LIFE STRESS, SOCIAL SUPPORT, AND MOOD DISTURBANCE IN HOSPITALIZED AND NON-HOSPITALIZED WOMEN WITH PREGNANCY-INDUCED HYPERTENSION

by

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A thesis submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements of the degree of

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DEDICATION

To my husband Lyn,

with love.

ABSTRACT

Women with pregnancy-induced hypertension (PIH) who undergo antepartum hospitalization experience a variety of stressors, including separation from home and family. One approach to this problem is to provide community based home care for these women, permitting them to remain in a familiar environment with access to the support of their family. Social support has been reported in the literature to buffer, or mediate, the effects of stressful life events on psychological distress. However, no investigations have been conducted to determine the buffering effect of social support in high-risk pregnancies. This descriptive study was designed to explore whether a community based home care program for women with PIH would result in lower levels of stress and mood disturbance, mediated by increased access to social support. The conceptual framework was based on Pearlin et al.'s (1981) description of the process of social stress, which combines three major conceptual domains: sources of stress (negative life events), mediators of stress (social support), and manifestations of stress (mood disturbance).

Non-probability sampling was employed, with twenty subjects selected from the antepartum unit of a tertiary

hospital and twenty subjects from the community based program for PIH. A comparison group of twenty low risk pregnant women was also recruited from a prenatal class, for a total sample size of sixty. Subjects completed the following instruments: Life Events Questionnaire, Norbeck Social Support Questionnaire, Profile of Mood States, and a Demographic Information Form. An interview was also conducted. Data were analyzed using one-way ANOVA, bivariate correlation, and multiple regression techniques. Interview data were subjected to qualitative analysis.

Findings indicated that women with PIH cared for on the community based program had significantly lower levels of mood disturbance than the hospitalized women with PIH. There were no significant differences in levels of life stress and social support between the three groups. The hypothesis that stress (negative life events) would be directly related to mood disturbance was supported, whereas the hypothesis that social support would buffer the effects of high life stress on mood disturbance was not supported. Qualitative analysis revealed that remaining in the home environment, receiving daily monitoring and explanations from the nurse, and having more access to family members were benefits of the community based program.

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CHAPTER I: INTRODUCTION

Statement of the Problem

Research during the past 25 years has documented a direct relationship between stressful life events and a wide variety of physical and psychological disorders. This relationship appears to be primarily the effect of negative, or undesirable, life events. However, stressful life events account for only a small proportion of the variance in the dependent variables that have been studied, with correlations between number of events and subsequent disturbance ranging from .20 to .35. A need therefore arose to explore other variables that, along with stressful life events, might be related to illness. Investigators began to focus on the role of social support in mediating, or buffering, the effects of life events on physical or psychological distress (Lin, Simeone, Ensel, & Kuo, 1979; Sarason, Sarason, & Johnson, 1985; Thoits, 1982; Wilcox, 1981; Wilcox & Vernberg, 1985). Interest in the relationship between social support and health began in the mid-1970's with the publication of major review papers by Cassell (1976), Cobb (1976), Kaplan, Cassell, and Gore (1977), and Dean and Lin (1977) which suggested that social support may be an effective mediator or buffer of life

stress. According to the buffering hypothesis, "under conditions of high life change or chronic exposure to stressors, social support buffers the individual from potential adverse effects on mood and functioning, and facilitates coping and adaptation, reducing the likelihood of illness" (Gottlieb, 1983, p. 35). The interactional effect of social support with life crises such as serious illness (DiMatteo & Hays, 1981), widowhood (Hirsch, 1980), job stress (LaRocco, House, & French, 1980), job loss (Pearlin, Lieberman, Menaghan, & Mullan, 1981), and parenthood (Cronenwett, 1985) have been studied. One stressful life event for which the buffering effect of social support has not been investigated is that of high risk pregnancy.

The psychological and emotional impact of a high risk pregnancy can be highly stressful for the pregnant woman (Galloway, 1976). In addition to undergoing the developmental crisis of childbearing, the high risk mother must cope with the added crisis of a pregnancy that is not progressing as expected (Snyder, 1979). The usual processes of adaptation to pregnancy are disrupted, as the mother must cope with the additional developmental tasks created by the stress of high risk pregnancy (Galloway, 1976; Penticuff, 1982). With improved knowledge of the etiology and treatment of complications of pregnancy and with earlier recognition of high risk pregnancies, it is increasingly

common for pregnant women to be hospitalized for treatment of complications of pregnancy (Becker, 1984; Curry, 1985). The situational crisis of antenatal hospitalization is thus superimposed on the developmental crisis of pregnancy (White & Ritchie, 1984), and greater psychological disequilibrium is likely to occur (Tilden, 1984).

The psychological experience of the woman faced with a high risk pregnancy and antepartum hospitalization has only recently become the focus of investigation. White and Ritchie (1984) had 61 hospitalized women identify their stressors. These women experienced the most stress in relation to separation from home and family, disturbing emotions, changes in family circumstances, health concerns, and changing self-image, in that order. Women with preterm labor in a maternal-fetal intensive care unit cited being away from home and spouse and feelings of helplessness and loss of control as the most significant stressors (Waldron & Asayama, 1985). Becker (1984) found a significantly higher level of anxiety among hospitalized pregnant women, compared to non-hospitalized (low risk) pregnant women. The categories of perceived problems associated with hospitalization included separation, boredom, hospital routines, patient role, and emotional strain. In addition, "significant negative correlations were found between number of hours hospitalized and self-esteem, and between number of hours hospitalized and evaluation of pregnancy" (p. 158).

Thus empirical support for the stress of antepartum hospitalization exists. In the above three studies, separation from home and family was a predominant stressor for the hospitalized pregnant woman.

One approach to the problem of antenatal hospitalization is to provide community based home care programs for those high risk pregnant women for whom hospitalization is not mandatory. This would permit women to remain in a familiar environment, with access to the support of their family. Mitchell and Trickett (1980) state, "The linking of social support to various aspects of psychological adaptation offers a theoretical base for developing broad-based preventive interventions. . . . initiating programs that help individuals to strengthen their systems of support may reduce vulnerability and risk and increase competence" (p. 27). A home care program would provide opportunities for those people in the women's social network who have been consistently stable and closest to the woman to continue to provide the expected support functions. Thus although the stressful life event of high risk pregnancy may be beyond the health care professional's control, social support is a potential mediating factor that should be responsive to manipulation through social services and policies (Tilden, 1983).

One such program is the Program for Community Based Management of Pregnancy Induced Hypertension (PIH). "St.

Boniface General Hospital, Manitoba Health Services Commission, and Winnipeg Region of Manitoba Health have introduced a pilot project intended to provide community based care as an alternative to hospitalization" for women with mild to moderate PIH (Community Based Management, 1985). These women are good candidates for such a program, as bedrest is the principal treatment for PIH. Women accepted into the project receive a daily home visit from a Public Health Nurse. It was postulated that the assessment of the hypertensive woman in her home environment would alleviate stress related to separation from the family and allow more efficient use of hospital beds. Sonstegard (1979) noted that the psychological benefits of home care may far outweigh the close supervision of the hospital. As of 1979, there was little evidence available to indicate the value of hospitalization over bedrest at home for women with PIH, because no studies comparing the two methods had been done (Sonstegard, 1979). Since 1979, one prospective trial was conducted in Britain to see whether admissions could be avoided by supervising hypertensive pregnant women at home. Feeney (1984) concluded that "uncomplicated hypertension in pregnancy is more suitably managed by careful domestic supervision by community midwives than by admission to hospital" (p. 1047). Today's increasing medical costs, combined with the self-care movement in which people want to participate in and be responsible for their health care, are additional factors making home treatment of PIH an

attractive alternative to hospitalization (Willis & Sharp, 1982).

This study was designed to explore whether a community based home care program for women with PIH would result in lower levels of stress and mood disturbance, mediated by increased access to social support. These two groups of pregnant women with PIH (high risk) were also compared to a group of pregnant women not experiencing any complications (low risk). Therefore, the purpose of this study was:

1. to compare levels of life stress, social support, and mood disturbance among three groups of pregnant women: women with PIH cared for in the hospital setting, women with PIH cared for on the Community Based Program, and low risk pregnant women.
2. to study the relationships between the variables of life stress, social support, and mood disturbance.
3. to determine whether social support buffers (or mediates) the effects of life stress on mood disturbance in pregnant women.
4. to describe the experience of women with PIH in the two settings (hospital versus home) from the perspective of each group.

The three groups of subjects in this study were designated as follows:

1. Group I: women with PIH cared for in the hospital setting.
2. Group II: women with PIH cared for on the Program for Community Based Management of PIH.
3. Group III: Low risk pregnant women.

Significance of the Study

The Community Based Program is an alternative approach to antenatal hospitalization in providing care for women with PIH. It is important that this new approach to care be evaluated. This study proposes to examine the variables of life stress, social support, and mood disturbance in evaluating the benefits of home care compared to hospitalization.

Interventions which reduce the amount of stress and mood disturbance experienced by pregnant women are important in improving the pregnant woman's emotional and physical well-being, as well as protecting the fetus. "Stress and anxiety have been positively identified as major variables which disrupt the maturational task of childbearing and may lead to a variety of outcome complications" (Tilden, 1980, p. 673). Life stress, anxiety, and low social support have been implicated, either separately or in combination, as contributors to pregnancy complications (Glazer, 1980; Gorsuch & Key, 1974; Norbeck & Tilden, 1983; Nuckolls, Cassell, & Kaplan, 1972). A higher incidence of fetal

asphyxia, congenital anomalies, stillbirths, and neonatal deaths has been reported among infants of women who experienced high levels of anxiety or stress during pregnancy (Ascher, 1978). Psychological factors in pregnancy have also been found to be predictive of progress in labor (Lederman, Lederman, Work, & McCann, 1983). Thus health professionals have a responsibility to attempt to limit stress and anxiety as much as possible during pregnancy.

Because social support may mediate the effects of life stress on emotional disequilibrium and complications of pregnancy (Nuckolls et al., 1972; Tilden, 1983), the importance of studying social support during pregnancy is evident. Social support is especially protective of mental health when stress or strain is high (LaRocco et al, 1980). Because antepartum hospitalization is a stressful event for pregnant women (Becker, 1984; White & Ritchie, 1984), the importance of developing programs that increase access to social support for high risk pregnant women is also evident. Waldron & Asayama (1985) state,

> The third trimester of pregnancy is the time when a sense of security is important and various worries related to labor and delivery, adequacy of parenting ability, and fears of a less than healthy child are common. This is, therefore, a particularly difficult time for a crisis to occur in pregnancy and for that

> crisis to necessitate a separation from established support systems. (p. 84)

Brandt (1984c) states that nursing practice will benefit from studies of effective models of social support offered by both lay and professional sources during high risk situations. A Community Based Program for women with PIH is one such model, in which the woman has access to social support from her family and also from a professional source (the Public Health Nurse). Although it may not be possible to obviate life stresses (such as a high risk pregnancy), it may be possible to mobilize a support system as a major component of community based services (Dean & Lin, 1977).

Research is needed to evaluate the effectiveness of intervention strategies to enhance social support (Norbeck, 1981). Since social support is a phenomenon that is clearly within the domain of nursing practice, this research is highly significant to nursing practice. Nursing should not overlook evaluating the availability of natural social supports such as family and friends which people can use as resources; ways of developing resources that put less emphasis on treatment by professionals and more emphasis on embeddedness within natural social support networks should be considered (MacElveen-Hoehn & Eyres, 1984; Mitchell & Trickett, 1980).

Conceptual Framework

The conceptual framework for this research is derived from Pearlin, Menaghan, Lieberman, and Mullan's (1981) description of the process of social stress. The process of social stress combines three major conceptual domains: sources of stress, mediators of stress, and manifestations of stress. In this study, the source of stress to be studied is negative life change events (including high risk pregnancy), the mediator of stress is social support, and the manifestation of stress is mood disturbance.

Sources of Stress

The sources of stress arise out of two broad circumstances: the occurence of discrete events and the presence of relatively continuous problems. Pearlin et al. (1981) categorize sources of stress as life events, life strains, and diminishment of self.

Life Events. The adverse consequences of life events depend not only on the number of events and the magnitude of the changes involved, but on the quality of change as well. Life events can be distinguished according to their desirability, degree of control over their occurrence, or by whether or not they are scheduled life change transitions. Findings obtained by McFarlane, Norman, Streiner, and Roy (1983) indicated that events perceived to be desirable, and therefore presenting opportunities for gain or mastery, were

not stressful, whereas events that were neither desirable nor within control were positively correlated with measures of distress. Zuckerman, Oliver, Hollingsworth, and Austrin (1986) also found that frequency of life events predicted psychological symptomatology only insofar as the events were preceived as negative.

Pregnancy, especially if planned, is an example of a desirable and scheduled life transition. However, a high risk pregnancy represents an undesirable and unscheduled disruption over which the pregnant woman lacks control, and therefore is likely to be stressful. "The diagnosis of a pregnancy as 'high risk' is often a shock to the couple involved and causes anxiety about the outcome of the pregnancy and the health of the mother and child" (Galloway, 1976, p. 294). Consideration must also be given to other simultaneous negative life change events experienced by the high risk woman, such as hospitalization and changes at work. Volicer and Burns (1977) surveyed 450 general medical and surgical patients in a study of preexisting correlates of hospital stress. They discovered that life stress scores increased the explanation of hospital stress significantly for both medical and surgical patients.

Life Strains. Life events may create new role strains or intensify preexisting strains. "Undesirable and unscheduled events create stress not only through their direct demand for readjustment, but also through their indirect

exacerbation of role strains" (Pearlin et al., 1981, p. 343).

High risk pregnancy may exacerbate the role strains of being a wife, mother, and career woman. In addition to coping with the stresses of normal childbearing, the woman has to learn to cope with the demands and restrictions dictated by a high risk experience. If the pregnant woman is hospitalized or placed on the community based program, she assumes a patient role. The behavioral obligations of this sick role may interfere with the performance of other ongoing roles (Snyder, 1979), such as wife and mother. The woman may also be forced to quit work earlier than expected, causing strain in her role of career woman or employee.

Diminishment of Self. "Life events and the role strains they generate are especially likely to eventuate in stress when they also result in a diminishment of self" (Pearlin et al., 1981, p. 339). Thoits (1983) explains how negative life events and their undesirable consequences may decrease self-regard: "Failure to control the occurrence of events or their undesirable consequences may decrease a sense of mastery or control over life . . . And the loss of valued social roles or inadequate performance in remaining roles may lower the value of individuals in their own and others' eyes" (p. 83). Thus two dimensions of self-concept are particularly relevant in this regard: mastery and self-esteem.

High risk pregnancy can affect both mastery (the extent to which people see themselves as being in control of forces affecting their lives) and self esteem (the judgments that one makes about one's own selfworth). Snyder (1979) discusses a trajectory of childbearing, which has a definite duration and progressive course from conception to delivery. In high risk pregnancy, the trajectory is altered and no longer becomes predictable. For example, the woman may develop PIH, undergo hospitalization, and face the possibility of a premature delivery. This unexpected situation creates a sense of lack of control in the mother.

The high risk pregnant woman must work on several developmental tasks: accepting herself as a high risk mother, questioning whether "the pregnancy will accept her", and securing safe passage for herself and her unborn child|(Galloway, 1976, pp. 294-295). Accepting herself as a high risk mother may be difficult because it indicates a lack of perfection and a state of illness. The woman may value her ability to bear a child, and when a threat to her reproductive ability arises, it creates a blow to her self-concept as a woman and as a mate. In order to secure safe passage, "a high risk mother may be asked to change her entire pattern of daily life during the pregnancy - her activity level, diet, employment status, home schedule" (Galloway, 1976, p. 295). These factors may result in difficulty performing her usual roles and diminished self

esteem. In addition, family members or friends may experience confusion about how to behave toward the high risk pregnant woman, and may stop calling or visiting (Snyder, 1979). For the high risk mother who is trying to ascertain the acceptance of her unborn child by her significant others, this may further contribute to lowered self esteem. Becker (1984) found that hospitalized subjects in the third trimester of pregnancy had significantly lower self-esteem, less satisfaction with body, higher state anxiety, and less positive evaluation of pregnancy than the non-hospitalized (low risk) subjects in the third trimester of pregnancy.

Mediators of Stress

People typically confront stressful conditions with a variety of behaviors, perceptions, and cognitions that may alter the difficult conditions or mediate their impact. Pearlin et al. (1981) identify social support as an important mediator which can be invoked by people on behalf of their own defense against stress. "There are several junctures at which the mediators can conceivably intervene: prior to an event, between an event and the life strains that it stimulates, between the strain and the diminishment of self-concept, or prior to the stress outcome" (p. 341).

Recent research provides evidence for both direct and buffering effects of social support on health and well-being

(Broadhead et al., Gottlieb, 1983; Kessler & McLeod, 1985). Cohen and Syme (1985) provide the following explanation of the direct and buffering hypotheses:

> The direct effect hypothesis argues that support enhances health and well-being irrespective of stress level. . . The perception that others are willing to help could result in increased overall positive affect and in elevated senses of self-esteem, stability, and control over the environment. . . In contrast to the direct effect model, the buffering hypothesis argues that support exerts its beneficial effects in the presence of stress by protecting people from the pathogenic effects of such stress. In this model, support may play a role at two different points in the stress-pathology causal chain. . . First, support may intervene between the stressful event (or expectation of that event) and the stress experience by attenuating or preventing a stress response. . . Second, support may intervene between the experience of stress and the onset of the pathological outcome by reducing or eliminating the stress experience or by directly influencing responsible illness behaviors or physiological processes. (pp. 6-7)

In a study of 141 medically normal pregnant women, Tilden (1983) found that emotional disequilibrium in pregnancy decreased as a function of decreasing life stress and

increasing social support. The present study will examine whether this relationship also occurs in medically "abnormal" pregnant women. Separation from home and family has been identified as a problem associated with antepartum hospitalization (Becker, 1984; White & Ritchie, 1984). It is speculated that high risk pregnant women who are cared for in the home environment may have increased access to their social network and support systems.

Manifestations of Stress

The meaning and measurement of stress itself is an issue. Confusion results from disagreements about which of its many outcomes can be regarded as the "real" manifestation of stress. For example, one controversy revolves around where in the functioning of the organism this response is most clearly reflected: in the single cell, organ, or entire organism; in biochemical, physiological or emotional functioning; at a level of systems; or in particular diseases, physical and psychological (Pearlin et al., 1981). Because this study is concerned with the psychological and emotional responses to high risk pregnancy, mood disturbance has been selected as the outcome variable representing manifestations of stress. Women with PIH may experience a wide variety of emotions, such as depression and anxiety. During antepartum hospitalization, feelings of guilt, anger, boredom, and frustration may result (Williamson, 1981).

In summary, the conceptual framework focuses on the process of social stress and incorporates three major conceptual domains: sources of stress, mediators of stress, and manifestations of stress. This framework has been applied to the stressful event of high risk pregnancy.

Hypotheses

The following hypotheses will be tested:

1. Hospitalized pregnant women with PIH, as compared with non-hospitalized pregnant women with PIH,
   a) will exhibit higher levels of life stress.
   b) will have lower levels of social support.
   c) will have higher levels of mood disturbance.
2. Hospitalized pregnant women with PIH, as compared with low risk pregnant women,
   a) will exhibit higher levels of life stress.
   b) will exhibit lower levels of social support.
   c) will exhibit higher levels of mood disturbance.
3. Non-hospitalized pregnant women with PIH, as compared with low risk pregnant women,
   a) will exhibit higher levels of life stress.
   b) will exhibit similar levels of social support.
   c) will exhibit higher levels of mood disturbance.
4. Life stress (negative life events) will be directly related and social support will be inversely related to mood disturbance.

5. The effects of high life stress on mood disturbance will be buffered by social support.

Definition of Terms

1. Pregnancy-induced hypertension (PIH): a term used to describe hypertensive conditions occurring in pregnancy (Moore, 1983)
2. Preeclampsia: "hypertension with proteinuria, edema, or both, occurring after the twentieth week of pregnancy" (Moore, 1983, p. 1095).
3. Hospitalized woman with PIH: a pregnant woman between 30 - 40 weeks gestation admitted to the antepartum unit of a hospital with a diagnosis of preeclampsia.
4. Non-hospitalized woman with PIH: a pregnant woman between 30 - 40 weeks gestation admitted to the "Community Based Management of Pregnancy-Induced Hypertension" Program with a diagnosis of preeclampsia, and cared for in her own home.
5. Low risk pregnant woman: a pregnant woman between 30 - 40 weeks gestation with no complications of pregnancy such as preeclampsia, antepartum hemorrhage, premature rupture of membranes, or twins; no pre-existing maternal health problems such as diabetes, hypertension, or cardiac disease; and no admissions to hospital or the Community Based Management of PIH Program during this pregnancy.

6. Life stress: stressful life events occurring in the past year which are judged by the pregnant woman as negative, operationally defined as the negative events score on the Life Events Questionnaire (Norbeck, 1984a).

7. Social support: is defined as "interpersonal transactions that include one or more of the following: the expression of positive affect of one person toward another; the affirmation or endorsement of another person's behaviours, perceptions, or expressed views; the giving of symbolic or material aid to another. The key elements in supportive transactions are thus affect, affirmation, and aid "(Kahn, 1979, p. 85). The transactions occur "within the person's social network or convoy. The convoy describes a set of relationships that develop and change over time and form the more or less stable group of persons on whom the individual relies for support and those who rely on the individual for support" (Norbeck, 1984b, pp. 46-47). Social support is operationally defined as the scores on the Norbeck Social Support Questionnaire (Norbeck, 1984b; Norbeck, Lindsey, & Carrieri, 1981, 1983).

8. Mood: the dominant emotion of the moment (Wheeler, Goodale, & Deese, 1975); a pervasive and transitory emotional state (for example, sadness, anxiety, elation) that tends to give an affective coloring to

the entire momentary experience of the person (Krech, Crutchfield, & Livson, 1974).

9. Mood disturbance: transient fluctuating affective states such as tension-anxiety, depression-dejection, anger-hostility, fatigue-inertia, and confusion-bewilderment, operationally defined as the Total Mood Disturbance score obtained on the Profile of Mood States instrument (McLair, Lorr, & Droppleman, 1971).
10. Primigravida: a woman during her first pregnancy (Moore, 1983).
11. Multigravida: a woman pregnant for the second or subsequent time (Moore, 1983).

Summary

This study explored the relationships between the variables of stress, social support, and mood disturbance in three groups of pregnant women. The rationale for conducting the study arose from an awareness of the stressfulness of antepartum hospitalization and the knowledge that stress and anxiety have been implicated as contributors to pregnancy complications. Because the Program for Community Based Management of PIH had recently been implemented as an alternative approach in providing care for women with PIH, the opportunity arose to determine whether such a community based home care program would result in lower levels of stress and mood disturbance, mediated by increased access to social support. The study was guided by a conceptual

framework derived from Pearlin et al.'s (1981) description of the process of social stress, in which the process of social stress combines three major conceptual domains: sources of stress (negative life events), mediators of stress (social support), and manifestations of stress (mood disturbance).

The next chapter examines in more detail the conceptualization and operationalization of social support, and reviews related research studies.

CHAPTER II: REVIEW OF RELATED LITERATURE

Social support has been hypothesized to buffer or mediate the effect of stressful life events on psychological distress. Direct effects of social support in improving health have also been reported. This literature review will provide an overview of the conceptualization of social support by examining definitions proposed by various authors. The operationalization of social support, or measurement, will then be discussed. This will be followed by a review of research studies examining the effects of social support, first in the general population and then with respect to pregnancy.

Conceptualization of Social Support

Most studies suffer from inadequate conceptualization and operationalization of social support (Thoits, 1982). Many empirical investigations have used the term with little clarification and no definition, and thus far no consensus on meaning has been achieved (MacElveen-Hoehn & Eyres, 1984). However, examination of the evolution of the concept of social support will help to clarify the meaning of the term.

Dozens of conceptual definitions of social support have been proposed. Early definitions regarding the nature of social support looked at social support in a general manner and were often vague or circular; that is, support is behavior that is supportive (Hogue, 1985; House, 1981; Wilcox & Vernberg, 1985). For example, Cobb (1976) defined social support as "information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations" (p. 300). Kaplan et al. (1977), after reviewing several studies, concluded that definitions of social support focused on one of the following: the gratification of a person's basic social needs (approval, esteem) through environmental supplies of social support, or the relative presence or absence of psychosocial support resources from significant others. Lin et al. (1979) defined social support as "support accessible to an individual through social ties to other individuals, groups, and the larger community" (p. 109). Early studies "often used only global measures of social support and did not clearly distinguish its different facets" (Heller & Lakey, 1985, p. 288). This led to difficulties in adequate operationalization of the definitions.

Later definitions became more explicit, focusing on the types, or key elements, of social support. Consensus about the general nature of social support had been achieved, but there was still disagreement over specifics (House, 1981).

