



Social support and pregnancy outcome
by Helen Colleen Stephens Newman

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Nursing
Montana State University

© Copyright by Helen Colleen Stephens Newman (1988)

Abstract:

Despite much progress in maternal and infant health in recent years, the perinatal period presents more threats to human life and health than does any other period prior to old age. A review of the literature offers some support to the hypothesis that many factors associated with the outcome of pregnancy may be socially mediated.

This study was conducted to investigate whether there is a significant relationship between pregnant women's perceived levels of social support and pregnancy outcome as measured by Apgar scores, size, gestational age, and normalcy. The conceptual framework for the study utilized a synthesis of the Dimond and Jones (1983) model of social support and the Rubin (1984) conceptualization of the maternal experience.

A factor-relating correlational survey research design was utilized. The study was conducted, over a 21-week period and involved 45 married pregnant women, between 25 and 28 weeks gestation, and statistically not at risk demographically, medically, or obstetrically. Each pregnant woman's perceived level of social support was measured utilizing the Personal Resource Questionnaire85-Part 2. Findings included low to moderately positive, although not statistically significant, relationships between perceived level of social support and pregnancy outcome in terms of birth weight and Apgar scores. However, a statistically significant difference was demonstrated in perceived level of social support and pregnancy outcome in a subgroup of pregnant women who were not included in the main study because of recognized risk factors. The results of this study provided a limited substantiation for the premise that perceived level of social support is related to pregnancy outcome.

This study suggests that enhancement of the relational functions of social support based on a pregnant woman's perceived needs might be made a part of routine nursing practice. Replication of this study should be carried out with certain modifications.

SOCIAL SUPPORT AND PREGNANCY OUTCOME

by

Helen Colleen Stephens Newman

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Nursing

MONTANA STATE UNIVERSITY
Bozeman, Montana

May 1988

N 378
N 4645

APPROVAL

of a thesis submitted by

Helen Colleen Stephens Newman

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

5-5-88
Date

Elizabeth D. McLean
Chairperson, Graduate Committee

Approved for the Major Department

5-10-88
Date

Kathleen Anne Long
Head, Major Department

Approved for the College of Graduate Studies

May 19, 1988
Date

Henry L. Parsons
Graduate Dean

STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a master's degree at Montana State University, I agree that the Library shall make it available to borrowers under rules of the Library. Brief quotations from this thesis are allowable without special permission, provided that accurate acknowledgement of source is made.

Permission for extensive quotation from or reproduction of this thesis may be granted by my major professor or, in her absence, by the Dean of Libraries when, in the opinion of either, the proposed use of the material is for scholarly purposes. Any copying or use of the material in this thesis for financial gain shall not be allowed without my written permission.

Signature

Helen Colleen Stephens Newman

Date

May 4, 1988

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to my thesis committee members, Elizabeth Metzgar, Cheryl Olson-McMillan, and Dr. Clarann Weinert. Their professional guidance and encouragement made this research project a valuable and rewarding experience.

I would also like to extend appreciation to Dr. Henry Parsons and Marlene Short of the College of Graduate Studies and Kathleen Chafey of the College of Nursing. Their time and input greatly assisted me in presenting this thesis in acceptable format and style.

I also wish to thank Rebecca Ward and Helena Chambers for their expertise and availability, and Judy Harrison for her proficient and diligent typing of this manuscript.

My deepest appreciation is extended to my husband, Bob, and to my children, Kimberly, Dawn, and Scott. Their special contributions of love, encouragement, patience, and humor made the completion of this project a reality.

TABLE OF CONTENTS

	Page
APPROVAL.....	ii
STATEMENT OF PERMISSION TO USE.....	iii
ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
ABSTRACT.....	x
CHAPTER	
1. INTRODUCTION.....	1
Problem Statement and Purpose.....	3
Research Question.....	6
Definition of Terms.....	7
Positive pregnancy outcome.....	7
Adverse pregnancy outcome.....	7
Pregnant women.....	7
Perceived level of social support.....	8
2. REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK.....	9
Review of Literature.....	9
Social Support and Well Being.....	9
Social Support and Perinatal Issues.....	11
Social Support and Pregnancy Outcome.....	14
Conceptual Framework.....	17
Social Support and the Maternal Experience.....	17
Maternal Tasks.....	18
Safe passage.....	18
Acceptance by others.....	19
Binding-in to the child.....	19
Giving of oneself.....	20
Model for Social Support and Adaptation to Stress.....	20

TABLE OF CONTENTS--Continued

	Page
Conceptual Model for Social Support and Pregnancy Outcome.....	21
Natural world.....	24
Balancing factors.....	24
Pregnancy process.....	24
Pregnancy outcome.....	25
3. METHODS AND PROCEDURES.....	27
Population and Sample.....	27
Research Design.....	28
Protection of Human Rights.....	29
Data Collection Procedures.....	29
Instrumentation.....	31
Demographic Data and Background Information.....	32
Pregnancy Outcome Chart Review.....	32
Apgar scores.....	33
Size and gestational age.....	33
Physical assessment of normalcy.....	34
Statistical Analysis.....	34
4. RESULTS.....	36
Examination of Variables of Interest.....	36
Major Variables: Perceived Level of Social Support and Pregnancy Outcome.....	37
Perceived Level of Social Support and Pregnancy Outcome Subcomponents.....	37
Apgar scores.....	37
Size.....	38
Gestational age.....	39
Normalcy.....	41
Additional Variables of Interest.....	41
Education of mother and pregnancy outcome.....	41
Education of mother and Apgar scores.....	41
Education of mother and birth weight.....	42
Family income and pregnancy outcome.....	42
Family income and Apgar scores.....	42
Family income and birth weight.....	43
Infant support and pregnancy outcome.....	43
Infant support and Apgar scores.....	43
Infant support and birth weight.....	43
Original volunteers not meeting the criteria....	43

TABLE OF CONTENTS--Continued

	Page
5. DISCUSSION.....	45
Summary of Results.....	45
Research Question.....	45
Conceptual Framework.....	48
Relevance to Literature.....	49
Assumptions and Limitations to the Study.....	51
Implications for Nursing Practice and Research.....	52
Implications for Nursing Practice.....	52
Self-knowledge.....	53
Pregnancy knowledge.....	54
Relationship knowledge.....	54
Significant-other knowledge.....	55
Recommendations for Research.....	55
Conclusion.....	57
REFERENCES CITED.....	59
APPENDICES	
A. SOURCES OF PREGNANCY OUTCOME DATA: COPIES OF HOSPITAL FORMS.....	66
B. PERMISSION TO CONDUCT STUDY AT OBSTETRICIANS' OFFICES AND COMMUNITY MEDICAL CENTER: COPIES OF LETTERS OF AUTHORIZATION.....	70
C. PROPOSAL FOR HUMAN SUBJECTS REVIEW: COPY OF APPROVAL FORM.....	75
D. RECRUITMENT AND INITIAL DATA COLLECTION PACKET: COPY OF PACKET CONTENTS.....	77

LIST OF TABLES

Table		Page
1.	Correlation between Apgar scores and PRQ85-Part 2 scores.....	38
2.	Correlation between Apgar scores and mother's education.....	41
3.	Correlation between Apgar scores and income level.....	42

LIST OF FIGURES

Figure		Page
1.	Conceptual model for social support and pregnancy outcome.....	23
2.	Scattergram of perceived level of social support in relation to infant birth weight.....	40

ABSTRACT

Despite much progress in maternal and infant health in recent years, the perinatal period presents more threats to human life and health than does any other period prior to old age. A review of the literature offers some support to the hypothesis that many factors associated with the outcome of pregnancy may be socially mediated. This study was conducted to investigate whether there is a significant relationship between pregnant women's perceived levels of social support and pregnancy outcome as measured by Apgar scores, size, gestational age, and normalcy. The conceptual framework for the study utilized a synthesis of the Dimond and Jones (1983) model of social support and the Rubin (1984) conceptualization of the maternal experience.

