

Social Networks and Social Support Perceived by
Professionally and Nonprofessionally Employed
Pregnant Women

by

Laura A. Koppenhoefer, R.N., B.S.N.

A Thesis

Presented to
The Oregon Health Sciences University
School of Nursing
in partial fulfillment
of the requirements for the Degree of Master of Science
June 1990

Copyright 1990 Laura A. Koppenhoefer

APPROVED:

[REDACTED]

Margaret Imle, R.N., Ph.D., Associate Professor of Nursing

Thesis Advisor
[REDACTED]

Virginia P. Tilden, R.N., D.N.Sc., F.A.A.N., Professor of
Nursing

First Reader

[REDACTED]

Louise Martell, R.N., Ph.D, Assistant Professor of Nursing

Second Reader

[REDACTED]

Carol A. Lindeman, R.N., Ph.D., F.A.A.N., Dean

School of Nursing

This study was supported in part by traineeships from the Professional Nurse Traineeship Program, grant numbers 2 A11 NU00250-12 and 2 A11 NU00250-14.

ACKNOWLEDGEMENTS

The following people and groups are acknowledged with heartfelt gratitude:

Margaret Imle, for her unwavering support and encouragement, and for believing in quality master's research.

Virginia Tilden, for her mentorship in social support and constant encouragement.

Louise Martell, for her valued editorial suggestions and humor through writing and data collection.

Jonathan Fields, for his willingness to help overcome the problems associated with data analysis.

Yvonne LeVernois, Pam Curtis-Buss, and Lori Casteel, for help only true friends can give with data verification, tool revision, and reference checking.

Child Birth Educators and Emanuel Hospital, for their interest, encouragement, and willing cooperation.

Little Tikes and First Years, for providing the toy and infant product pamphlets for this research.

Pilot study and research participants, for their time and interest in sharing their stories and concerns during this special time in their lives.

Rod Koppenhoefer, my husband, for going with me to the "ends of the earth" to get my master's and without whose help it would not have been possible (or fun).

Erica Koppenhoefer, my daughter, for all the hugs and kisses I could ever need and for helping me learn just how important family nursing is.

David and Marion Harding, my parents, and all my family and friends, for their confidence in me and their endless stream of prayers.

TABLE OF CONTENTS

CHAPTER	PAGE
I INTRODUCTION.....	1
REVIEW OF THE LITERATURE.....	4
WORK IN WOMEN'S LIVES.....	4
WORK AS AN ACTIVITY.....	4
Professional versus nonprofessional work...	6
WORK AS A SETTING.....	8
IMPLICATIONS OF WORK FOR HEALTH.....	9
Health of women working in a professional role.....	12
WORK AND PREGNANCY.....	16
NONNURSING LITERATURE ON WORK AND PREGNANCY....	16
NURSING LITERATURE ON WORK AND PREGNANCY.....	18
SOCIAL SUPPORT AND SOCIAL NETWORKS.....	20
DEFINITION, CONCEPTUALIZATION, AND MEASUREMENT OF SOCIAL SUPPORT.....	21
SOCIAL NETWORKS AND HEALTH.....	23
SOCIAL NETWORKS, SOCIAL SUPPORT, AND PREGNANCY.....	24
NEED FOR AND SATISFACTION WITH SOCIAL SUPPORT..	29
WORK, SOCIAL NETWORKS, AND SOCIAL SUPPORT DURING PREGNANCY.....	31

	CONFLICT IN SOCIAL NETWORKS OF PREGNANT	
	WORKING WOMEN.....	34
	CONCEPTUAL FRAMEWORK.....	35
	CONCEPTS.....	36
	DEFINITION OF VARIABLES.....	37
	Employment.....	37
	Professional employment.....	37
	Nonprofessional employment.....	38
	Social network.....	38
	Social support.....	38
	Needed social support.....	39
	Received social support.....	39
	Satisfaction with social support.....	39
	Conflict.....	39
	RESEARCH QUESTIONS.....	39
II	METHODS.....	41
	DESIGN.....	41
	SAMPLE.....	41
	SETTING.....	42
	INSTRUMENTS.....	43
	SOCIAL NETWORK INVENTORY.....	43
	INTERPERSONAL RELATIONSHIP INVENTORY.....	47
	PROCEDURE.....	48
	ANALYSIS.....	50
III	RESULTS.....	55
	SAMPLE DESCRIPTION.....	55

RESEARCH QUESTIONS.....	60
RESEARCH QUESTION 1.....	60
RESEARCH QUESTION 2.....	71
RESEARCH QUESTION 3.....	77
RESEARCH QUESTION 4.....	81
RESEARCH QUESTION 5.....	83
RESEARCH QUESTIONS 6 AND 7.....	83
RESEARCH QUESTION 8.....	86
IV DISCUSSION.....	88
SAMPLE OF NONPROFESSIONALLY AND PROFESSIONALLY EMPLOYED WOMEN.....	88
SOCIAL NETWORK CHARACTERISTICS.....	91
NETWORK SIZE.....	91
NETWORK COMPOSITION.....	92
NETWORK MEMBERS WHO ARE PREGNANT OR PARENTS OF CHILDREN UNDER FIVE YEARS OF AGE.....	94
DAYS BETWEEN CONTACT WITH NETWORK MEMBERS.....	97
SOCIAL SUPPORT.....	100
NEEDED AND RECEIVED SUPPORT.....	100
SATISFACTION WITH SUPPORT.....	103
SOCIAL SUPPORT FROM CO-WORKERS.....	104
PERCEIVED SUPPORT FROM ALL CO-WORKERS.....	104
TYPES OF SUPPORT RECEIVED FROM CO-WORKERS IN WOMEN'S LISTED SOCIAL NETWORKS.....	108
Types of support in the professionally employed group.....	111

	Types of support in the nonprofessionally employed group.....	111
	CONFLICT IN CO-WORKER RELATIONSHIPS.....	114
V	SUMMARY, LIMITATIONS, AND IMPLICATIONS.....	118
	LIMITATIONS.....	123
	IMPLICATIONS FOR NURSING THEORY.....	124
	IMPLICATIONS FOR NURSING PRACTICE.....	125
	IMPLICATIONS FOR NURSING RESEARCH.....	126
	REFERENCES.....	129
	APPENDICES.....	137
	A. U.S. CENSUS BUREAU JOB CLASSIFICATION.....	137
	B. SNI PILOT STUDY.....	146
	C. ASSUMPTIONS.....	152
	D. RESEARCH PACKET.....	154
	E. PERMISSION TO RECRUIT SUBJECTS.....	166
	F. PRESENTATION TO CHILDBIRTH CLASSES.....	168
	G. ANALYTIC PROCEDURES FOR EACH VARIABLE.....	172
	ABSTRACT.....	175

LIST OF TABLES

TABLES	PAGE
1. Summary of Research Questions, Variables, Scales and Analysis Methods.....	53
2. Previous Pregnancies Reported by Nonprofessionally and Professionally Employed Pregnant Women.....	57
3. Mean Age and Years of Education of Nonprofessionally and Professionally Employed Pregnant Women.....	58
4. Frequencies of Degrees Earned and Marital Status for Nonprofessionally and Professionally Employed Pregnant Women.....	59
5. Frequencies of Number of Hours Worked per Week and Income for Nonprofessionally and Professionally Employed Pregnant Women.....	61
6. Network Size of Nonprofessionally and Professionally Employed Pregnant Women.....	62
7. Mean Number of Members in Each Network Subgroup for Nonprofessionally and Professionally Employed Pregnant Women.....	64
8. Proportion of Nonprofessionally and Professionally Employed Pregnant Women's Networks Which Is Composed by Each Subgroup.....	65
9. Proportion of Nonprofessionally and Professionally Employed Pregnant Women's Networks Who Are Pregnant	67

10.	Proportion of Nonprofessionally and Professionally Employed Pregnant Women's Networks Who Are Parents of Children Who Are Less Than Five Years Old.....	68
11.	Number of Days Between Contacts With Members of Network Subgroups for Nonprofessionally and Professionally Employed Pregnant Women.....	70
12.	Proportion of Nonprofessionally and Professionally Employed Pregnant Women's Co-worker Networks Which Provides Emotional Support.....	73
13.	Proportion of Nonprofessionally and Professionally Employed Pregnant Women's Co-worker Networks Which Provides Material Support.....	75
14.	Proportion of Nonprofessionally and Professionally Employed Pregnant Women's Co-worker Networks Which Provides Information Support.....	76
15.	Proportion of Nonprofessionally and Professionally Employed Pregnant Women's Co-worker Networks Which Provides Comparison Support.....	78
16.	Correlations Between Scores on IPRI and SNI Part II Concepts.....	79
17.	Support Needed by Nonprofessionally and Professionally Employed Pregnant Women from Network Subgroups.....	80
18.	Support Received by Nonprofessionally and Professionally Employed Pregnant Women from Network Subgroups.....	82

19.	Nonprofessionally and Professionally Employed Pregnant Women's Satisfaction With Support from Network Subgroups.....	84
20.	<u>t</u> -test on Means of IPRI Co-worker Support and Co-worker Conflict Subscales for Nonprofessionally and Professionally Employed Pregnant Women.....	85

Chapter I

Although pregnancy and childbirth are exciting and happy times for thousands of women in the United States, not all believe that changes accompanying this transition to parenthood are beneficial to the women's work role. Blasko, O'Brien, Huester, and O'Brien (1989) found that pregnant women who were business managers were perceived by businessmen, businesswomen, and graduate and undergraduate business students to be less achievement-oriented, organized, responsible, and successful in business than men, regardless of their family status, and than women who were not pregnant. It is not known whether these perceptions are representative of all potential co-workers of pregnant professionally and nonprofessionally employed women; however it does raise questions about the nature of support in the social environment of the work place for these women. The purpose of this research is to describe the social networks and support provided by the networks to pregnant professionally employed women and contrast these findings with those of pregnant nonprofessionally employed women.

Changes in the demographic characteristics of American women help illustrate the need for studying the population of employed pregnant women, specifically those who are professionally employed. Since the 40% overall increase in men's and women's college enrollments in the United States between 1970 and 1980, growth in enrollments has slowed to 4% (National Center for Education Statistics, 1988).

However, women's enrollments continue to grow and exceed men's enrollments. Women's enrollments in professional graduate programs such as dentistry, medicine, and law rose from 8.5% to 36% of total enrollments between 1970 and 1986. Women's enrollments increased by 85% over the same period to a total of 52% of graduate enrollments in 1986 (National Center for Education Statistics, 1988). The labor force participation rate for women overall rose from 56.5% in 1970 to 67.1% in 1988; however, the participation rate for women with four or more years of college rose from 70.8% to 80.8% over the same time period (U.S. Department of Labor, 1988).

