = the fact that you experienced premature labor
Situation 2 = the hospitalization
Situation 3 = the possibility of the baby being born prematurely
Situation 4 = the treatment regimen
Situation 5 = feeling unprepared for the birth of the baby

[b]The scale consisted of 15 items, answered on a 10-point scale. Thus, the potential range of scores for each situation was 0 - 150.

Table 6
Means and Standard Deviations for the Coping Responses

| Coping Response | Mean[b] | Standard Deviation | N |
|---|---|---|---|
| Transformational Coping | | | |
| Situation 1[a] | 8.10 | 2.23 | 61 |
| Situation 2 | 6.71 | 2.28 | 61 |
| Situation 3 | 9.19 | 2.47 | 43 |
| Situation 4 | 9.09 | 1.86 | 43 |
| Situation 5 | 7.65 | 2.25 | 34 |
| All Situations | 7.93 | 1.72 | 61 |
| Regressive Coping | | | |
| Situation 1 | 2.82 | 2.24 | 61 |
| Situation 2 | 4.59 | 2.97 | 61 |
| Situation 3 | 3.47 | 2.30 | 43 |
| Situation 4 | 3.16 | 2.28 | 43 |
| Situation 5 | 4.06 | 2.58 | 34 |
| Mean Across Situations | 3.77 | 2.09 | 61 |

[a]Situation 1 = the fact that you experienced premature labor
Situation 2 = the hospitalization
Situation 3 = the possibility of the baby being born prematurely
Situation 4 = the treatment regimen
Situation 5 = feeling unprepared for the birth of the baby

[b]The scales each consisted of 4 items, answered on a scale of 0 - 3, for each of the five situations. Thus, the potential range of scores on each scale for each situation was 0 - 12.

Table 7
Intercorrelations of Hardiness, Social Support, Coping, and Contextual Concerns

| Measure | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Hardiness | | | | | | |
| 2. Family Support | .30* | | | | | |
| 3. Physician Support | .18 | .19 | | | | |
| 4. Work Support | .14 | -.08 | .17 | | | |
| 5. Transformational Coping | -.13 | .29* | .10 | -.22 | | |
| 6. Regressive Coping | -.41** | -.09 | -.14 | -.26 | .16 | |
| 7. Contextual Concerns | -.13 | .11 | -.22* | -.09 | .40** | .42*** |

*Note:* N=61 for all correlations, except those involving family support (N=59), and work support (N=39).
*p<.05. **p<.01. ***p<.001.

Table 8
Correlations Among the Outcome Measures

| Measure | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Time 1 HSCL | | | | | |
| 2. Time 1 Positive Well-Being | .09 | | | | |
| 3. Time 1 Negative Well-Being | .40** | .20 | | | |
| 4. Time 2 HSCL | .36** | -.01 | .23* | | |
| 5. Time 2 Positive Well-Being | -.01 | .36** | -.01 | -.19 | |
| 6. Time 2 Negative Well-Being | .17 | .08 | .32* | .45*** | .00 |

Table 9
Correlations Between Predictor Variables and Measures of Psychological Adjustment at Time 1(at Time of Premature Labor)

| | HSCL: Psychological Symptoms | Negative Well-Being | Positive Well-Being |
|---|---|---|---|
| Hardiness | -.17 | .04 | .18 |
| Family Support | .08 | .03 | -.05 |
| Physician Support | -.27* | .03 | -.02 |
| Work Support | .08 | -.11 | .12 |
| Transformational Coping | .08 | .11 | .14 |
| Regressive Coping | .28* | .13 | -.16 |
| Contextual Concerns | .62*** | .27* | .03 |

*Note*: N=61 for all correlations, except correlations of family support (N=59) and work support (N=39).

*p<.05. **p<.01. ***p<.001.

Table 10
Correlations Between Predictor Variables and Measures of Psychological Adjustment at Time 2(Postpartum)

| | HSCL: Psychological Symptoms | Negative Well-Being | Positive Well-Being |
|---|---|---|---|
| Hardiness | -.33** | .10 | .30* |
| Family Support | -.17 | -.01 | .26* |
| Physician Support | -.05 | -.11 | .10 |
| Work Support | -.13 | -.18 | .17 |
| Transformational Coping | .12 | .20 | .10 |
| Regressive Coping | .39** | .05 | -.19 |
| Contextual Concerns | .32* | .28* | .15 |

*Note:* N=53 for all correlations, except correlations of family support (N=52) and work support (N=33).

*p<.05. **p<.01. ***p<.001.