A factor-relating correlational survey research design was utilized. The study was conducted over a 21-week period and involved 45 married pregnant women, between 25 and 28 weeks gestation, and statistically not at risk demographically, medically, or obstetrically. Each pregnant woman's perceived level of social support was measured utilizing the Personal Resource Questionnaire85-Part 2. Findings included low to moderately positive, although not statistically significant, relationships between perceived level of social support and pregnancy outcome in terms of birth weight and Apgar scores. However, a statistically significant difference was demonstrated in perceived level of social support and pregnancy outcome in a subgroup of pregnant women who were not included in the main study because of recognized risk factors. The results of this study provided a limited substantiation for the premise that perceived level of social support is related to pregnancy outcome.

This study suggests that enhancement of the relational functions of social support based on a pregnant woman's perceived needs might be made a part of routine nursing practice. Replication of this study should be carried out with certain modifications.

CHAPTER 1

INTRODUCTION

Childbearing is a normal event that occurs in a social context; producing a healthy child requires the pregnant woman to continually adapt herself and her environment. Her success in giving birth to a live, healthy infant is influenced by the presence of needed resources in the form of environmental conditions, and personal characteristics that may enable her to withstand the stresses of her pregnancy. One important resource is social support, the availability of caring people, as perceived by the pregnant woman.

Pregnancy is a developmental crisis for a woman. During pregnancy, the woman undergoes psychological, behavioral, and physical changes. She is making the transition to motherhood. All these changes require her to develop a new identity as mother of this child-to-be and cause permanent alterations in family member roles and relationships. These stressful changes require support from others. This support may be shown through such aspects as intimacy, caring, respect, affirmation of her pregnancy and worth, sharing of maternal experiences with other women, financial support for prenatal care, and mutual giving and receiving as the pregnancy progresses. Social support is essential to the achievement of a successful pregnancy.

According to Brown (1986), "People usually have an intuitive sense of what comprises support for them and who they regard as supporters or

supportive" (p. 4). Brandt and Weinert (1981) described social support as having five major relational functions:

(1) the indication that one is valued, (2) that one is an integral part of a group, (3) the provision for attachment/ intimacy, (4) the opportunity for nurturance, and (5) the availability of informational, emotional, and material help (p. 277).

Over the past several decades, a number of studies have explored the relationship between social environment and well-being. Extensive evidence now exists relating social environment to health, confirming that social support does play a role in health outcomes. Recent research has focused on the role of social support as an influence on health outcomes during pregnancy. Although research has demonstrated a relationship between social support and a variety of perinatal health concerns, the relationship between a pregnant woman's perceived level of social support and the health of her infant at birth has not been studied in depth. Perinatal research is of particular importance because at no other equally brief period of life can preventive health care be so effective.

In order to work more effectively with the pregnant woman, health professionals must achieve greater understanding and appreciation of the many complex factors that may influence pregnancy outcome. Since it is possible that the social circumstances of a pregnant woman may influence her newborn's health, research directed toward identifying the relationship of specific social environmental indicators to such specific pregnancy outcome measures as infant health status at birth should be undertaken. One of those social environmental indicators is social support. There are also measurable indicators of infant health

status at birth. Commonly used measures include the Apgar scoring system, which is an evaluation of the newborn's adaptation to extrauterine life; classification according to birth weight, growth standards, and gestational age; and assessment of normalcy, which is based on appraisal of both physical characteristics and neurologic integrity.

Problem Statement and Purpose

Despite much progress in maternal and infant health in recent years, prevention of perinatal infant damage and death remains an urgent human need. In the United States, the perinatal mortality rate has decreased, but long-term outcome for premature and low-birth-weight survivors does not parallel this improvement. Furthermore, prematurity is the primary factor in most perinatal deaths, as these infants are often unable to adapt to extrauterine life (Klaus & Fanaroff, 1986). In addition, many of those fetuses who do reach viability have physical abnormalities, some lethal (Pernoll, Benda, & Babson, 1986; Ziai, Clarke, & Merritt, 1984). Most of these abnormalities result from unknown causes.

To facilitate an understanding of the enormity and significance of problems associated with perinatal death and damage, consider again only those fetuses who reach viability. In terms of permanent physical damage alone, the loss exceeds that of all other major catastrophic human losses such as accidents, cancer, cardiovascular disease, and deaths combined until past middle age (Pernoll et al., 1986).

The first year of life presents more threats to life and health than does any other period prior to old age. The greatest threat is low birth weight because it increases infant vulnerability to health problems and death. Low birth weight is derived from prematurity and intrauterine fetal growth retardation (U.S. Department of Health, Education, and Welfare, 1979).

The etiology of low birth weight is poorly understood. In most cases of prematurity, no predisposing factors can be identified (Fuchs, 1980). Causes have been broadly classified as pregnancy factors, epidemiologic conditions, iatrogenic factors, and unknown causes. Pregnancy factors include nutritional problems such as dietary anemia which may lead to hemorrhage and premature delivery. Epidemiologic conditions include smoking which contributes to fetal growth retardation. Iatrogenic factors result from inappropriate obstetric intervention (Knuppel & Drukker, 1986). Any significant reduction in low birth weight should result in substantial reductions in infant morbidity and mortality rates.

Social support influences both health-enhancing behaviors and health-damaging behaviors; these in turn influence pregnancy outcome. For example, a pregnant woman's perceived level of social support might influence her choices regarding certain adaptive responses such as using drugs and exposing herself to communicable diseases instead of giving attention to her nutritional and behavioral health. The choices the mother-to-be makes influence the health of her unborn child and may lead to a wide range of problems such as spontaneous abortion,

prematurity, congenital malformations, intrauterine growth retardation, and mental retardation (Streeter, 1986).

Accurate assessment of pregnancy requires a holistic approach. No single health care discipline is in a more opportune position to assess the pregnant woman, her environment, and her health status throughout the perinatal period than is nursing. Continuous nursing assessment not only facilitates early identification and management of risk factors but also contributes to accurate prediction of a positive outcome. Simply defined, a positive pregnancy outcome is a pregnancy that results in a healthy mother and a healthy infant. In the broadest sense, any pregnant woman who has a physical, emotional, economic, spiritual, or social condition that might adversely affect her or her unborn child is considered to be "at risk" for an adverse pregnancy outcome.