While these changes occurred in education and work, patterns in childbearing also changed to smaller families which started later in women's reproductive lives (Wilkie, 1981). Although the crude live birth rate (live births per 1,000 population) has decreased steadily from 23.7 in 1960 to 15.8 in 1985, in 1980 this rate increased in the age groups of 30 to 35 and 36 to 40 years. From 1980 to 1985, the crude live birth rates for these age groups rose from 61.9 to 68.5 and from 19.8 to 23.9, respectively (National Center for Health Statistics, 1988). Part of this delayed childbearing appears to be related to changes in education and employment. Of women with baccalaureate or higher degrees, 80% of the first births were at age 25 or more and 23% were at age 30 or older (National Center for Health Statistics cited in Killien, 1987).

As nurses, it is important to acknowledge these trends

and look for their potential impact on health. While health is usually indexed by measures of physical well being, it is affected by many factors, environmental and psychosocial. Studies about the negative biological effects of physical work environments on pregnancy have been reviewed by Chamberlain and Garcia (1983) and Bryant (1985). Unfortunately less is known about potential health hazards or benefits of social environments where women do professional and nonprofessional work. Before being able to understand how an employed woman's work environment affects her health in pregnancy, one must know more about the actual environment. Although the physical work environment is examined more frequently in the research literature (Mamelle, Laumon, & Lazar, 1984; Papiernik et al, 1985), the work environment of interest in this research is the social environment. While support provided by social networks has been related to health both in general and specifically to health in pregnancy, the social support experienced from co-workers by the population of employed women has not been studied. Information gained from this study will be of use in directing future nursing research with this population, in developing nursing theory, and in defining normative population information for nursing practice.

Review of the Literature

Social networks and social support of pregnant, professionally employed women have not been studied. Therefore, theory and research about related concepts are presented, both individually and in various combinations. These concepts are work, social support, and social network. Important interactive parts of a woman's life, for example her personal development, health, work, and social networks, are thought to be affected by her pregnancy. Reciprocally, these same factors seem to influence pregnancy health. After examining the research on work, social support, and social networks, the importance of these concepts in relation to women's health is stated and a conceptual framework is described.

Work in Women's Lives

In the following sections work as an activity and as an environment are defined and discussed as are various qualifiers of work. Research on health implications for employment, in general, and for professional employment, specifically, is discussed using a role theory approach. A summary of perspectives on work in general is presented.

Work as an Activity

In their theoretical explanation of women's adult development, Brennan and Rosenzweig (in press) defined work as "any activity which results in the production of goods or services" (p. 12). This definition, although appropriate for their use, is open for individual interpretation. So

defined, work could include a variety of activities, both paid and unpaid activities occurring inside and outside the home. Work activity also may be classified by the amount of time spent at the activity or work, for example, part-time (less than 35 hours per week) or full-time (35 hours or more per week) (U.S. Department of Labor, 1986). Work activity may also be categorized by the educational preparation that is necessary for the position, for example, high school education for some service oriented positions and graduate education for many professional positions.

The relative degree of commitment required in education, time, and energy to perform one's work can be used for classification. In their study of professionally employed married women, Poloma and Garland (1971) based their definition of career on a hierarchical classification from the work of both Freed and Rapoport and Rapoport (cited in Poloma & Garland, 1971). Job was an activity performed. Task was a job plus accomplishment. Occupation added mastery, pleasure, responsibility, identity, objectives and goal to the notion of task. Finally, career additionally implied a high personal salience, a developmental sequence, and a great amount of commitment. It is important to note that accomplishment, or achievement, is considered a part of work at all but one level -- job. Brennan and Rosenzweig (in press) have stated that achievement through work is an important part of development also for all women.

Although Poloma and Garland's (1971) definition of

career distinguished between career-oriented work and other types of employment, professional work is not as easily distinguished from nonprofessional work. There is little consensus beyond the established professions of law, medicine, engineering, and academia about how professional work is defined, especially for women. Researchers studying professionally employed women have refuted the assumption that professional work implies a career path (Poloma, 1970; Poloma & Garland, 1971); rather, they found that many women who are professionally trained may elect to work at an advanced level without the development, and to a certain degree, the commitment referred to earlier.

Professional versus nonprofessional work. Professional employment typically implies paid work, outside the home on a full-time basis, requiring advanced (usually graduate) education and commitment. Although some of the lesser distinguishers could be argued, such as the actual location of the work and the amount of time spent on the job, some qualitative difference between professional and nonprofessional employment exists. It is assumed that some qualitative difference exists, also, between the women who are employed in these two different realms. This difference may be some combination of psychosocial characteristics, such as career motivation, intelligence, and/or economic resources to pay for education.

The tendency of past researchers has been to restrict samples to ones where there were overt differences between

certain professional and nonprofessional groups. For example, O'Rourke (1986) used a university setting for the study of psychological well-being of employed women. Women with academic positions were the professionals and those women with support staff positions were the nonprofessionals. In a descriptive study of college men's and women's occupational choices, Regan and Roland (1985) assigned professional designation to vocations which accrued "elements of prestige, high income, and upward social and occupational mobility" and usually required "both postgraduate training and long-term personal commitment to the solidarity of the profession" (p. 987).

A problem in defining professional work comes from the common use of the word "professional" to describe how one works, for example in a conscientious or businesslike manner. The word is often used by people who assert that they are the best at what they do, for instance "professional" window cleaners. These uses of the word professional are not examples of the definition of professional used in the present research study. Despite the variety of professional and occupational work categories proposed by other researchers, the most standard way to define professional status seems to be the classified index of occupations used by the U.S. Census Bureau (U.S. Department of Commerce, 1982) (see Appendix A). This index is used to classify industries, occupations and classes of workers. Occupations are separated into six major group

titles which are:

1. managerial and professional speciality occupations,
2. technical, sales, and administrative support occupations,
3. service occupations,
4. farming, forestry, and fishing occupations,
5. precision production, craft, and repair occupations, and
6. operators, fabricators, and laborers.

Work as a Setting

Although work is usually defined as an activity one performs, work is often referred to as a place one "goes to", a setting or environment. For the current study, it is important to note that the environment includes not only the physical setting and resources but also the social milieu. Variation among people in the work area may be greater than variation in physical surroundings. For example, one female attorney may practice out of her own free-standing office where she is assisted only by a secretary, whereas, another attorney may work in a larger practice team where she shares the same support staff with other attorneys, some of whom may be senior members or fellow partners.

Brennan and Rosenzweig (in press) suggested that the social environment of work was important because it filled the woman's need for affiliation with other people (Stewart & Malley, 1987; Brennan & Rosenzweig, in press). The experience of being affiliated with persons at work and the

roles played by these affiliates are less described in research literature on women's work. Practical knowledge suggests that a work setting in which there is a social environment of supportive superiors, co-workers, and/or subordinates would be more conducive to positive feelings about work and work performance. According to Brennan and Rosenzweig's (in press) model, a woman's self-understanding grows as her work affiliates provide her with one means to assess her value and abilities. This suggests that there may be an improvement in mental health for women whose work allows for growth in self-understanding.

Implications of Work for Health

The majority of research about health effects of work has been related to men's work and been done using samples of men (Baruch, Biener, & Barnett, 1987). While it was hypothesized that as women entered the work force they would suffer the same untoward effects on health from their work as did men (e.g., ulcers, coronary heart disease), experience has shown this prediction has not materialized. Why women have not experienced these problems to the extent predicted is unclear. Hypotheses range from true gender differences in physical health, differences in typical jobs, and/or differences in primary satisfactions from jobs (LaCroix & Haynes, 1987).

Role theory, in some form, has been used frequently to understand the health effects of multiple roles for women who work outside the home. Unfortunately, there are

conflicting hypotheses about how multiple roles affect health. The first hypothesis is the scarcity hypothesis (Goode, cited in Barnett & Baruch, 1987). The basic premises are that the amount of energy an individual has is limited and that social organizations tend to demand total allegiance from their members; hence, roles at home may be slighted. The more roles an individual assumes, the more likely are role strain and subsequent psychological distress to develop. Barnett and Baruch (1987) explained that the scarcity hypothesis was based on men's experiences in organizations. Their criticism of this theory was its presumption that the role of paid employee was an auxiliary role for women, that the women's role at home was the main role, and that women had limited resources and were unable to meet both home and workplace demands.

The expansion hypothesis, also described by Barnett and Baruch (1987), offered a competing argument about human energy. It purported that benefits such as self-esteem and financial remuneration outweighed the detriments of multiple roles. Although originally tested with males only, the enhancement hypothesis had been found by recent reviewers of research to work for women also (Barnett & Baruch, 1987). Verbruggen (1983) demonstrated the health benefits of combining employment, marriage, and parenthood roles. Verbruggen commented that with the appropriate social supports and coping skills, women of today can have multiple roles and the associated benefits. Verbruggen also noted,

however, that this study concentrated on the correlation of health effects with role occupancy only and not what it was like to occupy these roles. She questioned whether the stresses and satisfactions, or the quality, associated with roles might have more to do with health than the number of roles alone.

In a study using qualitative methods, Stewart and Malley (1987) linked certain qualities of multiple roles for working women with greater emotional and physical health. These qualities were agency and communion. Agency was defined as autonomous achievement that was usually derived from work outside the home but by no means limited to that arena. Communion was defined as connectedness and attachment. They argued that these qualities ideally should be in balance between and within roles. As roles multiplied, opportunity for agency and communion increased.

Since the 1960s, employed women were documented to have a lower incidence of limited activity, to report fewer chronic conditions and to have fewer impatient hospital days as compared to unemployed women (U.S. Department of Health, Education, and Welfare, cited in Hibbard & Pope, 1985). Hibbard and Pope (1985) described this phenomenon in their study of 1,140 health maintenance organization subscribers in which they examined general health status as measured by self-report, the Langer Mental Health Index, and mean annual number of non-obstetrical patient days. Strongest correlations with health were found for employed women who

had high social support from, and integration with, their co-workers. Using U.S. Census Bureau classification for occupations, professionals scored among the highest on both social support and integration.

According to the research findings of Verbruagge (1983) about three possible roles of employment, marriage, and parenthood, employment was the strongest positive predictor of women's health. An unfortunate problem with research such as that of Verbruagge (1983) and Hibbard and Pope (1985) is that nonexperimental correlational analysis, often the only appropriate analysis when independent variables cannot be clearly manipulated, cannot identify causation. Concurrent variables found to have significant associations may be related by chance or by influence from other variables yet undiscovered. Because of this there is no way to know answers to such questions as "Are women healthy because (or in spite) of their work?" or "Do only healthy women work?"