Table 11
Hierarchical Multiple Regression Analyses of Psychological Symptoms at Time 1 and Predictor Variables

| Predictor | $\Delta R^2$ | F Test on Increment | p | r |
|---|---|---|---|---|
| Analysis 1 | | | | |
| Hardiness | .03 | 1.80 | n.s. | -.17 |
| Regressive Coping | .07 | 4.53 | .04 | .28* |
| Transformational Coping | .02 | 1.04 | n.s. | .08 |
| Family Support | .01 | .502 | n.s. | .08 |
| Physician Support | .06 | 4.25 | .04 | -.27* |
| Contextual Concerns | .24 | 21.70 | .000 | .62*** |
| | $R^2$=.43, F=6.55, p<.001. | | | |
| Analysis 2 | | | | |
| Age | | | | -.21* |
| Education Level | .08 | 2.49 | .09 | -.26* |
| Regressive Coping | .10 | 6.77 | .01 | .28* |
| Physician Support | .03 | 2.03 | n.s. | -.27* |
| Contextual Concerns | .32 | 37.45 | .000 | .62*** |
| | $R^2$=.53, F=12.28, p<.001. | | | |

*p<.05. **p<.01. ***p<.001.

Table 12
Hierarchical Multiple Regression Analyses of Psychological Symptoms at Time 2 and Predictor Variables

| Predictor | $\Delta R^2$ | F Test on Increment | p | r |
|---|---|---|---|---|
| Analysis 1 | | | | |
| Hardiness | .11 | 6.10 | .02 | -.33** |
| Regressive Coping | .08 | 4.68 | .04 | -.39** |
| Transformational Coping | .00 | .135 | n.s. | .12 |
| Family Support | .01 | .751 | n.s. | -.17 |
| Physician Support | .00 | .06 | n.s. | -.05 |
| Contextual Concerns | .04 | 2.36 | n.s. | .32* |
| | $R^2$=.24, F=2.39, p<.05. | | | |
| Analysis 2 | | | | |
| Contextual Concerns | .10 | 5.72 | .02 | .32* |
| Hardiness | .08 | 5.12 | .03 | -.33** |
| Regressive Coping | .03 | 2.01 | n.s. | .39** |
| | $R^2$=.22, F=4.52, p<.01. | | | |

*p<.05. **p<.01. ***p<.001.

DATE MO DY YR | LOCATION | SERVICE

AGE | DOCTOR | IF NO PLATE, PRINT NAME, SEX, AND HISTORY NO.

APPENDIX A

THE NEW YORK HOSPITAL-CORNELL MEDICAL CENTER

Consent Form for Clinical Investigation

IRB APPROVED 8-19-85

Project Title: STRESS AND COPING IN PREMATURE LABOR

Subject: STUDY PATIENT Research Project No.

You are invited to participate in a study of stress and coping in premature labor. Physicians of the New York Hospital and Cornell University Medical College hope to learn how patients' stress experiences, personalities, support systems and ways of coping influence their experience of treatment for premature labor. You have been chosen because you are being treated for early contractions.

If you decide to participate, we will interview you now, in two weeks and four weeks after delivery. In addition we will give you some Self Report Questionnaires to fill out bimonthly and will ask you to mail them to us in self-addressed envelopes. The interviews will include general questions about what you feel, think and do in the context of the current treatment. The interviews and questionnaires will take less than one hour to complete.

Your participation in the project is unlikely to pose any special risk or discomfort to you or your unborn child. If anything does trouble you, please tell us. You can ask us any questions about the study. You are free to not answer any question or to terminate the interview at any point. Generally, people experience relief in such discussions. Though you may not receive any direct benefit from your participation, the study will help us to formulate ways in which we may be of help to other women experiencing early contractions.

Any information obtained during this study and identified with you will remain confidential and will be disclosed only with your permission. You will not be responsible for any cost by participating in the study.

Your decision whether or not to participate will not prejudice your future relationship with the New York Hospital - Cornell Medical Center. If you decide to participate, you are free to discontinue participation at any time.

In accordance with Federal regulations, we are obliged to inform you about the Medical Center's policy in the event physical injury occurs. If, as a result of your participation, you experience physical injury from known or unknown risks of the research procedures as described, immediate medical care and treatment, including

hospitalization if necessary, will be available. No monetary compensation, however, is available and you will be responsible for the costs of such medical treatment, either directly or through your medical insurance and/or other forms of medical coverage. Further information can be obtained by calling (212) 472-8250.

If you have any questions, please ask us. If you have any additional questions later, Dr. Milton Viederman, 525 E. 68th Street, (212) 472-6271 will be happy to answer them.

You will be offered a copy of this form to keep.