Schaefer, Coyne, & Lazarus (1981) identified three types of perceived social support: emotional support (intimacy and attachment, reassurance, and being able to confide in and rely on another), tangible support (direct aid or services), and informational support (giving information and advice). These authors emphasized the importance of distinguishing among various types of support because of the possibility that they may have independent effects on health and psychological functioning. Kahn (1979) proposed that social support be defined as interpersonal transactions that include: affect (expression of positive affect of one person toward another); affirmation (the affirmation or endorsement of another person's behaviours, perceptions or expressed views); and aid (the giving of symbolic or material aid to another). This definition forms the basis for the social support instrument to be used in this study. Kahn also uses the term "convoy" to refer to the set of persons an individual relies on for support and those who rely on the individual for support. The typology of House(1981) is the most inclusive to date, because the four types of supportive behaviors in his definition derive from the definitions already reviewed, but none of the previous definitions includes all four types. House identified the following components of social support: emotional support (esteem, affect, trust, concern, listening); appraisal support (affirmation, feedback, social comparison); informational support (advice, suggestion, directives,

information); and instrumental support (aid in kind, money, labor, time). House also proposed that each component of social support be viewed in a matrix vis-a-vis the source (informal, such as family and friends, and formal, such as professionals and self-help groups), the context (general versus problem focused), and the direction of perception (objective versus subjective). In summary, a variety of types of social support have been identified, although some similarities among the categories exist. Emotional support is included in one form or another in all the definitions reviewed. Most investigators currently regard social support as having at least two major components: emotional support and tangible support (Norbeck, 1985).

Attention is also directed toward the sources of social support, referred to as the social network. A social network is defined as "the set of relationsips of a particular individual" or the "specific set of linkages among a defined set of persons" (Schaefer et al., 1981, p. 383). Mitchell and Trickett (1980) identify several characteristics of social networks. Structural characteristics refer to properties of the overall network and include size or range (the number of individuals with whom the individual has direct contact), network density (the extent to which members of an individual's social network contact each other independently of the focal person), and degree of connection (the average number of

relationships that each member has with other members of the network). Characteristics of component linkages refer to properties of individual relationships, and include such properties as intensity, durability, directedness and reciprocity, and frequency.

In summary, social support is now understood as a multidimensional concept (Gottlieb, 1983; Hogue, 1985). The amount, type, and sources of support are all important to consider (Thoits, 1982). When considering social suport variables,

> Perhaps the most important distinction to be made is between the number of relationships a person has and the person's perception of the supportive value of social interactions. The former is usually referred to as the social network; the latter, as perceived social support. The benefits of social relationships are assumed, not measured, in the social network concept, while in the concept of perceived social support an effort is made to assess the person'a evaluation of the supportive quality of a relationship, either in general or in specific contexts. (Schaefer et al., 1981, p. 383)

Operationalization of Social Support

The operationalization of social support is in need of much more development. A barrier to objective research has been the lack of reliable and valid instruments to measure social support, plus a diversity of conceptualizations concerning the ingredients of social support (Sarason, Levine, Basham, & Sarason, 1983). "Many researchers have used social support in previous studies, but have neglected to evaluate or report the psychometric properties of their measures" (Barrera, Sandler, & Ramsay, 1981, p. 436). One study which reviewed 29 social support and social network scales from a psychometric perspective found that only three articles provided sufficient information regarding scaling, reliability, and validity for the instrument used (Rock, Green, Wise, & Rock, 1984). Because of the absence of well-developed measures of social support, a variety of different approaches to assessing the concept have been adopted. Three categories of approaches to measuring social support have been identified (Hogue, 1985; House & Kahn, 1985; Turner, 1983):

1. The social integration approach: Support is viewed as a byproduct of people's participation in various social aggregates. The individual's connections with others are assessed, including primary and secondary relationships and both formal and informal group associations. Example measures include marital

status, participation in community organizations, and frequency of visiting friends.

2. The social network approach: The structure of a person's social relationships are studied. Patterns of relationships or objective characteristics of specific social networks such as size and density are considered in this approach.
3. The perceived social support approach: This approach investigates the functional content of relationships. Functional measures generally ask persons about their perceptions of the quality or adequacy of support provided by other persons.

Earlier studies frequently used the social integration approach to measuring social support, whereas contemporary studies usually employ one or both of the last two categories of analysis.

Conceptual distinction now exists between social networks and perceived social support, but controversy continues over which of these two aspects of social support is most important to measure. Disagreement about the merit of studying social networks seems to predominate. Schaefer et al. (1981) state,

> When structural measures of social network size are used to indicate the benefits of social relationships, two questionable assumptions are made, namely, that any benefits are directly proportional to the size and

> range of the network and that having a relationship is equivalent to getting support. . . .While it is likely that social network size and amount of social support are positively associated, this assumption ignores the demands, constraints, and conflicts also associated with social relationships. Indeed, the problems generated from significant social relationships comprise a significant share of the stresses people experience in their daily lives. (p. 383)

In studies comparing measures of perceived social support with measures of social network, the quality of social support is usually a stronger predictor of health outcome than quantity measures, and quantity of support is often not significantly related to well-being (Broadhead et al., 1983). For example, Wilcox (1981) found that the quality of a person's supportive network was more important than the number of persons providing that support with respect to the buffering effect of social support on psychological distress in a sample of 320 community residents. In a study of 100 persons 45 to 64 years old by Schaefer et al. (1981), perceived social support variables had stronger relationships with depression and negative morale than the Social Network Index. Tangible support and emotional support were inversely associated with dependence and negative morale. Hogue and Gorton (cited in Hogue, 1985), in a study of 130 older women, concluded that the perceived social support measure was positively and directly related

to psychological well-being, whereas networks were not related to well-being.

Other authors feel that the measurement of social networks helps distinguish what kinds of networks have health-related benefits for particular individuals. Factors such as the nature of the crisis and the combination of internal and external resources of the individual determine which type of network is most appropriate (Hogue, 1985). For example, Hirsch (1980) found that lower density (less integrated) support systems and multidimensional friendships were significantly associated with better support and mental health in a sample of young widows and mature women returning to college. For these two groups of women, developing friendships outside the family sphere and diversifying their interests fostered adaptation to a major life change. This study indicates the importance of studying social networks.

Regardless of which aspects of social support are investigated in a study, it is important that the investigator be clear about what is being measured and that social network and perceived social support be measured separately, as they may have independent effects on health and psychological functioning. Questions of how structural properties of support systems relate to support that is actually received and how the social network relates to the perceived supportiveness of one's significant environments are areas requiring further research (Barrera et al., 1981).

Network analysis represents a relatively new tool for assessing social support, in which both relational and structural dimensions of networks are described (Brandt, 1984a; Gottlieb, 1983). The relational network dimension assesses the content (supportive or nonsupportive), strength, and symmmetry characteristics of interpersonal ties (similar to perceived social support). The structural network dimension includes the network size, diversity of network membership, personal interconnectedness, and stability in time and location (similar to the social network aproach). The advantage of this approach is that analysis "of a person's supportive ties within the overall context of the social network enables a better understanding of the conditions under which social support is provided as well as the negative effects of network ties" (Brandt, 1984a, p. 190).

In closing this discussion on measurement of social support, examples of how social support has been operationalized in two instruments will be provided. The main social support instruments appearing in the nursing literature are the Norbeck Social Support Questionnaire (NSSQ) (Norbeck, Lindsey, & Carrieri, 1981, 1983) and the Personal Resource Questionnaire (PRQ) (Brandt & Weinert, 1981; Weinert, 1984). Both instruments view social support as a multidimensional construct, have undergone psychometric evaluation, and have been employed in a variety of studies.

The NSSQ is based on Kahn's definition of social support, while the PRQ is based on Weiss's typology of social provisions. Brandt (1984a) states that both the NSSQ and PRQ were designed to measure aspects of the relational and structural network dimensions (described above).

> Structural network dimensions of size, diversity, and stability in time are measured by the NSSQ, whereas the PRQ taps only network diversity. Personal interconnectedness and location are not assessed by either of these measures. Indications of satisfaction with the support obtained from network members are found on both the NSSQ and PRQ. (Brandt, 1984a, p. 192)

These instruments illustrate how social support can be conceptualized and operationalized in an effective manner.

Effects of Social Support

Social support has been hypothesized to have both buffering effects and direct or main effects on health. Figure 1 (based on House, 1981) presents an illustration of the ways in which social support can affect stress and health. Social support can directly enhance health and wellbeing (arrow c) or it can directly reduce levels of stress (arrow a), and hence indirectly improve health (via arrow d). These are the main or direct effects of social support. Social support may also have the potential to buffer or mediate the impact of stress on health (arrow b).

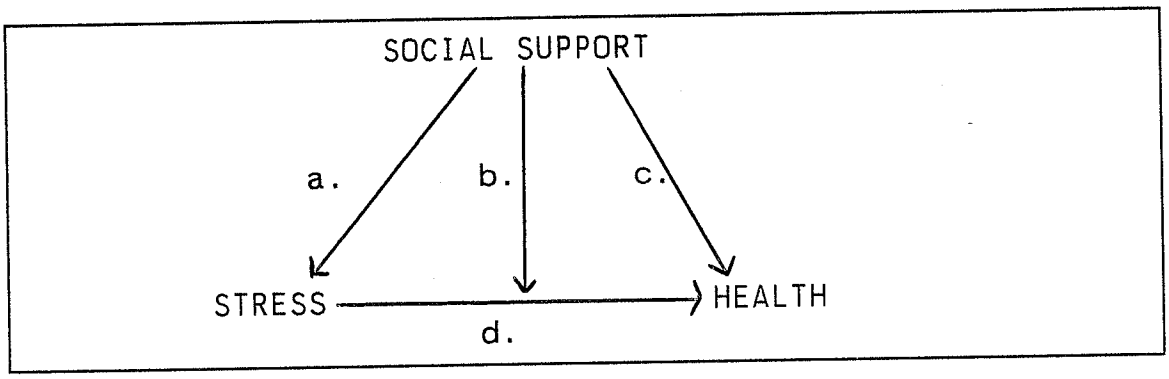

Figure 1: Potential Effects of Social Support on Stress and Health

According to the buffering hypothesis, social support buffers the individual from the adverse effects of stressful life events on health (Gottlieb, 1983). The relationship between stressful life events, social support, and psychological distress is an interactive one: "at low levels of support the relationship between life events and psychological distress should be strongly positive; as social support increases, the association between life events and distress should decrease and perhaps disappear under conditions of maximal support" (Wilcox, 1981, p. 373). In the absence of stressors, social support is thought to have little influence on distress. In contrast, hypotheses regarding the direct effects of social support state that social support has a positive influence on people's health regardless of their levels of stress; that is, the better supported an individual is, the less psychological distress he/she should experience. Social support is thought to

insulate people from exposure to stressors and enhance good health and morale (Gottlieb, 1983; Wilcox, 1981).

Recent research provides support for both buffering and main effects of social support. Because there are almost as many measures of social support as there are studies, it is difficult to compare studies and to determine why support acts as a buffer in some instances and has a direct effect in others (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). The issue is often posed as if only one of these mechanisms is correct, when in fact both mechanisms may be valid. Cohen and Syme (1985) propose a possible explanation:

> The direct and buffering processes may . . . be linked with different conceptions (and hence different types of measures) of social support. . . Direct effects generally occur when the support measure assesses the degree to which a person is integrated within a social network, while buffering effects occur when the support measure assesses the availability of resources that help one respond to stressful events. (p. 6)

Wills (1985) also suggests that some types of social support may operate primarily as main effect processes whereas others operate as buffering processes. Further research is needed to clarify the relationships between social support, stress, and health.

Studies regarding the positive effect conveyed by social support upon health began in the 1970's. "Early

investigations of the relationship between health and social support focused on the interplay among specific stressors, social support, and various measures of psychological well being. . . . During the last five years, investigators have attempted to learn more about how social support works by looking at the nature and structure of the social ties through which support is given and received" (Cronenwett, 1985, p. 93). Several extensive reviews of studies of the relationship between social support and health have been conducted. These will be discussed prior to examining the results of specific studies related to social support and health in both the general population and pregnancy.

Cobb (1976) organized his review of social support research around major transitions and crises of the life cycle. He concluded that adequate social support facilitates coping with crisis and adaptation to change by exerting a protective effect. Social support was viewed as a moderator of life stress, protecting people in crisis from a wide variety of pathological states, "from low birth weight to death, from arthritis through tuberculosis to depression, alcoholism, and other psychiatric illness" (Cobb, 1976, p. 310). Dean and Lin (1977) also reviewed a variety of animal and human studies suggesting that social support is an important variable in buffering stress and reducing the risk of illness. After reviewing 34 major empirical studies of social support and illness, Di Matteo

and Hays (1981) concluded that, taken as a whole, social support is associated with recovery and coping with serious physical illness and injury. A wide range of outcome variables were studied, but in general these fell into three categories: physical recovery, social role recovery (resumption of role-related activities), and socioemotional recovery (psychological outcome variables). Broadhead et al. (1983) reviewed a variety of studies (cross-sectional, retrospective, prospective cohort, and clinical intervention) that reported associations between social support and health status, supporting direct positive effects of social support, buffering effects, or both. A table format was used by Gottlieb (1983) to summarize the samples, measures, and findings of several studies that tested the stress-buffering effects of social support. Nine of the 10 cross-sectional studies and 6 of the 7 longitudinal studies reviewed supported the buffering hypothesis. Studies supporting the direct effects of social support were also cited.

The most recent literature review is that of Kessler and McLeod (1985), who reviewed 23 normal population surveys that studied social support in relation to stressful life experiences and mental health outcomes. If methodological problems were found in the study, the results were considered unclear and those studies were discarded from the analysis. Three aspects of social support were examined:

membership in affiliative networks, feelings of being emotionally supported, and perceived availability of support. Only two of the eight studies examining interactions between membership in affiliative networks and a life event inventory in predicting psychological distress documented a significant buffer effect. However, five of the seven studies examining interactions between emotional support and a life event inventory documented significant buffer effects. The two exceptions used two-item support measures. Interactions between perceived availability of support and a life event inventory also documented a significant buffer effect in four of the five studies examined. The main effect of support was significant in three of the eight studies that did not find a significant buffer effect. The authors state, "Almost all of the inconsistencies in results can be traced to weaknesses in conceptualization, measurement, sample size, or analysis method - differences that are largely methodological" (p. 227).

In summary, "despite a variety of study methods and many different conceptualizations of social support, stress, and health, there is a great deal of empirical evidence that social support can reduce stress and buffer the impact of stress on health" (Hogue, 1985, p. 67).

Various authors, including those of the above literature reviews, have proposed several directions for future

research, in order to overcome the limitations of existing research. These include the need for:

1. more longitudinal designs to test the buffering hypothesis and to obtain more conclusive evidence regarding cause-effect relationships between life events, social support and illness (Thoits, 1982).
2. more experimental intervention designs.
3. the development of stress measures which are not conceptually confounded with social support. That is, "distress and ill health produced by stressors involving social losses must be disentangled from the adverse results that are due to levels of ongoing support that are insufficient to buffer stress" (Gottlieb, 1983, p. 61).
4. development of reliable and valid measures of social support.
5. examination of the interaction of sociodemographic and personality variables with social support variables.
6. evaluation of the relative benefits of various types and sources of social support on health outcome.
7. a focus on the processes or mechanisms by which social support is linked to well-being (Cohen & Syme, 1985; Heller & Lakey, 1985; Thoits, 1985).
8. investigation of specific mediating biologic mechanisms of social support (for example, Beta-endorphins) (Broadhead et al., 1983).

Results of several studies of social support will now be reviewed, beginning with those supporting the buffering hypothesis in the general population.

Wilcox (1981) had a group of 320 community residents complete questionnaires including two measures of social support (perceived support and number of supporters), two psychological distress scales, and a stressful life events scale. The four interactional hypotheses were tested using a hierarchical regression model. The interaction of perceived support and life events accounted for 12% of the variance in predicting the Langner Symptom Checklist (LSC) score and 9% of the variance in predicting the Profile of Mood States (POMS) - Tension-anxiety subscale score. When the number of supporters variable was used in the interaction with life events, the interaction accounted for only 3% of the variance in explaining both the LSC and POMS scores, although the results were significant. Thus the results supported the hypothesis that social support buffers or conditions the relationship between stressful life events and psychological distress, but the amount of variance accounted for was much greater when the support instrument measured quality of support rather than quantity of supportive relationships.

In a study of a stratified random sample of men from 23 occupations (N=636), findings from the multiple regression analysis indicated that social support buffered the effects

of job stress and job strain on overall mental health, but did not clearly buffer the impact of job stress on job-related strain (LaRocco et al., 1980). The social support measure tapped the presence of psychological and tangible supports from three sources: 1) supervisor, 2) coworkers, and 3) wife, family and friends. Graphs plotting the regressions of somatic complaints on job stress and job-related strain at the highest and lowest levels of coworker support were consistent with the buffering hypothesis, as the lines converged at the lowest levels of stress. That is, social support had little beneficial effect on mental health when stress or strain levels were low, but was quite protective of mental health when stress or strain was high. Buffering effects were thought to reflect a mobilization of support in response to stress or strain.

Cohen, McGowan, Fooskas, and Rose (1984) used a prospective design to compare the stress-buffering effects of <u>received</u> and <u>perceived</u> social support in a sample of 92 college students. At Time 1, subjects completed a life events schedule, the Langner symptom checklist, and the Beck Depression Inventory. At Time 2, two months later, subjects completed these same three scales and two scales of social support - one measuring the amount of social support received during the past month and the other measuring the perceived availability of support. The prospective design was used to test the effects of negative life events after

initial psychological disorder was statistically controlled. The number of negative events was significantly and positively related to psychological disorder in this study. Both the cross-sectional and prospective multiple regression findings revealed direct and stress-buffering effects for perceived but not received social support. The authors concluded that the measure of received support failed to assess subjects' desire for and satisfaction with help.

Sandler and Lakey (1982) had 93 college undergraduates report the negative events which occurred in their lives in the past year, their perceived control over these events, the amount of socially supportive transactions they received, and their psychological symptomatology (anxiety and depression). The interaction of stress and social support (stress-buffering effect of social support) was significant in the prediction of both the depression and anxiety variables for the internal locus of control subjects, but not for the external locus of control subjects. However, externality was positively related to the quantity of support received. This study illustrates the importance of studying personality variables as moderators of the stress-disorder relationship.

Two other studies investigated the role of both coping and social support in buffering the stress of life events, but only the results pertinent to social support will be reported here. Billings and Moos (1981) employed a randomly selected sample of 194 families in which both partners

responded to a survey concerning their coping responses and social resources. Results indicated that mood and symptom levels were related to quantitative and qualitative measures of social resources; however, quality was related more strongly than quantity. Indices of social resources also moderated the relationship between negative life events and personal functioning. Pearlin et al. (1981) used longitudingal data from a sample of 1,106 respondents who underwent two interviews spaced four years apart. The purpose of the study was to observe how life events, chronic life strains, self concepts, coping, and social supports came together to form a process of stress. Involuntary job disruptions were used to illustrate life events. Results indicated that social support did not have a direct effect on depression, but that social support helped to buttress the sense of mastery when changes in economic strain and job disruption were held constant, and mediated the stress of job disruption by helping job losers avoid the lowering of positive self-concepts. The effectiveness of social support as a mediator was greater among the job losers than those who had been consistently employed, giving further support to the buffering hypothesis.

Other studies supported the direct effect hypothesis, but failed to find significant stress buffering effects of social support. Schaefer et al. (1981) studied the relationships among stressful life events, social network

size, three types of perceived social support, and outcome measures of mood, psychological symptoms, and physical health status. This was a year-long study employing a community sample of 100 men and women 45 to 64 years old. The data showed that perceived social support, especially tangible and informational support, was inversely correlated with depression and negative morale. Neither social support nor stressful life events were associated with physical health. In multiple regression analysis, the combination of life events and social support variables in the overall model accounted for a significant 23% of the variance in depression and 18% of the variance in negative morale. However, when separate product terms were constructed for each of the social support variables in combination with the life event variables and entered as the last step in the regression, none of the interaction terms accounted for any significant amount of variation in depression, morale, or physical health. A buffering effect of social support was not supported. The authors state, "it would be premature to conclude that perceived social support does not buffer the illness-inducing effects of stress, but these effects may be more evident when support is assessed with respect to the demands of specific stressful occurrences (that is, as crisis support)" (pp. 400-401).

McFarlane, Norman, Streiner, and Roy (1983) conducted a prospective longitudinal study based on 428 subjects

recruited from the practices of ten family physicians in Hamilton, Ontario. Subjects were interviewed and completed questionnaires at three intervals six months apart. The variables studied included life-change events, social support, locus of control, distress, symptoms, and physician visits. Findings indicated that events perceived to be desirable were not stressful, whereas life events that the subjects judged as being undesirable and over which they had no control were associated with an increase in reports of distress, symptoms, and physician visits. However, when prior health and prior stress were controlled, this association was considerably reduced. There was no evidence that either locus of control or the helpfulness and extent of the social network mediated the stress-illness relationship. However, there was some evidence that helpfulness of social supports may reduce the likelihood of experiencing stressful events.

A representative sample of a Chinese American adult population (121 males and 49 females) was studied by Lin et al. (1979), using interviews of household heads. Marital status, occupational prestige and stressful life events combined to explain about 8% of the variance in psychiatric symptoms. The variance increased to 21% when social support was incorporated into the regression model. Social support was negatively related to psychiatric symptoms (correlation -.36). Although results supported the direct effect of

social support on illness, only weak support was obtained for the mediating effect of social support between stressors and illness. For example, after support and stressful life events were trichotomized into high, medium, and low groups, when the stressor level was high, the low social support group experienced more symptoms than the high social support group. In an analysis of covariance, the interaction term was not significant. The social support scale, however, contained several weaknesses, including a lack of psychometric evaluation. The nine items tapped respondents interactions and involvement with friends, neighbours, people nearby, and the cultural community, as well as social adjustment components (feelings about the neighbourhood), but did not include kin support. This scale represented a social integration approach to measurement.

Ahmadi (1985) studied the relationships among patient stress, social support, and satisfaction with hospitalization in 100 medical patients of a large teaching hospital. Subjects consisted of both males and females, ranging in age from 33 to 81 years. Subjects completed a hospital stress scale and answered questions regarding their social support and satisfaction levels. Using Spearman rho correlations, relationships were found between family/friends' support and overall satisfaction level, and other patients' support and stress level. There was no relationship between patient satisfaction and hospital

stress. However, the measurement of social support merely consisted of asking the patient "Yesterday, how many times did you talk with family/friends about hospitalization and your sickness and other problems?" and "Yesterday, how many times did you talk with other patients about hospitalization and your sickness and other problems?" This represents an inadequate conceptualization and operationalization of social support.

In summary, several studies reviewed above support the buffering hypothesis, while others confirmed the direct effect view of social support influences, and a few reported both types of effects. The comments of Thoits (1985) are noteworthy in this regard:

> Given the incomparability of research designs, of measures of stressors, support, and disturbance, and of analytical stategies across these studies, the conditions under which main effects only, buffering effects only, or both types of effects will be observed are presently unknown. But these cumulative empirical findings clearly indicate that neither the buffering-only view nor the main-effect only view is fully valid. Social support can have a direct impact upon psychological symptomatology and can mediate the psychological consequences of stressful circumstances. (pp. 51-52)

The health-related benefits of social support have also been studied in relation to pregnancy, childbearing, and childrearing. In order to provide a broad perspective of the benefits of social support, those studies which do not pertain directly to the influence of social support and life stress on psychological distress in pregnancy will first be briefly summarized.

Social support variables have been positively associated with maternal-fetal attachment (Cranley, 1981, 1984), psychological well-being of new mothers (Turner, 1981), positive perception of the childbirth experience (Mercer, Hackley, & Bostrom, 1983), adaptation to parenthood for both mothers and fathers (Cronenwett, 1985), and single-parent functioning (Norbeck & Sheiner, 1982). In terms of childrearing, Pascoe and Earp (1984) found that mothers reporting more social support provided a more stimulating home environment for their children unrelated to the number of life changes. Brandt (1984b) discovered that social support was inversely related to restrictive discipline for high stress mothers but not for low stress mothers, thereby supporting another buffering effect of social support. Thus a variety of benefits of social support have been empirically supported.

Four studies have been conducted during pregnancy which are particularly relevant to this research proposal. A frequently cited study is that of Nuckolls et al. (1972),

which investigated the relationships between psychosocial assets, social stresses as measured by a cumulative life change score, and the prognosis of pregnancy. The psychosocial assets variable included the subject's perception of her relationships with her husband, her extended family, and the community, as well as her feelings toward herself and her pregnancy. Subjects consisted of 170 white primigravidas between the ages of 18 and 29. Taken alone, neither multiple life changes nor variations in psychosocial assets were related to complications of pregnancy. Considered jointly, it was found that 91% of the women with a high life change score but low asset score had one or more complications, whereas only 33% of women with an equally high life change score but with a high asset score had any complications. Thus a buffering effect was supported.

The role of social support in the adjustment of pregnant adolescents was studied by Barrera (1981), employing a sample of 86 pregnant women less than 20 years old, with a mean age of 17.2 years. Data were collected regarding negative life events, social support, and maladjustment (focusing on symptom dimensions of depression and anxiety). The social support instruments measured the following indices: receipt of natural helping behaviors (measured using the Index of Socially Supportive Behaviors or ISSB), total network size, conflicted network size (the number of

support network members who were also sources of interpersonal conflict), support satisfaction, and support need. The measure of stressful life events was positively correlated with the ISSB and with support need, and negatively correlated with support satisfaction. The author suggested that supportive activities increased in response to stressful events, but that the presence of negative events also diminished individuals' satisfaction with the support that they received. Support need, conflicted network size, and negative life events were positively correlated with depression and anxiety, while support satisfaction bore a significant negative relationship to depression and anxiety. Total network size was the only support variable to have a stress-buffering effect, as represented by a significant interaction term of negative life events and the network size in the multiple regression equation, accounting for 4 percent of the variance in depression. Conflicted network size did not contribute to buffering effects. This study reveals the importance of distinguishing between those network members who strictly provide positive forms of social support and those who are also sources of conflict. Satisfaction with social support accounted for 13 percent of the variance in the depression score, but did not show a significant interaction effect with stress. Thus this study supported both buffering effects (total network size) and direct effects (satisfaction with support) of social support. The

subjects' subjective appraisal of the adequacy of support (satisfaction with support) was the strongest predictor of symptomatology.