Health of women working in a professional role. From the literature on work and health in general, work, at its best, may benefit women's health and usually, at its worst, may not cause physical harm unless there are environmental hazards. As mentioned earlier, increasing numbers of women are choosing to prepare themselves for professional work (O'Rourke, 1986). Although professional work does not necessarily imply a career path, by definition, professional work differs from nonprofessional work based on criteria

such as the actual job tasks performed and educational requirements (Poloma, 1970; Poloma & Garland, 1971). The majority of literature and research on the health of professionally employed women uses a role theory perspective. Instead of examining the actual work activity, this research focuses on the professional woman's work role in comparison with other roles held by the woman.

Johnson and Johnson (1976) described the phenomena of role strain which resulted from role proliferation, the addition of dissociated and disparate roles (e.g., mother-housekeeper and attorney), that require high commitment. Of interest for the present study, they proposed that men find it easier to get support for their roles at work from status peers than do women because of "old boy networks" and because professional fields are traditionally dominated by males.

Gilbert, Holahan, and Manning (1981) also used a role theory perspective to assess the strategies women used for dealing with conflict between professional and maternal roles. The investigators defined career as a job which required a high degree of commitment and had a developmental nature. Subjects ($n = 22$) were married parents who had master's degrees or higher and were full-time university employees in positions commensurate with their education. Through a questionnaire with open- and closed-ended responses, subjects were asked to describe elements of their professional and maternal roles, rate conflict between the

roles, and discuss strategies for dealing with this conflict. In this study, spouse support was important for all the professionally employed women. Qualities of professionally employed women were also described, including high self-esteem, liberal attitudes on women's roles, high aspirations and commitments, and extreme satisfaction with the professional role.

O'Rourke (1986), a nurse, used a cross-sectional correlational approach to examine the psychological well-being of employed women in relation to social, demographic, employment and health variables. Of 4,653 female university employees, 1,179 women completed the survey with 633 of these meeting the criteria for inclusion. All women who were pregnant or lactating within the last six months were excluded. Women were 21 to 44 years of age. All had moderate to high psychological well-being as measured by the General Well-Being Schedule (PWB). The PWB measured three concepts of distress, mental health, and positive well-being. On the variable of interest here, employment, there was a weak relationship between employment and psychological well-being with those women in academic positions having greater psychological well-being than women in staff positions (Kendall's tau = .12, $p < .01$). In this sample, 88.72% were employed in staff positions and 11.28% in academic positions. Generalizability is limited because of unequal representation between the staff and academic positions, the 25% response rate, and the uniqueness of the

academic setting as compared to other types of professional work settings.

To assess stress experienced by professionally versus nonprofessionally employed women, two researchers in psychology and disease prevention developed and administered a survey to assess work and household situations, work and home stressors, received social support, and perceptions of what programs might help women meet multiple demands (King & Winett, 1986). No reliability or validity data were reported. Subjects were employed at a university or a social service agency. Half were professionally employed workers, and half were clerical workers. Of the clerical women, 64% reported that their primary reason for working was economics, whereas 62% of the professionally employed women worked primarily for personal fulfillment or advancement. Social support was important to both groups. Seventy-five percent of the clerical workers rated tangible support the highest, for example, baby sitting or help at home. On the other hand, 65% of the professionally employed women valued more the intangible support such as having someone with whom to talk. Women in both groups (70%) valued the opportunity to talk with women in similar circumstances.

From examination of a portion of the literature on professionally employed women, special qualities of professionally employed women emerge. These qualities included potential difficulty in obtaining support at work,

the importance of spouse support, high psychological well-being, and the need for fulfillment and advancement.

Work and Pregnancy

In the previous sections, it was established that the work a woman performs is related in some way to the woman's health, either by some direct effect or perhaps by virtue of work role demands in relation to other role demands.

Brennan and Rosenzweig (in press) have stated that work is important for the woman as a place to affiliate with others and as an avenue for achievement. The literature reviewed thus far does not describe the relationships between work and health in pregnancy. Although health in pregnancy is being defined holistically for the present study, literature concerning work during pregnancy does not consistently reflect a holistic perspective. The purpose of this section is to review literature from inside and outside nursing which relates work and pregnancy health.

Nonnursing Literature on Work and Pregnancy

Two published literature reviews from physicians, Chamberlain and Garcia (1983) and Bryant (1985), are representative of the current medical approach to work during pregnancy which addresses concerns for biological health. The influence of physical, chemical, and biological environmental hazards at work was of special concern in early pregnancy because of the risk of altering fetal development. However, there were mixed reports on the impact of paid work on pregnancy. Physically tiring work

and long work weeks were discussed in relation to preterm birth. The social environmental considerations mentioned were limited to socioeconomic status and the social climate, (eg., maternity benefits and sick leave) rather than social relationships. There was no mention of the interpersonal social nature of employment and its potential benefits or detriments to women's health in pregnancy.

The risk of premature delivery for pregnant women who work outside the home was addressed by the studies of two sets of French researchers. In 1971, a French national perinatal policy was initiated to attempt to reduce the numbers of preterm births (before 34 weeks gestation) in France (Papiernik et al., 1985; Papiernik et al., 1986). Through implementation of three coordinated programs, the incidence of preterm births was significantly reduced. The three programs were a risk factor scoring system specifically designed for this study, a program of education providing specific information on preterm delivery for the women, and a program for the reduction of physical effort including work outside the home. With implications for the proposed study, when the French sample of women was separated into three categories by educational level (≤ 8 years, 9 - 12 years, and ≥ 13 years), the significant decline in premature births came from the portions of the sample with lower education. There was no significant decline in premature births in the population with education greater than or equal to 13 years; this group also had the

lowest premature delivery rate at the onset.

In another French study, Mamelle, Laumon, and Lazar (1984), attempted to determine exactly what elements of occupational activity in pregnancy caused fatigue and hence posed risk for premature delivery (< 37 weeks gestation). A quantitative fatigue scoring system was developed from an analytic breakdown of job into its component parts; these were, "posture, work on industrial machine, physical exertion, mental stress, and environment" (Mamelle et al., p. 310). Women were found to be at significantly higher risk for premature delivery when they had high scores on three or more categories of occupational fatigue. This risk was increased if occupational fatigue occurred in a primiparous woman or in a multiparous woman with a history of premature births.

The Papiernik et al (1985) and Mamelle et al (1984) studies were examples of research relating work which has some physical strenuousness to an aspect of health in pregnancy, premature delivery. Unfortunately, they gave no guidance on the relationship between nonphysically strenuous work, for example professional work, and other aspects of health in pregnancy, both physical and psychosocial.

Nursing Literature on Work and Pregnancy

Research in the published nursing literature suffers from some of the same deficits as nonnursing literature; however, it is beginning to address the issues of relevance for this study. One new interest area in nursing is that of

occupational commitment and the potential impact of this commitment on childbearing issues. For example, Killien (1987) examined the relationship between "career commitment and childbearing values, intentions, and behaviors" (p. 121) of 115 professionally employed women with advanced degrees. Riesch (1984) examined the relationship between occupational commitment and the quality of maternal-child interaction. Although neither of these researchers addressed pregnancy related issues, they did focus on issues related to nonphysical work.

Winslow's (1987) qualitative description of the experience of pregnancy for women over 35 years of age has relevance for the professionally employed population. Winslow commented that the professional literature documented many of the medical and genetic risks of childbearing at this age but did little to describe "the psychosocial implications of a first pregnancy in these women" (p. 92). Twelve women, aged 35 to 44, and their husbands were interviewed. Eight of the women were employed full time, and all were well educated. Winslow used grounded theory methodology (Glaser & Strauss, 1967) to develop what Winslow termed "Pregnancy as a Project" (p. 93). Four phases of this project were described, planning prior to pregnancy, "seeking safe passage" through mid-pregnancy, "the reality of now," and planning for the future, both in the last half of pregnancy (p. 94-95). Of special interest to the current study are the concerns

expressed by the professionally employed women about their pregnancies. During the third phase these women felt as though they were undergoing a transition. They were experiencing fatigue and found it difficult to maintain their previous level of professional activity. They also voiced concern about their ability to project a professional appearance as they gained weight and changed to maternity clothes. In the final weeks of pregnancy these women expressed concerns about how their new role as a mother would fit with their work role.

These three nursing studies addressed work and pregnancy from a more holistic perspective, including psychosocial as well as biological concerns. Also, more emphasis on a "wellness" or developmental transition approach (Winslow, 1987) was used as compared to an illness approach or medical model. Unfortunately, with the exceptions of Winslow's brief comments and Killien's (1987) study, none of the nonnursing or nursing studies specifically addressed issues related to professional employment and pregnancy.

Social Support and Social Networks

It is a common belief in social, psychological, and health sciences that social support and the networks that provide support are significantly related to individual health. Unfortunately, this is almost the only point of agreement in the field of social support and social networks. The purpose of this section is to discuss issues

related to definition, conceptualization, action, and measurement of social support as provided by social networks. Specific research on these topics in the context of pregnancy will be presented later.

Definition, Conceptualization, and Measurement of Social Support

Although social support has been defined in many ways, a few definitions are provided here to illustrate this diversity. Cobb (1976) defined social support using intangible qualities such as information that leads a "subject to believe that he is cared for and loved," "esteemed and valued," and "belongs to a network of communication and mutual obligation" (p. 300). Others included tangible aid. For instance, Kahn and Antonucci (1980) described social support as the interpersonal transactions which provide affect, affirmation and/or aid (service or material supplies). House (1981) listed four types of social support that encompassed support described in other definitions. They were emotional support, appraisal support, information support, and instrumental support. However, Brown (1986a) suggested that the use of a multidimensional perspective to define social support should be done with careful consideration. Although support behaviors rather than social support were measured, Brown used Weiss' (1969) model of functional relations to assess whether or not social support really was a multidimensional concept. Through extensive testing of the Support Behaviors

Inventory (SBI), Brown demonstrated in her study that emotional support was the only variable of primary importance.

These diverse definitions are associated with equally diverse theoretical conceptualizations (Tilden, 1985) including attachment and role theory; stress, coping and adaptation; social exchange theory; interactionist theory; and host resistance and vulnerability. Social support may be a concept in the broader framework of social relationships in which reciprocity and cost are inherent. Tilden stated that when one was given social support, support in some form was usually expected in return. The cost of this exchange of support could be in time, energy or goods. Because of these inherent factors of social relationships, it was likely that stresses or conflict in a relationship might result. Tilden also suggested that regardless of approach, theoretical grounding of measures was essential to the production of quality research.

Although social support and social network measures vary in sophistication, theoretical base, reliability, and validity, Tardy (1985) identified five conceptual issues related to measurement of social support which researchers can use when assessing these tools. These were direction, disposition, description or evaluation, content, and network. First, direction referred to support as either given or received. Tardy suggested that most studies examined support as it was received. Second, disposition of

support could be either available or enacted. In other words, support was accessible if needed or support was actually received. The third issue was one of intent to either describe the support or to evaluate the support on some quality, for instance satisfaction with support. Content relates to questions such as what kind or type of support was available. Tardy listed the four types of support suggested by House (1981), emotional, instrumental, informational, and appraisal. Last, Tardy made a list of individuals such as family, friends, neighbors, co-workers, community, and professionals, who might be included in a supportive network, the fifth issue.