You are making a decision as to whether or not to participate. Your signature indicates that you have read the information provided above and have decided to do so. You may withdraw at any time without prejudice after signing this form should you choose to discontinue participation in this study.

| | | |
|---|---|---|
| Signature | Date | Time |

| | |
|---|---|
| Signature of Witness | Signature of Investigator |

# APPENDIX B

## Biomedical Risk Scale

NAME:

UNIT NUMBER:

ADMISSION DATE:

SERVICE:

ADMIT DX: SECOND DX:

LMP: EDC (DATES):

PREVIOUS PREGNANCY HISTORY:

| DATE | WKS | DEL | WEIGHT |
|---|---|---|---|

COMPLICATIONS

1

2

3

4

5

PRESENT PREGNANCY:

PREMATURE LABOR HISTORY:

CERVICAL EXAM: DILATION EFFACEMENT

TOCOLYTIC DRUG USED: RITODRINE MGSO4

TIME STARTED:

MAXIMUM DOSE:

TIME CONTRACTIONS STOPPED:

TIME SWITCHED TO P.O. MED:

REPEAT I.V. MED NEEDED?

PREVIOUS ADMISSIONS:

DATE DX LENGTH MEDICATIONS

# APPENDIX F
## Transformational and Regressive Coping Scales

### COPING QUESTIONS

For each of the following questions, please choose your answer from the following:

0 = Not at all like me
1 = A little like me
2 = Quite a bit like me
3 = A lot like me

1. Please indicate the extent to which each of the following describes how you are dealing with the fact that you experienced premature labor, including the contractions, being on MG, and the medication.

1. I think that nothing can be done to prevent further contractions during the rest of the pregnancy.

2. I have decided to set one or more goals to help myself deal with this experience, such as trying to take it easy, or trying to find out as much as possible about premature labor, or something else.

3. I try to keep my mind off the premature labor by reading, sleeping, talking to people about other things, watching television, or any other means of distraction or relaxation.

4. I think that the premature labor has ruined the pregnancy experience for me.

5. I try to determine whether everything possible is being done, and whether there is something I can do to help.

6. Since I find it difficult to think about anything other than what is happening to me at the moment, I have set no goals for what might happen next.

7. I try to find out as much as I can about the premature labor experience.

8. I tell myself that even though experiencing premature labor is a problem, at least the worst part is over (and the rest should not be too difficult to get through).

2. Next, please indicate the extent to which each of the following describes your thoughts or actions in response to being in the hospital.

1. I feel that I have no control over the hospitalization. In the hospital, doctors and nurses are in charge, so what can I do?

2. I am using this time in the hospital to set goals or make lists of what to accomplish during the rest of the pregnancy.

3. I tell myself that the only way to get through the hospital experience is to keep busy with other things in order to take my mind off the problem.

4. I cannot imagine anything worse than having to spend part of your pregnancy in a hospital bed.

5. I try to control some aspect of the hospital experience, either by talking to the nurses or by asking my doctor to change or explain some aspect of my care (e.g., the number of days spent in the hospital; the schedule of the medicine).

6. In the hospital, I just take things one day at a time, and don't think about or plan for any time later in the pregnancy.

7. I am curious about my medical treatment, and I ask the doctors and nurses about my condition.

8. I see the hospitalization as an opportunity to finally relax and unwind, or to accomplish something(s) I never before had the time to work on.

3. Please indicate the extent to which each of the following describes your thoughts and actions when you think about the possibility of the baby being born prematurely and/or having some problem at birth.

1. I have resigned myself to the fact that nothing can be done; "it's in nature's hands". If the baby is ready to be born, it will be, and there's nothing I can do about it.

2. I set a goal to at least try to make it to a certain point in the pregnancy (e.g. 36 weeks), which I arrived at through conversations with people knowledgeable about premature labor, or through other sources of information.

3. I try to keep my mind off this possibility by reading, sleeping, talking to people about other things, watching television, or any other means of distraction or relaxation.

4. I think that given my usual experiences, the baby will be born prematurely and/or with some problem(s).

5. I make an effort to think about or do things that I have found to be associated with either fewer contractions or an overall better feeling.

6. I cannot set any goals in such an unpredictable situation, so I just leave the decision-making to the doctor -- whatever he/she says, I do.

7. I accept that this possibility might occur, but try to prevent it by following the instructions of doctors, nurses, and/or women who have experienced premature labor, or make other changes based upon what I have read or conversations I have had with others.

8. I tell myself that the doctor(s) and I am doing everything possible to prevent the baby from being born prematurely, and that things could be worse. After all, I could have had the baby when I first entered the hospital with contractions.

4. Please indicate the extent to which each of the following describes your thoughts and actions when you have a problem with or are bothered by the prescribed treatment. Four specific problems other women have noted concerning the treatment include: finding it difficult to stay in bed, to take ritodrine around the clock, or to come to the hospital for fetal monitoring, and/or thoughts about the medication. Have any of these particularly been a problem for you? Which one(s)?

1. I feel as if the matter of the treatment is really out of my hands; the doctor(s) said that this is the only way to prevent the baby from being born prematurely, so what other choice do I have but to follow the treatment plan?