Tilden (1983) investigated the relation of life stress and social support to emotional disequilibrium in a sample of 141 medically normal women in the mid-trimester of pregnancy. Significant and separate effects of life stress and social support on emotional disequilibrium during pregnancy were found. Life stress accounted for 29.7% of the variance in emotional disequilibrium and social support for 3.1%. The interaction term was not significant. When the life stress and social support variables were dichotomized into high and low, variations in social support accounted for differences in emotional disequilibrium within the separate conditions of high and low life stress. "These differences suggest that social support plays a modest role in moderating emotional disequilibrium during pregnancy" (Tilden, 1983, p. 171). The author speculated that the high amount of variance explained by life stress may be due to measuring negative life events rather than total life events as several previous studies had done.

A study similar to the previous one, but including the variable of complications of pregnancy, was conducted by Norbeck and Tilden (1983). A sample of 117 medically normal pregnant women, aged 20 to 39 years, were tested with standardized instruments that measured life stress, social

support and emotional disequilibrium. Complications of pregnancy were determined from a postpartum chart review. High life stress and low social support were significantly related to high emotional disequilibrium, but the interaction between life stress and social support was not significant. High life stress from the prior year was significantly related to overall complications. The interaction of life stress during pregnancy and the tangible support factor was significant for each type of complication. For both gestation, and infant complications, subjects in the high stress/ low support quadrant had the highest rate of complications. These latter findings are consistent with a stress buffering hypothesis of social support.

These four studies are representative of the available research on the relationship between life stress and social support during pregnancy. Outcome measures were psychological distress or complications of pregnancy. Evidence was provided for both direct and buffering effects of social support. All four studies focused on medically normal populations of pregnant women. Research has not yet been conducted on the interaction between stressful life events and social support in a high risk population of pregnant women. Because social supports are more likely to be protective in the presence of stressful circumstances (Kaplan et al., 1977), the buffering aspects of social

support may become more apparent when studied in high risk pregnant women. This study proposes to examine the joint properties of stressful life events in women with PIH together with the availablility and nature of social support as they relate to mood disturbance. A group of low risk pregnant women will also be incorporated for comparison purposes.

CHAPTER III: METHODOLOGY

Design

This study was designed to explore the relationships between life stress, social support, and mood disturbance in three groups of pregnant women. It was also intended to determine whether a Community Based Program for women with PIH would result in lower levels of stress and mood disturbance, mediated by increased access to social support. A descriptive research design was employed for this study, as the researcher was unable to randomly assign subjects to the three groups of pregnant women.

> Descriptive designs describe variables, compare groups of subjects . . . on some dependent variable, demonstrate correlations between two or more variables, and even predict behavior on the basis of knowledge about one or more other variables. They cannot test whether X causes changes in Y, because an independent variable cannot be manipulated via random assignment of subjects to experimental and control groups. (Shelley, 1984, p. 89)

Two types of descriptive research designs were employed: a comparative design was used to test Hypotheses I, II, and III, while Hypotheses IV and V were tested utilizing a correlation design.

The following sections discuss the settings from which subjects were obtained, criteria for entry of subjects into the study, instrumentation, the procedure for data collection, protection of the rights of human subjects, and limitations of the study.

Study Setting

Subjects were obtained from three settings. Group I subjects were obtained from the antepartum ward of St. Boniface General Hospital (SBGH), which is a tertiary care centre with approximately 4000 deliveries a year. The antepartum ward consists of a twelve bed unit. Approximately two-thirds of the women are admitted from the Winnipeg area and one-third from a rural area. The most common reason for admission or transfer into the antepartum unit in 1985 was hypertensive disorder.

Group II subjects were obtained from the "Community Based Management of PIH" Program. The program "was established to allow pregnant women with pregnancy-induced hypertension to remain at home with the supervision of specially trained public health nurses" (SBGH, 1985, p. 1). The criteria for entry into this program include:

1. Scheduled confinement at SBGH by an obstetrician or selected G.P.
2. Gestational age: 30 - 40 weeks, as defined on the first antenatal visit by the last normal menstrual

period and pelvic examination; or by 2 ultrasounds done prior to 28 weeks gestation; or by a positive Brevindex prior to 6 weeks gestation.

3. Blood pressure (BP): systolic greater than 30 mm Mercury and/or diastolic greater than 15 mm mercury above the baseline measurement (which is that BP obtained at the first antenatal visit). Blood pressure recordings at or greater than 150/100 are not suitable for entry to this program.
4. Proteinuria less than 30 mgs/decilitre on Chemstrips.
5. Absence of headache, scotoma, visual disturbance, epigastric pain.
6. Absence of marked edema and/or hyperreflexia and/or clonus.
7. Private residence in Winnipeg within the boundaries of the Perimeter Highway.
8. Home supports available to allow the patient to meet the criteria of bedrest (15 hours per day), or which can be supplemented by a mother replacement service purchased from Family Services.

Women admitted to the program are visited at home on a daily basis by a Public Health Nurse, and are usually seen for a minimum of five days. The women are taught to perform blood pressure readings, urine testing, and fetal movement counts. They are expected to obtain 15 hours of bedrest per day. Health education related to PIH and general information regarding pregnancy is provided by the Public Health Nurse.

Group III subjects were obtained from the Prenatal Classes offered at SBGH. These classes are held on Monday through Thursday evenings, with each class consisting of approximately 18 to 20 couples. The classes are taught by a nurse and a physiotherapist.

Study Sampling

Non-probability sampling was employed. Twenty subjects were obtained from each setting, for a total sample size of 60.

Criteria for admission of Group I and II subjects into the study included:

1. diagnosis of preeclampsia
2. gestation 30 to 40 weeks
3. non-native
4. resident of Canada for at least 5 years
5. married
6. residence in Winnipeg within the boundaries of the perimeter highway
7. 18 years of age or older
8. ability to read, speak, and write English
9. admitted to SBGH or Community Based Management of PIH Program for a minimum of 48 hours
10. blood pressure less than or equal to 150/100 mm Mercury in the left lateral position for the past 24 hours

11. proteinuria less than or equal to 30 mgs per decilitre on Chemstrips for the past 24 hours
12. absence of marked edema and/or hyperreflexia and/or clonus
13. absence of headache, scotoma, visual disturbance, epigastric pain
14. informed written consent

In a comparative study design, it is important to select groups that are as much alike as possible in areas not addressed by the study. This allows the researcher to focus on the study variables without the confusion caused by extraneous variables (Waltz & Bausell, 1981). For this reason, several of the criteria for admission into this study were based on the criteria for entry into the Community Based Program in order that the hospitalized women with PIH would have similar signs and symptoms of preeclampsia. No women with severe preeclampsia were admitted into the study. Severe preeclampsia is characterized by blood pressure greater than 160/100 mm Mercury, 3+ to 4+ protein on urine dipstick, oliguria, severe headache, visual problems, epigastric pain, and hyperreflexia (Jensen & Bobak, 1985).

Criteria for admission of Group III subjects into the study included:

1. gestation 30 to 40 weeks

2. non-native
3. resident of Canada for at least 5 years
4. married
5. residence in Winnipeg within the boundaries of the perimeter highway
6. 18 years of age or older
7. ability to read, speak, and write English
8. no admissions to hospital or the Community Based Management of PIH Program during this pregnancy
9. no complications of pregnancy such as preeclampsia, antepartum hemorrhage, premature rupture of membranes, or twins
10. no pre-existing maternal health problems such as diabetes, hypertension, or cardiac disease
11. informed written consent

Initially, criteria for admission into the study were designated as "primigravida" and "Caucasian". Due to the slow accrual rate of subjects into the study, these criteria were modified so that both primigravidas and multigravidas of various racial backgrounds could be included in the study. Native Indians continued to be excluded because of cultural differences, and the criterion "resident of Canada for at least 5 years" was designed to eliminate recent immigrants from the study.

Instrumentation

Instruments were selected to operationalize the three major concepts in the conceptual framework: sources of stress, mediators of stress, and manifestations of stress. In addition to these three instruments, a demographic information form was used to collect background data on the subjects in all three groups. A Medical History Form and Interview Guide were developed for use with Group I and II subjects.

Sources of Stress: Life Stress

The Life Events Questionnaire (LEQ), developed by Norbeck (1984a), is an 82-item questionnaire used to measure life stress which allows the respondents to indicate events they have experienced during the past year and to rate the desirability and impact of the events. The LEQ was developed by modifying existing life-event questionnaires to increase their appropriateness and relevance for adult female respondents of childbearing age. Nine items of specific relevance to female respondents were added to those used in three existing instruments (Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978; Holmes & Rahe, 1967; Sarason, Johnson, & Siegel, 1978), and assumptions about marital status were edited out of items and instructions. The 82 items are grouped into categories of health, work, school, residence, love and marriage, family and close friends, parenting, personal and social, financial, crime and legal, and other.

The instructions and format developed by Sarason et al. (1978) were used in the LEQ. The LEQ can be self-administered. Approximately 10 to 20 minutes are needed for respondents to complete the questionnaire. For each item experienced in the past year, the respondent is asked to rate the event as "good" or "bad" and then to indicate on a 4-point scale the amount of effect the event has had on his/her life (ranging from "no effect" to "great effect"). Three scores are obtained from the questionnaire: a negative events score (the sum of the effect ratings for items designated as "bad"), a positive events score (the sum of the effect rating for items designated as "good") and a total events score (the sum of the effect ratings for both "bad" and "good" events).

Psychometric testing was performed by administering the LEQ to two groups of subjects. Each score of the LEQ had a high degree of test-retest reliability (.78 to .83) for a one-week interval. Validity was shown through significant correlations between the negative events score and subscales and composite scores of measures of psychological and psychiatric symptoms. The correlation between the negative events score and the total negative mood score from the Profile of Mood States (POMS) was .34, and the correlations between the negative events score and the three summary indices of the Brief Symptom Inventory (BSI) were .36, .39, and .30. For every BSI scale, the correlations were higher

when the nine new items were included in the score, indicating greater sensitivity with the addition of these items. These findings support the idea that it is the undesirability of the event rather than total change that better predicts negative outcomes (Norbeck, 1984a).

For this study, the negative events score from the LEQ was used as a measure of life stress in the three groups of pregnant women (refer to Appendix A). Sarason et al. (1978) state, "it is the negative change measure that should be used if one's purpose is to determine degree of 'life stress' " (p. 940). Further support for this is provided by Zuckerman et al. (1986), who compared various scoring methods for life event scales and concluded that the individualized negative weighting scheme was the most useful for the prediction of psychological symptoms.

Mediator of Stress: Social Support

The Norbeck Social Support Questionnaire (NSSQ), developed by Norbeck and her colleagues, is an instrument designed to measure multiple dimensions of social support (Norbeck, 1984b; Norbeck et al., 1981, 1983).

> Three functional properties - affect, affirmation, and aid - from Kahn's (1979) definition of social support are measured. The network properties of size, stability (duration of relationships), and accessibility (frequency of contact) are also measured,

> as well as changes in the convoy or support system due to losses of relationships. Nine categories are used to determine sources of support. (Norbeck, 1984b, p. 45)

The NSSQ can be self administered; the average time to complete the instrument is ten minutes (range 5 to 20 minutes). The respondent is first asked to "List each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you". Twenty-four spaces are provided, but the respondent does not have to use all of them. The person's relationship to the respondent is then indicated, from a list of categories presented in the instructions: spouse or partner, family members or relatives, friends, work or school associates, neighbours, health care providers, counsellor or therapist, minister/priest/rabbi, and other. The respondent is then asked to rate each member of their network list on a 5-point Likert scale in response to 8 questions, and concludes by answering questions related to recent losses in the network. Appendix B indicates the questions used to measure the various properties of social support. Questions 1 to 6 measure the functional properties of affect, affirmation and aid (2 questions each). Network properties of size (number listed in the network), stability (question 7), and availability (question 8) can also be determined. Scoring yields three main variables, each composed of three subscales:

1. Total functional = affect + affirmation + aid.
2. Total network properties = number listed + duration + frequency of contact.
3. Total loss = loss + loss number + loss amount.

The NSSQ has undergone several studies to test its reliability and validity, described in Norbeck et al. (1981, 1983). Reliability was established through analysis of internal consistency and test-retest measures. High levels of internal consistency were found for the functional (.72 to .98) and network properties (.88 to .96) and medium levels for the loss items (.54 to .68). Over a one week interval, test-retest reliability for the functional and network properties ranged from .85 to .92, and correlations for the loss items ranged from .71 to .83.

Validity of the NSSQ was tested in relation to response bias and concurrent, construct, and predictive validity. When administered in conjunction with the Marlowe-Crowne Test of Social Desirability, none of the items from the NSSQ were significantly related to the social desirability measure and therefore the instrument was judged to be relatively free from the response bias of social desirability. Medium levels of concurrent validity (.31 to .56) were shown with two other social support instruments: the Social Support Questionnaire (Schaefer et al., 1981) and the Personal Resource Questionnaire (Brandt & Weinert, 1981). Construct validity was demonstrated by significant

associations between NSSQ measures and two interpersonal constructs expected to be related to social support (need for inclusion and need for affection), while no significant relationships were found with an unrelated personal construct (need for control). Predictive validity was tested by examining the hypothesis that social support serves as a buffer for life stress. "The amount of variance accounted for by the social support subscales and their interaction with life stress was 19 percent for the functional subscales and 20 percent for the network subscales" (Norbeck et al., 1983, p. 8). However, when the composite score for functional support was substituted for the separate subscales in another multiple regression analysis, the entire effect for functional support and its interaction with life stress was only 1.9 percent compared to 19 percent for the subscales entered separately. "Thus, even though the subscales are highly intercorrelated, they carry information that was lost in combining them into a composite variable" (Norbeck, 1984b, p. 54).

In summary, the NSSQ has several advantages as an instrument to measure social support. Jackson (1984) states that the NSSQ "originates in theoretical perspectives in which social support is defined as a perceived rather than an objective phenomenon and as a multidimensional rather than a unidimensional one" (p. 79). The NSSQ measures both relational and structural dimensions of networks (Brandt,

1984a). Normative data are also available for this instrument. The NSSQ is one of three social support/network scales recommended by Rock et al. (1984) as providing excellent information with respect to the psychometric issues of scaling, reliability, and validity. Of the 29 behavioural science studies reviewed, the majority did not provide complete psychometric data or had not completely utilized existing measurement techniques in the development of their social support or social network scales.

A possible disadvantage of the NSSQ for this study is that it measures general support rather than situation-specific or problem focused support. Norbeck (1984b) states that "greater predictive power for clinical or special populations may be attained by using the NSSQ or another general measure as a background measure, supplemented by a situation-specific measure" (p. 56). Therefore, two situation-specific questions for each of the three groups were incorporated on a half-page inserted after the aid questions. The questions for the hospitalized subjects were: How much can you talk about your pregnancy with this person? How much does this person help you while you are hospitalized during your pregnancy? The questions for the Community Based Program subjects were: How much can you talk about your pregnancy with this person? How much does this person help you while you are on the Home Care program during your pregnancy? The questions for the prenatal class

subjects were: How much can you talk about your pregnancy with this person? How much does this person help you during your pregnancy? The sum of the ratings from these two questions were combined into a single pregnancy support score and added into the "total functional" score to create a fourth main variable entitled "Total situational support":

Total situational = affect + affirmation + aid + pregnancy.

This technique was adapted from Norbeck's (1985) study of work stress in critical care nursing, in which she incorporated the following two questions: How much can you talk about your work with this person? How much does this person help you relax or re-energize after work? The sum of the ratings from these two questions were combined into a single work support score and added into the "Total functional" score.

Manifestations of Stress: Mood Disturbance

The Profile of Mood States (POMS) was developed by McNair et al. (1971) to meet the need for a "rapid, economical method of identifying and assessing transient, fluctuating affective states" (p. 5). The POMS consists of 65 5-point adjective rating scales which measure six identifiable mood or affective states: tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, and confusion-bewilderment. The POMS is recommended for use with psychiatric outpatients and for normal subjects age 18

and older who have at least some high school education. Werkowicz (1978) states that the POMS should "prove to be useful in an assessment of the effects of the environmental changes (life situation) on the mood of patients" (p. 1018). The POMS is self-administered; most subjects complete the POMS in about three to five minutes. Subjects are asked to describe "How you have been feeling during the past week including today". The adjectives are rated on a five-point intensity scale from "not at all" to "extremely", and assigned weights from 0 to 4. To obtain a score for each mood factor, the sum of responses is obtained for the adjectives determining the factor. A Total Mood Disturbance Score is obtained by summing the scores (with vigor weighted negatively) on the six primary mood factors.

Reliability is acceptable. Internal consistency within the six mood scales ranged from .84 to .95; therefore the extent to which the individual items within the six mood scales measure the same factor is satisfactory. Test-retest reliability ranged from .65 to .74. These lower reliability coefficients are probably related to the expected fluctuations in a transient state like mood, whereas .80 to .90 levels would be expected of stable personality characteristics (McNair et al., 1971). Weckowicz (1978) states that "it is important to remember that a high reliability (stability) of the test may indicate its relative lack of sensitivity to the changes of states and

thus may indicate that the test does not measure what it is supposed to measure - changes in a state" (p. 1019).

The validity of the test was based on several measures. Factorial validity of the six mood factors was established through six independent factor analytic studies conducted in the development of the POMS. Face or content validity was supported by an examination of the individual items defining each score. Predictive and construct validity were established through three areas of research: brief psychotherapy studies, controlled outpatient drug trials, and studies of response to emotion-inducing conditions. Concurrent validity was supported by moderate to high correlations between the POMS factors and three symptom measures from the Hopkins Symptom Distress Scale.

The POMS yielded quantitative data and was used with the women in all three settings for this study (refer to Appendix C).

Other Instruments

1. Demographic Information Form was used to collect data regarding the subject's age, education, income, marital status, and religious preference. Only data which may have a relationship to the variables being investigated were included on the form. For example, Cronenwett (1985) found that age and educational

level were associated with the amount of perceived support, while Brandt (1984b) found that income was an intervening variable in the stress buffering effects of social support. Marital status and frequency of religious service attendance have also been associated with availability of social support (Broadhead et al., 1983). Refer to Appendix D for the form completed by subjects in Group I and II. Additional questions were incorporated into the Demographic Information Form for Group III (refer to Appendix E) to gather relevant medical information, as access to a chart was not possible with this group.

2. Medical History Form was used for Group I and II to collect data from the chart which may have a relationship to the severity of preeclampsia, in order to determine if there were differences between the two groups of subjects (refer to Appendix F).
3. Interview Guide was developed for Group I and II, which consisted of open ended questions used as a guide by the investigator to collect more indepth data in areas of concern related to the high risk pregnancy and the setting of care (refer to Appendices G and H). The investigator took notes during the interview and completed them in more detail following the interview. Data were categorized at the end of the study.

Procedure for Data Collection

Prior to data collection, approval was received from the Ethical Review Committee of the School of Nursing, University of Manitoba. Approval for access to subjects in Group I was obtained from the Director of Maternal-Child Nursing, SBGH, and the Acting Head of the Department of Obstetrics and Gynecology, SBGH. Approval for access to subjects in Group II was obtained from the Director of High Risk Obstetrics at SBGH and the Director of Maternal and Child Health, Manitoba Health. Approval for access to subjects in Group III came from the Director of Ambulatory Care Programs at SBGH and the Head of the Department of Obstetrics and Gynecology at SBGH.

Hospitalized Subjects

The investigator reviewed the Kardex of antepartum patients at SBGH on a regular basis to determine if any of the patients met the sample criteria, using the criteria which could be determined from data in the Kardex. The investigator then requested the nursing coordinator or her delegate to screen the charts to determine if potential subjects met the remaining sample criteria. Potential subjects were approached in their hospital room on an individual basis and asked to take part in the study(see Appendix M). An information sheet (see Appendix I) explaining the purpose of the study and what was required of the subject was provided. Subjects were invited to ask

questions related to their participation. After obtaining informed consent (refer to Appendix K), a semistructured interview was conducted by the investigator, based upon the questions in the Interview Guide (Appendix G). Following completion of the interview, the investigator then explained the directions for the questionnaires to the subject and supplied her with the instruments for self-administration. The investigator was available to answer questions during the testing. The instruments were administered in the following order: POMS, NSSQ, LEQ, Demographic Information Form. The POMS was administered first to reduce any effect on mood disturbance that might have resulted from completing the questionnaires about social support and stressful life events.

After thanking the subject for her participation, the investigator completed the Medical History Form (Appendix F) using data from the subject's chart.

Subjects on the Community Based Management of PIH Program

The Public Health Nurses associated with the Community Based Management of PIH Program asked women admitted to the program who met the sample criteria for their permission to provide their telephone number to the investigator (see Appendix N). The investigator telephoned potential subjects to explain the purpose of the study and determined whether the woman was interested in participating (see Appendix N).

Interested women were visited in their homes at a mutually convenient time. An information sheet (see Appendix I) explaining the purpose of the study and what was required of the subject was provided. Subjects were invited to ask questions related to their participation. After obtaining informed consent (refer to Appendix K), a semistructured interview was conducted by the investigator, based upon the questions in the Interview Guide (Appendix H). Following completion of the interview, the investigator explained the directions for the questionnaires to the subject and supplied her with the instruments for self-administration. The investigator was available to answer questions during the testing. The instruments were administered in the following order: POMS, NSSQ, LEQ, Demographic Information Form.

After thanking the subject for her participation, the investigator visited the Community Based Program Office in order to complete the Medical History Form (Appendix F) using data from the Public Health Nurse's flowsheets.

Prenatal Class Subjects

The investigator attended three prenatal classes at SBGH to recruit subjects for the study. A verbal explanation of the study was provided to class participants by the investigator (refer to Appendix P), and a written explanation of the study (Appendix J) was distributed to pregnant women

participating in the prenatal class. Any questions were answered by the investigator. Interested women were asked to provide the investigator with their name, address, and telephone number. These women were later contacted by telephone to determine a mutually convenient time for the investigator to visit the woman in her home to administer the questionnaires. During the home visit, the potential subject was provided with another copy of the written explanation of the study to review and invited to ask questions related to her participation. After obtaining informed consent (Appendix L), the investigator explained the directions for the questionnaires to the subject and supplied her with the instruments for self-administration. The investigator was available to answer questions during the testing. The instruments were administered in the following order: POMS, NSSQ, LEQ, and Demographic Information Form.

Protection of the Rights of Human Subjects

The research proposal was submitted to the University of Manitoba School of Nursing Ethical Review Committee for approval prior to data collection. Subject participation in this study was voluntary. Informed consent was obtained in writing from all subjects following provision of an information sheet explaining the qualifications of the investigator, the study purpose, its relevance, and expectations of participants (refer to Appendices I,J,K, and L). Subjects were given a copy of both the written

explanation of the study and the consent form to keep. Participants were advised of their right to withdraw from the study at any time if they should decide to do so, without compromising their care. Participants were advised that they could refuse to answer any of the interview questions.

Risks to participants were minimal as no deleterious experimental conditions were imposed upon the subjects. Women with mild to moderate PIH usually do not feel ill, and therefore participating did not cause undue discomfort. Participating involved filling out questionnaires and taking part in an interview. Questionnaires were distributed individually and if questions were raised with respect to the study, they were addressed immediately by the investigator.

At no time were respondent names associated with the questionnaires, thereby assuring anonymity and confidentiality. All questionnaires were number coded to facilitate analysis while at the same time protecting respondent identity. The investigator, her thesis committee, and a statistician were the only people who had access to the raw data. Participants were informed that data would be reported in such a way that no individual respondent would be recognizable. A summary of study results was made available to those participants requesting a copy.

Limitations of the Study

Several limitations of this study exist. Because a descriptive research design was employed, causal relationships cannot be tested. This research could also be classified as ex post facto: "Instead of introducing or manipulating an independent variable, the investigator selects subjects who have undergone some life experience" (Wilson, 1985, p. 157). Cook and Campbell (1979) refer to ex post facto designs as research "where there are no pretest observations on the same or equivalent scales for which posttest observations are available" (p. 98) and note that it often arises when a treatment is implemented before the researcher can prepare for it, so the research is designed after the treatment has begun. The major disadvantage of the ex post facto design is that the investigator cannot establish cause and effect relationships, only correlational ones, because the researcher cannot actively manipulate the independent variable or randomly assign subjects to the experimental treatments (Wilson, 1985). The absence of pretests "leads to the possibility that any posttest differences between the groups can be attributed either to a treatment effect or to selection differences between the different groups" (Cook & Campbell, 1979, p. 98).

The small sample size obtained for this study is another limitation. The smaller the sample, the less valid and

accurate the study, because a smaller sample is less likely to be representative of the population. A small sample size also increases the variance and decreases the power of inferential statistical tests (Wilson, 1985). The use of non-probability sampling may introduce bias, because every member of the population from which the sample is drawn does not have an equal chance of being selected. With the non-probability approach, the results are only representative of this sample and cannot be generalized to the larger population.

Problems also exist related to the cross-sectional nature of the study and the use of life event scores to measure stress. Thoits (1982) maintains that a longitudinal design is necessary to test the buffering hypothesis. Studies that measure support at a single point in time provide inadequate tests of the buffering hypothesis because the effects of support and events on one another are confounded in a cross-sectional interaction effect. "Life events may alter the support available to individuals, and support may decrease the likelihood of event occurences" (Thoits, 1982, p. 155). That is, when low social support or few social ties are the result of recent loss events (such as death or divorce), it is impossible to tell whether resulting poor health is due to the effects of loss or to the lack of support itself (Schaefer et al, 1981). Gottlieb (1983) suggests that life events should be separated into loss and non-loss categories.