Social Networks and Health

Kahn and Antonucci (1980) described the network of supporters as a convoy from which support was received across the life span. The convoy could be depicted as a set of concentric circles with the individual in the center and the persons having most meaning to the individual occupying spots closest to the center. As the individual passed through life, the inner circles stayed most stable, while outer circle members changed.

Berkman (1984) summarized potential links between social networks and health. First, social networks may help individuals get better medical care, thus improving health. On the other hand, the network itself may provide care of some form which improves health. The individual's health may be a reflection of the behaviors of the network; to the

extent the network has healthy behaviors, so does the individual. Last, absence of a social network may cause stress, thereby increasing the chance for illness.

Social Networks, Social Support, and Pregnancy

Unlike the scarcity of research about the combination of employment and pregnancy, social support and social networks during pregnancy and childbearing have been studied extensively. As previously mentioned, the generalizability of social support and social network research has been limited by the lack of consensus on the definition and conceptualization of social support (Tilden, 1985), by the variety of proposed mechanisms of action of social support on health (Berkman, 1984; Barrera, 1986), and by varying sophistication, reliability, and validity of measures. Social support has been paired with many other variables in pregnancy research, for example, other psychosocial assets and life crisis (Nuckolls, Cassel, & Kaplan, 1972), and life stress and emotional disequilibrium (Norbeck & Tilden, 1983). Many outcome measures have been used as well, for instance, prognosis of pregnancy (Nuckolls et al., 1972), complications of pregnancy (Norbeck & Tilden, 1983), emotional disequilibrium (Tilden, 1983), birth weight (Oakley, 1985), infant morbidity (Klaus, Kennel, Robertson, & Sosa, 1986), and alcohol, caffeine, and cigarette use in pregnancy (Aaronson, 1989). Because the purpose of the present study is to learn more about support that a woman perceives from her social network, only studies which

combined variables of social support within the context of social network during pregnancy are reviewed. The purpose of this is to establish what is and what is not known about social networks and the support they provide to pregnant women.

Brown (1986b) studied the influence of social support and stress on the health of 313 nonrandomly selected expectant mothers and fathers. Support was measured using the Support Behaviors Inventory (SBI). For both mothers and fathers, partner support was rated higher than support from others. However, mothers received significant support from others, whereas their husbands did not. Unfortunately the others category was not made specific enough to reveal if the others were relatives, friends, or co-workers.

Belsky and Rovine (1984) used a longitudinal design in their study about the effect from birth of a child on the family's social network contact and family support. Of the 72 two-parent, middle-class, well-educated families in the sample, 41 were expecting their first child, 23 their second, and 8 their third or more. Couples were interviewed in the last trimester of pregnancy and at three and nine months postpartum. Couples rated frequency of contact with their parents to create the family contact measure. Families were also asked to rate assistance in the forms of material support, emotional support, and child care (not assessed during pregnancy). Husbands and wives then listed up to eight significant others from outside their homes and

described these people according to their relationship with the respondent, frequency of contact, and whether the person had a child or children under five years of age. Frequency of contact scores were calculated for friend significant others and family significant others. Analysis of variance was used to test mean change in social network and family contact over time. Correlational analysis was used to assess the stability of the individual differences across times. The support these families received increased over time as did frequency of contact with family members and with other families with young children.

Network structure of 54 primagravid women and their husbands was assessed by Cronenwett (1984, 1985a, 1985b) in her longitudinal descriptive study. In the conceptual model, Cronenwett (1985a) proposed relationships between individual characteristics, perceived social support, social network properties, childbirth, and psychological responses to parenthood. The purpose of the study was to determine the extent of those relationships. Participants' networks were assessed during pregnancy and at six weeks, five and eight months postpartum. Cronenwett's (1985a) purposes for the pregnancy portion of the study are of interest here; these included assessing for network differences based on gender, educational level, and income, and examining the relationships among "network characteristics, demographic characteristics, and perceived availability of support from network members" (p. 167).

Of relevance to the current study are the social network characteristics, differences between husband's and wives' networks and perceived social support, all measured by administration of the Social Network Inventory (SNI) during participants' pregnancies (Cronenwett, 1984). Men's and women's networks were generally similar in size with four to ten members ($M = 8.5$). Seventy-three percent of women's network members were married; although 64% had children, only 16% had children less than five years of age. Relatives were the most frequently listed network members with an average of 5.5 people; the number of co-workers, neighbors, and friends averaged .7, .2, and .2 respectively. People of nearly the same age, gender and childbearing status comprised 0% to 67% of network members with an average of 13%. One significant difference between spouses' networks was presence of same sex members ($t = 5.24$, $df = 106$, $p < .01$). Women had 64% of their network comprised of other women, whereas men had only 54% of their network comprised of men. Subjects also had more frequent contact with network members of the same sex. In addition, 81% of men's emotional support came from relatives as compared to 71% of women's networks. Women depended on receiving an average of 24% of emotional support from friends.

Cronenwett (1984) found that no network, social support or demographic variables correlated with income. However, increasing education had a negative correlation with total

number of contacts per week with network members ($r = -.30$) and sources of instrumental support ($r = -.34$). This is of particular interest in the present study because of the its implication for professional women's social networks.

Concerning perceived social support, Cronenwett (1984) reported intercorrelations of .21 to .53 among emotional, instrumental, informational and appraisal support. Relatives provided 77%, 85%, 66%, and 56% of these types of support, respectively. Co-workers provided 3%, 7%, 13%, and 11% of these supports, respectively.

Of the three studies reviewed, none specifically addressed all of the issues of interest in the current study; however, an assessment of their limitations and contributions provides some direction for this research. While all studies posited some relationship between social support and health, conceptual bases varied. Although all studies had similar middle-class educated participants, sample sizes that varied and non-random selection of participants limit the generalizability of results. Methods included both questionnaire (Brown, 1986b; Cronenwett, 1984) and interview (Belsky & Rovine, 1984). Specificity in network and support assessment varied also. Cronenwett's SNI provided the most detailed descriptive information. The studies did reinforce the hypothesis that support is important during pregnancy. Across studies it appeared that the women depended on more sources for support than relatives alone. Unfortunately, only Cronenwett listed co-

workers specifically. No information was provided on the employment status of the women subjects in relation to the percentage of co-workers in their network.

Need for and Satisfaction With Social Support

As noted earlier, Cronenwett's (1984) SNI is a descriptive measure of what exists in the subject's network; it does not provide for assessment of the subject's need for support or satisfaction with the support received. During a pilot study using the SNI with professionally employed women, this author identified women's concerns about their need for support and satisfaction with support. (See Appendix B for a brief report of these findings.)

Two other studies included satisfaction, one with relationships and one with support. Richardson (1981) assessed the stability and satisfactoriness of women's dyadic relationships with husband, child (hers or another's), parental figure, and age peers during pregnancy. The subjects ($n = 14$) were women who averaged 24 years of age, were of varying parity, and of whom 66% were Mexican-American. Only four subjects were employed until late in their third trimester. A inter-coder reliability of .94 and a coding between-occasion reliability of .96 was achieved for the 101 total interviews with 14 pregnant women. Between six and nine 40-minute interviews were conducted, averaging 7.2 interviews per woman at approximately one month intervals between 9 and 41 weeks gestation. Descriptively, it appeared that some relationships were more

stable at some periods than at others; however, the author's use of the Likelihood Ratio Chi-Square revealed no evidence of shift toward stability. Nonetheless, perception of satisfaction, when compared with that of an imaginary average pregnant woman, increased with advancing pregnancy with both husbands and parental figures ($df = 2$, Likelihood Ratio Chi-Square of 10.22 and 9.47, respectively, $p < .01$).

In Richardson's (1981) research, although the sample size was small and produced findings of questionable generalizability, the lack of stability in all relationships during pregnancy is an interesting finding. Because satisfaction increased for spouse and parental figure relationships during pregnancy, network change was probably beneficial. This supports Duvall's (1978) description of parents' reordering social networks during the transition to parenthood. The concept of satisfaction with support is important in this current study, also. The method used by Richardson to assess satisfaction with the relationship depended on each individual woman's conception of an average pregnant woman. Although the woman's subjective response has relevance, this method may have a strong cultural bias and warrants further testing.

Tietjen and Bradley (1985) used a slightly different method to assess satisfaction with social support of 23 middle-class married pregnant women. Using an author-developed instrument, subjects listed network members, demographic characteristics, frequency of receiving specific

types of support, frequency of contact with members, and then rated each network member (1 to 5) on how helpful he/she was in each support area. Because there was insufficient variance between types of support, helpfulness scores were aggregated to form a single score for the categories of satisfaction with network supportiveness (summing helpfulness ratings and dividing by the total number of people in the network) and satisfaction with husband's support (summing frequency and helpfulness ratings). Although the rest of this longitudinal study is not of particular relevance to this project, it illustrates another method of assessing satisfaction with support.

In conclusion, the research on social networks and the support they provide in pregnancy varies conceptually and methodologically. Sample sizes were small and generalizability was limited. Husbands appeared to be the pregnant woman's most important network member. Support, in general, was important, but variations in specificity in network assessment hampered comparisons of the important sources of support. Only Cronenwett (1984) used co-worker as a network variable during pregnancy.

Work, Social Networks, and Social Support During Pregnancy

Brown (1987), in another report of the study which was described earlier (Brown, 1986b), examined the influences of type of maternal employment on women's health and social support. Occupational status was measured on a continuum. No correlation was found between occupational status and

partner support; however, weak positive correlations were found between occupational status and support from others. Unfortunately there was no specific information on co-worker presence and influence in the "others" support group.

Variables in Jordan's (1987) research most closely resemble those in the proposed research. In general, Jordan followed the method of the Cronenwett (1984) study. Jordan assessed network structure and perceived social support of her second-time parent sample to examine parental adaptation outcomes rather than psychological outcomes as Cronenwett did. Jordan assessed all of these variables in relation to self-reported maternal employment status, employed (working outside the home at 6 months gestation with the plan to continue after the birth) and unemployed (not working outside the home in late pregnancy and not planning to return to work). A repeated-measures prospective longitudinal design was used. The third trimester period used for assessment of the women in the 48 married couples is of interest because of its application to the current study. A non-random sample was used, and data were collected via mailed questionnaires. Couples were middle class, 95% were Caucasian, and 69% had made plans to conceive. Twenty-two (41%) of the women were employed. Jordan's conceptual base for assessing social support paralleled that of Cronenwett. House's (1981) four categories of social support were used, and the relationship between social networks and social support was that the

former had the potential to supply the latter. Jordan's reasons for using the SNI rather than a more well established measure of social support included wanting to compare this population of second time parents with Cronenwett's first time parents.