The literature supports the concept that many factors associated with pregnancy outcome may be socially mediated (Norbeck & Tilden, 1983; Nuckolls, Cassell, & Kaplan, 1972). For this study, this means that the pregnant woman's perceived level of social support might function to influence her adaptive responses, thereby affecting many of the real and potential risk factors. For example, Kennell (1982) suggested an association between the absence of a support person during labor and acute anxiety, with arrest of labor and fetal distress. Similarly, Auvenshine and Enriquez (1985) stated, "The woman who does not feel that the coming infant is welcomed and accepted by people who are important to her is particularly at risk for premature labor and delivery and toxemia of pregnancy" (p. 168). In both of the preceding

examples, one factor critical to the health of her unborn infant is the pregnant woman's perception regarding her social support.

Demographic, medical, and obstetric factors have been extensively investigated in relation to a wide variety of perinatal concerns. The pregnant woman's social support in relation to her own well-being has also been the focus of substantial research. However, the pregnant woman's experiences and personal perceptions in relation to her infant's health at birth have not been adequately investigated.

The specific purpose of this study was to determine whether a relationship exists between pregnant women's perceived levels of social support and the health of their newborn infants. In preventive health care, a thorough understanding of all factors that might potentially influence pregnancy outcome must be sought by, and be of central interest to, all who are concerned with the health of mothers and their infants. It is important to understand clearly how these factors interact to exacerbate risk or how they might interact in a synergistic manner to optimize pregnancy outcome. Knowledge from this perspective is essential in order to promote a healthy pregnancy and the birth of a healthy infant.

Research Question

In order to further identify human environmental factors that contribute to balance in life and thus to positive pregnancy outcome, this study intended to explore the relationship between a pregnant woman's perceived level of social support and her infant's health at birth. Therefore, this research addressed the following question: Is

there a significant relationship between the level of social support as perceived by the pregnant woman and pregnancy outcome as measured by Apgar scores, size, gestational age, and normalcy?

Definition of Terms

Studies of social support and of pregnancy outcome have used a variety of definitions for each of these variables. For the purposes of this study, the following definitions of terms will apply.

Positive pregnancy outcome. Placement within each of the following four criteria (see Appendix A):

1. Apgar scores: 7-10 at one minute, and 8-10 at five minutes of life, using standard Apgar rating criteria.
2. Size: Appropriate weight for gestational age, as recorded on Newborn Maturity Rating and Classification.
3. Gestational age: Maturity rating of 38 through 41 completed gestational weeks, using Newborn Maturity Rating and Classification.
4. Normalcy: Absence of abnormality in physical examination findings, as recorded on Physician's Admission Physical Exam sheet.

Adverse pregnancy outcome. Lack of placement in one or more of the preceding four criteria.

Pregnant women. At time of recruitment, women who are between 25 and 28 weeks gestation, Caucasian, married and self-described as partnered, between the ages of 19 and 35, receiving obstetrician-administered prenatal care, and medically and obstetrically not at risk.

Perceived level of social support. Self-reported measure of level of relational provisions of worth, social integration, intimacy, nurturance, and assistance, as measured by the Personal Resource Questionnaire85-Part 2 (see Appendix D).

CHAPTER 2

REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK

The purposes of this chapter are to provide a review of pertinent literature and to present the conceptual framework for the study. The review of literature examines social support as it first relates to the broad domain of well-being, narrows its relationship to a variety of perinatal issues, and finally focuses on its relationship to pregnancy outcomes. The conceptual framework synthesizes the maternal experience and maternal tasks with a model for social support and adaptation to stress, and concludes with a conceptual model for social support and pregnancy outcome.

Review of Literature

Social Support and Well-Being

Social support has been studied from a variety of perspectives. Findings differ according to the framework and definitions used. However, there is general agreement that social support is not simply an occurrence; it is a complex, dynamic, evolutionary process. Tolsdorf (1976) adopted the approach that the individual and the social support system are in constant, reciprocal interaction. He contended that the foundation of one's social support system orientation is established in childhood and that one's expectations and beliefs

determine its utilization, characteristics and maintenance. Thoits (1982) suggested that the factors determining the structure and function of one's social support system might also select for the occurrence of specific life events, that such events might alter the support available, that social support might decrease the occurrence of stressful events, and that the level of social support is not constant. The concept of an evolutionary nature of social support was also promoted by Mechanic (1974), who identified the fit between social support and environmental demands as the major determinant of successful adaptation.

Research literature generally agrees that social support has some relationship to health but does not agree as to the types of social support systems most useful to an individual's own particular concerns and environmental circumstances. According to LaRocco, House, and French (1980),

The more specific and focused the type of stress or strain in question, the more likely it is to be affected primarily or only by a limited set of sources of support closely related to the stress or strain in question (p. 214).

If this is true, it is reasonable to expect stresses such as pregnancy to be most influenced by those sources of support that are of greatest importance, primarily the immediate family.

A large body of literature provides evidence of the existence of both direct and indirect relationships between social support and health outcomes. A number of studies have suggested that social support functions interactively to modify the effects of life events on health (Cassell, 1976; Cobb, 1976; Dean & Lin, 1977; Lin, Ensel,

Simeone, & Kuo, 1979; Nuckolls et al., 1972; Pearlin, Lieberman, Menaghan, & Mullan, 1981; Turner, 1981; Walker, MacBride, & Vachon, 1977). A different perspective as to how social support might influence well-being was provided by other researchers (Hubbard, Muhlenkamp, & Brown, 1984; Langlie, 1977) who proposed that an individual's social support influences one's practice of health behaviors. Other research viewed social support as ameliorating life strains and events to influence well-being (LaRocco et al., 1980; Pearlin et al., 1981). These studies suggested that the presence of supportive interpersonal relationships may have both a direct effect on the individual's functioning and an indirect stress-protective effect. LaRocco et al. also suggested that the degree of distress experienced is significantly related to the degree of perceived social support available. Thus, social support might also be a function of appraisal and coping processes. Pearlin et al. (1981) concluded that mental health is indirectly a function of social support and coping in that these factors diminish the antecedent distress-producing process.

Social Support and Perinatal Issues

The preceding overview of literature linking social support to well-being provides the background for a more in-depth review of literature correlating social support to perinatal issues. A number of studies have suggested a relationship between social support and such perinatal concerns as counseling (Mercer, 1983), decision-making (Carlson, Kaiser, Yeaworth, & Carlson, 1984), marital status and perceptions of pregnant adult women (Tilden, 1983a, 1984), social class

and personal control (Turner & Noh, 1983), emotional disequilibrium and psychological outcomes (Cronenwett, 1985; Tilden, 1983b), alcohol consumption (Stephens, 1985), perceived degree of social support in pregnant couples (Brown, 1986), spontaneous pre-term delivery (Berkowitz & Kasl, 1983), neonatal pathology (Downs, 1964), prognosis of pregnancy (Nuckolls et al., 1972), and specific complications of pregnancy (Norbeck & Tilden, 1983). Additional studies have demonstrated the importance of social support in relation to such postpartum matters as maternal depression (O'Hara, Rehm, & Campbell, 1983), mother-infant bonding (Anisfeld & Lipper, 1983), transition to fatherhood (Cronenwett & Kunst-Wilson, 1981), adaptation to motherhood (Curry, 1983), postpartum concerns of mothers (Harrison & Hicks, 1983), infant feeding practices (Bryant, 1982), and conflict (Crawford, 1985).