The NSSQ does assess whether recent losses have occurred in the social network and asks how much of the individual's support was provided by the people no longer available to him or her. Therefore some consideration was given to whether low levels of support result from social losses. Time and resource constraints did not permit the utilization of a longitudinal design for this study.

DiMatteo and Hays (1981) suggest that sociodemographic and personality variables should be examined for their interaction with social support variables. Although certain sociodemographic variables were examined in this study, personality variables such as locus of control and self esteem were not studied. Need for affiliation, coping styles, social competence, and attractiveness are other individual determinants of social support (Hogue, 1985) that were not studied. Thus an additional limitation of this study is that it focused upon a single category of stress mediator (social support) and did not examine the combined or interactive effects of various stress mediating variables.

Summary

This chapter has outlined methods used in conducting a descriptive study to explore the variables of life stress, social support, and mood disturbance in pregnant women. The sample, setting, instruments, data collection procedure, and

limitations have been described. Ethical considerations have also been addressed.

CHAPTER IV: RESULTS

The purpose of this study was:

1. to compare levels of life stress, social support, and mood disturbance among three groups of pregnant women: women with PIH cared for in the hospital setting, women with PIH cared for on the Community Based Program, and low risk pregnant women.
2. to study the relationships between the three variables of life stress, social support, and mood disturbance.
3. to determine whether social support buffers (or mediates) the effects of life stress on mood disturbance in pregnant women.
4. to describe the experience of women with PIH in the two settings (hospital versus home) from the perspective of each group.

Data for this study were collected over a nine month period from May of 1986 to January of 1987. The instruments were hand scored by the investigator and all data were coded and transferred to a computer file. The Statistical Package for the Social Sciences (SPSS-X) was used to calculate results. Demographic data and instrument scores were summarized using descriptive statistics. Data derived from the interview

guide were subjected to qualitative analysis, in which themes emerging from the data were identified. Parametric statistics were employed to test the hypotheses, because the variables were measured at the interval level and the scores were approximately normally distributed. For all analyses, the level of significance was set at the .05 alpha level.

This chapter describes the results of data analysis. Following a discussion of the sample characteristics and instrument scores, each of the hypotheses will be addressed. The qualitative data will then be analyzed.

Sample Characteristics

During the nine-month period of data collection, twenty-one women in the hospital setting (Group I) who met the study criteria were approached on an individual basis by the investigator and asked to become involved in the study. All agreed to participate in the study. On subsequent examination of the data, one subject did not meet the criteria and was deleted from the analysis; she was separated rather than married. To obtain Group II subjects, the public health nurses initially asked twenty-one women admitted to the Community Based Management of PIH Program for their permission to give their telephone number to the investigator. One woman refused to grant permission. The remaining twenty women were contacted by the investigator. All agreed to participate in the study and were subsequently

visited in their homes to complete the interview and questionnaires. In Group III, twenty-two women attending the Prenatal Classes volunteered to participate: nine from the Monday evening class, two from the Tuesday evening class, and eleven from the Wednesday evening class. Home visits were conducted by the investigator in order to collect data from each of these women. Two women were later deleted from the data analysis because criteria were not met: one woman was recently separated and the other woman had been experiencing elevated blood pressure and headaches. This process resulted in twenty subjects in each group, for a total sample size of sixty. The following section presents a description of the sixty pregnant women who were subjects in this study.

Demographic Data

The age of the subjects ranged from 20 to 42 years, with a mean age of 28.2 years. The majority of subjects had achieved Grade 12 education or better (91.7%, n=55). The mean educational level was 13.1 years with a standard deviation (S.D.) of 2.3 years. All subjects were in the third trimester of pregnancy. Gestational age ranged from 31 to 40 weeks, with a mean of 35.7 weeks. The 95% confidence intervals for these three variables are as follows:

1. Age: 26.9 to 29.4 years

2. Education: 12.5 to 13.7 years
3. Gestational Age: 35.1 to 36.3 weeks.

Table 1 presents a breakdown of these data by group. One-way analysis of variance (ANOVA) was performed to check for intergroup homogeneity on the characteristics of age (F ratio=.470, p=.627), education (F ratio=.376, p=.688), and gestational age (F ratio=2.67, p=.078). The F ratios were not significant, indicating that no differences existed between the three groups.

TABLE 1

Demographic Data

Demographic Variable	Group I Mean	S.D.	Group II Mean	S.D.	Group III Mean	S.D.
Age	29.0	5.3	27.9	5.1	27.6	4.3
Years of Education	12.7	1.4	13.3	3.1	13.3	2.2
Gestational Age in weeks	36.6	2.6	35.2	2.3	35.3	1.6

Other demographic data collected from the three groups revealed the following sample characteristics. The majority of the sample were Caucasian (91.7%, n=55). Protestant (50.0%, n=30) and Catholic (41.7%, n=25) religious backgrounds were almost equally represented. Group III had higher levels of participation in religious activities than Group I or Group II. The majority of the sample came from

affluent families, with 45.0% (n=27) indicating a total family income in 1985 (before taxes) of greater than $40,000.00. The median income was the $35,000.00-$39,999.00 category. Forty-two women (70.0%) were primigravidas, while 18 women (30.0%) were multigravidas. Group II contained a higher proportion of multigravidas than the other two groups. The majority of the sample (61.7%, n=37) had attended or were currently attending prenatal education classes. Twelve of the sixteen women not attending prenatal classes were multigravidas, most of whom had participated in classes during a previous pregnancy. In Groups I and II, five women had to stop attending prenatal classes as a result of either being hospitalized or placed on the Community Based Program. A similar percentage of each group had experienced prior hospitalization as an adult. Appendix S depicts these demographic data in frequencies per group.

In summary, the typical subject in this study was a white, married, well educated, middle class primigravida in her third trimester of pregnancy, living in an urban area and receiving prenatal education. The three groups were homogeneous on the majority of sample characteristics.

Medical Data

A variety of medical data was collected for Groups I and II, including data related to the severity of the preeclampsia, in order to determine if there were differences between the two groups.

The three main symptoms of preeclampsia are elevated blood pressure, edema, and proteinuria. Levels of proteinuria and pretibial edema from the past 24 hours were recorded for each subject. There were no significant differences between the two groups in levels of proteinuria and edema as determined using the non-parametric statistics Kendall's Tau c and the contingency coefficient. For proteinuria, Kendall's Tau c was -.108 (p=.255) and the contingency coefficient was .227, while for edema the Kendall's Tau c was -.025 (p=.443) and the contingency coefficient was .123. In each case, the value of Kendall's Tau c was not significant and the contingency coefficient was low. Kendall's Tau c is a measure of association between two ordinal variables that is appropriate for grouped data presented in rectangular tables (Shelley, 1984; Waltz & Bausell, 1981). The contingency coefficient is "a measure of the extent of the association between two sets of attributes. It is useful when variables are measured at the nominal level and may be employed with any size table. . . . The contingency coefficient will equal zero when there is a complete lack of association between the variables" (Waltz & Bausell, 1981, pp. 252-253). Tables 2 and 3 indicate the crosstabulations of proteinuria and edema by group.

Blood pressure readings for the 24 hours preceding the time of the interview were also recorded for each subject. Four readings were generally obtained for each subject, and

TABLE 2

Proteinuria Levels for Group I and Group II

	Group I (n=20)	Group II (n=20)
Negative	11	12
Trace	5	7
30 mg/dl	4	1

TABLE 3

Edema Levels for Group I and Group II

	Group 1 (n=20)	Group 2 (n=20)
Nil	7	8
1+	8	7
2+	4	3
3+	1	2

the mean arterial pressure (left lateral position) and the average diastolic blood pressure (both left lateral and sitting positions) were calculated. T-tests were used to determine that Group I had significantly higher blood pressures than Group II (refer to Table 4). Therefore the groups differed in blood pressure but not in edema and proteinuria levels.

The hospitalized subjects (Group I) also experienced more complications during the present pregnancy than the subjects on the Community Based Program (Group II), as indicated in

TABLE 4

Blood Pressure Readings for Group I and Group II

Variable	Group I Mean	Group II Mean	t Value	p
Average LL* diastolic BP	70.4	61.1	3.27	0.002
Average sitting diastolic BP	87.5	76.2	3.42	0.002
Average LL MAP**	86.1	76.9	3.30	0.002

*LL=left lateral
**MAP=mean arterial pressure

Table 5. One subject in Group I was on an antihypertensive medication (Aldomet) compared to four subjects in Group II.

TABLE 5

Complications of Pregnancy in Group I and Group II

Complication	Group I	Group II
Antepartum hemorrhage	0	2
IUGR	0	2
Breech	2	0
Anemia	1	0
Gestational diabetes	3	1
Diabetes Mellitus	2	0
Essential hypertension	2	2
Renal disease	0	1
Other complication of pregnancy	3	1

Subjects were hospitalized or on the Community Based Program for at least 48 hours prior to being included in the study. The number of days women had been admitted to the hospital at the time of testing ranged from 2 to 8 days, with a mean of 3.6 days, while the number of days women had been admitted to the Community Based Program ranged from 2 to 6 days, with a mean of 4.3 days. There was no significant difference in the number of days admitted between the two groups ($t=-1.21$, $df=38$, $p=0.233$). When asked if they had been previously hospitalized during this pregnancy, five women in Group I and nine women in Group II responded affirmatively. Only one woman from Group I and two women from Group II had previously been on the Community Based Program for Management of PIH.

In summary, the two groups were similar in the medical data collected, except for the variables of blood pressure and other complications of pregnancy. The hospitalized subjects had higher blood pressures and experienced more complications of pregnancy than subjects on the Community Based Program.

Instrument Scores

The three variables of stress, social support, and mood disturbance were measured using the following instruments respectively: the Life Events Questionnaire (LEQ), the Norbeck Social Support Questionnaire (NSSQ), and the Profile

of Mood States (POMS). This section will discuss the scores obtained and provide an overview of some of the data collected via these instruments. Where normative data are available, comparisons will be made between the scores obtained in this study and the norms.

Life Events Questionnaire

When completing the LEQ (refer to Appendix A), subjects indicated which of the 79 life events listed on the questionnaire they had experienced during the past year and rated these events as to their desirability ("good" or "bad") and impact ("no effect" to "great effect"). Additional spaces were also provided at the end of the LEQ for respondents to list and rate other recent experiences which have had an impact on their life. Three scores were obtained using this questionnaire: a negative events score (the sum of the effect ratings for items designated as "bad"), a positive events score (the sum of the effect ratings for items designated as "good"), and a total events score (the sum of the effect ratings for both "bad" and "good" events). The negative events score (NEGLEQ) was used to determine the degree of life stress for subjects in this study, with a high score reflecting greater life stress. This score was positively skewed (skewness=1.32), with a mean of 9.2, a median of 7.5, and a S.D. of 6.9. Scores ranged from 0 to 32.0, with the majority of scores at the lower end of the measurement scale (that is, lower stress

scores). The positive events score (POSLEQ) had a mean of 16.3 and ranged from 0 to 54, while the total events score (TOTALLEQ) had a mean of 25.5 and ranged from 8 to 62. These scores were also positively skewed. Table 6 presents

TABLE 6

Scores on the LEQ by Group

Variable	Group I		Group II		Group III	
	Mean	Range	Mean	Range	Mean	Range
NEGLEQ	9.9	2-30	11.6	0-32	6.0	0-14
POSLEQ	17.2	0-52	14.9	3-37	16.0	6-54
TOTALLEQ	27.1	11-62	26.5	9-51	22.9	8-62

a breakdown of the scores for each group.

During psychometric testing of the LEQ, Norbeck (1984a) administered the questionnaire to two groups of subjects and obtained the following negative event scores: a group of graduate students in nursing had a mean score of 11.02 (S.D. 9.52, range 0-41), while a group of mothers of preschool children had a mean score of 12.63 (S.D. 11.28, range 0-51). The mean score for the total sample of pregnant women in this study (mean=9.1) was lower than either of those obtained by Norbeck.

The subjects in this study rated a variety of the 79 events listed on the LEQ. For example, some of the events

frequently rated were "major change in sleeping habits", "major change in usual type and/or amount of recreation", "changing your work hours or conditions", and "a change in closeness with your spouse or partner". All subjects rated the event of pregnancy. The majority of women indicated that pregnancy was a good event which had a great effect on their lives. Four women indicated that pregnancy was a bad event, having a great effect on their lives. During the interview with two of these women, it became apparent that

TABLE 7

Ratings on the LEQ for Pregnancy

	Group I	Group II	Group III
Good; no effect	0	1	0
Good; some effect	3	3	3
Good; mod. effect	5	0	2
Good; great effect	11	13	15
Bad; great effect	1	3	0

these pregnancies were unplanned and undesirable. The ratings for the event of pregnancy by group are presented in Table 7.

In the additional spaces provided at the end of the LEQ, several subjects in Group I and II listed and rated having high blood pressure during their pregnancy, that is, PIH (n=32), being hospitalized (n=26), or being on the Community Based Program (n=15). These subjects rarely rated the item

"major personal illness or injury", indicating that they did not consider PIH a major personal illness. PIH was predominantly rated as a bad event (13 out of 14 subjects in Group I and 17 out of 18 subjects in Group II). In Group I, 6 subjects rated hospitalization as a good event while 11 subjects rated it as a bad event. In Group II, 12 women rated the Community Based Program as a good event and 3 women rated it as a bad event. Some of the subjects on the Community Based Program had been hospitalized prior to being admitted to the Program, and also rated the experience of hospitalization. In summary, being on the Community Based Program was more frequently rated as a good event compared to hospitalization. The ratings for these events are depicted in Table 8.

TABLE 8

Ratings on the LEQ for Other Life Events

	Group I	Group II
PIH:		
Good; great effect	1	1
Bad; some effect	3	4
Bad; mod. effect	5	6
Bad; great effect	5	7
Not listed	6	2
Hospitalization:		
Good; some effect	3	3
Good; mod. effect	2	-
Good; great effect	1	-
Bad; some effect	6	3
Bad; mod. effect	3	2
Bad; great effect	2	1
Not listed	3	11
Comm. Based Program:		
Good; some effect	-	7
Good; great effect	-	5
Bad; some effect	-	1
Bad; great effect	-	2
Not listed	20	5

Norbeck Social Support Questionnaire

The NSSQ is an instrument designed to measure multiple dimensions of social support. A copy of the instrument is located in Appendix B. Subjects took approximately 15 to 20 minutes to complete the NSSQ. After listing each significant person in their life in the spaces provided on the questionnaire, the respondents then rated each member of their network list in response to 10 questions. Two of these questions were situation-specific questions related to support during pregnancy which were designed specifically

for this study. These two questions composed the Pregnancy subscale. Other questions measured the functional properties of affect, affirmation, and aid, and network properties of duration of the relationship and frequency of contact with network members. Subjects concluded by answering questions related to any recent losses in their network. The NSSQ yielded four main variables, each composed of subscales:

1. Total functional support (TLFUNCT) = affect + affirmation + aid
2. Total situational support (TLSIT) = affect + affirmation + aid + pregnancy
3. Total network (TLNETWRK) = no. listed + duration of relationship + frequency of contact
4. Total loss (TLLOSS) = loss + loss number + loss amount.

Table 9 presents the results for these variables for the total sample, that is, all three groups combined.

TABLE 9

Scores for NSSQ Variables for the Total Sample

NSSQ Variable	Mean	S.D.	Minimum	Maximum
TLFUNCT	208.6	73.8	68	367
TLSIT	266.4	93.1	85	451
TLNETWRK	115.4	37.9	47	228
TLLOSS	1.2	2.5	0	10

Table 10 presents the breakdown of data on these scores from the NSSQ by group. Group II had higher mean scores than either Group I or Group III for total functional support, total situational support, and the total network. Group II also had the lowest mean total loss score, indicating that this group experienced fewer losses in their support network.

In 1983, Norbeck et al. published normative data for 89 employed adult females. The normative scores are as follows: TLNETWRK 111.93 and TLLOSS 2.69. In 1984, a minor change in scoring was made for the NSSQ, in which the 5-point rating scale for questions 1 to 6 was converted in the computer to a 0-4 scale, rather than the 1-5 scale on the instrument. This resulted in a corrected normative score for TLFUNCT of 206.84 (J. Norbeck, personal communication, 1986). In comparing scores for this sample to the normative scores, Group I had lower TLNETWRK and TLFUNCT scores than the norm, whereas Group II and III had higher scores than the norm. All the total loss scores were lower than the norm. Because life events involving the loss of supportive relationships may confound the social support score, it is encouraging that this sample experienced a low number of losses which did not account for a great deal of the support lost to them.

The two questions related to pregnancy were incorporated into the NSSQ to reflect situational or problem-focused

TABLE 10

Scores on the NSSQ by Group

Variable	Group I		Group II		Group III	
	Mean	Range	Mean	Range	Mean	Range
TLFUNCT	183.6	70-365	225.4	168-361	217.0	131-367
TLSIT	231.5	90-434	288.4	85-451	279.4	174-451
TLNETWRK	99.5	53-180	124.2	47-228	122.4	72-213
TLLOSS	1.8	0-10	0.4	0-3	1.6	0-7

support rather than support in general. The mean pregnancy subscale scores for the three groups are as follows: Group I 47.9, Group II 63.0, and Group III 62.4. Group II and Group III had similar scores for this support variable, while Group I had the lowest mean score. The pregnancy subscale consistently had a lower mean score for each group than the affect, affirmation, or aid subscales. This indicated that support for a specific situation (pregnancy) was not rated as highly as support in general for this sample. Table 11 presents the subscale scores for the NSSQ by group.

Network size varied considerably among the sample. When completing the NSSQ, subjects could list up to 24 significant persons. The mean number of persons listed was 12.0, and the number listed ranged from 5 to 24 persons. This mean is similar to the normative mean number of persons listed in the network of 12.4 for females (Norbeck et al., 1983).

TABLE 11

Subscale Scores on the NSSQ by Group

Variable	Group I Mean	Group II Mean	Group III Mean
No. listed	10.3	12.9	12.9
Duration	46.8	57.3	59.4
Freq. of contact	42.5	54.0	50.1
Affect	66.9	85.2	79.7
Affirmation	58.5	72.6	71.6
Aid	58.2	67.6	65.7
Pregnancy	47.9	63.0	62.4

In scoring the NSSQ, sources of support were coded into nine categories of: spouse or partner, family or relatives, friends, work or school associates, neighbors, health care providers, counselor or therapist, minister/priest/rabbi, or other. All subjects were married, and each subject listed their spouse in the network list. The other source of support categories reported by the greatest number of subjects were family or relatives (100%), friends (95.0%), health care providers (31.7%), and work or school associates (23.3%). The health care providers listed were either a doctor or a nurse. The only subjects to list a nurse were those on the Community Based Program. No subjects listed anyone in the "counselor or therapist" or "other" category.

Table 12 presents the average functional support scores, the proportion of total number of network members listed, and the proportion of total functional support for each

source of support category. The average functional support score reflects the average score for the sum of the affect, affirmation and aid subscales out of a possible score of 24. Spouses had the highest average functional support scores (23.0), while health care providers had the lowest average functional support scores (12.6) and accounted for only a small proportion (2.2%) of the total functional support. Family or relatives constituted the largest proportion of the total number listed (55.5%) and provided the highest proportion of total functional support (55.6%) for the women in this study.

TABLE 12

NSSQ Data by Source of Support Category

Source of Support Category	Average Functional Support	Proportion of Total No. Listed in Network	Proportion of Total Functional Support
Spouse or partner	23.0	9.3	12.5
Family or relatives	17.6	55.5	55.6
Friends	16.5	25.9	24.4
Work/School Assoc.	15.3	3.4	2.9
Neighbors	13.3	2.0	1.6
Health Care Prov.	12.6	3.0	2.2
Counselor/Therap.	-	0.0	0.0
Minister/Priest	14.0	0.9	0.8
Other	-	0.0	0.0

Profile of Mood States

The POMS measured six mood or affective states: tension-anxiety (POMST), depression-dejection (POMSD), anger-hostility (POMSA), vigor-activity (POMSV), fatigue-inertia (POMSF), and confusion-bewilderment (POMSC). A Total Mood Disturbance score (TMDS) was obtained for each subject by summing the scores (with vigor weighted negatively) on the six primary mood factors.

The TMDS was positively skewed (skewness=1.11), with a mean of 28.8 and a median of 20.5. The TMDS ranged from -15 to 116, with the bulk of the data at the lower end of the measurement scale. Lower scores on the POMS represent lower levels of mood disturbance. A breakdown of the POMS scores by group is found in Table 13. The tension-anxiety and depression-dejection scores are noticeably higher in Group I, as is the TMDS. Conversely, the mean score for vigor-activity is higher in Group II and III as compared to Group

TABLE 13

Scores on the POMS by Group

Variable	Group I Mean	Group II Mean	Group III Mean
POMST	13.8	10.3	8.9
POMSD	13.4	8.8	6.0
POMSA	8.6	5.7	5.9
POMSV	11.3	12.9	16.9
POMSF	10.0	6.7	10.3
POMSC	7.7	6.5	5.2
TMDS	42.0	25.2	19.2

I.

McNair et al. (1971) have developed Profile Sheets for plotting POMS results. "When raw scores are plotted, they automatically can be converted to standard T scores. . . . The mean standard score for each scale is fifty with a standard deviation of 10. Thus approximately 95 percent of the population upon which the norms are based will fall between standard scores of 30 and 70 on any given scale" (McNair et al., 1971, p. 6). The POMS Profile Sheet for college norms was based on a sample of 340 male and 516 female college students. In Appendix Q, the mean scores for each group in this study are plotted on the profile sheet for comparison purposes. Generally the scores fall about or below the mean. Therefore this sample of pregnant women has a level of mood disturbance that is the same or even less than that of college students. The exception to this is the hospitalized subjects (Group I), who have scores above the mean for tension-anxiety and below the mean for vigor-activity, while Group III has scores above the mean for vigor-activity.

Outliers

Frequency distributions were examined for the presence of outliers. Shelley (1984) states that an outlier is an extreme data point which could have a profound effect on the mean. The majority of outliers for this study appeared in

the POMS scores, and upon further investigation were related to four subjects who rated pregnancy on the LEQ as a bad event with a great effect. One of these subjects was from Group I and the other three subjects were from Group II. Table 14 compares mean scores for these four subjects to the

TABLE 14

Comparison of Outlier Scores to the Remainder of the Sample

Variable	Outlier Group (n=4)		Remainder of the Sample (n=56)	
	Mean	S.D.	Mean	S.D.
POMST	26.0	5.8	9.9	4.8
POMSD	25.3	14.2	8.3	7.3
POMSA	14.8	8.1	6.1	4.9
POMSV	10.3	5.6	13.9	5.8
POMSF	14.5	8.3	8.6	6.0
POMSC	16.5	7.4	5.7	3.2
TMDS	86.8	29.5	24.7	25.0
NEGLEQ	17.0	4.1	8.6	6.7
Pregnancy	60.3	33.7	57.6	21.3
TLFUNCT	209.8	93.6	208.6	73.2
TLNETWRK	101.3	32.8	116.4	38.3

rest of the sample.

The table reveals that the four subjects in the outlier group had higher scores on the POMS subscales (except for vigor) and higher negative life event scores on the LEQ when compared to the remainder of the subjects. The social support scores were similar for the two groups. It appeared that rating pregnancy as a bad life event had a significant

effect on responses. The decision was made to delete these subjects from further analyses, leaving n=56 for hypothesis testing.

Normality

One assumption of parametric tests is that the scores are approximately normally distributed. The Kolmogorov-Smirnov (K-S) test was used to test for normality of interval level variables. The K-S test compares the cumulative distribution function for a variable with a normal distribution (Norusis, 1983). The null hypothesis of this test is that the data arise from a normal population with parameters equivalent to the observed sample statistics. Appendix R contains the K-S test Z values and two-tailed probabilities for the study variables. All variables were normally distributed with the exception of years of education and the total loss score on the NSSQ. Although years of education ranged from 6 to 20, the majority of subjects fell in the 12 to 14 year range, resulting in a leptokurtic (peaked) distribution (kurtosis=2.337). For the total loss score, 45 subjects had a score of zero, while the remaining scores were distributed between 2 to 10. Because such a small proportion of the sample had experienced losses, this score was not viewed as very useful for further analyses. Nonparametric statistics were employed in any analyses involving the variables years of education or the total loss score.

Hypotheses I, II, and III

One purpose of this study was to compare levels of life stress, social support, and mood disturbance among the three groups of pregnant women. The hypotheses were stated as follows:

1. Hospitalized pregnant women with PIH, as compared with non-hospitalized pregnant women with PIH,
   a) will exhibit higher levels of life stress.
   b) will have lower levels of social support.
   c) will have higher levels of mood disturbance.
2. Hospitalized pregnant women with PIH, as compared with low risk pregnant women,
   a) will exhibit higher levels of life stress.
   b) will exhibit lower levels of social support.
   c) will exhibit higher levels of mood disturbance.
3. Non-hospitalized pregnant women with PIH, as compared with low risk pregnant women,
   a) will exhibit higher levels of life stress.
   b) will exhibit similar levels of social support.
   c) will exhibit higher levels of mood disturbance.

These hypotheses were tested using one-way ANOVA. The purpose of ANOVA is to test the significance of differences between two or more group means. The following assumptions of ANOVA (Waltz & Bausell, 1981) were met:

1. The dependent variable (life stress, social support, or mood disturbance) was measured at the interval level.
2. The value of the independent variable was discrete and nominal (group membership).