Jordan (1987) found that employed women had significantly more co-workers in their networks than did unemployed women ($p < .005$). Unemployed women had significantly more kin ($p < .01$), although the frequency of kin contacts was essentially the same for both groups. Jordan reported no significant differences in perceived support between the groups based on employment versus unemployment. As this was a longitudinal analysis, trends in support over the perinatal period were evident. Emotional support for employed women increased slightly over time and decreased for the unemployed women. The same pattern was evident in material support. For all women, information and comparison support increased over time.

Jordan (1987) stated that the generalizability of the study was limited by socioeconomic status and size of the sample; however, normative data on social networks and support based on employment were new data. Further research could be built upon these ideas by assessing the employed population based on level of employment and examining more specifically the relationships between the woman and her co-workers.

Conflict in Social Networks of Pregnant Working Women

Although support as defined for this study is a positive dimension of relationships, it should not be assumed that conflict in an otherwise supportive relationship does not occur. For example, in her discussion of the subjects' desires for certain types of support, Jordan (1987) stated that "employed women wished others would not share information on how difficult it would be for a two-career family to raise two children" (p. 142). A recent newspaper article highlighted potential problems in work relationship for pregnant women (Hamer, 1989). Some co-workers were described as being overly solicitous of the pregnant woman, not wanting to challenge or upset her. Yet, because pregnancy was perceived as a "self-induced illness" (p. C-1), and there was ample time to plan, the working woman felt pressured to make the transition out of work and into maternity leave as smoothly as possible. It is unknown what effect the changing perceptions of co-workers might have on social support they provide to the woman. Although not related to pregnancy specifically, Johnson and Johnson (1976) commented on the importance of mutual support and issues in accessing this support from status peers in their literature review on the role strain experienced by high-commitment career women:

The office friendship network can also lessen strain at work just as a companionate [sic] marriage relationship provides a sanctuary from onerous career demands.

However, this means of resolution is particularly difficult for women who work in male dominated fields where she is generally excluded from the congeniality of the men's drinking, luncheon, sports, and gossip groups (p. 30).

In summary, work was defined as an activity and as a setting. Although research on the health implications of work for women is increasing, little is known about the health of professionally employed women. While only the biological effects of physically strenuous or hazardous work outside the home has been documented in the non-nursing literature, nursing literature has begun to note the psychosocial health implications of work on childbearing in the professional population (Killien, 1987; Winslow, 1987).

There is health related research which describes social support and social networks of pregnant women in general, with some description based on the employment status (employed versus unemployed) of the woman. However, none of this research has examined in detail the social networks and social supports of pregnant women who are professionally and nonprofessionally employed. Information on this population's need for and satisfaction with support as well as conflict within their social network is also missing.

Conceptual Framework

The framework is synthesized from research and theory literature about women's development and roles, related to employment. Assumptions about pregnancy and health,

theories of women's development, and findings of studies on health and employment provide the rationale for examining the potential relationships among social support, social networks, and type of employment during pregnancy.

Two assumptions about pregnancy and health are that pregnancy is a time of wellness or a normal developmental transition, and that pregnancy effects the whole woman.

These assumptions are explained in Appendix C.

According to Brennan and Rosenzweig (in press), work is a setting for achievement and affiliation. It provides the woman impetus for her development. She learns about her ability to create and carry out tasks, and learns about how she is valued and how other people see her. In this way, work provides an avenue in which self-understanding matures while the woman passes in and out of life domains, such as childbearing. Growth in self-understanding in life depends on congruence of self-understanding with the demands placed upon the self in a particular domain (e.g., new parent, career woman, recently widowed). The working woman is involved in multiple roles, both existing and developmental, during the transition to parenthood. During this time, the influence of social support from her social network may be important to her role performance at work and to her health in her new role as a pregnant woman.

Concepts

The variables in the current study are derived from the proposed conceptual framework and the assumptions. As

Brennan and Rosenzweig (in press) suggested, work is an important part of the lives of women. Achievement is operationally defined by the type of work the woman does, professional or nonprofessional. Affiliation is operationally defined as the woman's social network and the support it provides. The life domain of this study is pregnancy, a time when achievement and affiliation needs remain, but may be in transition. Finally, holistic health, although not directly assessed in the proposed study, provides the rationale for nursing assessment of social networks and supports of professionally and non-professionally employed women.

Definition of Variables

Each of the concepts in the study are operationally defined below.

Employment. Although work inside the home is a very real experience for women, for the present study employment is limited to activity for profit outside the home which produces goods or services. It is also implied that work is in a setting in which the woman can achieve and form meaningful affiliations (Brennan & Rosenzweig, in press).

Professional employment. This includes those occupations defined as professional, managerial, or specialty occupations by the U.S. Census Bureau with the additional requirement of completed post-baccalaureate education. (U.S. Department of Commerce, 1982). The purpose of the additional education requirement is to

maximize potential differences in employment and employment settings between women in the two types of work (achievement) roles.

Nonprofessional employment. This category is comprised of all occupations listed by the U.S. Census Bureau (1982), with the exception of those in the professional, managerial, or specialty occupation category. There is no minimum educational requirement.

Social network. This is a person or group of people which the individual perceives as being supportive, or having the potential to provide support, either individually or as a whole. Parts of the network include husband/partner, relatives, co-workers (specifically, superiors, peers, and subordinates), neighbors, and other kinds of friends.

Social support. Social support is defined as one's perception of available or enacted helping behaviors from persons with whom there exist informal or noncontractual relationships (Tilden, Nelson, & May, in press). The four types of support are those defined by House (1981) and used by other researchers (Cronenwett, 1984; Jordan, 1987; Tilden et al., in press). They are the following:

Emotional -- The person communicates love, caring, trust, or concern for you.

Material -- The person directly helps you, such as through gifts of money, help with house chores, help with your work, and so on.

Information -- The person tells you things you need to know, helps you solve your problems by sharing information or finding out things for you.

Comparison -- The person helps you learn about yourself just by being someone in the same situation or someone with similar experiences; he or she is like you in some important way and you feel supported because you can share ideas and feelings with someone like yourself (House, 1981, p. 95).

Needed social support. This is the amount of social support one perceives that she needs to function in day-to-day life during this time of pregnancy.

Received social support. This is the amount of social support that one perceives has been received from the network, either in the form of available support or support that is actually given.

Satisfaction with social support. This is the subjective appraisal of fulfillment of social support needs.

Conflict. This is discord or stress in the relationship that could occur due to behaviors enacted by others or failed to be enacted by others (Tilden et al., 1989).

Research Questions

The research questions for this study are as follows.

1. What are the characteristics of professionally and nonprofessionally employed pregnant women's social networks?
2. What types of social support do professionally and

nonprofessionally employed pregnant women perceive that they receive from co-workers?

3. How much social support do professionally and nonprofessionally employed pregnant women believe that they need from the five parts of their social network (husband/partner, relatives, co-workers, neighbors, other kinds of friends) in their daily life at the time of data collection?

4. How much social support do professionally and nonprofessionally employed pregnant women believe that they receive from the five parts of their social networks in their daily life at the time of data collection?

5. How satisfied are professionally and nonprofessionally employed pregnant women with the social support they receive from the five parts of their social network at the time of data collection?

6. How much social support do professionally and nonprofessionally employed pregnant women report in their interpersonal relationships with co-workers?

7. How much conflict do professionally and nonprofessionally employed pregnant women report in their interpersonal relationships with co-workers?

8. Are there significant differences between professionally and nonprofessionally employed pregnant women on social support and conflict in co-worker relationships?

Chapter II

Methods

Design

This study used a descriptive design since the social networks and support provided by them to professionally employed pregnant women have not been described. In addition, perceived need for and satisfaction with support from co-workers of employed women have not been investigated.

Two groups, professionally and nonprofessionally employed women, were sampled so that characteristics could be described and differences could be explored. While the nature of relationships between employment and social support were not hypothesized, part of this study explored and described differences in social support and conflict related to employment.

Sample

A sample of 60 primagravida women was planned, with approximately 30 women in each group, because this would approximate a normal distribution. Criteria and rationale for inclusion follow.

1. Currently employed outside the home at least one hour per week.
2. Married or partnered.
3. First pregnancy leading to a child in the woman's home.
4. No adoptive or stepchildren living in the home.

5. No extreme medical or obstetrical complications of pregnancy. This was screened by the question on the Background Information Tool: Do you consider this pregnancy to be "normal"?

6. Pregnancy at least 27 weeks gestation.

7. No history of surgical treatment for infertility.

8. Literate in English.

9. 19 years of age or older.

10. Attending childbirth classes.

Criteria for inclusion in the professionally employed group also included:

1. Earned graduate (e.g., M.S., Ph.D.) or professional post-baccalaureate graduate degree (e.g., J.D., M.D., D.D.S.).

2. Current employment at level of education or beyond.

3. Occupation listed in U.S. Census Bureau index as a professional, managerial, or specialty occupation (U.S. Department of Commerce, 1982).

Criteria for protection of human subjects was met at all participating settings. (See Appendix D for Consent Form in the Research Packet.)

Setting

The settings for this research were prepared childbirth classes which were offered through two hospitals in the Legacy Health Care System, Emanuel Hospital in Portland, Oregon and Meridian Park Hospital in Tualatin, Oregon, and through two independent certified childbirth education

instructors. These hospitals and independent educators were chosen because of a higher percentage of employed women in the population they serve. A heterogeneous population of employed women was available by using these settings. Childbirth classes tend to attract well-educated people who are most likely to be employed. Time spent in data collection was shortened by using childbirth education classes where the researcher had access to large groups of women at one time. From October, 1989 through January, 1990, 18 class series began, each running for six two-hour sessions. Each class series had 8 to 15 couples. Ten minutes of class time were used for describing the study and distributing the research packet. Subjects were given a drawing for a \$50 gift certificate from infant-oriented retailer as an incentive to participate.

Instruments

A background information form and two instruments, Cronenwett's Social Network Inventory (SNI) (1984) and Tilden's Interpersonal Relationship Inventory (IPRI) (Tilden et al., in press), both with slightly adapted formats, were used in this study (see Appendix D). The background information form assessed personal, work, and pregnancy related information, with special attention to educational level and occupation.

Social Network Inventory

The SNI was designed for the purpose of collecting descriptive data on social network and perceived social

support (Cronenwett, 1984). For the purpose of this research, the original SNI was entitled, SNI Part I, and the additional questions which were authored by the researcher were entitled, SNI part II. In Part I, a participant listed one to ten persons who were important in her life at the time. Participants provided information about these network members' gender, age, marital status, role relationship to the subject (relative, co-worker, neighbor, or any other kind of friend), whether or not the person had children and those children's ages, current frequency per week of face-to-face, telephone, or letter contact, and how long the participant had known that person (Cronenwett, 1984). Some adaptations were made in the original SNI by this researcher in order to increase sensitivity to special issues related to this population. Changes made were the inclusion of pregnant network members, the type of co-worker relationship, and the frequency of contact.