That social support is important during pregnancy was demonstrated in two separate studies of single non-partnered adult women who were pregnant (Tilden, 1983a, 1984). The first study, concerning single versus partnered adult pregnant women in the midtrimester, suggested that single women expressed greater emotional distress than did partnered women in such areas as decision-making, disclosure, seeking social support, and legal issues. In the second study, Tilden provided evidence that single pregnant women displayed both greater life stress and state anxiety, and less tangible support, than did partnered women. This suggests that the situational crisis of pregnancy is ameliorated in part by the social support provided by a partner. Further evidence of the significance of social support during pregnancy was shown in a study by Tilden (1983b) in which emotional disequilibrium during

pregnancy decreased only as a function of both decreasing life stress and increasing social support, but not as a function only of decreased life stress.

One possible explanation of the association between supportiveness of the social environment and pregnancy outcome may be that pregnant women with more supportive social environments engage in more positive health and self-care practices than do those with less supportive environments. For example, in a study by Stephens (1985) of the perception of pregnancy and of social support as predictors of alcohol consumption during pregnancy, social support was significantly associated with decreased alcohol consumption both prior to and during pregnancy. The association of alcohol consumption during pregnancy with adverse infant outcomes is widely recognized.

The importance of a supportive social environment during the perinatal period was evidenced in several studies in which the advice and encouragement offered by family members, friends, and neighbors affected decision-making and contributed to the perception of successful perinatal experiences (Bryant, 1982; Cronewett & Kunst-Wilson, 1981; Curry, 1983; Harrison & Hicks, 1983). In a study (O'Hara et al., 1983) comparing life stress and social support in depressed and nondepressed newly-delivered women, the depressed mothers indicated that they experienced more stressful events and less emotional and instrumental support since conception than did the nondepressed mothers. The two groups did not differ with regard to number of confidants, but social support provided by husbands was demonstrated to be of significant importance.

It has been postulated that one reason a woman rejects her infant is her perception of inadequate social support, such as lack of acceptance of her pregnancy by significant others, during the perinatal period. To what extent social support available to the mother during pregnancy is a factor affecting bonding was investigated by Anisfeld and Lipper (1983). They found that, among women with little social support, providing extra contact between the mother and infant immediately following birth produced more affectionate behaviors than among those without the extra contact treatment. Women with relatively more social support demonstrated the same amount of affection, regardless of extra contact, immediately following birth.

Although social support during the perinatal period is assumed to be well-intentioned, conflict may occur within the usually supportive relationships of the child-bearing family if the support is perceived to be inappropriate or inadequate (Crawford, 1985). One concern regarding conflict in pregnancy is that conflict may be the cause of anxiety and depression, both of which might adversely affect the outcome of the pregnancy.

Social Support and Pregnancy Outcome

Efforts to demonstrate the role of psychosocial factors in adverse pregnancy outcome produced interesting, although not always convincing, data that was due in part to shortcomings in the methodologies utilized in certain studies.

Down's (1964) study of stress during pregnancy as a factor in producing neonatal pathology found that, compared with pregnant women

reporting no stressful events, a significant correlation was found between those reporting stressful experiences perceived as threatening or disruptive to their social environment immediately prior to or during the first trimester of pregnancy and their subsequent delivery of infants with pathological conditions. These findings permit speculation that a perceived disruption of social support might be implicated in adverse pregnancy outcome. However, there were certain methodological problems with this study. One problem was the dichotomous classification of individuals into one of two study groups, stress versus no stress, without regard to the degree of stress experienced. Another problem was an absence of adequate control for potentially confounding variables such as most medical and all obstetric risk factors, and marital status.

The role of psychosocial factors in adverse pregnancy outcome was also examined by Berkowitz and Kasl (1983). Findings indicated that exposure to stressful life events and possession of a negative attitude toward pregnancy were both associated with greater risk of spontaneous pre-term delivery. The investigators did point out that their findings might have been altered by the retrospective design of the study in that adverse pregnancy outcome could contribute to bias recall.

Nuckolls et al. (1972) conducted a prospective study of pregnancy outcome in married, medically-normal primipara by investigating the relationship between such psychosocial assets as social support, social stresses, and the prognosis of pregnancy. Among the socially stressed subjects, they found that those with low psychosocial assets experienced three times as many pregnancy complications as those with

high psychosocial assets, even in the presence of high social stress. These findings were attributed to the purported buffering effect of a high level of social support on social stress.

Similarly, evidence that social support influences pregnancy outcome was provided in a prospective, multivariate investigation of the relationship of life stress, social support, and emotional disequilibrium to complications of pregnancy (Norbeck & Tilden, 1983). Life stress during pregnancy, defined as self-reported perceptions of desirability and impact of events, was measured at midtrimester and during the last prenatal month. Social support, comprised of informational, emotional, and tangible elements, and emotion-state, comprised of self-reported levels of anxiety, depression, and self-esteem, were measured only at midtrimester. Pregnancy outcome was treated as a dichotomous variable, complications versus no complications. Dimensions of pregnancy complications measured were gestation; labor, delivery, and postpartum; and infant condition. Data analyses yielded a variety of significant findings. Life stress and emotional social support were associated with emotional disequilibrium that in turn was related only to infant-condition complications. Life stress during the year preceding pregnancy was related to gestation complications specifically, as well as to overall complications. Although direct effects were not significant, life stress during pregnancy and tangible social support in interaction were related to each of the dimensions of pregnancy complications individually but not to overall pregnancy complications. Women who had low support, even in the presence of low stress, demonstrated a high rate of labor and

delivery complications, and women who had experienced high stress and low support had the highest rate of both gestation and infant-condition complications.

Whether perceived level of social support, independent of life events, psychological state, or other variables, is significantly correlated to pregnancy outcome in terms of specific objective measures of infant health has not been clearly established. Therefore, this study will investigate the relationship between social support and pregnancy outcome.

Conceptual Framework

Social Support and the Maternal Experience

According to Anthony and Benedek (1970),

Pregnancy is a 'critical phase' in the life of a woman . . . a biologically motivated step in the maturation of the individual which requires physiologic adjustments and psychologic adaptations to lead to a new level of integration that, normally, represents development (p. 137).

In the following description of a pattern of the maternal experience, social support is a central component of the many factors needed for successful pregnancy outcome.