2. The treatment doesn't seem half as bad when I recognize that my goal is to have a healthy baby, a goal which can be realized by following the treatment.

3. Given that thinking about the treatment makes me nervous, I try not to. I try to keep conversations from turning toward a discussion of the premature labor and/or its treatment, and prefer talking about more pleasant matters to keep my mind off the situation.

4. Sometimes, I just don't know why I go through all the trouble to follow the doctor's recommendations.

5. I try to control the situation by making decisions based upon accurate, up-to-date information, my physical feelings, and conversations with the doctor.

6. I find myself putting up with the treatment to make either my doctor or other people close to me happy.

7. I often talk to other people, ranging from friends to doctors and nurses, about the bothersome aspects of the treatment, in an effort to develop ways of making the experience somewhat more bearable.

8. I tell myself that having to follow the treatment is not as bad as it seems, since it has so far prevented the baby from being born prematurely.

5. Please indicate the extent to which each of the following describes your thoughts and actions in terms of feeling unprepared for the birth of the baby. Other women who experienced premature labor have said they feel unprepared in the following ways: having no baby clothes or furniture, not having done things they had planned on doing to prepare for the baby, and being unable to move around and do much preparatory work. Do you think about any of these, or feel unprepared in another way?

1. I feel that I have no control over this situation. Since I cannot go out of the house or move around much, how can I get any of these things done?

2. I set priorities. I decide which things are most important, those that have to get done first, and those that can wait for a while or even until after the baby is born.

3. When I start thinking about all that still needs to be done, I try to find something to take my mind off the problem.

4. Problems such as this indicate to me that I should never expect things to go my way.

5. Although I cannot get some of these things done in the same manner by which I would have if I had not experienced premature labor, I can make sure they get accomplished in other ways.

6. I'm waiting to see what will happen before doing anything. If I'm able to move around more before the baby is born, then I will prepare for the baby. If other people offer to help out, then I'll let them.

7. I make lists of what I need for the baby and/or myself, and ask someone else to pick them up.

8. I see this problem as an opportunity for me to change or grow as a person in a good way. For example, I can learn to work with other people toward a goal (since I cannot get some of these things done by myself); I can learn more efficient ways of getting things done, or something else.

# APPENDIX G

## Contextual Concerns Scale

Note: Before asking the respondent the following questions, the interviewer will describe one of the five problems to her. After the respondent has completed the contextual concerns scale and the coping scale for the first problem (the fact that she experienced premature labor), she will be asked to do the same for each of the remaining four problems.

Interviewer to Respondent: On a scale of 0 to 10, with 0 representing not at all and 10 representing a great deal, please indicate the extent to which you thought about each of the following possibilities during the encounter we just spoke about.

1. The possibility of losing the affection of someone important to you.
2. The possibility of losing your self-respect.
3. The possibility of appearing to be an uncaring person.
4. The possibility of appearing unethical.
5. The possibility of losing the respect or approval of someone important to you.
6. The possibility of appearing incompetent.
7. The possibility of losing your autonomy or independence.

8. The possibility of harm to your own health, safety, or physical well-being.
9. The possibility of harm to the baby's health, safety, or physical well-being.
10. The possibility of interference with your career concerns.
11. The possibility of interference with your family responsibilities.

Please answer the following questions using the same scale. To what extent....

12. Was this situation of concern to you?
13. Was the situation of concern to people who are close to you?
14. Did this situation or problem interfere with any of your goals, plans, activities, or concerns?
15. Did the problem threaten the values which guide your life?

Did you worry about anything else because of the situation? Are there any other ways in which you felt threatened or put in danger by the situation?

# APPENDIX H

## Demographics Scale

Interviewer to Subject:

Please answer the following questions about your background.

1. Your age:
   - _____under 25
   - _____25 - 29
   - _____30 - 34
   - _____35 - 39
   - _____40 - 44

2. Are you:
   - _____employed full-time
   - _____employed part-time
   - _____student, part-time employed
   - _____student, unemployed
   - _____homemaker
   - _____other

If you are working, please specify what kind of work you are doing:

_____

3. How much schooling have you completed?

_____graduated from high school

_____some college

_____graduated from college

_____some graduate school

_____graduate or professional degree

4. Are you married? _____yes _____no

5. If you have any children, how many children do you have? _____

6. In what religion were you raised?

_____Roman Catholic

_____Jewish

_____Protestant

_____None

_____Other (specify:)

## APPENDIX K
## Smilkstein Postpartum Complications Measure

Next, please tell me whether you have been bothered by any of the following problems since you gave birth. Please answer "yes" or "nor" for each problem.

1. bleeding
2. infection
3. pain
4. fever
5. depression
6. difficulty with infant feeding
7. health problems of infant

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