To assess perceived support, participants were instructed to list the types of support each network member gave them (Cronenwett, 1984, 1985a, 1985b). With the SNI Part I, participants were provided with a list and definitions of the four types of social support defined by House (1981) of emotional, instrumental, informational, and appraisal. Participants could list none, or any combination, of the four types from each network member. In this study, scoring was done only on the type(s) of support received from co-workers and on how many co-workers provided

each type of support.

Cronenwett (personal communication, May 16, 1988) conducted no formal reliability and validity testing on the SNI. For one reason, network structure could be expected to change over time; therefore test-retest reliability assessment was not appropriate. Other types of reliability testing also were inappropriate for this type of measure. Cronenwett (1984) assessed the definitional clarity of the four types of social support by having 22 of the subjects write the definitions in their own words after they completed the SNI. Two judges, whose qualifications were not described, graded the subjects' definitions for correct and complete answers, arriving at a percent agreement. That group's scores were emotional support, 100%; material support, 91%; informational support, 86%; and comparison support, 82% agreement (Cronenwett, 1984).

In Part II of the SNI, participants were asked to reflect on the support that is available and is given to them at the current time (whether in relation to their pregnancy or not) and then rate each general network category of people (e.g., relatives, co-workers) from 0 (none) to 10 (a great deal) on two questions: "How much support do you believe you need?" and "How much support do you believe you receive?" Then participants rated from 0 (not satisfied at all) to 10 (completely satisfied) their satisfaction with the support they received or that was available to them from each category of people. For all

three questions in the SNI Part II, participants were instructed to think of each of these categories (e.g., relatives, co-workers) in the broad sense and not to restrict their answers to only those people whom they listed in Part I. For the SNI Part II, the participant's score was the actual value for each question.

The three new questions of SNI Part II had no reliability testing. They arose from the author's pilot testing of the SNI (see Appendix B). Women wanted to quantify the support they needed and received and then report their satisfaction with the support they received. Interpretation of the results of the SNI Part II is prefaced with the note that it is not a refined instrument. At best, it provides rank order information, not summated ratings. It is a subjective rating system; it cannot be assumed that scores of "10", for example, may be interpreted similarly between participants. While from the pilot study, the SNI Part II appears to have face validity, no further reliability or validity testing was done prior to its use.

Because the SNI's reliability and validity were not established, the SNI was used with an additional instrument, the Short Form of the Interpersonal Relationship Inventory (IPRI) (Tilden et al., in press) based on House's (1981) conceptualization of social support. The IPRI has established reliability and validity estimates and measures additional aspects of the supportive relationship not measured by the SNI Part I or Part II.

Interpersonal Relationship Inventory

The Short Form of the Tilden Interpersonal Relationship Inventory (IPRI) is a multidimensional measure of interpersonal relationships (Tilden et al., in press). Most measures of interpersonal relationships assess only supportive dimensions (Tilden & Galyen, 1987). The IPRI also assesses conflict in the network. The multidimensional aspect of the IPRI allows for a more holistic assessment of interpersonal relationships than do measures that assess only positive dimensions. The IPRI is based on social exchange theory and equity theory (Tilden et al., in press). In combination, these theories hold that there is give and take in social relationships. People offer support in many forms with the expectation of some form of reciprocation. To the extent that reciprocation occurs there is also an element of cost. Conflict in varying amounts is ubiquitous in social relationships.

Social support and conflict are each measured with 13 Likert items for a total of 26 items (Tilden et al., in press). The social support items are based on, House's (1981) four dimensions of social support. Items from both scales are inter-mixed, thus serving to reduce response set. The Short Form of the IPRI was altered to assess only close co-worker relationships rather than all close relationships. This IPRI was further adapted by removing questions which referred to network composition, proximity of relatives, and household size. Scores were the average response to all

items on each subscale.

Two types of reliability for the IPRI had been assessed using a college student sample (Tilden et al., in press). The Cronbach's alpha internal consistency reliability estimates for the subscales used in the current study were .92 for social support and .91 for conflict. Stability estimates, determined by two week test-retest, were .91 for support and .81 for conflict. All of these reliabilities were adequate. Reliabilities were reassessed in the current study. Construct validity of the social support and conflict dimensions was demonstrated using three approaches, contrasted groups, theory testing, and multitrait-multimethod approach (Tilden et al., in press). One of the samples used for validity testing was composed of married, Caucasian, pregnant women with a mean age of 28.5 years and 15.3 mean years of education. Fifty percent of this sample was employed outside the home.

Procedure

Participants were recruited through prepared childbirth class series beginning in October, 1989. This researcher attended a quarterly meeting of the Emanuel and Meridian Park Hospitals' childbirth education instructors to familiarize them with the purpose of the study as well as to enlist their support. The two independent childbirth educators received the same information in telephone conversations and then signed a form giving their consent to this researcher to use their class populations for the

current study (see Appendix E). With class instructor permission, this researcher attended one of the first two or three classes in each series. This researcher explained to the class that the experiences of all men and women are important to nursing, but that little is known about the support women receive especially when they work outside the home during pregnancy (see Appendix F). The study was described, and all first time pregnant women who were currently working were invited to participate. Then, those women who believed that they met the inclusion criteria were invited to take a research packet (see Appendix D) as the packets were passed around the room. Packets were taken home to complete and returned at the next class session. All class members received pamphlets on infant products and educational toys as a token of appreciation for their time and attention. This researcher was available before the next class to answer any questions. Any packets not returned at the second class were forwarded to the researcher via the childbirth educator.

The research packet consisted of an instructional letter, two informed consent forms (one for the subject to keep and one to be returned to the researcher), background information form, the SNI and the IPRI in their adapted forms, and a form for the gift certificate drawing. Participants were encouraged to make a note on the gift certificate drawing form if they would care to receive a summary of the results of the research.

The gift certificate drawing form was coded with a number to match the other research materials so that when the materials were returned it could be verified that the subject had completed the questionnaires. After verification, the code number was removed from the form, and the form was saved until the random drawing was performed at the end of data collection. After the winner was notified, the forms were destroyed.

Anonymity of participants and network members was assured. Code numbers on all data collection tools were used rather than subject names to insure appropriate assembling of questionnaires should they become separated. Background Information Forms were used for final screening of subjects prior to data coding. Responses were checked for adherence to inclusion criteria. Professional and nonprofessional employment was coded using educational level, job title (U.S. Department of Commerce, 1982), and work setting as suggested by Pope (personal communication, August 22, 1989; Hibbard & Pope, 1985). Subjects were thereby placed in one of the two types of employment groups.

Analysis

Questionnaires were coded and the responses were entered on a computer for analysis using CRUNCH (Bostrom, 1987) statistical software. The majority of the results of data analysis were reported using descriptive statistics such as frequencies, measures of central tendency, percentages, and standard deviations. Correlations or Chi-

square were used to look for significant relationships among categories or between levels of two variables.

The two sample groups' demographic characteristics were calculated. These included age, years of education, hours worked per week, income, number of previous pregnancies, and perception of normality of the current pregnancy.

While the SNI Part I provided data on other descriptors of social networks, only the variables which are pertinent to the first and second research questions were used. Scores on other variables were derived from the SNI Part II and the IPRI to answer other research questions.

Descriptive statistics were calculated on both professionally and nonprofessionally employed women's groups. These variables were:

1. network size,
2. network composition by each part of the social network as listed in the SNI Part I,
3. portion of network members who are pregnant or expecting a child,
4. portion of network members with children under age five,
5. contact with each part of the social network as listed in the SNI Part I, (a) relative, (b) friend, (c) neighbor, (d) co-worker, and specific types of co-workers, (e) superior, (f) peer, and (g) subordinate,
6. type of support provided by co-workers,
7. amount of support needed, in general, from each

category of people listed in the SNI Part II, (a) partner/husband, (b) relatives, (c) co-workers, (d) neighbors, and (e) other kind of friends,

8. amount of support received from each category of people listed in the SNI Part II,

9. satisfaction with support from each category of people listed in the SNI Part II,

10. social support score on the adapted IPRI,

11. conflict score on the adapted IPRI.

(Refer to Table 1 for a summary of the research questions, variables, scales used, and analyses.)

To answer all research questions, variables 1 through 11 listed above were measured and described for each of the two employment categories. (Specific calculation procedures for each variable are listed in Appendix G.) For the first research question, frequencies and percentages were used to describe the characteristics of the social networks listed in variables 1, 2, 3, 4, and 5. Research Question 2 was answered by describing the types of support provided by co-workers in general and from each type of co-worker specifically (variable 6). Research Questions 3, 4, and 5 were answered by scoring women's SNI Part II for (a) need for, (b) receipt of, and (c) satisfaction with social support, from each of the five parts of the social network listed for variables 7, 8, and 9, respectively. Scores on total support and total conflict from the IPRI, variables 10 and 11, were used to answer Research Questions 6 and 7,

Table 1

Summary of Research Questions, Variables, Scales, and
Analysis Methods

RQ	Variable	Instrument	Analysis Method
1	1 Network size	SNI Part I	<u>M</u> , <u>SD</u> , Range
	2 Network composition	"	<u>M</u> , <u>SD</u> , %
	3 Pregnant net. members	"	<u>n</u> , %
	4 Parent net. members	"	<u>n</u> , %
	5 Freq. of contact	"	<u>n</u> , <u>M</u> , <u>SD</u> , Range
2	6 Type of co-worker support	SNI Part I	<u>n</u> , %
3	7 Needed support	SNI Part II	<u>M</u> , <u>SD</u> , Range
4	8 Received support	SNI Part II	<u>M</u> , <u>SD</u> , Range
5	9 Support satisfaction	SNI Part II	<u>M</u> , <u>SD</u> , Range
6	10 Co-worker support	IPRI ^a	<u>M</u> , <u>SD</u>
7	11 Co-worker conflict	IPRI ^a	<u>M</u> , <u>SD</u>
8	10 Co-worker support	IPRI ^a	<u>t</u> -test
	11 Co-worker conflict		

^aShort Form of the IPRI which was adapted to assess only co-worker relationships.

respectively. For Research Question 8, co-worker social support (variable 10) and co-worker conflict (variable 11) scores of professionally and nonprofessionally employed groups were tested for differences using t-tests.

Additionally, Pearson product moment correlations were done among total support, conflict, need for, receipt of, and satisfaction with support to examine construct validity of SNI Part II because this is a new instrument.

Chapter III

Results

In the following section, the study sample is described and the results of data analysis are presented for each hypothesis. Data analysis procedures and the types of statistics used are presented with the rationale for their use.