Rubin (1976, 1984) described the woman's maternal experience as involving not only sequences of maternal phenomena but also behavioral, relationship, and values-related processes that lead to development of a new maternal identity. She contended that a pregnant woman must accomplish four specific tasks in order to successfully assume a maternal role: (a) assuring safe passage, (b) attaining acceptance by

others, (c) binding-in to the child, and (d) learning to give of oneself. Completion of the first two tasks is essential to successful achievement of the others, and delay or failure may threaten the outcome of pregnancy. These tasks are accomplished through such adaptive responses as imitating, role-playing, daydreaming, disengagement from the past, and redefining of body boundaries. As the pregnant woman works to accomplish these tasks, social support is given through positive feedback from her unborn child and by supportive input from significant others, thus progressively establishing her maternal identity. The following discussion of Rubin's (1976, 1984) conceptualization of the maternal experience and the tasks of pregnancy provides insight regarding how important social support might be to the accomplishment of each task.

Maternal Tasks

Safe passage. Rubin claims that the pregnant woman assures safe passage by seeking pregnancy care in the first trimester, baby care in the second, and delivery care in the third, chiefly by learning what to expect and how to cope. Her desire to have a healthy child causes her to change or adapt her behavior in accordance with recommendations of those to whom she looks for social support, such as her mother, spouse, close friends, and health care professionals. These behavior changes or adaptations might include caring for her own health, getting early prenatal care, and avoiding pregnancy-related hazards. The pregnant woman may rely heavily on her social support system for help in effecting these changes.

Acceptance by others. According to Rubin, gaining acceptance by others provides the psychological energy necessary for all other tasks. Again the importance of social support emerges, as the pregnant woman focuses in on individuals and groups with whom she shares the common interest of childbearing. The social support realized by a strengthening of primary bonds, at the same time secondary bonds are loosened, may provide the environment of acceptance and encouragement the pregnant woman needs to further her goal of a healthy pregnancy outcome.

Binding-in to the child. Rubin suggests that the movements of the child within contribute to the woman's satisfaction and influence her maternal identity. This further directs her attention to the provision of affectionate care for her unborn child. Social support is evident as her husband and other family members provide assistance and nurturance through helping with household chores and shopping, diet monitoring, child care, and more frequent personal contact. A pregnant woman's attachment to her unborn child is positively associated with both overall social support and satisfaction with the marital relationship (Cranley, 1984).

Whether the woman perceives any dimension of social support from her unborn child has not been firmly established but should be considered. For example, her perceptions of her unborn child might make her feel more needed, special, and competent than if she were not pregnant. If she does perceive such support, it might contribute to a positive pregnancy outcome.

Giving of oneself. Rubin states that the pregnant woman's most demanding task is the progressively consummatory giving of herself. Social support may be widely evident here. Although the pregnant woman may be given maternity clothes, baby gifts, and other less tangible signs of love and acceptance in return for her gift of a child, the emphasis is on the meaning and feelings she associates with giving and receiving rather than on the value of the gifts themselves. Such gifts as companionship, encouragement, and advice given during prenatal visits, labor, and delivery reinforce her coping abilities. During labor, the presence of a support person reduces the pregnant woman's risk of infant complications (Kennell, 1982). As she explores the meaning of labor and delivery, she is aware that she may risk giving her life in order to give life. Social support comes from the recognition by others of the woman's self-giving promotion of her unborn child's well-being.

Model for Social Support and Adaptation to Stress

In conjunction with Rubin's (1976, 1984) maternal experience model, the conceptual model proposed by Dimond and Jones (1983) provides a comprehensive, unifying construct to depict how social support might be related to pregnancy outcome. Dimond and Jones summarized the most common social support hypotheses as follows:

1. Social support has a crucial, direct effect on health.
2. Social support interacts as a buffer.
3. Social support stimulates coping strategies and mastery.
4. Absence of social support worsens the effect of life stresses.

Dimond and Jones (1983) proposed a comprehensive social support model that, because of its inclusive and coherent design, contributed to the development of the conceptual framework for this study. From their model come the following propositions:

1. The characteristics of the support network determine the nature of the support offered.
2. The more appropriate the type of support offered, the greater the perceived adequacy of social support.
3. The greater the perceived adequacy of social support, the more adaptive the long- and short-term responses to stressful situations.
4. The nature of the stressor will determine the type of response.
5. The characteristics of the support network, the nature of the support offered, and the perceived adequacy of social support function to buffer the effects of the stressful situation on long- and short-term responses.
6. Environmental resources determine the nature and meaning of the stressor and the long- and short-term responses to the stressor.
7. Environmental resources function to influence the effects of the support network, the nature of support offered, and the perceived adequacy of support (Dimond & Jones, 1983, pp. 245-246).

The third proposition, "The greater the perceived adequacy of social support, the more adaptive the long- and short-term responses to stressful situations," was used as a basis for this study.

Conceptual Model for Social Support and Pregnancy Outcome

The Rubin (1976, 1984) and Dimond and Jones (1983) models provided the basis for the conceptual framework for this study. This conceptual framework addressed a central theme of nursing. That is, nursing aims to understand the process and to optimize health outcomes of patterns

of human responses to normal and crucial life events experienced in our natural world (Fawcett, 1984). Pregnancy, a normal yet crucial life event, may be considered both a maturational and situational crisis for the pregnant woman and her family. Its outcome depends to a large extent on factors within the pregnant woman's natural world that enable her to reestablish and maintain balance in life. One important factor might be her perception of a high level of social support in relation to her cognitive appraisal of her situation. When any balancing factor is inadequate or inappropriate, the potential for development of a "high risk" pregnancy is increased. A high risk pregnancy is one in which the infant has a significantly increased chance of death or damage (Klaus & Fanaroff, 1986).

From this concept were extrapolated the variables that comprised a useful organizing framework for examination of social support in relation to pregnancy outcome. These variables are the natural world, balancing factors, pregnancy process, cognitive appraisal, perceived social support, adaptive responses, tasks of pregnancy, and pregnancy outcome. The conceptual model (see Figure 1) depicts the possible relationships among and between these variables; arrows suggest the linkages. The abstraction at the model's center represents the unborn child who is dependent upon the environment the mother provides throughout the process of pregnancy. A summary of each construct in the model follows. Concepts central to this study are social support, perceived support, and pregnancy outcome. For ease of identification, these concepts are underlined in the model (see Figure 1).