A third assumption is that the variances of the dependent variable should not differ significantly from one group to another (Waltz & Bausell, 1981). This assumption of homogeneity of variance was tested using the Bartlett Box F test available with SPSS-X (Norusis, 1983). For some variables, the variances of the scores making up each mean differed from one another: NEGLEQ (p=.003), TMDS (p=.016), POMST (p=.024), POMSD (p=.000), and POMSC (p=.018). However, Stevens (1986) notes that as long as the group sizes are approximately equal (largest/smallest less than 1.5), the F ratio is robust against heterogeneous variances. The group sizes in this study consisted of 19, 17, and 20 subjects (after the outliers were removed) and were considered approximately equal. Stevens also stated that if there are unequal variances, there is a very slight effect on the probability of a Type I error, which is seldom distorted by more than a few hundredths.

When a significant F ratio was obtained, the Neuman-Keuls (NK) post hoc comparison test was applied to verify the location of specific significant differences between levels of the independent variable (Shelley, 1984). In the NK

procedure, the alpha level of all possible pairwise comparisons is kept at .05. In selecting a post hoc test, Shelley (1984) suggests that the NK procedure is appropriate if only pairwise comparisons are being made.

There were no significant differences in life stress, operationalized by the negative events score on the LEQ, between the three groups (F ratio=2.692, p=.077). The one-way ANOVA is presented in Table 15.

TABLE 15

ANOVA for Negative Events Score on the LEQ by Group

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	p
Between Groups	2	230.466	115.233	2.692	.077
Within Groups	53	2268.992	42.809		
Total	55	2499.357			

In terms of social support, there were no significant differences among the three groups on the Total Functional Support score (F ratio=1.527, p=.227), the Total Situational Support score (F ratio=1.860, p=.166), the Total Network Score (F ratio=2.754, p=.073), or the Pregnancy subscale score (F ratio=2.752, p=.073). However, the Pregnancy subscale score and the Total Network score approached significance. The one-way ANOVA for the Pregnancy score is presented in Table 16.

TABLE 16

ANOVA for Pregnancy Score on the NSSQ by Group

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	p
Between Groups	2	2336.122	1168.061	2.752	.073
Within Groups	53	22499.432	424.518		
Total	55	24835.554			

To test for differences in mood disturbance among groups, the Total Mood Disturbance Score (TMDS) and each of its subscales were subjected to one-way ANOVA. There were significant differences in TMDS between Group I and II, and between Group I and III. The hospitalized subjects had higher TMDSs (mean of 38.1) than either the Community Based Program subjects (mean of 16.1) or the prenatal class subjects (mean of 19.2). The differences between Group II and III were not significant; that is, subjects cared for on the Community Based Program had similar TMDSs to those of low risk pregnant women. The one-way ANOVA for TMDS is

TABLE 17

ANOVA for Total Mood Disturbance Score (TMDS) by Group

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	p
Between Groups	2	5228.623	2644.312	4.816	.012
Within Groups	53	29097.931	549.018		
Total	55	34386.554			

presented in Table 17.

Of the POMS subscales, the anger-hostility and fatigue-inertia scores did not differ significantly among the three groups. However, a significant F ratio was obtained for the tension-anxiety (F ratio=5.920, p=.005), depression-dejection (F ratio=6.010, p=.004), and confusion-bewilderment (F ratio=3.287, p=.045) subscales, indicating that a significant difference existed between at least two of the three groups. Both the tension-anxiety and the depression-dejection scores differed between both Group I and II and Group I and III, with Group I having a higher mean score. The confusion-bewilderment score differed between Group I and III, with the hospitalized subjects having higher confusion scores. The factor vigor-activity also differed significantly between Group I and III and between Group II and III. The low risk pregnant women had higher vigor scores than either the hospitalized women or women on the Community Based Program.

In summary, hospitalized pregnant women with PIH exhibited higher levels of mood disturbance (TMDS, POMST, and POMSD) than either the non-hospitalized pregnant women with PIH or the low risk pregnant women. Non-hospitalized women with PIH, as compared with low risk pregnant women, exhibited similar levels of social support and did not differ in levels of mood disturbance except for the vigor-activity subscale. There were no differences in levels of

life stress or social support between the three groups. Thus subsections of each hypothesis were supported, but neither Hypothesis I, II, or III was supported in its entirety.

Hypothesis IV

Hypothesis IV stated that life stress (negative life events) will be directly related and social support will be inversely related to mood disturbance. This hypothesis was tested using bivariate correlation techniques to examine the nature and extent of the relationships between these variables. The Pearson product-moment correlation coefficient r was utilized because the following assumptions for this test (Shelley, 1984; Waltz & Bausell, 1981) were met:

1. Both variables were measured at the interval level.
2. The variables were linearly related (as determined from scatter diagrams).
3. The variables were normally and independently distributed.

To determine the percentage of variance shared by the two variables, the correlation r was squared, and then multiplied by 100.

Table 18 lists the value of Pearson r and r squared for selected combinations of the variables.

TABLE 18

Bivariate Correlations for Selected Variables

Variable Pair	Pearson r	r squared	p
Negative score on LEQ with TMDS	.491	.241	.000
Negative score on LEQ with POMST	.427	.182	.001
Negative score on LEQ with POMSD	.397	.158	.001
Total score on LEQ with TMDS	.458	.210	.000
Total functional support with TMDS	-.102	.010	.227
Pregnancy support score with TMDS	-.107	.011	.217
Total situational support with TMDS	-.106	.011	.219
Total network support with TMDS	-.194	.038	.076

Moderate correlations existed between the negative score on the LEQ and the TMDS (r=.491), the tension-anxiety subscale (POMST), and the depression-dejection subscale (POMSD). The shared variance between stress (negative life events) and the TMDS was 24 percent. Therefore the hypothesis that stress would be directly related to mood disturbance was supported. Shelley (1984) states, "A correlation must reach .70 before it accounts for almost half of the variance. The popular rule of thumb is that it is a strong correlation when it accounts for half of the variance. Correlations of 0.50, which may seem high, actually account for only 25 percent of the shared variance and are considered moderate" (p. 182).

The total score on the LEQ was also positively correlated with TMDS (r=.458), but to a lesser extent than the negative score on the LEQ. This provides support for the contention that the negative change score is a better predictor of life stress than the total change score.

There was little evidence to support the hypothesis that social support would be inversely related to mood disturbance. None of the social support variables (TLFUNCT, PREG, TLSIT, TLNETWRK) achieved a significant correlation with the TMDS, although the correlations were in a negative direction. Of the POMS subscales, confusion-bewilderment was inversely related to the Total Network score (r=-.258, p=.029), while vigor-activity was directly related to Pregnancy support (r=.273, p=.021). No other relationships between social support and the POMS subscales were significant.

In summary, life stress was directly related to mood disturbance, whereas an inverse relationship between social support and mood disturbance was not supported.

Hypothesis V

Hypothesis V stated that the effects of high life stress on mood disturbance will be buffered by social support. This hypothesis was investigated through the construction of a multiple regression model. Multiple regression enables the researcher to consider the relationship between two or more

predictor variables and one criterion variable. The predictor variables of stress, social support, and the interaction of stress and social support were entered into the equation. The criterion variable was mood disturbance. The following assumptions of multiple regression procedures (Shelley, 1984; Waltz & Bausell, 1981) were met:

1. All variables were measured at the interval level.
2. The predictor variables were not correlated with each other, that is, multicollinearity did not exist. For example, the Pearson r correlation between the negative events score on the LEQ and the Total Functional Support score was -.030 with a significance of .414.
3. The variables were normally distributed.

A hierarchical analytic strategy was employed. Cohen and Cohen (1983) state that, in hierarchical multiple regression analysis, the "choice of a particular sequence (hierarchy) of [independent variables] is made in advance . . ., dictated by the purpose and logic of the research"(p. 120). Structural properties of the research factors being studied may necessitate a hierarchical analysis. For example, "several types of variables that may be used as [independent variables in Multiple Regression Correlation] have characteristics that make assessment of their contribution to R^2 meaningful only after related variables have been partialled, thus mandating a specific order. This occurs in

the representation of interactions"(p. 123). Because one purpose of this research was to test the buffering effect of social support on stress, stress and social support were entered into the equation prior to the interaction of stress and social support. Volicer (1984) states,

> In cases where there is interaction between the independent variables, . . . better prediction of the dependent variable can be attained by incorporating the interactive effect into the model. The contribution of interaction to prediction is most commonly handled by the inclusion of multiplicative terms into the regression equation. For a situation with two independent variables, the model takes the following form:
>
> $$y = a + B_1X_1 + B_2X_2 + B_3X_1X_2$$
>
> The last term, which is the multiplicative term, is the product of the two variables and represents the effect of the two variables jointly, that is, in addition to their independent effects. (pp. 180-181)

Applying the above equation to the present study, y represents mood disturbance, X_1 represents stress, X_2 represents social support, and X_1X_2 represents the product of stress and social support. Several multiple regression models were constructed, because each variable could be represented by several possible scores. Mood disturbance was tested using the TMDS, the tension-anxiety subscale (POMST), and the depression-dejection subscale (POMSD) as

the criterion variables, because moderate to strong correlations existed between the negative score on the LEQ and these three scores. Stress was represented by the negative score on the LEQ, because it correlated more strongly with mood disturbance than the total score on the LEQ. A variety of social support scores were of interest: Total Functional Support (TLFUNCT), Total Situational Support (TLSIT), Pregnancy Support (PREG), and Total Network (TLNETWRK). An interaction term was computed for each of these social support scores.

Prior to performing the hierarchical regressions, correlations were performed to screen for possible covariates with the criterion, or dependent, variable. Pearson correlation coefficients for normally distributed variables are presented in Table 18. The only useful covariate in this group was gestational age, and only with the tension-anxiety subscale of the POMS. A possible explanation for this finding is that as gestational age increases and the time of delivery approaches, women may become more anxious regarding the outcome of the labor and delivery process. Therefore gestational age was incorporated as a predictor variable into the regression equations using POMST as the criterion variable. None of the blood pressure variables correlated significantly with mood disturbance, therefore the finding that blood pressures were significantly higher in the hospitalized group took on

TABLE 19

Pearson Correlation Coefficients for Potential Covariates

	TMDS	POMST	POMSD
Age	-.131 p=.335	-.215 p=.112	-.193 p=.154
Gestational age	.127 p=.352	.318 p=.017*	.054 p=.690
Admission days	.115 p=.503	.045 p=.796	.131 p=.445
Average LL Diastolic BP	.194 p=.256	.181 p=.291	.250 p=.142
Average sitting Diastolic BP	.238 p=.176	.175 p=.322	.248 p=.158
Average LL Mean Arterial BP	.100 p=.563	.129 p=.454	.187 p=.275

less importance. Because education was not normally distributed, the nonparametric Spearman rho was utilized. Education was not significantly correlated with TMDS (rho=.160, p=.223), POMST (rho=-.018, p=.892), or POMSD (rho=.074, p=.577) and was therefore not a useful covariate.

The results of the hierarchical multiple regression analyses are presented in Table 20 (Criterion variable: TMDS), Table 21 (Criterion variable: POMST), and Table 22 (Criterion variable: POMSD). Outliers were removed prior to performing the regressions, leaving N=56. The regression equation with the outliers included was as follows:

TMDS = -4.2 + 4.6 NEGLEQ + .05 TLFUNCT - .01 NEGLEQ X TLFUNCT.

The regression equation with the outliers removed was as follows:

TMDS = 2.1 + 3.4 NEGLEQ + .03 TLFUNCT - .01 NEGLEQ X TLFUNCT.

When the outliers were incorporated, they pulled the significance of the negative score on the LEQ (NEGLEQ) higher. The outliers also made it more difficult for any

TABLE 20

Multiple Regression with Criterion Variable TMDS

Variable	Beta	Multiple R	R Sq. Change	F	p
NEGLEQ	3.410	.491	.241	17.111	.000
TLFUNCT	.033	.498	.008	.537	.467
NEG X FUNCT	-.000	.512	.014	.978	.327
NEGLEQ	2.660	.491	.241	17.111	.000
TLNETWRK	-.054	.525	.035	5.524	.118
NEG X NET	-.008	.529	.004	.320	.574
NEGLEQ	3.673	.491	.241	17.111	.000
TLSIT	.029	.500	.010	.676	.415
NEG X SIT	-.007	.518	.018	1.279	.263
NEGLEQ	3.937	.491	.241	17.111	.000
PREG	.127	.505	.015	1.058	.308
NEG X PREG	-.035	.532	.028	2.023	.161

effect of the Total Functional Support to be seen.

Stress was a significant predictor of mood disturbance, accounting for 24.1% of the variance in the total mood disturbance score (TMDS). Further indication that stress (NEGLEQ) was the overwhelmingly dominant predictor is given by the fact that the total model accounted for from 26.3% to 28.4% of the variance explained in the TMDS (depending which social support variable was in the model), 24.1% of which was attributable to stress. Social support was not a significant predictor of mood disturbance, therefore a direct effect of social support was not supported. The interaction term was also not significant, therefore the buffering effect of social support was not supported. The Total Network score was the most predictive of the social support scores, accounting for 3.5% of the variance in TMDS, although this was not a significant result. However, when the outliers were included in the analysis, the Total Network score approached significance (R squared change=.044, F=3.941, p=.052). This clearly indicates how outliers can influence results.

Gestational age and stressful life events were both significant predictors of tension-anxiety in the pregnant women. Gestional age accounted for 10.1% of the variance while stress accounted for 17.6% of the variance in the tension-anxiety subscale of the POMS. The direct and buffering effects of social support were not supported.

TABLE 21

Multiple Regression with Criterion Variable POMST

Variable	Beta	Multiple R	R Sq. Change	F	p
GESTAGE	.713	.318	.101	6.093	.017
NEGLEQ	.368	.527	.176	12.887	.001
TLFUNCT	-.002	.531	.005	.336	.565
NEG X FUNCT		.532	.001	.053	.820
GESTAGE	.706	.318	.101	6.093	.017
NEGLEQ	.295	.527	.176	12.887	.001
TLNETWRK	-.020	.551	.026	1.970	.166
NEG X NET		.551	.000	.000	.996
GESTAGE	.711	.318	.101	6.093	.017
NEGLEQ	.392	.527	.176	12.887	.001
TLSIT	-.001	.532	.006	.415	.523
NEG X SIT		.533	.001	.091	.764
GESTAGE	.687	.318	.101	6.093	.017
NEGLEQ	.441	.527	.176	12.887	.001
PREG	-.002	.535	.009	.619	.435
NEG X PREG	-.002	.538	.003	.245	.623

Stress was also a significant predictor for the criterion variable of depression-dejection. However, stress accounted for less of the variance in the depression-dejection subscale (15.8%) than the TMDS (24.8%). Social support was not significant, and accounted for only a very small proportion of the change in R.

Norbeck et al. (1983) found that a greater proportion of the variance was accounted for by substituting the social support subscales (affect, affirmation, and aid) for the composite score for functional support in the multiple

TABLE 22

Multiple Regression with Criterion Variable POMSD

Variable	Beta	Multiple R	R Sq. Change	F	p
NEGLEQ	.868	.397	.158	10.095	.002
TLFUNCT	.015	.397	.000	.028	.868
NEG X FUNCT	-.002	.413	.012	.776	.383
NEGLEQ	.706	.367	.158	10.095	.002
TLNETWRK	-.022	.413	.013	.858	.395
NEG X NET	-.002	.420	.006	.355	.554
NEGLEQ	.916	.397	.158	10.095	.002
TLSIT	.011	.400	.002	.133	.716
NEG X SIT	-.002	.417	.015	.920	.342
NEGLEQ	.946	.397	.158	10.095	.002
PREG	.022	.416	.016	1.020	.317
NEG X PREG	-.009	.439	.020	1.261	.267

regression analysis. This approach was also used in this study (see Table 23), but with insignificant results for the subscales. Only the negative life events score achieved significant results, accounting for 24.1% of the variance in TMDS. The total model (all variables combined) explained 29.1% of the variance in TMDS. The interaction term of NEGLEQ X AFFIRMATION was not entered into the equation, because tolerance limits of .010 were reached.

The above approach is questionable, because of the potential shrinkage of R. Volicer (1984) states, "One factor that influences the amount of overestimation of the value of R is the ratio of the number of predictor variables

TABLE 23

Multiple Regression with Criterion Variable TMDS

Variable	Beta	Multiple R	R Sq. Change	F	p
NEGLEQ	3.570	.491	.241	17.111	.000
AFFECT	-.410	.504	.013	.948	.335
AFFIRMATION	.169	.512	.008	.545	.463
AID	.457	.513	.002	.108	.743
NEG X AFFECT	.020	.517	.004	.281	.598
NEG X AID	-.051	.538	.023	1.577	.215

used to the sample size. The larger this ratio is, the more overestimation there tends to be in the value of R" (p. 162). Therefore the number of predictor variables used in the majority of the multiple regression analyses was confined to three or four variables because of the small sample size used in this study.

The buffering hypothesis states that "at high levels of life change, social support protects the person from the deleterious effects of stressful life events, but at low levels of life change, social support is unrelated to the level of psychological distress" (Wilcox, 1981, p. 382). Because the buffering effect of social support should be more apparent in high stress groups, a multiple regression analysis was conducted with Group I and II subjects only. However, the results were similar to previous analyses conducted with all three groups of subjects; the direct and buffering effects of social support were not supported.

In summary, Hypothesis V was not supported.

Qualitative Data

In order to describe the experience of women with PIH in the two settings (hospital versus home) from the perspective of each group, an interview was conducted with these subjects and the results were subjected to qualitative analysis. Wilson (1985) defines qualitative analysis as "the nonnumerical organization and interpretation of data in order to discover patterns, themes, forms, and qualities found in field notes, interview transcripts, open-ended questionnaires, . . . and the like" (p. 397). For each interview question, various categories were devised based on themes appearing in the data. Illustrations will be provided for each category.

The first question asked "What are some of the concerns you have about being admitted to the hospital (or to the home care program) during your pregnancy?" The following categories of concerns were identified for the hospitalized subjects:

1. Hospital environment: Concerns in this category included problems with sleeping while in the hospital (n=2), boredom (n=1), having to share a room or having problems with a roommate (n=2), a general dislike of hospitals (n=1), the hospital routine (n=1), and frustration with "laying around" all day

(n=1). Five women stated that they would rather be at home.

2. Health status: Several women expressed concerns about the health of the fetus and their own condition (n=11). Other concerns in this category included worrying about having to be induced before term (n=3), tests (n=2), effect of medication on the fetus (n=1), possibility of a cesarean section (n=1), and the outcome of labor and delivery (n=1).
3. Communication with health professionals: Concerns in this category included not receiving enough information from health professionals (n=2), not knowing what decisions were being made (n=1), and insensitivity of staff (n=1). Comments included "They don't really answer all of my questions in depth. I feel like a guinea pig" and "Are they telling me everything?".
4. Home and work responsibilities: Concerns in this category included having to quit work early (n=1) and not being able to fulfill various responsibilities at home, such as getting the room ready for the baby (n=2).
5. Family: Women expressed concerns about getting their children at home looked after (n=2), inconveniencing relatives (n=1), and "about my husband and how he feels about all this".

6. Feelings: Some of the concerns expressed emphasized a particular feeling the woman was experiencing, such as feeling lonely (n=2), scared (n=1), worried, and not knowing what to expect/everything happened too fast (n=2). One woman said "I was shocked when the doctor said I had to go to the hospital".

The following categories of concerns were identified for subjects on the Community Based Program for PIH:

1. Health status: Concerns in this category focused on the health of the fetus and their own condition (n=3), including not knowing what PIH was and how it affected themselves and the baby (n=2). One woman stated, "I worry about eclampsia and having a stillborn baby after all this time".
2. Home and work responsibilities: Concerns included having to quit work (n=2), getting housework accomplished (n=1), and getting ready for the baby (n=1).
3. Equipment: Three women expressed concerns about the accuracy of the blood pressure machine.
4. Restrictions: Concerns were expressed about the restrictions imposed by the program, especially not being able to go out anywhere (n=4).
5. Avoiding hospital admission: Four women expressed a concern that their blood pressure might go up and they would have to be admitted to the hospital. As

one woman stated, "Basically my only concern is making sure my blood pressure stays low enough that they won't admit me".

6. No concerns: Several women stated that they had no concerns about being admitted to the Community Based Program (n=11). For example, comments included "I don't think I have any concerns. I view it as a positive thing" or "It's really no problem. I really appreciate it. I like being at home and having someone come once a day. It's better than being in the hospital".

In summary, the concerns expressed by the women in the two settings differed in several aspects. The two categories common to each setting were "Health status" and "Home and work responsibilities". Concerns regarding family members, communications with health professionals, and feelings were not mentioned by women on the Community Based Program. Analysis of the hospitalized subjects' responses did not yield a category entitled "No concerns". Although concerns were expressed regarding the hospital environment, no concerns were expressed regarding the home environment.

The second question asked "What are some of the worst things about being in the hospital (or on the Community Based Program) at this time?" The following categories of "worst things" were developed for the hospitalized subjects:

1. Boredom: Seven women described boredom as a problem.
2. Hospital environment: Worst things in this category included lack of privacy (n=1), the bed (n=4), the food (n=2), trouble sleeping (n=5), the noise (n=1), difficulty getting access to a phone (n=1), and more comfortable at home/rather be at home (n=3).
3. Hospital routines: Worst things included having to stay in bed (n=3), being woken up at 6 a.m. for medications or urine sample (n=2), having blood taken (n=1), not allowing enough visitors (n=1), visiting hours too short (n=1), and always having your blood pressure being taken (n=1).
4. Separation from family: The women identified being away from husband and family (n=5), separation from children (n=1), the difficulties for family members to visit (n=1), and concerns about how their husbands were managing (n=4) as worst things in this category.
5. Home and work responsibilities: Worst things included quitting work (n=2) and not getting things done at home (n=3).
6. Communication with health professionals: One woman stated, "The doctors can't agree on anything; there are too many different opinions. I wish the doctors would be more understanding - two doctors got mad at me when I gave my opinion".

The following categories of "worst things" arose from the responses of subjects on the Community Based Program:

1. Boredom: Six women described boredom as a problem.
2. Program restrictions: The worst things in this category focused on being confined to bedrest (n=6), not being able to go out (for example, to go shopping or for a walk) (n=4), difficulties adjusting their schedule to get the required hours of rest (n=2), and not being used to staying at home all day (n=1). One woman stated, "You don't feel sick, so it makes it hard to lie down all day" and another stated "I've got cabin fever".
3. Home and work responsibilities: The worst things involved not being able to get things done around the house, such as the housework (n=6) or get things ready for the baby (n=2), and quitting work (n=2).
4. Monitoring: The women mentioned having to get up early to do monitoring at the same time every day (n=1), worrying about whether the blood pressure machine was working properly (n=2), the inconvenience of collecting 24 hour urine samples (n=1), and difficulty counting fetal movements (n=1).
5. None: Seven women did not identify any worst things about being on the Community Based Program.

Similarities in the "worst things" categories included boredom, restrictions/routines (especially bedrest), and

home and work responsibilities. Women on the Community Based Program did not identify separation from family or communication with health professionals as "worst things".

The third question asked "What are some of the best things about being in the hospital (or on the Community Based Program) at this time?" Categories of "best things" arising from the hospitalized subjects comments included:

1. Rest: Twelve women identified getting rest as a benefit of being in the hospital.
2. Nursing and medical care: Best things in this category included receiving good care (n=7), being monitored/receiving reassurance from the monitoring (n=7), having good doctors and nurses (n=4), having the opportunity to ask questions (n=1), and the security of knowing the baby was being cared for (n=3). One woman stated, "I've seen lots of doctors and nurses, and had lots of chances to ask questions", while three women commented that the nurses were "really nice".
3. Availability of emergency care: Five women commented that if anything were to go wrong, being close to medical care was a benefit.
4. None: Two women did not identify any "best things" about being in the hospital.

The following categories of "best things" about being on the Community Based Program were identified:

1. Nursing care: Best things in this category included the reassurance of having the nurse visit everyday (n=7), having questions answered by the nurse (n=5), learning more about PIH (n=4), being monitored (n=3), and receiving personalized care (n=1). The women were quite enthusiastic about the nursing care, and made statements such as "It's great. You can have all this attention from the nurse that you don't get in the hospital. The nurses at home answer my questions. I feel safe and secure with the nurse coming everyday" or "The information I gained from the nurse was terrific - I never felt they were rushing; it puts your mind at ease". Women who had been hospitalized prior to going on the Community Based Program made statements comparing the nursing care in the two settings: "It's better than being in the hospital. The nurses answer more of my questions; I learn more. Not like in the hospital where everyone says 'later' or 'wait until tomorrow' or tells you something different" or "In the hospital, maybe ten minutes they [nurse] will stay with you. You don't feel like asking questions. One nurse has all these patients" or "I like this much better than the hospital, because I'm staying home

and they give you explanations. In the hospital, the nurses just check your blood pressure and leave".

2. Not having to be admitted to the hospital: Sixteen women identified not having to be admitted to hospital as a benefit of the Community Based Program.
3. Home environment: Best things in this category included being more comfortable at home (n=4), more relaxed at home (n=5), able to eat what you want when you want (n=2), and better able to rest (n=1).
4. Availability of family members: Best things in this category included having family members visit anytime they want to (n=3), receiving help from husband or family (n=2), and staying at home with family (n=4). One woman stated, "You're at home, so the family can have interaction. You can keep in touch with what's going on".

In summary, similarities in the "best things" category included nursing care, although subjects on the Community Based Program commented more frequently about the teaching they received. Not having to be admitted to hospital was a predominant benefit for the Community Based Program subjects.