Sample Description

Approximately 178 expectant mothers and their support people who participated in one of 18 class series were given information on the current research study. Of the 116 who took research packets, 83 (72%) returned them. Nine subjects were excluded from the analysis for the following reasons: four women were not in partnered relationships, one woman did not have a medically or obstetrically normal pregnancy, three women had a history of surgical treatment for infertility, and one woman's infertility history data were missing. The final sample size was 74 pregnant women. A sort of the final sample by occupational classification resulted in 65 (88%) nonprofessionally and 9 (12%) professionally employed women.

The nonprofessionally and professionally employed pregnant women had mean pregnancy gestations of 7.6 and 7.7 months, respectively, at the time of response to the questionnaires. These data came from subject report of pregnancy gestation, in months, and verification of this data based on due date and time of participation in the

study. Forty-five percent of the nonprofessionally employed group and 55% of the professionally employed group had at least one previous pregnancy (Table 2), but there was no child in the current home. Reasons included adoption, abortion, or miscarriage. Though three (5%) nonprofessionally employed pregnant women reported that the current pregnancy was abnormal (e.g., "spotting" early in pregnancy, hiatus hernia, gestational diabetes), they were retained in the sample and included in the analysis because the perceived abnormalities were not extreme medical or obstetrical problems.

Mean ages for the nonprofessionally and professionally employed groups were 28.6 (SD = 4.75) and 34.7 (SD = 3.81), respectively (Table 3). Years of education of women in the nonprofessionally employed group ranged from 11 to 19 years, with a mean of 14.1 years (SD = 1.94). Women in the professionally employed group had 17-25 years of education (M = 19.2, SD = 2.44) and masters degrees or higher (Table 4). The maximum degree held by the nonprofessionally employed women was the bachelors (31%), while 54% had high school diplomas.

All participants were currently married with the exception of four nonprofessionally employed women, three of whom were partnered outside of marriage and one of whom had missing data but reported a partner in other portions of the questionnaire (Table 4).

Table 2

Previous Pregnancies Reported by Nonprofessionally and
Professionally Employed Women

	Nonprofessional		Professional	
Number of previous pregnancies	<u>n</u>	(%)	<u>n</u>	(%)
None	36	(55)	4	(45)
1	24	(37)	2	(22)
2	4	(6)	3	(33)
3	1	(2)	0	(0)
Total	65	(100)	9	(100)

Table 3

Mean Age and Years of Education of Nonprofessionally and Professionally Employed Pregnant Women

Variable	Nonprofessional (<u>n</u> = 64) ^a			Professional (<u>n</u> = 9)		
	<u>M</u>	(<u>SD</u>)	Range	<u>M</u>	(<u>SD</u>)	Range
Age	28.6	(4.75)	19-40	34.7	(3.81)	29-40
Education	14.1	(1.94)	11-19	19.2	(2.44)	17-25

^a1 observation missing from analysis on age and on education.

Table 4

Frequencies of Degrees Earned and Marital Status for
Nonprofessionally and Professionally Employed Pregnant Women

	Nonprofessional		Professional	
	n	(%)	n	(%)
Degree (Highest)				
H.S. Diploma	35	(54)	0	(0)
Associates	4	(6)	0	(0)
Bachelors	20	(31)	0	(0)
Masters	0	(0)	5	(56)
Doctorate ^a	0	(0)	4	(44)
Other	6	(9)	0	(0)
Total	65	(100)	9	(100)
Marital Status				
Married	62	(97)	9	(100)
Partnered	2	(3)	0	(0)
Total	64 ^b	(100)	9	(100)

^aDoctorate includes Ph.D., M.D., J.D.

^b1 observation missing

Full-time employment (35 hours per week or more) was practiced by 87% of the nonprofessionally employed women and 78% of the professionally employed women (Table 5). For the women who reported income level, the most frequently reported range for the nonprofessionally employed group was \$15,001 to \$30,000 ($n = 37, 59\%$) and was \$30,001 to \$45,000 for the professionally employed group ($n = 4, 45\%$).

Research Questions

To answer the eight research questions (Table 1), various analytic strategies were used for each of the 11 variables. The calculation procedures for these strategies are described in Appendix G.

Research Question 1

In answering the first research question, What are the characteristics of nonprofessionally and professionally employed pregnant women's social networks?, several variables were addressed. They were network size, network composition, portion of network members who are pregnant or expecting a child, portion of network members with children under age five, and days between contact with network subgroups.

The average size of nonprofessionally employed pregnant women's networks was 6.80 ($SD = 2.23$) (Table 6). The average size in the professionally employed group was 7.22 ($SD = 2.59$). The range of possible answers to network size was 0 to 10. The nonprofessionally employed group's range

Table 5

Frequencies of Hours Worked per Week and Income for
Nonprofessionally and Professionally Employed Pregnant Women

	Nonprofessional		Professional	
	<u>n</u>	(%)	<u>n</u>	(%)
Hours Worked per Week				
1-20	5	(8)	0	(0)
21-34	3	(5)	2	(22)
35-40	45	(69)	1	(11)
41 or more	12	(18)	6	(67)
Total	65	(100)	9	(100)
Income (based only on woman's earnings)				
<\$15,000	18	(29)	1	(11)
\$15,001-\$30,000	37	(59)	2	(22)
\$30,001-\$45,000	7	(11)	4	(45)
\$45,001-\$60,000	1	(1)	2	(22)
>\$60,001	0	(0)	0	(0)
Total	63 ^a	(100)	9	(100)

^a2 observations missing

Table 6

Network Size of Nonprofessionally and Professionally
Employed Pregnant Women

	Nonprofessional (<u>n</u> = 65)			Professional (<u>n</u> = 9)		
	<u>M</u>	(<u>SD</u>)	Range	<u>M</u>	(<u>SD</u>)	Range
Network size	6.80	(2.23)	2-10	7.22	(2.59)	4-10

was 2 to 10, and the professionally employed group's range was 4 to 10.

The composition of networks is presented in two forms. First is the mean number of members in each subgroup. Possible subgroups were relatives, other kinds of friends, superior co-workers, peer co-workers, subordinate co-workers, and neighbors (Table 7). In the nonprofessionally employed group, the mean number of members for each subgroup was 3.48 relatives ($SD = 2.05$), 1.83 other kinds of friends ($SD = 1.73$), 0.31 co-worker superiors ($SD = 0.58$), 0.99 co-worker peers ($SD = 1.04$), 0.15 co-worker subordinates ($SD = 0.54$), and 0.05 neighbors ($SD = 0.21$). In the professionally employed group, the mean number of members for each subgroup was 3.22 relatives ($SD = 1.64$), 2.44 other kinds of friends ($SD = 1.81$), 0.33 co-worker superior ($SD = 0.71$), 1.11 co-worker peer ($SD = 1.36$), 0.11 coworker subordinate ($SD = 0.33$), and no neighbors.

The second way of describing the composition of networks is to describe what portion of the whole network that each subgroup represents (Table 8). For both nonprofessionally and professionally employed groups, relatives comprised the greatest percentage of women's networks with 52.1% and 43.9%, respectively. In both cases relatives were followed by other kinds of friends (26.6% and 36.1%), then co-workers (20.7% and 20.0%) and neighbors (0.6% and 0%). Within the co-worker designation, the nonprofessionally employed group listed more peers than

Table 7

Mean Number of Members in Each Network Subgroup for
Nonprofessionally and Professionally Employed Pregnant Women

Subgroup	Nonprofessional (<u>n</u> = 65)		Professional (<u>n</u> = 9)	
	<u>M</u>	(<u>SD</u>)	<u>M</u>	(<u>SD</u>)
Relatives	3.48	(2.05)	3.22	(1.64)
Other friends	1.83	(1.73)	2.44	(1.81)
Co-workers				
Superiors	0.31	(0.58)	0.33	(0.71)
Peers	0.99	(1.04)	1.11	(1.36)
Subordinates	0.15	(0.54)	0.11	(0.33)
Neighbors	0.05	(0.21)	0	(0)

Table 8

Proportion of Nonprofessionally and Professionally Employed
Pregnant Women's Networks Which Is Composed by Each Subgroup

	Nonprofessional (<u>n</u> = 65)	Professional (<u>n</u> = 9)
Subgroup	%	%
Relatives	52.1	43.9
Other friends	26.6	36.1
Co-workers	20.7	20.0
Superiors	4.2	3.3
Peers	14.3	15.1
Subordinates	2.2	1.6
Neighbors	0.6	0
Total	100.0	100.0

superiors and subordinates with 14.3%, 4.2%, and 2.2%, respectively. The professionally employed group had the same rank order with 15.1%, 3.3%, and 1.6%, respectively.

Next, the proportion of women's networks which was composed of pregnant women or expecting men was calculated (Table 9). For reporting purposes, these are listed in five categories of 10% increments, ranging from 0% to 49%. No pregnant or expectant members were reported in 54 (85%) of the nonprofessionally employed pregnant women's networks or in 6 (67%) of the professionally employed pregnant women's networks. In the nonprofessionally employed group, five women (8%) reported 10% to 19% of their network as pregnant; two (22%) professionally employed women reported the same proportion. Again in the nonprofessionally employed group, three women (5%) reported 20% to 29% of their network as pregnant as did one (11%) woman in the professionally employed group. In the nonprofessionally employed group, one woman (2%) reported 30% to 39% and one woman (2%) reported 40% to 49% of their networks as pregnant. No professionally employed pregnant women reported either of these higher proportions.

The proportion of women's networks which was composed of parents of children who are less than five years of age was calculated from SNI Part I data (Table 10). Incremental categories were used here also. Parents of children who were less than five years of age were not reported in 19 (29%) of the nonprofessionally employed pregnant women's

Table 9

Proportion of Nonprofessionally and Professionally Employed
Pregnant Women's Networks Who Are Pregnant

	Nonprofessional		Professional	
Range of Proportion of Pregnant Network Members to Network Size	<u>n</u>	(%)	<u>n</u>	(%)
No pregnant members	55	(85)	6	(67)
10 to 19% of network	5	(8)	2	(22)
20 to 29% of network	3	(5)	1	(11)
30 to 39% of network	1	(1)	0	(0)
40 to 49% of network	1	(1)	0	(0)
Totals	65	(100)	9	(100)

Table 10

Proportion of Nonprofessionally and Professionally Employed
Pregnant Women's Networks Who Are Parents of Children Who
Are Less Than Five Years Old

	Nonprofessional		Professional	
Range of Proportion of Network With Children < 5 yrs. to Network Size	<u>n</u>	(%)	<u>n</u>	(%)
No children	19	(29)	4	(45)
10 to 19% of network	15	(23)	0	(0)
20 to 29% of network	13	(20)	2	(22)
30 to 39% of network	10	(15)	1	(11)
40 to 49% of network	3	(5)	1	(11)
50 to 59% of network	3	(5)	1	(11)
60 to 69% of network	2	(3)	0	(0)
Totals	65	(100)	9	(100)

networks or in 4 (45%) of the professionally employed pregnant women's networks. In the nonprofessionally employed group, 15 women (23%) reported 10% to 19% of their network as parents of children under 5 years of age; no professionally employed women reported this proportion. Again in the nonprofessionally employed group, 13 women (20%) reported 20% to 29% of their network as parent of children who are less than five years of age compared with 2 (22%) women in the professionally employed group. Ten (15%) nonprofessionally employed women and one (11%) professionally employed woman reported 30% to 39% of their network as parents of children under five years of age. Three women (5%) in the nonprofessionally employed group and one women (11%) in the professionally employed group reported that 40% to 49% of their networks as parents of children who are less than five years of age. The same number of women, three (5%) and one (11%) respectively, reported in the 50% to 59% range. In the 60% to 69% range, two (3%) of the nonprofessionally employed women and none of the professionally employed women reported networks with this many parents of children under age five.