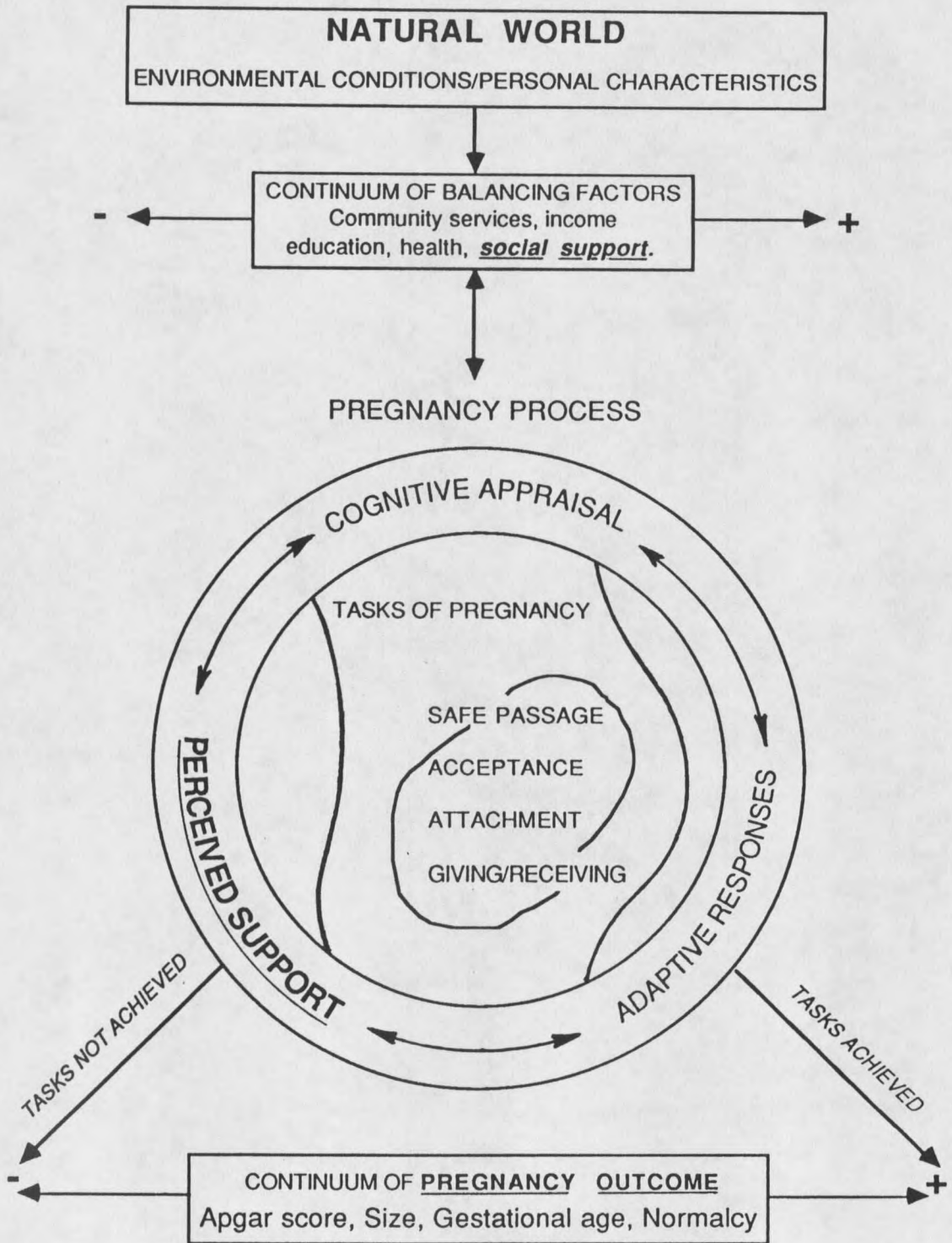


Figure 1. Conceptual model for social support and pregnancy outcome.

Natural world. The pregnant woman and her environment evolve as a unified whole, constituting her natural world, a source of both enhancers and threats to pregnancy outcome. Her own personal characteristics and her outside environment interact so intimately that no one balancing factor can be singled out as a prime contributor to, or detractor from, pregnancy outcome.

Balancing factors. Factors such as community services, income, education, health, and social support may be perceived by the pregnant woman as benign, enhancing, challenging, or threatening and must be viewed as a continuum. Balance in her life is achieved by harmonious integration of these balancing factors into elements and events of her natural world.

Pregnancy process. The pregnancy process, a dynamic evolutionary experience of maintaining balance in life, of being while becoming a mother, is inseparable from its sphere of influence, the natural world. Four components involved in this process and relevant to this model include cognitive appraisal, perceived support, adaptive responses, and tasks of pregnancy. A summary of each subcomponent follows.

Cognitive appraisal refers to the pregnant woman's ongoing awareness and judgment of balancing factors with regard to their meaning to her and her unborn child's well-being. Her adaptive responses will depend in part on her values, beliefs, and expectations, and on characteristics of other balancing factors such as perceived level of social support.

Perceived support refers to the pregnant woman's perceived level of social support; this exists in her mind rather than as an observable

phenomenon. It is the woman's personal synthesis of whatever constitutes her idea of support, such as how much support should be available and how important this is to her. The focus is on her feelings rather than on individuals, objects, events, or acts.

Adaptive responses refers to the pregnant woman's attempts to maintain balance in her life by considering alternatives, making choices, and manipulating herself and her environment in ways that she perceives as most fitting for her appraised situation. Adaptive responses are directed toward situational mastery.

Tasks of pregnancy refers to the successful achievement of the four tasks of pregnancy: safe passage, acceptance, attachment, and giving and receiving. This achievement is the aim of most pregnant women's adaptive responses and is essential to positive pregnancy outcome.

Pregnancy outcome. Infant health status at birth is one measure of pregnancy outcome. It is a critical life-situation expression of the totality of balance in the pregnant woman's life up to that point in time. If the process is to be truly understood and optimized, infant health must be viewed on a continuum from adverse, where tasks of pregnancy were not achieved and death or damage occurred, to positive, where tasks were achieved and optimal health is realized.

This conceptual model incorporates a set of relationship statements linking the identified concepts to pregnancy outcome. In the research application of this conceptual model, demographic, medical, and obstetric factors were treated as personal characteristics. For this study, the focus was on certain aspects of

the conceptual model. These critical aspects were the pregnant woman's perceived level of social support as she accomplished the tasks of pregnancy leading to a successful pregnancy outcome. Thus, the conceptual framework provides a conceptual model through which an investigation of a possible significant relationship between a pregnant woman's perceived level of social support and pregnancy outcome as measured by Apgar scores, size, gestational age, and normalcy may be studied.

The answer as to whether or not a relationship exists between social support and pregnancy outcome cannot be viewed in isolation. It is an integral unit of knowledge linked to other answers that will help provide a total perspective on the pregnant woman and her environmental interactions in all its pertinent relationships.

CHAPTER 3

METHODS AND PROCEDURES

This chapter presents the research methods used in the study. It includes population and sample; research design; data collection procedures; instrumentation, including establishment of validity and reliability; protection of human rights; statistical analysis; and review by a panel of nurse experts.

Population and Sample

This study utilized a convenience sample of the accessible population of consenting subjects who met the criteria and were available at the time of data collection. The population recruited for this study consisted of pregnant Caucasian women, married and self-described as partnered, between the ages of 19 and 35, between 25 and 28 weeks of gestation, receiving obstetrician-administered prenatal care, and medically and obstetrically not at risk.

Women meeting the target-group characteristics are widely recognized as being at relatively low risk for adverse pregnancy outcome (Klaus & Fanaroff, 1986; Olds, London, Ladewig, & Davidson, 1980; Streeter, 1986; Ziai et al., 1984). In addition, pregnant women in the second trimester have relatively positive attitudes toward self, baby, and participation in mother-infant activities (Auvenshine & Enriquez, 1985; Rubin, 1984).

Based on a review of hospital delivery records, the anticipated number of subjects was approximately 60. Average number of hospital deliveries per month was approximately 130 (Cross, 1986).