The fourth question asked "What changes in your usual lifestyle, or daily activities and responsibilities, has being hospitalized (or on the home care program) caused? Has this been a source of stress for you?" Categories of

changes in daily activities and responsibilities for hospitalized subjects included the following:

1. Changes in domestic responsibilities/activities: Changes in this category included not doing housework, cooking, laundry, shopping, etc. (n=13), paying bills (n=2), and getting ready for the baby (n=2). One woman responded "Everything - every little thing. Making breakfast, letting the dog out, . . .bills not paid. Everything is at a standstill".
2. Quitting work: Six women stated that not going to work was a change in their daily activities. For example, "Having to quit work was a real shock" or "Not going to work - everything has been disrupted".
3. Changes in recreation/socialization (n=6).
4. Reduced activity level (n=4).
5. Changes in child care (n=3).

In answering whether these changes were a source of stress for them, six women responded no and nine women responded yes.

Categories of changes in daily activities and responsibilities for subjects on the Community Based Program included the following:

1. Changes in domestic responsibilities/activities (n=14).

2. Quitting work (n=6).
3. Changes in recreation/socialization (n=10).
4. Reduced activity level (n=6).
5. Changes in child care (n=5).
6. Monitoring: Two women commented about the monitoring they had to do because they were on the program (for example, count fetal movements, test urine, take weight).

Seven women responded that these changes were stressful, and seven women responded that these changes were not stressful.

The categories of changes in daily activities and responsibilities were similar for both groups. Because of the restrictions imposed by the Community Based Program, the women on this program were also not able to do housework or go visiting.

The fifth question asked "How has being hospitalized (or on the home care program) affected your ability to interact with your support systems (the people who are important to you)?"

In the hospitalized group, four women stated that there had been no change or that it had not been a problem. Several women mentioned that their husband and other family members or friends came to visit. Changes in their interaction with support systems were identified by ten women. One woman responded "It's stopped it all, more or

less. They're all at work or busy doing things" and another said "Very much so. Visiting hours are appallingly short and the telephone is not accessible enough". Six women either had not told people that they were in the hospital or discouraged the presence of visitors. For example, one woman said "I don't like having too many visitors. I just like having my husband. Other people don't seem to understand what I'm going through or what I feel".

In the Community Based Program, six women stated that there had been no change in their ability to interact with their support systems or that it had not been a problem. Having family or friends come to visit and talking to people on the telephone were frequently mentioned as methods of interacting with support systems. Eleven women cited some type of change in their interactions with support systems, such as "They pretty well have to come to see me, because I can't go to see them" or "I'm so concerned about stress that I don't encourage anyone to come over".

When the hospitalized subjects were asked "Would you prefer to be cared for in your own home, if that could be arranged?", fourteen women replied yes and three women were uncertain. Two women responded no, citing reasons that the current program was not able to provide "somebody in the house, around the clock" or "I know if I'm at home, I wouldn't lie in bed, so it wouldn't be the best thing for the baby".

When subjects on the Community Based Program were asked "Would you rather be cared for in the hospital?", seventeen women responded no. One woman said "Yes and no - Yes, because they would do everything, but no, because I wouldn't like to leave my house and husband". Two women gave a qualified answer, stating that if their blood pressure readings became high and needed to be closely monitored, that they would rather be in the hospital.

Thus the majority of subjects prefer or would prefer to be cared for at home rather than in the hospital.

Analysis of the qualitative data gathered in this study has provided assistance in gaining insights about the experiences of women with PIH in both the hospital and the Community Based Program. Because the Community Based Program is a new approach in providing care for women with PIH, it is useful to gather indepth data regarding this program from the perspective of the participants.

Summary

The hypotheses for this study were tested by using one-way ANOVA, bivariate correlation, and multiple regression techniques. Interview data obtained from the subjects with PIH were subjected to qualitative analysis. Findings indicated that there were no significant differences in levels of life stress and social support between the three groups of pregnant women. However, women with PIH cared for

in the hospital setting had significantly higher levels of mood disturbance than either the women with PIH cared for on the Community Based Program or the low risk pregnant women. Stress (negative life events) was directly related to mood disturbance, but no relationship was found between social support and mood disturbance. The hypothesis that social support would buffer the effects of high life stress on mood disturbance was also not supported. Qualitative analysis revealed that women with PIH on the Community Based Program identified fewer concerns and more benefits related to their setting of care than hospitalized women with PIH. The majority of women in both groups indicated that they would rather be cared for at home than in the hospital. The conditions and implications to be drawn from the data analysis will be discussed in the next chapter.

CHAPTER V: DISCUSSION

Summary

This descriptive study was designed to explore whether a community based home care program for women with PIH would result in lower levels of stress and mood disturbance, mediated by increased access to social support. More specifically, the purpose of the study was:

1. to compare levels of life stress, social support, and mood disturbance among three groups of pregnant women: women with PIH cared for in the hospital setting, women with PIH cared for on the Community Based Program, and low risk pregnant women.
2. to study the relationships between the variables of life stress, social support, and mood disturbance.
3. to determine whether social support buffers (or mediates) the effects of life stress on mood disturbance in pregnant women.
4. to describe the experience of women with PIH in the two settings (hospital versus home) from the perspective of each group.

The conceptual framework which directed this investigation was based on Pearlin et al.'s (1981) description of the

process of social stress, which combines three major conceptual domains: sources of stress, mediators of stress, and manifestations of stress. In this investigation, the source of stress studied was negative life events, the mediator of stress was social support, and the manifestation of stress was mood disturbance. Research instruments were selected to operationalize these three domains of the conceptual framework: a Life Events Questionnaire, the Norbeck Social Support Questionnaire, and the Profile of Mood States.

The research sample was composed of sixty women in the third trimester of pregnancy. Non-probability sampling was employed to obtain twenty subjects in each of the following three groups:

1. Group I: women with PIH cared for in the hospital setting.
2. Group II: women with PIH cared for on the Community Based Program.
3. Group III: low risk pregnant women.

The subjects completed a Demographic Information Form in addition to the three questionnaires previously mentioned. An interview was also conducted with subjects in Group I and II to gain insights into the experiences of women with PIH in both the hospital and the Community Based Program.

This investigation combined a quantitative and qualitative approach to studying the five hypotheses. Comparative and correlational techniques were used to analyze the quantitative data: one-way ANOVA, bivariate correlation, and multiple regression. Interview data were subjected to qualitative analysis.

The results of the study indicated that women with PIH cared for in the hospital setting had significantly higher levels of mood disturbance than either women with PIH cared for on the Community Based Program or low risk pregnant women. There were no significant differences in levels of life stress or social support between the three groups. The hypothesis that stress (negative life events) would be directly related to mood disturbance was supported, but no relationship was found between social support and mood disturbance. The hypothesis that social support would buffer the effects of high life stress on mood disturbance was also not supported. Qualitative analysis revealed that women with PIH on the Community Based Program identified fewer concerns and more benefits related to their setting of care than hospitalized women with PIH. Remaining in the home environment, receiving daily monitoring and explanations from the nurse, and having more access to family members were mentioned as benefits of the Community Based Program. The majority of women in both Group I and II indicated that they would rather be cared for at home than in the hospital.

These results give rise to a number of interpretations, conclusions, implications for nursing practice, and recommendations for future research. These will be discussed in the following sections.

Discussion

Some of the findings of this study are consistent with those of earlier investigations. This study provides further support for a direct relationship between stress and mood disturbance. In previous studies, however, life stress accounted for a relatively small proportion of the variance in the dependent measures that were studied. Correlations between measures of stressful life events and dependent variables were typically low, often in the .20 to .30 range (Sarason, Sarason, & Johnson, 1985). This poor predictive ability may have been due to inadequacies of the life stress measures, such as failure to assess separately positive and negative life events and insensitive methods of quantifying the impact of events (Sarason et al., 1985). The advantages of employing a life events questionnaire which differentiates between positive and negative events and permits the subject to rate the impact of the event (rather than using predetermined weightings for events) are apparent in this study, in which the correlation between negative life events and the Total Mood Disturbance Score was .491. Negative life events therefore accounted for 24% of the variance in total mood disturbance. This result is similar

to that obtained in Tilden's (1983) study of medically normal pregnant women, in which negative life events accounted for 29.7% of the variance in emotional disequilibrium. The results of this study also confirmed those of other studies, such as Zuckerman et al. (1986), in which the negative life events score was more predictive of psychological symptomatology than the total events score or the positive events score, suggesting that symptoms and maladjustment are related more to negative or undesirable change than to the overall magnitude of eventful change.

Life change, however, represents only one type of stressor. Perhaps this may provide an explanation for why only moderate correlations are achieved between negative life events and mood disturbance. As outlined in the conceptual framework, sources of stress include both discrete life events and the presence of relatively continuous problems or life strains. Pearlin et al. (1981) have proposed that "life events can lead to negative changes in peoples' roles, changes whose persistence wears away desired elements of self-concept, and that through this set of linkages stress is aroused" (p. 342). Only life events were measured quantitatively in this study, but the qualitative data provide support for the other components of the stress process. Discrete life events which were rated as negative included PIH and hospitalization. Of the thirty women who rated PIH as a "bad" event, twelve women indicated

that it had a great effect on their lives, while eleven women rated it as having a moderate effect, and seven women rated it as having some effect. Thus being diagnosed as high risk during their pregnancy was stressful for the majority of these women. This is congruent with the conceptual framework, which suggests that events which are neither desirable nor within control are likely to be more stressful. Analysis of the interview data also indicated that PIH generated role strains for several of the women by interfering with their parenting role or employment role. Other women were unable to fulfill their household responsibilities and indicated that this was stressful. Experiencing PIH as a life event also created a new role strain in terms of assuming a sick role. As one hospitalized woman stated, "It's like being here because you're sick, but you don't feel sick." In her article on the stress of high risk pregnancy, Galloway (1976) states, "One of the most difficult and confusing aspects of being high risk is that the woman does not look or feel sick" (p. 295).

Pearlin et al. (1981) also suggest that life events and the role strains they generate are more likely to produce stress when they result in a diminishment of self, such as a decreased sense of mastery and self-esteem. The qualitative data generated by this study provided support for the occurrence of a dimishment of self. Some women indicated

that developing PIH created a sense of lack of control, especially related to not knowing what to expect. Women cared for at home worried about whether their blood pressure would become further elevated, forcing admission to the hospital. Some women in the hospital were concerned about the possibility of having a cesarean section or being induced before term. Other women expressed concerns about not receiving enough information from health professionals or not knowing what decisions were being made. As one woman stated, "I wish they'd decide what they're going to do. . . . They don't answer all my questions in depth." These findings are consistent with the results of Volicer and Burns' (1977) survey of 450 general medical and surgical patients, in which women indicated higher stress levels than men. "In terms of specific hospital stress items, more women reported items related to loss of independence and control over one's body and items related to lack of information about diagnosis, treatment, when things could be expected to happen, and so on" (Volicer & Burns, 1977, pp. 414-415). Although none of the interview questions were designed to directly assess self-esteem, some women did indicate a decreased sense of self-worth. One woman stated, "I feel like a guinea pig." Another indication of decreased self-esteem may be reflected in the fact that six of the hospitalized women either had not told people that they were in the hospital or had discouraged the presence of visitors. Thoits (1983) states that "an event-generated decrease in

self-esteem may cause individuals, out of shame, to avoid potentially supportive others" (p. 85). In summary, the sources of stress for women with PIH in this study included negative life events, role strains, and dimishment of self.

This study also provides strong support for the proposition that antepartum hospitalization is a stressful experience. Hospitalized subjects had significantly higher Total Mood Disturbance, tension-anxiety, and depression-dejection scores than either the women with PIH cared for on the Community Based Program or the low risk pregnant women. The hospitalized subjects also had significantly higher levels of confusion-bewilderment than the women cared for on the Community Based Program. Categories of stressors related to hospitalization which arose from the qualitative analysis were similar to those identified in previous research (Becker, 1984; Waldron & Asayama, 1985; White & Ritchie, 1984). Hospitalized subjects identified concerns related to the hospital environment, their health status and that of the fetus, communication with health professionals, home and work responsibilities, their family, and emotional strain. Categories of "worst things" for the hospitalized women included boredom, the hospital environment, hospital routines, separation from family, inability to fulfill home and work responsibilities, and communication with health professionals.

Benefits of the Community Based Program as an alternative approach in caring for women with PIH are also evident in this study. Women on the Community Based Program had significantly lower levels of mood disturbance than the hospitalized subjects. In fact, their levels of mood disturbance were similar to those of low risk pregnant women. For women with PIH, being cared for at home was associated with less anxiety, depression, and confusion than being cared for in the hospital setting. However, this research can only establish correlational relationships, not cause and effect relationships, because of its descriptive design. As mentioned in the limitations section, any differences between the groups can be attributed either to a treatment effect or to selection differences between the two groups (Cook & Campbell, 1979). The possibility does exist that lower levels of anxiety and depression in the Community Based Program subjects may be related to having less severe PIH than the hospitalized subjects, rather than to the setting of care. The women with PIH on the Community Based Program did have significantly lower blood pressures than the hosptialized women with PIH, yet none of the blood pressure values correlated significantly with mood disturbance, which casts doubt upon the explanation that selection differences between the two groups accounts for the differences in mood disturbance.

Qualitative data indicated that women cared for on the Community Based Program appreciated the opportunity to be cared for at home rather than in the hospital. More than half the women stated that they had no concerns about being admitted to the Community Based Program during their pregnancy. The remainder of the women had similar concerns to those of the hospitalized women in the categories of health status and home and work responsibilities. Categories of "worst things" about being admitted to the program included boredom, the program restrictions, inability to fulfill home and work responsibilities, and problems with monitoring. Sixteen out of twenty women stated that not having to be admitted to hospital was a benefit of the Community Based Program, while other "best things" included the nursing care, the home environment, and availability of family members.

Some of the findings of this study are at variance with the hypotheses. Hypotheses I, II, and III predicted that levels of life stress and social support would differ between the three groups, when in fact no significant differences were detected. These findings were disappointing, because it was predicted that the advantages of being cared for at home rather than in the hospital would include lower levels of stress and increased access to social support. These findings are, however, explainable in terms of instrumentation and sample characteristics. It is

probable that no differences in life stress were detected between the three groups because the instrument used was a general assessment tool exploring a broad range of stressful life events experienced during the past year rather than a tool which measured the stressfulness of a specific event. An instrument which explored stressful life events specific to a woman's pregnancy might have been more sensitive in discerning differences between the three groups. Such an instrument has yet to be developed.

Although the results were nonsignificant, there were hints that differences in levels of stress might have been detected if a larger sample size had been utilized or if finer methods of discerning stress had been employed. The high risk pregnant women (Groups I and II) experienced higher stress levels than the low risk pregnant women (Group III). The mean scores for negative life events were as follows: Group I 9.9, Group II 11.6, Group III 6.0. The oneway ANOVA to test for differences in the negative life events score did approach significance ($F=2.692$, $p=.077$). It is interesting that the Community Based women had a higher mean score than the hospitalized subjects, which is the opposite direction to that hypothesized. This difference must have been due to other general life events, because upon examining the ratings for settings of care, the hospital setting was perceived more stressful than the home: eleven subjects in Group I rated hospitalization as a bad

event while only three subjects in Group II rated the Community Based Program as a bad event. PIH was predominantly rated as a bad event by subjects in both Groups I and II; therefore the woman's perception of her condition did not appear to vary with the setting of care: thirteen out of fourteen subjects in Group I and seventeen out of eighteen subjects in Group II who listed PIH rated it as a bad event.

The lack of significant differences in social support between the three groups can also be explained by the instrumentation used to measure the variable. The social support tool employed measured general support rather than problem-focused or situation-specific support. When women in the third trimester of pregnancy who are married and of similar educational levels and economic backgrounds are asked about their general levels of social support, it is quite likely that the results would be similar. However, examination of the mean scores for the NSSQ variables and subscales indicated that in all instances Group I (hospitalized subjects) had lower scores than the other two groups, while Groups II and III always had similar mean scores. This suggests that hospitalization might indeed reduce access to a person's social supports. It was hypothesized that Groups II and III would have similar social support scores, because women with PIH cared for on the Community Based Program would have as much access to family, and possibly friends, as low risk pregnant women.

For this study, the NSSQ was modified slightly by adding two situation-specific questions to the instrument's format to comprise a pregnancy support score. The first question asked "How much can you talk about your pregnancy with this person?" and the second question asked "How much does this person help you [while you are hospitalized] [while you are on the Home Care program] during your pregnancy?" The mean scores for the Pregnancy variable, with outliers removed, were as follows: Group I 48.6, Group II 62.0, Group III 62.4. This hints that the hospitalized subjects perceived themselves as receiving less support, although the oneway ANOVA did not achieve significance ($F=2.752$, $p=.073$). Perhaps a larger sample would have contributed to achieving a significant difference. Another problem identified during administration of the questionnaire was that some subjects requested clarification as to the meaning of "help during pregnancy". The sensitivity of this question would have been strengthened by replacing it with two questions: one to measure emotional support and the other to measure tangible support or aid received during the pregnancy. Although the quantitative data did not indicate differences in social support between the hospitalized subjects and the Community Based Program subjects, the qualitative data provide some evidence to support differences. Hospitalized subjects indicated that separation from their family was a disadvantage of hospitalization, whereas women with PIH on the Community Based Program mentioned that the availability of family members was a benefit of the program.

Some of the results of this investigation are at variance with previously reported research in the area of social support. The majority of studies discussed in the literature review found either a direct or a buffering effect of social support, or both. In this study, neither a direct or a buffering effect of social support was supported. In the multiple regression models, social support explained only 0.8 to 3.5% of the variance in mood disturbance, depending upon which social support variable was entered, and none of these variables achieved significance. The interaction terms of life stress X social support were also not significant; therefore the buffering effect of social support was not supported. Although correlations between the social support variables and mood disturbance were in a negative direction, none of these correlations were significant. Therefore the hypothesis that social support would be inversely related to mood disturbance was also not supported. Possible explanations for the nonsignificant effects of social support in this study are related to the study design, sample characteristics, and the conceptualization and operationalization of social support. The conceptual framework also provides some explanations for these findings.

The conceptual framework for this study delineated the components of the process of social stress as sources of

stress, mediators of stress, and manifestations of stress. Social support was selected as the variable to represent the mediator of stress. It was not feasible to examine the gamut of mediating resources within this study, nor to consider all the particular junctures of the stress process at which these mediators can intervene. Various types of mediators may reduce the impact of stressors (Wheaton, 1985). These include social support, coping, and personality variables such as locus of control or social competence. There are also several junctures at which these mediators can conceivably intervene: "prior to an event, between an event and the life strain that it stimulates, between the strain and the diminishment of self-concept, or prior to the stress outcome" (Pearlin et al., 1981, p. 341). The possibility exists that one of the other mediating resources may have acted as a confounding variable or obscured the effect of social support. For example, Sandler and Lakey (1982) found a significant stress-buffering effect of social support for internal locus of control subjects, but not for external locus of control subjects. Another alternative is that the juncture at which social support might have exerted a direct or buffering effect was not incorporated into this study. If the effects of the social support mediator were exercised indirectly on certain conditions antecedent to the stress outcome, such as role strains or diminishment of self-concept, rather than directly on the stress outcome, that could not be determined

given the design of this study. For example, in Pearlin et al.'s (1981) study of involuntary job disruptions, social support did not have a direct effect on depression, but social support helped to buttress the sense of mastery and mediated the stress of job disruption by helping job losers avoid the lowering of positive self-concepts.

Social stress is a complex and varied process, and it is difficult for one study to fully capture all the complexities of the process. As Pearlin et al. (1981) note, further research will be required to learn how the results might differ if different events, different role strains, different aspects of self, different indices of mediators, and different outcomes of stress were studied.

This research design did not permit detection of specific stressor-support relationships. It has been hypothesized that support functions in a stressor-specific fashion, in which supportive aspects of interpersonal relationships are effective in minimizing the negative effects of stressors only when the type of support provided matches the adaptational requirements elicited by a particular stressor or stress experience (Cohen & McKay, 1984; Wilcox & Vernberg, 1985). "Only those interpersonal relationships that provide the appropriate forms of support will operate as effective buffers" (Cohen & McKay, 1984, p. 261). The possibility exists, therefore, that the types of social support measured by the NSSQ (affect, affirmation, and aid)

were not the appropriate forms of support to buffer the stress of high risk pregnancy. Wills (1985) states that some types of social support are primarily involved in main effect processes, which operate irrespective of stress level, whereas other types of social support operate as buffering processes, which have benefits primarily for persons experiencing a high level of stress. Other possible reasons for the NSSQ not detecting a buffering effect are that the questions employed by Norbeck to operationalize the three types of support may not have been effective in measuring the buffering process, or an important type of support may have been omitted from the NSSQ. One type of support not measured by the NSSQ is informational support. Wills (1985) states,

> In general, it can be predicted that informational support will operate primarily as a buffering process. Under ordinary circumstances, most people probably have the information necessary for effective functioning. It is only when environmental stresses exceed the person's available knowledge and problem-solving ability that additional information and guidance become necessary, and network members may provide valuable assistance under these conditions. Thus, this type of support should be most relevant for persons who are highly stressed. (p. 70)

The qualitative data suggest that receiving information about PIH assisted the women to cope with the diagnosis.

This was especially true for subjects on the Community Based Program, who identified having questions answered by the nurse and receiving explanations about PIH as benefits of being on the program.

Another problem in detecting specific stressor-support relationships, and thereby detecting a buffering effect of social support, arises from the instrument used to measure stress. As mentioned previously, the LEQ assesses stressful life events experienced during the past year rather than measuring stress specific to pregnancy. Wilcox and Vernberg (1985) emphasize the need to

> move away from studies in which social support and health are examined in relationship to measures of accumulated stressful life events. Life event measures lump together events which make very different types of adaptational demands on individuals. Studies using such measures make it very difficult, if not impossible, to detect the types of stressor-support relationships hypothesized by the specificity model. Instead, investigators should design their studies so as to maximize the possibility of detecting specific stressor-specific relationships. Such studies might capitalize on naturally occurring stressors. (p. 11)

Although this study did focus on subjects experiencing a naturally occurring stressor (high risk pregnancy), the author was unable to locate an instrument which explores stressful life events specific to a woman's pregnancy.

The stress levels, represented by negative life event scores on the LEQ, may not have been high enough to detect a buffering effect. Social support is more likely to exert a buffering effect when stress levels are high, yet the mean score for the pregnant women in this study was lower than either of the normative scores cited by Norbeck (1984a).

In previous research, perceived social support was a stronger predictor of psychological distress than the social network score (Schaefer et al., 1981; Wilcox, 1981). In this study, the opposite occurred, with the Total Network score accounting for 3.5% of the variance in the Total Mood Disturbance score, while the Total Functional support score accounted for only 0.8% of the variance. Neither of these scores achieved significance. A possible explanation may be that the scaling procedures used for the NSSQ are flawed, resulting in no empirical discrimination among forms of support. House and Kahn (1985) state,

> If the overall measures of different types of support are based on numbers of persons named, the size of the network is confounded with assessment of the content or quality of the relationships. Norbeck <u>added</u> responses to questions regarding the behavior of each person named, making the measure of each type of support largely a function of the number of persons in the network. (p. 96)

House and Kahn therefore recommend that the quantity and quality of specific types of support functions should be measured independently of the number of persons providing such types of support. Because network size confounded the measure of functional support in the NSSQ, this may affect the instrument's ability to discriminate buffering effects finely enough.

Social support instruments should take into account the stress-producing as well as the stress-alleviating role of social support (Tilden, 1985). For example, Barrera (1981) measured both conflicted and unconflicted network size. In his study, conflicted network size positively correlated with depression and anxiety and did not contribute to buffering effects. Because the NSSQ does not take into consideration the conflicts associated with social relationships, this may have contributed to a decreased ability to detect buffering effects. As mentioned previously, several women in the hospital did not notify family members or friends that they were hospitalized and did not encourage visitors. As one woman stated, "I don't like having too many visitors. I just like having my husband. Other people don't seem to understand what I'm going though or what I feel." Perhaps the stress of dealing with others outweighed the support they might provide. Wilcox and Vernberg (1985) note that all sources of support are not equally effective for a given problem. Support

received from husbands seemed to be highly valued by the pregnant women in this study. Husbands had the highest average functional support scores (23 out of a possible score of 24) compared to other sources of support, and accounted for 12.5% of the total functional support received by the women. All the women in this sample were married and thus had a consistent source of support.

Some final explanations for the absence of buffering effects of social support in this study relate to the study design and sample size. A cross-sectional design was employed, which is not well suited for detecting the buffering effects of social support (House, 1981). Thoits (1982) contends that a longitudinal design is necessary to test the buffering hypothesis, because measures of support before and after the occurrence of events are required to disentangle the direct effects of life events on support level, and of support level on life events.

Other cross-sectional studies have also experienced difficulty detecting a buffering effect. In Tilden's (1983) study of pregnant women, a buffering effect of social support was not supported and the direct effect of social support on emotional disequilibrium was small (3.11%) but significant. In Norbeck's (1985) study of job stress in critical care nursing, none of the interaction effects of social support were supported and the direct effects of social support were quite modest, although significant:

social support explained 4.9% of the variance in perceived job stress and 5.4% of the variance in psychological symptoms. These results are similar to those of this study, with the exception of a significant direct effect of social support, although the magnitude of the effect is not much higher.

Failure to achieve significant buffering effects may also be related to the sample size. Kessler and McLeod (1985) state that it is unlikely that a buffer effect could be detected in a sample of less than 100 subjects. This study only had 60 subjects.