Approximately 85 percent of the potential accessible population was expected to consent to take part in the study, 80 percent of these were expected to meet the sample criteria, and 85 percent of this last group would be delivered by obstetricians agreeing to participate in the study. A small number of the target group were expected to be lost due to change in residence or physician, or because of other unforeseen factors. Therefore, recruitment over a one-month period was expected to yield a usable sample size of approximately 60 subjects.

Sixty-two volunteers who were available at the time of the initial data collection returned packets containing the Personal Resource Questionnaire85-Part 2 (PRQ85-Part 2) and the demographic data sheet (see Appendix D). Subsequent data collection regarding sampling criteria and pregnancy outcome of the subjects established that, of the 62 original volunteers, 45 met the criteria for inclusion in the study and also completed their pregnancies at the study site. Seventeen of the 62 original volunteers did not meet the criteria for inclusion, delivered elsewhere, did not complete the PRQ85-Part 2, or had an incorrect estimated date of confinement.

Research Design

The design of this study was a factor-relating correlational survey. It was consistent with the study's purpose which was to investigate the relationship between social support and pregnancy

outcome. This research design was chosen because of the uniqueness of this particular relationship. While the general variables of interest have been studied previously (Norbeck & Tilden, 1983; Nuckolls et al., 1972), there is little known about the relationship between the specific variables: perceived level of social support and infant health at birth as measured by Apgar scores, size, gestational age, and normalcy. It was not possible to manipulate the perceived level of social support, nor to select pregnant women at random. Therefore, in order to investigate the relationship between social support and pregnancy outcome, a correlational survey was necessary.

Protection of Human Rights

Protection of human rights was in accordance with the requirements of the U.S. Department of Health and Human Services and other funding agencies. This study was approved by the Montana State University College of Nursing Human Subjects Committee prior to data collection. The approval form has been filed with the Committee (see Appendix C).

Data Collection Procedures

Before beginning data collection, a panel of nurse experts was asked to complete the Recruitment and Initial Data Collection Packet (see Appendix D) and make critical comments in order to detect any unforeseen problems in the planned research methods. This review was conducted to test the contents of the packet for clarity, acceptability, readability, appearance, and time required for

completion. The nurse experts' comments led to minor revisions in the packet.

This study required two phases for data collection, each carried out in a different location. Data were initially collected from subjects receiving pregnancy care from nine obstetricians in a small northwestern community; this data provided demographic information and measured each participant's perceived level of social support. Subsequent data were obtained from post-delivery hospital chart review; this confirmed that subjects met the criteria for inclusion and measured pregnancy outcome. Permission to conduct the study at each location was obtained prior to initiating data collection (see Appendix B).

At the time of her routine prenatal examination, each pregnant woman between 25 and 28 weeks gestation was given the Recruitment and Initial Data Collection packet by office personnel in accordance with the researcher's verbal and written guidelines. The packet contained a cover letter describing the nature, duration, and purpose of the study, an informed consent-to-participate form, a questionnaire (PRQ85-Part 2), and a demographic data sheet (see Appendix D). Completed and refused packets were collected daily by office personnel until the one-month recruitment period was concluded.

Following completion of recruitment and initial data gathering, daily checks of the hospital records of the study volunteers enabled the gathering of information regarding: (a) demographic, medical, and obstetric factors identified as criteria for inclusion; and

(b) pregnancy outcome as measured by infant Apgar scores, size, gestational age, and normalcy. In order to maintain consistency in criteria to be included, identification of statistical risk factors was made through chart review by the researcher, not by office personnel. The total time period required for collection of data was 21 weeks.

Instrumentation

The PRQ85 is a two-part instrument designed and subsequently modified by Brandt and Weinert (Brandt & Weinert, 1981; Weinert, 1987) as a measure of social support. The PRQ85-Part 2 is a 25-item questionnaire designed with a seven-point rating scale, from 7 = strongly agree to 1 = strongly disagree, that measures the respondent's perceived level of social support. Development of this instrument was based on Weiss' (1974) five dimensions of relational provisions of social support. These dimensions include intimacy, social integration, nurturance, worth, and assistance. The 25 items are composed of five categories of statements representing each of these five dimensions. In order to reduce a response bias, one statement for each of the five dimensions is worded negatively, and requires recoding.

Significant moderate correlations between the PRQ85-Part 2 scores and scores of instruments measuring related constructs provide evidence of construct validity. "The direction and strength of these correlations is consistent with the conceptualization of the construct of social support" (Weinert, 1987, p. 274). With regard to confirmation of predictive validity and establishment of construct

validity, Weinert noted that, based on five years of investigation of the construct of support and testing of the PRQ, findings provided "strong evidence to the validity and reliability of the Personal Resource Questionnaire" (p. 276).

Demographic Data and Background Information

Information obtained from the demographic data sheet served three purposes. First, it supplemented chart records in ascertaining which volunteers met the criteria for inclusion in the study. Second, it contributed to development of normative profiles of study participants. Third, the last section contained five questions developed to elicit each participant's perceptions regarding her unborn child. In order to be consistent, these questions were designed utilizing the PRQ85-Part 2 format, a rating of each of the five items on a seven-point scale. The range of possible total scores was from a low of 5, which indicated the lowest level of perceived infant support possible, to a high of 35, which indicated the highest level. This last section was placed with the demographic data sheet to avoid its being misconstrued as a part of the PRQ85-Part 2.

Pregnancy Outcome Chart Review

Since pregnancy, labor and delivery, and newborn care for the entire sample was provided by professionals using the same facilities, standards of care, and record forms, records were considered to be uniformly reliable. Pregnancy outcome was determined by postpartum infant chart review to document Apgar scores, size, gestational age, and normalcy. Outcome was initially scored as either positive or

adverse. Because any of the four preceding criteria might have demonstrated a relationship to perceived level of social support, each criterion was subsequently examined independently; rationale for use of these criteria follows.

Apgar scores. To facilitate early identification and management of special needs, the Apgar scores are widely used to evaluate the newborn's adaptation to extrauterine life, based on five characteristics (see Appendix A). These characteristics are heart rate, respiratory effort, muscle tone, reflex irritability, and color. For each characteristic, a score of 2 is given if it is normal, 1 if not normal, and 0 if extremely abnormal or absent. Evaluation of characteristics is made at one and five minutes of life and if the score is 7-10 and 8-10, respectively, the infant is considered normal and no intervention is required. Infants receiving scores of 0-6 and 0-7 at one and five minutes of life, respectively, are more likely to suffer long-term neurological deficits (Streeter, 1986). Perinatal asphyxia and prematurity account for two-thirds of all deaths of newborns and are the primary contributors to physical and mental deficits among the survivors (Ziai et al., 1984).