In summary, given the findings of nonsignificant direct and buffering effects of social support, it could be concluded that social support is not an important variable in the stress process. However, such results are probably more reflective of inadequate design and instrumentation rather than the ineffectiveness of social support in assisting pregnant women to cope with the experience of a high risk pregnancy. The qualitative data indicated that separation from family members was one of the "worst things" associated with hospitalization, whereas the availability of family members was one of the "best things" associated with the Community Based Program.

Conclusions

The following conclusions may be drawn from this study:

1. Stress, represented by negative life events, is directly related to mood disturbance.
2. Women with PIH who are hospitalized experience higher levels of mood disturbance than either women with PIH cared for on the Community Based Program or low risk pregnant women. This suggests that antepartum hospitalization is a stressful experience.
3. The Program for Community Based Management of PIH, developed as an alternative to hospitalization, was associated with lower levels of mood disturbance and was evaluated positively by program participants.

Implications for Nursing

This study has several implications for the nursing care of high risk pregnant women. Because antepartum hospitalization is a stressful experience, it is recommended that further community based home care programs be developed for those high risk pregnant women for whom hospitalization is not mandatory. Being cared for at home is associated with lower levels of anxiety, which may have beneficial effects for the pregnancy since anxiety has been associated with the development of maternal and fetal complications (Glazer, 1980).

Nurses need to remain sensitized to the fact that antepartum hospitalization is a stressful experience which is associated with increased levels of mood disturbance in pregnant women. The hospitalized pregnant women should be assessed for other negative life events or stressors experienced during the past year, role strains created by hospitalization, a decreased sense of mastery and self-esteem, and signs and symptoms of depression and anxiety. The nurse should also assess the extent of the woman's social support network and what other coping resources the woman has effectively used in previous stressful situations. The nurse also needs to be aware of the stressors associated with antepartum hospitalization which have been identified by research, in order to introduce interventions to reduce those stressors.

A variety of interventions may be implemented to reduce the stress of antepartum hospitalization. In order to enhance a sense of autonomy and control, the pregnant woman needs to make any and all decisions about her care that are possible, participate in self-care, and understand what treatments she is receiving and why. Waldron and Asayama (1985) recommend that health care professionals need to "take the time to explain, answer questions, instruct about options and care, and provide information to the patient and her family in order to maximize their sense of mastery" (p. 88).

In addition to providing information specific to the disease or condition the woman is experiencing, developing prenatal education classes on the antepartum unit may also be beneficial. Merkatz (1978) suggests that educational programs are needed to prepare patients in the high risk group for labor, delivery, and parenting, just as the programs are an integral part of care for normal patients. Such classes would provide the opportunity to obtain prenatal education for those women whose attendance at prenatal classes has been interrupted by hospitalization. A study of 145 women by Willmuth (1975) found that being well informed through childbirth preparation classes increased the women's sense of being a participant, a collaborator, and one who has retained some control. Control or mastery has also been associated with increased self-esteem (Humenick, 1981).

Because separation from the family is a major stressor for the hospitalized pregnant woman, policies need to be developed to maintain the unity of the family and facilitate the woman's access to her social support network. Flexible visiting hours, allowing children to visit, provisions for privacy in comfortable surroundings, and the availability of telephones are all important to consider. Tilden (1985) notes that social support is most protective when it is mutually reciprocated. Reciprocity occurs more within informal relationships (family, friends) than within formal relationships (professionals).

Supplementary sources of support can also be provided through organizing a self-help or mutual support group for hospitalized high risk pregnant women. Such a group would have the advantages of providing the women with an opportunity to express their concerns and to release tension, share personal responses to common treatments and procedures, generate a feeling that the members are not alone with their problems, and assist the women to adjust to what cannot be altered (Dore & Davies, 1979). A support group may have the additional benefit of alleviating the boredom associated with hospitalization.

The high levels of mood disturbance experienced by the women who rated pregnancy as a "bad" or undesirable event which had a great impact on their lives also has implications for nursing. A study by Leifer (1977) suggests that women who react negatively to their pregnancy are at higher risk of postpartum depression, difficulty adapting to motherhood, and decreased attachment toward their infant. These women experience pregnancy as a stressful period and display a negative alteration of their mood tone. The pregnancy was often unplanned. Nurses need to be aware that "reactions during pregnancy are usually indicative of future mothering behavior and as such may be important diagnostic aids in identifying those women for whom the mother-child interation is likely to be difficult" (Leifer, 1977, p. 92).

Recommendations for Future Research

A number of recommendations for future research arise from this study. One major recommendation is that a prospective, longitudinal study across pregnancy should be undertaken to test the buffering hypothesis and to obtain more conclusive evidence regarding the cause-effect relationships between life stress, social support, and mood disturbance in pregnancy. Thoits (1982) suggests a model to test the buffering hypothesis that would disentangle the direct causal and interactive influences of life events and social support from each other and upon psychological distress;

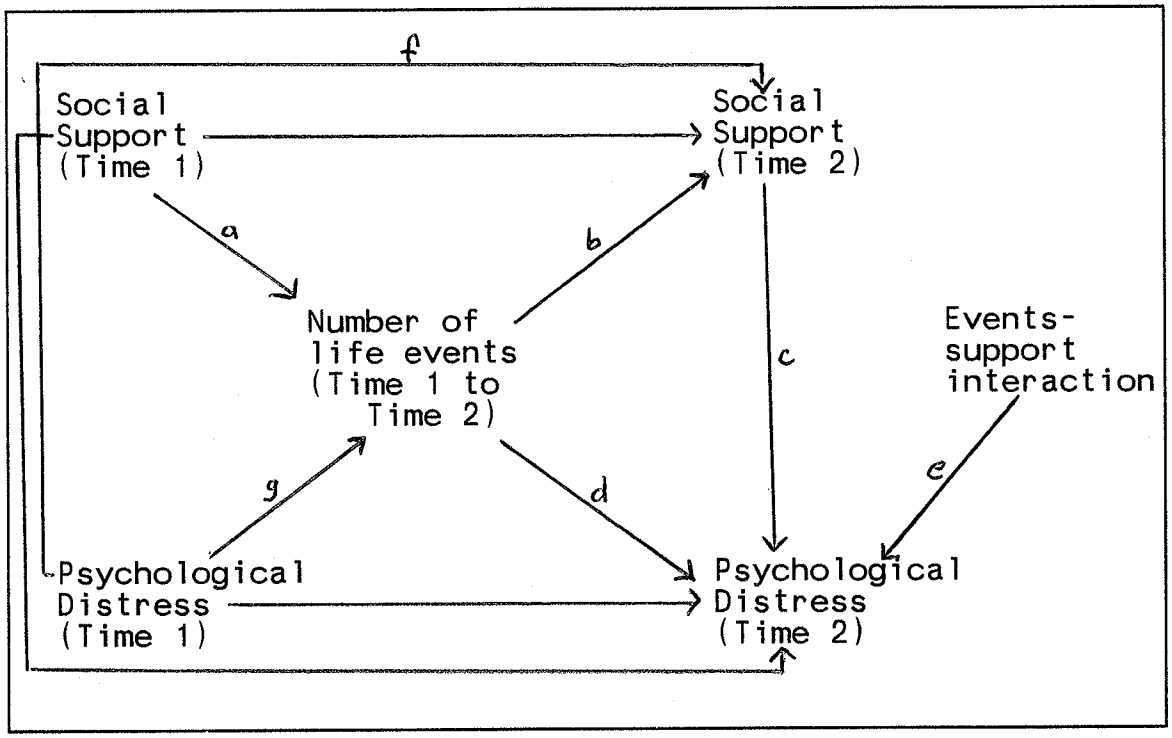

Figure 2: A Model to Test the Buffering Hypothesis

this model is depicted in Figure 2. With this model, the researcher would be able to

> (1) estimate the extent to which initial level of support prevents the occurrence of life events (arrow a), (2) estimate the direct effect of life events on subsequent support level (arrow b), (3) estimate the indirect effects of life events on distress through social support (arrows b and c), (4) estimate the direct effect of events on distress (arrow d), and (5) test the buffering hypothesis with the interaction of events and support (arrow e). Furthermore, given the possibility that prior psychological disturbance may influence the degree of support possessed by the individual, as well as influence the number and types of life changes that he or she may experience, the model builds in controls for these "selective effects" (arrows f and g). (Thoits, 1982, p. 153)

In applying this model to pregnancy, a sample of pregnant women could be tested in the first trimester (Time 1) and again in the third trimester (Time 2). If a large enough sample was recruited, a percentage of the subjects would develop complications of pregnancy between Time 1 and Time 2, permitting comparison of the variables for subjects who remained low risk to those who became high risk.

When examining stress-support relationships, the following points should be considered:

1. Type of stress: Instruments should be selected in which a distinction is made between discrete life events and ongoing strains, desirability of the event, and degree of control over the event. In order to maximize the possibility of detecting specific stressor-support relationships (hypothesized by the stressor specificity model), an instrument which measures stressful events specific to pregnancy rather than a broad range of stressful events should be employed. For example, Affonso (1986) is in the process of developing an instrument called the Stressful Events Related To Childbearing scale (known as SERP) which elicits self-report of stressful events related to pregnancy, childbirth and postpartum adaptation. SERP items relate to categories of physical changes and discomforts, social changes, threats to self-esteem, disruptions in interpersonal relationships, and child-care stressors. This instrument may prove useful in discriminating stress levels related to pregnancy.
2. Type of social support: The operationalization of social support requires further development and systematic evaluation. In selecting a social support instrument, the researcher should determine if it distinguishes among source of support, type of support, perceived versus received support, conflicted versus unconflicted support, and structure

of the social network. Because the nature of the stressor determines what types of social support are most appropriate, an instrument that measures the types of support which enhance adaptation to stressors encountered during pregnancy would be most useful. Informational support is one type of support which should be assessed by the instrument. Perhaps qualitative studies need to be undertaken to detemine what types of support are important to pregnant women and then measurement tools could be developed.

3. Characteristics of the subjects: Individual personality characteristics may influence the extent to which individuals are adversely affected by life stress, or influence their ability to develop supportive networks and the extent to which they need support. Variables such as locus of control, social competence, and self-esteem should be examined for their interaction with stress and social support variables.
4. Time of measurement: Different types of stressful events exert their influence over different periods of time. The optimal time to measure psychological disturbance following stressful events (such as the diagnosis of a high risk pregnancy) needs to be considered.

Other recommendations for future research include the use of experimental studies such as randomized clinical trials to evaluate the benefits of any future community based programs which might be developed as an alternative to hospitalization. An experimental design, with random assignment of subjects to either the hospital or home groups, would reduce selection bias and permit testing of causal hypotheses. For example, a cause and effect relationship between setting of care and mood disturbance could be established.

The high levels of mood disturbance experienced by the subjects who rated pregnancy as a bad event having a great effect on their life warrants further investigation. These women may be at increased risk for postpartum depression or child abuse.

To expand understanding of how women adapt to the situation of high risk pregnancy, the role of other mediators of stress such as coping could be researched. Wethington and Kessler (1986) suggest that perhaps mobilization of social support is needed only if personal coping efforts fail and cite a study which showed that self reliant copers adjust better to acute stress than do those who rely on others for aid or assistance.

In summary, the data collected in this study suggest that antepartum hospitalization is a stressful experience for

pregnant women. The Community Based Program was viewed as a positive alternative to hospitalization by the program participants. Several implications for nursing care of high risk pregnant women have arisen from this study, and recommendations for future research have been outlined. Further research is necessary to fully understand the process of social stress in high risk pregnancy.

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APPENDIX A - C

IN POCKET AT BACK

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Appendix D

DEMOGRAPHIC INFORMATION FORM: GROUPS I AND II

Code Number _____

Date_____

1. Age in years at your last birthday _____

2. Marital status (check one)

_____ Single, never married

_____ Common-law

_____ Married

_____ Divorced

_____ Separated

_____ Widowed

3. Educational level

What is the highest grade of regular school that you completed? (circle one)

Grade School	High School	College	Graduate School
1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20 21 22

4. Religious Preference (check one)

_____ Protestant

_____ Catholic

_____ Jewish

_____ Other (specify _____)

_____ None

5. Participation in Religious Activities (check one)

_____ Inactive

_____ Infrequent participation (1 - 2 times a year)

_____ Occasional participation (about monthly)

_____ Regular participation (weekly)

6. Income level

Which best represents your total family income in 1985 before taxes? (check one)

_____ under $5,000 a year

_____ $5,000 to 9,999 a year

_____ $10,000 to 14,999 a year

_____ $15,000 to 19,999 a year

_____ $20,000 to 24,999 a year

_____ $25,000 to 29,999 a year

_____ $30,000 to 34,999 a year

_____ $35,000 to 39,999 a year

_____ more than $40,000 a year

Appendix E

DEMOGRAPHIC INFORMATION FORM: GROUP III

Code Number _____

Date_____

1. Age in years at your last birthday _____

2. Marital status (check one)

_____ Single, never married

_____ Common-law

_____ Married

_____ Divorced

_____ Separated

_____ Widowed

3. Educational level

What is the highest grade of regular school that you completed? (circle one)

Grade School	High School	College	Graduate School
1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20 21 22

4. Religious Preference (check one)

_____ Protestant

_____ Catholic

_____ Jewish

_____ Other (specify _____)

_____ None

5. Participation in Religious Activities (check one)

_____ Inactive

_____ Infrequent participation (1 - 2 times a year)

_____ Occasional participation (about monthly)

_____ Regular participation (weekly)

6. Income level

Which best represents your total family income in 1985 before taxes? (check one)

_____ under $5,000 a year

_____ $5,000 to 9,999 a year

_____ $10,000 to 14,999 a year

_____ $15,000 to 19,999 a year

_____ $20,000 to 24,999 a year

_____ $25,000 to 29,999 a year

_____ $30,000 to 34,999 a year

_____ $35,000 to 39,999 a year

_____ more than $40,000 a year

7. Racial background

   What race do you consider yourself?

   _____ Caucasian (white)

   _____ Asian

   _____ Black

   _____ Other (specify _____)

8. Have you ever been hospitalized during your adult years?

   _____ Yes

   _____ No

9. Due date for this pregnancy _____

10. How many times have you been pregnant? _____

11. How many of these pregnancies have lasted past 20 weeks?

    _____

12. How many of these pregnancies ended in a miscarriage?

    _____

Thank you for your cooperation in answering these questions.

Appendix F

MEDICAL HISTORY FORM

Code Number _____

Race_____

Gestational age in weeks _____

Blood Pressure recordings (mm Mercury) for the past 24 hours:

_____

Proteinuria recordings (mg/decilitre) for the past 24 hours:

_____

Edema levels for the past 24 hours:

_____

Prenatal risk score _____

Risk score components:

_____

_____

Receiving antihypertensive medication: Yes_____ No_____

If yes, name and dosage:

_____

G_____ P_____ SA_____ TA_____

Number of days admitted to either SBGH or Community Based Program:

_____

Appendix G

INTERVIEW GUIDE: GROUP I

Code Number _____

Hospitalized Subjects:

1. Can you explain to me how you came to be hospitalized?

2. Have you been previously hospitalized during this pregnancy? as an adult?

3. Have you previously been on the home care program for women with pregnancy-induced hypertension during this pregnancy?

4. What are some of the concerns you have about being admitted to the hospital during your pregnancy?

5. What are some of the worst things about being in hospital at this time?

6. What are some of the best things about being in hospital at this time?

7. What changes in your usual lifestyle, or daily activities and responsibilities, has being hospitalized caused? Has this been a source of stress for you?

8. How has being hospitalized affected your ability to interact with your support systems (the people who are important to you)?

9. Would you prefer to be cared for in your own home, if that could be arranged?

10. Are you attending, or planning to attend, prenatal classes? If so, where?

Attendance at Prenatal Classes

_____ 1. Currently attending

_____ 2. Finished series

_____ 3. Stopped attending while hospitalized or on home care program

_____ 4. Plans to attend

_____ 5. Is not attending and does not plan to

Location of Classes

_____ 1. Health department

_____ 2. Hospital or clinic

_____ 3. Private

Appendix H

INTERVIEW GUIDE: GROUP II

Code Number_____

Non-hospitalized Subjects

1. Can you explain to me how you came to be placed on the home care program for women with pregnancy-induced hypertension?

2. Have you ever been hospitalized during this pregnancy? as an adult?

3. Have you previously been on the home care program?

4. What are some of the concerns you have about being admitted to the home care program during your pregnancy?

5. What are some of the worst things about being on the home care program at this time?

6. What are some of the best things about being on the home care program at this time?

7. What changes in your usual lifestyle, or daily activities and responsilities, has being on the home care program caused? Has this been a source of stress for you?

8. How has being on the home care program affected your ability to interact with your support systems (the people who are important to you)?

9. Would you rather be cared for in the hospital?

10. Are you attending, or planning to attend, prenatal classes? If so, where?

Attendance at Prenatal Classes

_____ 1. Currently attending

_____ 2. Finished series

_____ 3. Stopped attending while hospitalized or on home care program

_____ 4. Plans to attend

_____ 5. Is not attending and does not plan to

Location of Classes

_____ 1. Health department

_____ 2. Hospital or clinic

_____ 3. Private

Appendix I

WRITTEN EXPLANATION OF STUDY: GROUPS I AND II

You are invited to participate in a study designed to compare two settings of care for women who develop high blood pressure during their pregnancy: the hospital and the home. The information obtained from this study will be helpful in evaluating both systems of care and in determining what settings for care best meet patients' needs. A sample of women from both settings will be asked to participate in this study. Your assistance will be greatly appreciated.

This study is being conducted by Maureen Heaman, RN, BN, who is a Master of Nursing student at the University of Manitoba.

If you agree to participate in this study, it will involve completing four questionnaires and answering some interview questions. It will take about 60 minutes of your time. Participation will not affect your care in any way. Although there will be no immediate benefits to participants, the study may produce information that will help improve the care of pregnant women in the future.

In addition to a few background questions about yourself, the following information will be obtained from the questionnaires. One questionnaire deals with feelings you have, and another asks questions about your sources of social support (the people who provide personal support for you or who are important to you). The last questionnaire deals with events which may bring about changes in your life (for example, pregnancy or illness). There are no right or wrong answers to any of the questions - you are only being asked to give your own opinion. The interview questions are designed to explore the experience of being cared for in the hospital or in your home. Your responses to these interview questions will be written down by the investigator. Following the interview, the investigator would like to obtain the following information related to your medical condition from your chart: gestational age, blood pressure, urine protein, edema, prenatal risk score, antihypertensive medication (if any), and number of pregnancies.

Your name will not appear on any of the questionnaires or interview forms. All participants in the study will remain anonymous. The questionnaires, interview forms, and consent forms will be stored in a locked filing cabinet accessible only to the investigator. Only the investigator, her thesis committee, and a statistician will have access to the individual responses. The data will be destroyed following completion of the study.

You may decide not to participate and if you decide not to, it is perfectly acceptable for you to refuse. You do not have to answer all the questions. You may withdraw from the study at any time without influencing in any way the care that you receive.

The results will be based on group data, not individual questionnaires. In this way no one will ever know how you, as an individual, answered the questions. The study results may be published in the form of a journal article. A summary of the study results will be provided to those requesting it.

If you have any questions that you would like answered before making a decision to participate, these will be provided for you now. If you have questions later, you may reach Maureen Heaman at 452-4846.

Thank you for taking the time to read this explanation.

Appendix J

WRITTEN EXPLANATION OF STUDY: GROUP III

You are invited to participate in a study designed to compare two groups of pregnant women, hospitalized and non-hospitalized, on the variables of stressful life events, social support, and mood or feelings. The information obtained from this study will be helpful in determining any differences in responses between the hospitalized and non-hospitalized groups and how these three variables are influenced by the experience of hospitalization. A sample of women from both the hospital and the community will be asked to participate in this study. Your assistance will be greatly appreciated.

This study is being conducted by Maureen Heaman, RN, BN, who is a Master of Nursing student at the University of Manitoba.

If you agree to participate in this study, it will involve completing four questionnaires, which will take about 45 minutes of your time. Participation will not affect your care in any way. Although there will be no immediate benefits to participants, the study may produce information that will help improve the care of pregnant women in the future.

In addition to a few background questions about yourself, the following information will be obtained from the questionnaires. One deals with feelings you have, and another asks questions about your sources of social support (the people who provide personal support for you or who are important to you). The last questionnaire deals with events which may bring about changes in your life (for example, pregnancy or illness). There are no right or wrong answers to any of the questions - you are only being asked to give your own opinion.

Your name will not appear on any of the questionnaires. All participants in the study will remain anonymous. The questionnaires and consent forms will be stored in a locked filing cabinet accessible only to the investigator. Only the investigator, her thesis committee, and a statistician will have access to the individual responses. The data will be destroyed following completion of the study.

You may decide not to participate and if you decide not to, it is perfectly acceptable for you to refuse. You do not have to answer all the questions. You may withdraw from the study at any time without influencing in any way the care that you receive.

The results will be based on group data, not individual questionnaires. In this way no one will ever know how you, as an individual, answered the questions. The study results

may be published in the form of a journal article. A summary of the study results will be provided to those requesting it.

Women from the community who agree to participate in this study must meet the following criteria: 30 to 40 weeks pregnant, residence in Winnipeg within the boundaries of the perimeter highway, 18 years of age or older, ability to read and write English, no admissions to either the hospital or the Community Based Management of Pregnancy-induced Hypertension Program during this pregnancy, no complications of pregnancy such as toxemia (high blood pressure), bleeding or twins, and no health problems such as diabetes, heart disease, or high blood pressure.

If you have any questions that you would like answered before making a decision to participate, these will be provided for you now. If you have questions later, you may reach Maureen Heaman at 452-3836.

Thank you for taking the time to read this explanation.

Appendix K

CONSENT FORM FOR SUBJECTS: GROUP I AND II

This consent form is to certify that I, _____ (print full name), agree to participate in a study comparing the hospital and the home as settings of care for women with high blood pressure during their pregnancy. I have been told that the study is being conducted by Maureen Heaman, who is a graduate nursing student in the Master's of Nursing program at the University of Manitoba.

I have received a written and verbal explanation of the study and understand that as a participant, I am being asked to complete four questionnaires and answer some interview questions. I grant the investigator access to my chart to collect data related to my medical condition. I have had the opportunity to ask questions and have received satisfactory answers. I know that I may ask Maureen Heaman further questions, should they arise, at any time. I understand that my decision is voluntary and that I have the option to withdraw my participation at any time, without affecting my care in any way.

My signature indicates that I am informed and that I agree to participate as a volunteer respondent. I have

received a copy of this form and a written explanation of the study to keep. I understand that I may receive a copy of the results of this study upon request.

_____	_____
Date	Signature of Participant
_____	_____
Date	Signature of Investigator Maureen Heaman, RN, BN Phone 452-3836

Please print your name and address if you wish to receive a copy of the results of this study:

NAME: _____

ADDRESS: _____

_____

_____

Appendix L

CONSENT FORM FOR SUBJECTS: GROUP III

This consent form is to certify that I, _____ (print full name), agree to participate in a study comparing the responses of hospitalized pregnant women to non-hospitalized pregnant women. I have been told that the study is being conducted by Maureen Heaman, who is a graduate student in the Master of Nursing program at the University of Manitoba.

I have received a written and verbal explanation of the study and understand that as a participant, I am being asked to complete four questionnaires. I have had the opportunity to ask questions and have received satisfactory answers. I know that I may ask Maureen Heaman further questions, should they arise, at any time. I understand that my decision is voluntary and that I have the option to withdraw my participation at any time, without affecting my care in any way.

My signature indicates that I am informed and that I agree to participate as a volunteer respondent. I have received a copy of this form and a written explanation of the study to keep. I understand that I may receive a copy of the results of this study upon request.

_____ _____
Date Signature of Participant

_____ _____
Date Signature of Investigator
Maureen Heaman, RN, BN
Phone 452-3836

Please print your name and address if you wish to receive a copy of the results of this study:
Name: _____

Address: _____

_____

Appendix M

IN-PERSON CONTACT WITH POTENTIAL HOSPITALIZED SUBJECTS

"Hello, my name is Maureen Heaman. I'm a student in the Master of Nursing Program at the University of Manitoba. I am conducting a study comparing the hospital and the home as settings of care for women who develop high blood pressure during their pregnancy. Would you be willing to read this written explanation about the study (refer to Appendix G)? You do not have to decide whether to participate until after you read the explanation." [If woman agrees, she will be provided with the Written Explanation of the Study and given time to read it.] "Do you have any questions? Would you like to participate in the study?"

Appendix N

TELEPHONE CONTACT BY PUBLIC HEALTH NURSES IN THE COMMUNITY BASED PROGRAM FOR PIH

"Hello, my name is _____. I am a Public Health Nurse in the home care program for pregnancy induced hypertension. There is a student from the Master of Nursing Program at the University of Manitoba performing a study comparing the hospital and the home as settings of care for women who develop high blood pressure during their pregnancy. May I have your permission to give her your phone number so she can telephone you to explain the study? You do not have to decide whether to participate until after you talk to her. [If woman says yes. . .] Her name is Maureen Heaman, and she will telephone you within the next two days. Thank you."

Appendix O

TELEPHONE CONTACT WITH POTENTIAL SUBJECTS ON THE COMMUNITY BASED PROGRAM

"Hello, my name is Maureen Heaman. I am a student in the Master of Nursing Program at the University of Manitoba. I received your telephone number from _____, a Public Health Nurse in the home care program for pregnancy induced hypertension. I am conducting a study comparing the hospital and the home as settings of care for women who develop high blood pressure during their pregnancy. The information obtained from this study will be helpful in evaluating both systems of care and in determining what settings for care best meet patients' needs. If you agree to participate in this study, it will involve completing four questionnaires and answering some interview questions. It will take about 60 minutes of your time. If you are interested in participating, I will visit you in your home to provide you with a written explanation of the study and answer any questions before you have to decide whether to participate. Do you have any questions at this time?"