Size and gestational age. Classification of all newborn infants according to birth weight, growth standards, and gestational age is widely practiced (Auvenshine & Enriquez, 1985). This is a way of judging maturity and size of the infant at birth in order to identify potential or real health problems. Estimation of the infant's gestational age is based on such physical signs as creases on the soles of the feet. Sizing of the infant is done by weighing the infant and

relating the weight to gestational age using a special graph. In order to determine appropriateness of other body proportions to size for gestational age, length and head circumference are also obtained. Specific morbidities are associated with body measurements inappropriate in relation to each other and/or inappropriate for gestational age (Lubchenco, 1981). Birth weight in relation to gestational age is a predictor of health problems, since the lowest morbidity rate occurs in infants born at term with birth weight slightly above average, and deviation in weight or gestational age from the standard results in increased neonatal mortality and morbidity (Lubchenco & Koops, 1987). A scoring system for growth standards and gestational age, such as the Dubowitz examination, is commonly used (see Appendix A). This method of determining gestational age is accurate to within two weeks (Lubchenco & Koops, 1987; Ziai et al., 1984).

Physical assessment of normalcy. Physical assessment of all newborns is standard practice and includes appraisal of both physical characteristics and neurologic integrity (see Appendix A). "Examined together, these parameters provide significant information on the likelihood of mortality, morbidity, and even specific morbidity" (Lubchenco, 1981, p. 13).

Statistical Analysis

Three statistical tests for significance of relationships were utilized: chi-square analysis, two-sample t-test, and Pearson's Product Moment Correlation Coefficient. The chi-square analysis was

used to determine significant differences in trends or patterns of ordinal data distribution in two groups of subjects. The ordinal data in this study were ranges of income. The two groups of subjects were the positive pregnancy outcome group and the adverse pregnancy outcome group. Two sets of frequencies, those observed in the data and those expected if there were no relationship, were compared for each category and group. The chi-square analysis is a nonparametric test commonly used to determine group differences in nominal and ordinal data.

The two-sample t-test was used to determine if there were significant differences between the means of two groups of interval data. The interval data were PRQ85-Part 2 scores, years of education, and infant support scores. The pairs of groups for which means were compared included positive and adverse pregnancy outcome, full- and pre-term infants, and average- and large-for-gestational-age infants. Groups classified as post-term, small, or normal and not-normal were not compared because only one infant or none was identified for each of these groups. This difference-between-means test is parametric, requiring interval data.

The Pearson Product Moment Correlation Coefficient was used to measure the degree of association between two sets of observations. Birth weight and Apgar scores were correlated with PRQ85-Part 2 scores, mothers' years of education, ranges of income, and infant support scores. Sets of observations consisted of interval data except income, which was ordinal.

CHAPTER 4

RESULTS

Application of Cronbach's alpha for internal consistency to the Personal Resource Questionnaire85-Part 2 (PRQ85-Part 2) (Appendix D) produced an alpha value of .89, suggesting that the responses were internally stable and that the pattern of responses was reliable. A summary of reliability estimates of internal consistency from four previous studies utilizing the PRQ85-Part 2 demonstrated that alpha values ranging from .87 to .91 were the norm (Weinert, 1988).

Forty-five subjects were included in the main study. This chapter presents an examination of the data obtained. The purpose of analysis was to describe relationships between the variables of interest.

Examination of Variables of Interest

Major variables of interest initially examined included perceived level of social support and pregnancy outcome. Pregnancy outcome was analyzed according to each of its subcomponents: Apgar scores, size, gestational age, and normalcy. Additional variables of interest examined were education, income, a measure of the pregnant woman's perceived level of infant support, and pregnancy outcomes of the subgroup of original volunteers who did not meet the criteria because of recognized statistical risk factors.

Major Variables: Perceived Level of Social Support and Pregnancy Outcome

Of the 45 subjects included in this study, 29 gave birth to infants who met all criteria for classification as positive pregnancy outcomes. The infants of the remaining 16 subjects did not meet all criteria and were classified as having adverse pregnancy outcomes. Five had low one-minute Apgar scores, two had low five-minute Apgar scores, eight were large for gestational age, one was small for gestational age, three were pre-term, and one had physical abnormalities. The number of adverse outcomes listed is greater than the total subject number of 16 because several infants had more than one adverse finding.

After determining by F-test that the variances of the PRQ85-Part 2 scores for both positive and adverse pregnancy outcome groups were homogeneous, the data were pooled. A two-sample t-test was applied to determine if there were significant differences between the means of the PRQ85-Part 2 scores, which measured perceived level of social support, for positive and adverse pregnancy outcome groups. Results demonstrated that the mean PRQ85-Part 2 score was slightly higher for the adverse outcome group ($\bar{x} = 153$) than for the positive outcome group ($\bar{x} = 151$), but there was no significant difference between the groups [$t(43) = -0.377, p > .05$].

Perceived Level of Social Support and Pregnancy Outcome Subcomponents

Apgar scores. For the 45 infants in this study, two components of Apgar scores were examined: one-minute scores and five-minute scores.

Five infants had adverse scores at one minute. Two of these infants had adverse scores at five minutes. Results demonstrated a moderately positive correlation between PRQ85-Part 2 and each Apgar score component (see Table 1).

Table 1. Correlation between Apgar scores and PRQ85-Part 2 scores (n = 45).

Apgar Score	PRQ85-Part 2 Correlation
One minute	.39
Five minutes	.40

Size. At birth, several measures of infant size were obtained: weight, length, and head circumference. These measures were then compared with the estimated gestational age (EGA) in order to determine if the infants were large for gestational age (LGA), appropriate for gestational age (AGA), or small for gestational age (SGA), and also to determine if the measures were in correct proportion to each other. In this study, LGA and SGA infants were classified as adverse pregnancy outcomes. None of the infants measured was found to have disproportional measurements. Of the three measures, weight is the most important variable in relation to gestational age and, therefore, was examined most closely. Of the 45 subjects, 36 gave birth to infants who were AGA. Eight of the subjects had infants who were LGA. Only one infant was SGA and, therefore, testing of this category was inhibited. Differences in PRQ85-Part 2 scores between the AGA group and the LGA group were investigated using the two-sample t-test. While

no significant difference was found between PRQ85-Part 2 scores of women who gave birth to either LGA or AGA infants, the average PRQ85-Part 2 scores for the mothers of LGA infants were higher than the scores for mothers of the AGA group [$t(42) = -0.242, p > .05$].

Mean weight for all infants was 3340 grams; mean PRQ85-Part 2 score was 152. Mean weight for LGA infants was 3978 and mean PRQ85-Part 2 score was 154. A moderately positive correlation ($r = .38$) was found between PRQ85-Part 2 score and birth weight for all 45 infants.

A scattergram (see Figure 2) was plotted to qualitatively demonstrate the degree of association between perceived level of social support and birth weight. Figure 2 indicates one SGA infant who was very low in both birth weight and maternal PRQ85-Part 2 score. Excluding that single infant, the positive relationship between PRQ85-Part 2 scores and birth weights appears to increase at a slow rate, reaching essentially no relationship between the variables for the LGA group.

To investigate the influence the extreme SGA score had on overall correlation between PRQ85-Part 2 score and birth weight, the correlation for each of the other groups, AGA and LGA, was computed. A low positive correlation ($r = .13$) for the AGA group, and a very low negative correlation for the LGA group ($r = -.03$) were found.

Gestational age. Of the 45 infants, three were pre-term (EGA < 38 weeks) and none were post-term (EGA > 42 weeks). Current practice generally does not allow a pregnancy to continue beyond an estimated 42-week gestation. Although the average perceived level of