"Are you interested in participating in this study? [If yes . . .] What is the most convenient time for me to visit you at home? What is your address? Thank you."

Appendix P

VERBAL EXPLANATION OF STUDY TO PRENATAL CLASS PARTICIPANTS

"Hello, my name is Maureen Heaman. I am a student in the Master of Nursing Program at the University of Manitoba. I am conducting a study comparing the responses of hospitalized pregnant to non-hospitalized pregnant women on the variables of stressful life events, social support, and mood or feelings. The information obtained from this study will be helpful in determining any differences in responses between the hospitalized and non-hospitalized groups and how these variables are influenced by the experience of hospitalization. If you agree to participate in this study, it will involve completing four questionnaires in your home. It will take about 45 minutes of your time. I will now hand out a written explanation of the study. You do not have to decide whether to participate until after you read the explanation. The explanation also describes who is eligible to participate in the study. [Hand out written explanation to women attending the prenatal class and provide time to read.] Does anyone have any questions? If you meet the criteria for participating and would like to participate in the study, please provide me with your name, address, and telephone number. I will telephone interested women in the

next few days to set up a convenient time for me to visit you at home to administer the questionnaires. Thank you."

Appendix Q

PROFILE SHEET FOR PROFILE OF MOOD STATES (POMS)

POMS PROFILE SHEET

COLLEGE NORMS

GROUP I ——————
GROUP II - - - -
GROUP III —·—·—

Name: _____ Date: _____

T Score	FACTOR						T Score
	Ten	Dep	Ang	Vig	Fat	Con	
80+	35-6	47+	32+			28	80+
79	34	46				27	79
78		45	31				78
77	33	44	30		28	26	77
76	32	43	29	32			76
75		42			27	25	75
74	31	41	28	31			74
73	30	40	27	30	26	24	73
72	29	38-9	26		25	23	72
71		37		29			71
70	28	36	25	28	24	22	70
69	27	35	24		23		69
68		34	23	27		21	68
67	26	33			22		67
66	25	32	22	26	21	20	66
65	24	31	21	25			65
64		30	20		20	19	64
63	23	28-9		24	19	18	63
62	22	27	19	23			62
61		26	18		18	17	61
60	21	25	17	22	17		60
59	20	24		21		16	59
58	19	23	16		16		58
57		22	15	20	15	15	57
56	18	21	14				56
55	17	20		19	14	14	55
54	16	19	13	18	13		54
53		17-8	12			13	53
52	15	16	11	17	12	12	52
51	14	15	10	16	11		51
50		14				11	50
49	13	13	9	15			49
48	12	12	8	14	9	10	48
47	11	11	7				47
46		10		13	8	9	46
45	10	9	6		7		45
44		7-8	5	12		8	44
43	9	6		11	6	7	43
42	8	5	4				42
41	7	4	3	10	5	6	41
40	6	3	2	9	4		40
39		2	1			5	39
38	5	1		8	3		38
37	4	0	0	7	2	4	37
36							36
35	3			6	1	3	35
34	2				0		34
33	1			5		2	33
32				4		1	32
31	0						31
30				3		0	30
T Score							T Score
Raw Score							Raw Score
	Ten	Dep	Ang	Vig	Fat	Con	

Appendix R

KOLMOGOROV-SMIRNOV TEST FOR NORMALITY

TABLE 24

Results of Kolmogorov-Smirnov Test for Normality

Variable	K-S Z	2-tailed p
TMDS	0.985	0.286
POMST	1.002	0.268
POMSD	1.312	0.064
POMSA	0.93	0.311
POMSV	0.962	0.313
POMSF	0.760	0.610
POMSC	1.068	0.204
NEGLEQ	1.162	0.134
POSLEQ	1.231	0.097
TOTALLEQ	0.874	0.430
Age	1.101	0.177
Education	1.740	0.005*
Gestational age	1.056	0.215
Affect	0.905	0.385
Affirmation	0.758	0.613
Aid	0.543	0.930
Pregnancy	0.586	0.883
Total Functional	0.668	0.764
Total Network	0.936	0.345
Total Loss	3.407	0.000*
Total Situational	0.928	0.355
Average LL diastolic BP	0.839	0.483
Average LL MAP	0.938	0.342
Average duration	0.851	0.44
Average functional	0.506	0.960

Appendix S

DEMOGRAPHIC DATA FOR GROUPS I, II, AND III

TABLE 25

Demographic Data

Demographic Variable	Group I	Group II	Group III
Race:			
Caucasian	17	18	20
Asian	2	2	0
Black	1	0	0
Religious Preference:			
Protestant	9	12	9
Catholic	9	6	10
Jewish	0	0	1
Other	1	1	0
None	0	1	0
Missing Data	1	0	0
Participation in Religious Activities:			
Inactive	5	10	1
Infrequent	7	2	6
Occasional	4	0	5
Regular	4	8	8
Family Income:			
$10,000-14,999	4	3	2
$15,000-19,999	0	1	0
$20,000-24,999	3	2	0
$25,000-29,000	2	1	2
$30,000-34,999	2	5	1
$35,000-39,999	0	1	2
$40,000 +	8	6	13
Missing data	1	1	0
Gravidity			
1	15	9	18
2	3	6	1
3	0	2	0
4	1	1	0
5	1	1	1
7	0	1	0
Parity			
0	17	11	19
1	1	5	0
2	1	2	1
3	1	0	0
4	0	1	0
5	0	1	0

Attendance at Prenatal Classes:			
Currently attending	0	3	20
Finished series	9	5	0
Stopped attending	3	2	0
Plans to attend	1	0	0
Is not attending	6	10	0
Missing data	1	0	0
Prior hospitalization as an Adult:			
Yes	14	12	8
No	5	8	12
Missing data	1	0	0
Prior hospitalization during this pregnancy:			
Yes	5	9	0
No	15	11	20
Prior admission to Community Based Program:			
Yes	1	2	0
No	19	18	20

APPENDIX A

Request Form

I request permission to copy the Norbeck Social Support Questionnaire (NSSQ) for use in research in a study entitled: Life stress, social support, and mood disturbance in hospitalized and non-hospitalized women with pregnancy-induced hypertension.

In exchange for this permission, I agree to submit to Dr. Norbeck a copy of the one-page scoring sheet for each subject tested. These data will be used to establish a broad normative database for the instrument for clinical and non-clinical populations. Aside from use in the pooled data bank, no other use will be made of the data submitted. Credit will be given to me in reports of normative statistics that make use of the data I submitted for pooled analyses.

February 20, 1986
(Date)

Position and Full Address of Investigator: Graduate student in Nursing

R3T 1M6

Permission is hereby granted to copy the NSSQ for use in the research described above

4/21/86
(Date)

Please send *two signed* copies of this form to:

Jane S. Norbeck, D.N.Sc.
Department of Mental Health and Community Nursing
University of California, San Francisco
N505-Y
San Francisco, California 94143

Appendix A

LIFE EVENTS QUESTIONNAIRE

LIFE EVENTS QUESTIONNAIRE

Number _____

Date _____

Instructions

Listed below are a number of events which may bring about changes in the lives of those who experience them.

Rate each event that occurred in your life during the past year as Good or Bad (circle which one applies).

Show how much the event affected your life by circling the appropriate statement (no effect - some effect - moderate effect - great effect).

If you have not experienced a particular event in the past year, leave it blank.

Please go through the entire list before you begin to get an idea of the type of event you will be asked to rate.

Event	Type of Effect		Effect of Event on Your Life			
A. HEALTH						
1. major personal illness or injury	Good	Bad	no effect	some effect	moderate effect	great effect
2. major change in eating habits	Good	Bad	no effect	some effect	moderate effect	great effect
3. major change in sleeping habits	Good	Bad	no effect	some effect	moderate effect	great effect
4. major change in usual type and/or amount of recreation	Good	Bad	no effect	some effect	moderate effect	great effect
5. major dental work	Good	Bad	no effect	some effect	moderate effect	great effect
6. (female): pregnancy	Good	Bad	no effect	some effect	moderate effect	great effect
7. (female): miscarriage or abortion	Good	Bad	no effect	some effect	moderate effect	great effect
8. (female): started menopause	Good	Bad	no effect	some effect	moderate effect	great effect
9. major difficulties with birth control pills or devices	Good	Bad	no effect	some effect	moderate effect	great effect
B. WORK						
10. difficulty finding a job	Good	Bad	no effect	some effect	moderate effect	great effect
11. beginning work outside the home	Good	Bad	no effect	some effect	moderate effect	great effect
12. changing to a new type of work	Good	Bad	no effect	some effect	moderate effect	great effect
13. changing your work hours or conditions	Good	Bad	no effect	some effect	moderate effect	great effect
14. change in your responsibilities at work	Good	Bad	no effect	some effect	moderate effect	great effect

Event	Type of Effect		Effect of Event on Your Life			
15. troubles at work with your employer or co-workers	Good	Bad	no effect	some effect	moderate effect	great effect
16. major business readjustment	Good	Bad	no effect	some effect	moderate effect	great effect
17. being fired or laid off from work	Good	Bad	no effect	some effect	moderate effect	great effect
18. retirement from work	Good	Bad	no effect	some effect	moderate effect	great effect
19. taking courses by mail or studying at home to help you in your work	Good	Bad	no effect	some effect	moderate effect	great effect
C. SCHOOL						
20. beginning or ceasing school, college, or training program	Good	Bad	no effect	some effect	moderate effect	great effect
21. change of school, college, or training program	Good	Bad	no effect	some effect	moderate effect	great effect
22. change in career goal or academic major	Good	Bad	no effect	some effect	moderate effect	great effect
23. problems in school, college, or training program	Good	Bad	no effect	some effect	moderate effect	great effect
D. RESIDENCE						
24. difficulty finding housing	Good	Bad	no effect	some effect	moderate effect	great effect
25. changing residence within the same town or city	Good	Bad	no effect	some effect	moderate effect	great effect
26. moving to a different town, city, state, or country	Good	Bad	no effect	some effect	moderate effect	great effect
27. major change in your living conditions (home improvements or a decline in your home or neighborhood)	Good	Bad	no effect	some effect	moderate effect	great effect
E. LOVE AND MARRIAGE						
28. began a new, close, personal relationship	Good	Bad	no effect	some effect	moderate effect	great effect
29. became engaged	Good	Bad	no effect	some effect	moderate effect	great effect
30. girlfriend or boyfriend problems	Good	Bad	no effect	some effect	moderate effect	great effect
31. breaking up with a girlfriend or boyfriend or breaking an engagement	Good	Bad	no effect	some effect	moderate effect	great effect
32. (male): wife or girlfriend's pregnancy	Good	Bad	no effect	some effect	moderate effect	great effect
33. (male): wife or girlfriend having a miscarriage or abortion	Good	Bad	no effect	some effect	moderate effect	great effect

Event	Type of Effect		Effect of Event on Your Life			
34. getting married (or beginning to live with someone)	Good	Bad	no effect	some effect	moderate effect	great effect
35. a change in closeness with your spouse or partner	Good	Bad	no effect	some effect	moderate effect	great effect
36. infidelity	Good	Bad	no effect	some effect	moderate effect	great effect
37. trouble with in-laws	Good	Bad	no effect	some effect	moderate effect	great effect
38. separation from spouse or partner due to conflict	Good	Bad	no effect	some effect	moderate effect	great effect
39. separation from spouse or partner due to work, travel, etc.	Good	Bad	no effect	some effect	moderate effect	great effect
40. reconciliation with spouse or partner	Good	Bad	no effect	some effect	moderate effect	great effect
41. divorce	Good	Bad	no effect	some effect	moderate effect	great effect
42. change in your spouse or partner's work outside the home (beginning work, ceasing work, changing jobs, retirement, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
F. FAMILY AND CLOSE FRIENDS						
43. gain of a new family member (through birth, adoption, relative moving in, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
44. child or family member leaving home (due to marriage, to attend college, or for some other reason)	Good	Bad	no effect	some effect	moderate effect	great effect
45. major change in the health or behavior of a family member or close friend (illness, accidents, drug or disciplinary problems, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
46. death of spouse or partner	Good	Bad	no effect	some effect	moderate effect	great effect
47. death of a child	Good	Bad	no effect	some effect	moderate effect	great effect
48. death of a family member or close friend	Good	Bad	no effect	some effect	moderate effect	great effect
49. birth of a grandchild	Good	Bad	no effect	some effect	moderate effect	great effect
50. change in the marital status of your parents	Good	Bad	no effect	some effect	moderate effect	great effect
G. PARENTING						
51. change in child care arrangements	Good	Bad	no effect	some effect	moderate effect	great effect
52. conflicts with spouse or partner about parenting	Good	Bad	no effect	some effect	moderate effect	great effect

Event	Type of Effect		Effect of Event on Your Life			
53. conflicts with child's grand-parents (or other important person) about parenting	Good	Bad	no effect	some effect	moderate effect	great effect
54. taking on full responsibility for parenting as a single parent	Good	Bad	no effect	some effect	moderate effect	great effect
55. custody battles with former spouse or partner	Good	Bad	no effect	some effect	moderate effect	great effect
H. PERSONAL AND SOCIAL						
56. major personal achievement	Good	Bad	no effect	some effect	moderate effect	great effect
57. major decision regarding your immediate future	Good	Bad	no effect	some effect	moderate effect	great effect
58. change in your personal habits (your dress, life-style, hobbies, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
59. change in your religious beliefs	Good	Bad	no effect	some effect	moderate effect	great effect
60. change in your political beliefs	Good	Bad	no effect	some effect	moderate effect	great effect
61. loss or damage of personal property	Good	Bad	no effect	some effect	moderate effect	great effect
62. took a vacation	Good	Bad	no effect	some effect	moderate effect	great effect
63. took a trip other than a vacation	Good	Bad	no effect	some effect	moderate effect	great effect
64. change in family get-togethers	Good	Bad	no effect	some effect	moderate effect	great effect
65. change in your social activities (clubs, movies, visiting)	Good	Bad	no effect	some effect	moderate effect	great effect
66. made new friends	Good	Bad	no effect	some effect	moderate effect	great effect
67. broke up with a friend	Good	Bad	no effect	some effect	moderate effect	great effect
68. acquired or lost a pet	Good	Bad	no effect	some effect	moderate effect	great effect
I. FINANCIAL						
69. major change in finances (increased or decreased income)	Good	Bad	no effect	some effect	moderate effect	great effect
70. took on a moderate purchase, such as a T.V., car, freezer, etc	Good	Bad	no effect	some effect	moderate effect	great effect
71. took on a major purchase or a mortgage loan, such as a home, business, property, etc	Good	Bad	no effect	some effect	moderate effect	great effect
72. experienced a foreclosure on a mortgage or loan	Good	Bad	no effect	some effect	moderate effect	great effect

Event	Type of Effect		Effect of Event on Your Life			
73. credit rating difficulties	Good	Bad	no effect	some effect	moderate effect	great effect
J. CRIME AND LEGAL MATTERS						
74. being robbed	Good	Bad	no effect	some effect	moderate effect	great effect
75. being a victim of a violent act (rape, assault, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
76. involved in an accident	Good	Bad	no effect	some effect	moderate effect	great effect
77. involved in a law suit	Good	Bad	no effect	some effect	moderate effect	great effect
78. involved in a minor violation of the law (traffic tickets, disturbing the peace, etc.)	Good	Bad	no effect	some effect	moderate effect	great effect
79. legal troubles resulting in your being arrested or held in jail	Good	Bad	no effect	some effect	moderate effect	great effect
K. OTHER						
Other recent experiences which have had an impact on your life. List and rate.						
80. _____	Good	Bad	no effect	some effect	moderate effect	great effect
81. _____	Good	Bad	no effect	some effect	moderate effect	great effect
82. _____	Good	Bad	no effect	some effect	moderate effect	great effect

Appendix B

NORBECK SOCIAL SUPPORT QUESTIONNAIRE

EdITS / EDUCATIONAL AND INDUSTRIAL TESTING SERVICE
Post Office Box 7234
San Diego, California 92107
Order Department (619) 222-1666
Editorial Office (619) 488-1666

PROFILE OF MOOD STATES (POMS and POMS BI-POLAR)

Bill to: Purchase Order No. _____ Ship to:

Name Maureen I. Heaman, RN, BN

Title Graduate student in Nursing

Institution University of Manitoba

Address Winnipeg, Manitoba, Canada

Zip R3T 2N2

Note: Specify POMS ☒ or POMS BI-POLAR ☐

POMS; Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor-Activity, Fatigue-Inertia, Confusion-Bewilderment.
POMS BI-POLAR; Composed-Anxious, Elated-Depressed, Agreeable-Hostile, Energetic-Tired, Clearheaded-Confused, Confident-Unsure.

Quantity		Amount
_____	POMS Specimen sets (containing manual, copy of the test and one copy of each of the profile sheets) at $3.00 per set	_____
_____	Manuals at $2.50	_____
	POMS FORMS FOR ADMINISTRATION	
_____	Packages of 25 POMS Forms at $3.75 per package	_____
1	Packages of 100 POMS Forms at $14.00 per package	$14.00
_____	Packages of 500 POMS Forms at $55.00 per package	_____
	POMS PROFILE SHEETS FOR PLOTTING SCORES	
_____	Packages of 25 POMS Profile Sheets at $2.75 per pack Norms: ☐ College ☐ Outpatients	_____
1	Packages of 50 POMS Profile Sheets at $4.00 per pack Norms: ☒ College ☐ Outpatients	$ 4.00
_____	Packages of 500 POMS Profile Sheets at $37.50 per pack Norms: ☐ College ☐ Outpatients	_____
2	Sets of 6 Hand Scoring POMS Keys at $3.00 per set	$ 6.00

Scoring by EdITS $0.85 per answer form in quantities of 49 or less; $0.75 each for 50 or more.

All orders are F.O.B. San Diego, California. California orders are subject to 6% State Tax.

For research applications: Any information which you can provide regarding your research interests and plans for use of the POMS will be appreciated and will facilitate exchange of information among users of the instrument.

Title of thesis: Life stress, social support, and mood disturbance in hospitalized and non-hospitalized women with pregnancy-induced hypertension.

POMS will be used to measure mood disturbance in a sample of 40 pregnant women.

Approximate date when findings will be available: January 1987

I agree to use the POMS with appropriate precautions, to use only those answer forms and other POMS accessory materials published or authorized by the publisher and to return used forms to Educational and Industrial Testing Service upon request and to make any findings available to the authors and to EdITS.

Signed _____

Title or Position Graduate student in Nursing Date February 20, 1986

Signature of Sponsoring Member of the American Psychological Association
(required for graduate students and others who are not members of the APA):

Dr David Lane Member - Canadian Psychological

Appendix C

PROFILE OF MOOD STATES

NAME _____ DATE _____

SEX: Male (M) Female (F)

IDENTIFICATION

Below is a list of words that describe feelings people have. Please read each one carefully. Then fill in ONE circle under the answer to the right which best describes HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK INCLUDING TODAY.

The numbers refer to these phrases.

0 = Not at all
1 = A little
2 = Moderately
3 = Quite a bit
4 = Extremely

Col (C) O.P. (O)

	NOT AT ALL	A LITTLE	MODERATELY	QUITE A BIT	EXTREMELY
1. Friendly	0	1	2	3	4
2. Tense	0	1	2	3	4
3. Angry	0	1	2	3	4
4. Worn out	0	1	2	3	4
5. Unhappy	0	1	2	3	4
6. Clear-headed	0	1	2	3	4
7. Lively	0	1	2	3	4
8. Confused	0	1	2	3	4
9. Sorry for things done	0	1	2	3	4
10. Shaky	0	1	2	3	4
11. Listless	0	1	2	3	4
12. Peeved	0	1	2	3	4
13. Considerate	0	1	2	3	4
14. Sad	0	1	2	3	4
15. Active	0	1	2	3	4
16. On edge	0	1	2	3	4
17. Grouchy	0	1	2	3	4
18. Blue	0	1	2	3	4
19. Energetic	0	1	2	3	4
20. Panicky	0	1	2	3	4
21. Hopeless	0	1	2	3	4
22. Relaxed	0	1	2	3	4
23. Unworthy	0	1	2	3	4
24. Spiteful	0	1	2	3	4
25. Sympathetic	0	1	2	3	4
26. Uneasy	0	1	2	3	4
27. Restless	0	1	2	3	4
28. Unable to concentrate	0	1	2	3	4
29. Fatigued	0	1	2	3	4
30. Helpful	0	1	2	3	4
31. Annoyed	0	1	2	3	4
32. Discouraged	0	1	2	3	4
33. Resentful	0	1	2	3	4
34. Nervous	0	1	2	3	4
35. Lonely	0	1	2	3	4
36. Miserable	0	1	2	3	4
37. Muddled	0	1	2	3	4
38. Cheerful	0	1	2	3	4
39. Bitter	0	1	2	3	4
40. Exhausted	0	1	2	3	4
41. Anxious	0	1	2	3	4
42. Ready to fight	0	1	2	3	4
43. Good natured	0	1	2	3	4
44. Gloomy	0	1	2	3	4
45. Desperate	0	1	2	3	4
46. Sluggish	0	1	2	3	4
47. Rebellious	0	1	2	3	4
48. Helpless	0	1	2	3	4
49. Weary	0	1	2	3	4
50. Bewildered	0	1	2	3	4
51. Alert	0	1	2	3	4
52. Deceived	0	1	2	3	4
53. Furious	0	1	2	3	4
54. Efficient	0	1	2	3	4
55. Trusting	0	1	2	3	4
56. Full of pep	0	1	2	3	4
57. Bad-tempered	0	1	2	3	4
58. Worthless	0	1	2	3	4
59. Forgetful	0	1	2	3	4
60. Carefree	0	1	2	3	4
61. Terrified	0	1	2	3	4
62. Guilty	0	1	2	3	4
63. Vigorous	0	1	2	3	4
64. Uncertain about things	0	1	2	3	4
65. Bushed	0	1	2	3	4

MAKE SURE YOU HAVE ANSWERED EVERY ITEM.

POM 021

SOCIAL SUPPORT QUESTIONNAIRE

PLEASE READ ALL DIRECTIONS ON THIS PAGE BEFORE STARTING.

Please list each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you.

Use only first names or initials, and then indicate the relationship, as in the following example:

Example:

	First Name or Initials	Relationship
1.	MARY T.	FRIEND
2.	BOB	BROTHER
3.	M.T.	MOTHER
4.	SAM	FRIEND
5.	MRS. R.	NEIGHBOR

etc.

Use the following list to help you think of the people important to you, and list as many people as apply in your case.

- spouse or partner
- family members or relatives
- friends
- work or school associates
- neighbors
- health care providers
- counselor or therapist
- minister/priest/rabbi
- other

You do not have to use all 24 spaces. Use as many spaces as you have important persons in your life.

WHEN YOU HAVE FINISHED YOUR LIST, PLEASE TURN TO PAGE 2.

For each person you listed, please answer the following questions by writing in the number that applies.

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 1:

How much does this person make you feel liked or loved?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

Question 2:

How much does this person make you feel respected or admired?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

GO ON TO NEXT PAGE

[7-9] [10-12]

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 3:

How much can you confide in this person?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[13-15]

Question 4:

How much does this person agree with or support your actions or thoughts?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[16-18]

GO ON TO NEXT PAGE

1 = not at all
2 = a little
3 = moderately
4 = quite a bit
5 = a great deal

Question 5:

If you needed to borrow $10, a ride to the doctor, or some other immediate help, how much could this person usually help?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[19-21]

Question 6:

If you were confined to bed for several weeks, how much could this person help you?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____

[22-24]

GO ON TO NEXT PAGE

Number _____ [1-4]
Date _____

Question 7:

How long have you known this person?

1 = less than 6 months
2 = 6 to 12 months
3 = 1 to 2 years
4 = 2 to 5 years
5 = more than 5 years

Question 8:

How frequently do you usually have contact with this person? (Phone calls, visits, or letters)

5 = daily
4 = weekly
3 = monthly
2 = a few times a year
1 = once a year or less

PERSONAL NETWORK

	First Name or Initials	Relationship	
1.			[32
2.			[33
3.			[34
4.			[35
5.			[36
6.			[37
7.			[38
8.			[39
9.			[40
10.			[41
11.			[42
12.			[43
13.			[44
14.			[45
15.			[46
16.			[47
17.			[48
18.			[49
19.			[50
20.			[51
21.			[52
22.			[53
23.			[54
24.			[55

[25-27]

PLEASE BE SURE YOU HAVE RATED EACH PERSON ON EVERY QUESTION. GO ON TO THE LAST PAGE.

[28-30]

[5-6]

9. During the past year, have you lost any important relationships due to moving, a job change, divorce or separation, death, or some other reason? [57]

_____ 0. No
_____ 1. Yes

IF YES:

9a. Please indicate the number of persons from each category who are *no longer available* to you.

_____ spouse or partner [58]
_____ family members or relatives [59-60]
_____ friends [61-62]
_____ work or school associates [63-64]
_____ neighbors [65-66]
_____ health care providers [67]
_____ counselor or therapist [68]
_____ minister/priest/rabbi [69]
_____ other (specify) _____ [70] [71-72]

9b. Overall, how much of your support was provided by these people who are no longer available to you? [73]

_____ 0. none at all
_____ 1. a little
_____ 2. a moderate amount
_____ 3. quite a bit
_____ 4. a great deal