The last portion of the first research question addressed the frequency of contact with network members from various subgroups (Table 11). The numbers of women in the occupational groups varied because not all subjects reported having all subgroups in their individual networks. Both nonprofessionally and professionally employed groups had the

Table 11

Number of Days Between Contacts With Members of Network
Subgroups for Nonprofessionally and Professionally Employed
Pregnant Women

	Nonprofessional (<u>n</u> = 65)				Professional (<u>n</u> = 9)			
Subgroup	<u>n</u> ^a	<u>M</u>	(<u>SD</u>)	Range	<u>n</u> ^a	<u>M</u>	(<u>SD</u>)	Range
Relatives	62	7.60	(6.59)	1-27	9	13.88	(11.03)	4-30
Co-workers								
Superior	16	1.38	(1.03)	1-5	2	5.58	(5.90)	1-10
Peer	39	1.99	(1.74)	1-9	5	1.80	(0.76)	1-3
Subordinate	6	2.17	(0.75)	1-3	1	2.00	(0)	2
Neighbors	3	6.33	(6.66)	2-14	0			
Other friends	49	9.98	(8.78)	1-37	9	10.70	(6.65)	2-21

^an is the number of women who reported at least one person in that subgroup.

most frequent contact, generally, with co-workers which included superiors, peers, and subordinates. The nonprofessionally employed group had mean number of days between contacts of $\bar{M} = 1.38$ ($SD = 1.03$) for 16 women, $\bar{M} = 1.99$ ($SD = 1.74$) for 39 women, and $\bar{M} = 2.17$ ($SD = 0.75$) for 6 women, respectively. For the same co-worker groups, the professionally employed group reported mean number of days between contact scores of $\bar{M} = 5.58$ ($SD = 5.90$) for two women, $\bar{M} = 1.80$ ($SD = 0.76$) for five women, and $\bar{M} = 2.00$ ($SD = 0$) for one woman, respectively. The nonprofessionally employed group had the next most frequent contact with neighbors ($n = 3$, $\bar{M} = 6.33$, $SD = 6.66$), then relatives ($n = 62$, $\bar{M} = 7.60$, $SD = 6.59$), and finally other kinds of friends ($n = 49$, $\bar{M} = 9.98$, $SD = 8.78$). The professionally employed group did not list any neighbors in their networks. The other kinds of friends rated more frequent contact than relatives in this group with means of 10.70 ($SD = 6.65$) for nine and 13.88 ($SD = 11.03$) for nine, respectively.

Research Question 2

To answer the second research question, What types of support do nonprofessionally and professionally employed pregnant women perceive that they receive from co-workers?, the networks of women who reported any co-workers in their network were determined. Forty-six women from the nonprofessionally employed group (71%) and 6 women from the professionally employed group (67%) reported at least one co-worker in their individual networks. All women, who

reported co-workers to be in their network, reported one or more of the four types of support from co-workers.

To further describe the support provided by co-workers, in each woman's case, the total number of reports for each type of support was determined. Each of the four different types of support had a distribution of primarily all or none of the co-workers within a given network providing a specific type of support. This was especially true in the distributions for the professionally employed group. For Tables 12, 13, 14, and 15 the middle proportions (1% to 99%) which ranged from 0%, none of the co-workers providing a particular type of support, to 100%, all of the co-workers providing a particular type of support, were collapsed into a middle range of proportions.

Of the 46 nonprofessionally employed women who reported co-workers in their SNI Part I network, 19 (41%) reported that no one in their co-worker network provided emotional support (Table 12). Ten (22%) of these women reported between 1% and 99% of their co-worker networks as providers of emotional support. However, 17 of these women (37%) reported that all co-workers provided emotional support. In the professionally employed group ($n = 6$), one woman (17%) reported that none of her network co-workers provided emotional support. However, the remaining five professionally employed women (83%) stated that all of their

Table 12

Proportion of Nonprofessionally and Professionally Employed
Pregnant Women's Co-worker Networks Which Provides Emotional
Support

	Nonprofessional		Professional	
Percent of Co-worker Network Providing Emotional Support	<u>n</u>	(%)	<u>n</u>	(%)
0% (No one provides)	19	(41)	1	(17)
1% to 99%	10	(22)	0	(0)
100% (All provide)	17	(37)	5	(83)
Total (Number of women reporting at least one co-worker)	46	(100)	6	(100)

network co-workers provided emotional support. There were no cases in the midrange for the professionally employed group.

For the material support category, 38 (83%) of the nonprofessionally employed women reported no one in their co-worker network provided this type of support (Table 13). Five of these women (10%) reported between 1% and 99% of their co-workers as material support providers; three women (7%) reported that all of their listed co-workers provided material support. In the professionally employed group, four women (66%) reported that no one in their co-worker network provided material support. One professionally employed woman (17%) reported between 1% and 99% of her co-worker network as material support providers; one woman (17%) reported that all of her co-workers network members provided support.

For the informational support category, 14 (30%), 15 (33%), and 17 (37%) of the nonprofessionally employed women reported that this type of support came from 0%, 1% to 99%, and 100% of their co-worker networks, respectively (Table 14). In the professionally employed group, one (17%) and five (83%) women reported receiving informational support from 0% and 100% of their co-worker networks, respectively. There were no midrange values.

In the comparison support category, 7 (15%), 16 (35%), and 23 (50%) of the nonprofessionally employed women with co-workers in their networks reported that this type of

Table 13

Proportion of Nonprofessionally and Professionally Employed
Pregnant Women's Co-worker Networks Which Provides Material
Support

	Nonprofessional		Professional	
Percent of Co-worker Network Providing Material Support	<u>n</u>	(%)	<u>n</u>	(%)
0% (No one provides)	38	(83)	4	(66)
1% to 99%	5	(10)	1	(17)
100% (All provide)	3	(7)	1	(17)
Total (Number of women reporting at least one co-worker)	46	(100)	6	(100)

Table 14

Proportion of Nonprofessionally and Professionally Employed
Pregnant Women's Co-worker Networks Which Provides
Informational Support

	Nonprofessional		Professional	
Percent of Co-worker Network Providing Informational Support	<u>n</u>	(%)	<u>n</u>	(%)
0% (No one provides)	14	(30)	1	(17)
1% to 99%	15	(33)	0	(0)
100% (All provide)	17	(37)	5	(83)
Total (Number of women reporting at least one co-worker)	46	(100)	6	(100)

support came from 0%, 1% to 99%, and 100% of their co-worker networks, respectively (Table 15). In the professionally employed group, two (33%), one (17%), and three (50%) women reported receiving comparison support from 0%, 1% to 99%, and 100% of their co-worker networks, respectively.

Research Question 3

Correlations were performed between scores on the adapted IPRI and the SNI Part II to assess construct validity of the SNI Part II (Table 16). Significant positive correlations were found between IPRI (co-worker) support and support needed from co-workers, support received from co-workers, and satisfaction with co-worker support ($r = .35$, $p = .00$; $r = .47$, $p = .00$; $r = .59$, $p = .00$; respectively). A significant negative correlation was found between IPRI (co-worker) conflict and satisfaction with co-worker support ($r = -.36$, $p = .00$).

To answer the third research question, How much support do nonprofessionally and professionally employed pregnant women believe that they need from the five parts of their social network in their daily life at the time of data collection?, actual scores on variable 7 were used (Table 17). Data were complete on all items for both groups with the exception of needed neighbor support for the nonprofessionally employed group ($n = 64$). Women of both employment groups needed the most support from their partners ($M = 9.26$, $SD = 1.19$ for nonprofessionally employed; $M = 8.89$, $SD = 0.78$ for professionally

Table 15

Proportion of Nonprofessionally and Professionally Employed
Pregnant Women's Co-worker Networks Which Provides
Comparison Support

	Nonprofessional		Professional	
Percent of Co-worker Network Providing Comparison Support	<u>n</u>	(%)	<u>n</u>	(%)
0% (No one provides)	7	(15)	2	(33)
1% to 99%	16	(35)	1	(17)
100% (All provide)	23	(50)	3	(50)
Total (Number of women reporting at least one co-worker)	46	(100)	6	(100)

Table 16

Correlations Between Scores on IPRI and SNI Part II
Concepts

	Support	Conflict	Needed	Received
Conflict	-.29 ^a .01 ^b (73) ^c			
Needed	.35 .00 (73)	-.05 .69 (73)		
Received	.47 .00 (73)	-.20 .09 (73)	.59 .00 (74)	
Satisfaction	.59 .00 (73)	-.36 .00 (73)	.50 .00 (73)	.66 .00 (73)

a_rb_pc_n

Table 17

Support Needed by Nonprofessionally and Professionally
Employed Pregnant Women From Network Subgroups

Subgroup	Nonprofessional (<u>n</u> = 65)			Professional (<u>n</u> = 9)		
	<u>M</u>	(<u>SD</u>)	Range	<u>M</u>	(<u>SD</u>)	Range
Partner	9.26	(1.19)	5-10	8.89	(0.78)	8-10
Relatives	7.32	(2.07)	0-10	7.56	(2.30)	5-10
Others	5.43	(2.63)	0-10	6.78	(0.97)	5-8
Co-workers	4.86	(2.46)	0-10	6.00	(1.58)	4-9
Neighbors	1.11 ^a	(1.58)	0-5	2.44	(1.81)	0-5

^an = 64

Note: Scale range of 0 to 10. Higher the score, the greater amount of support needed.

employed.) Next highest need for support was from relatives ($\underline{M} = 7.32$, $\underline{SD} = 2.07$; $\underline{M} = 7.56$, $\underline{SD} = 2.30$, respectively). Other kinds of friends in the network were the sources from which the third highest need for support was reported in both groups ($\underline{M} = 5.43$, $\underline{SD} = 2.63$; $\underline{M} = 6.78$, $\underline{SD} = 0.97$, respectively). Co-workers ranked fourth ($\underline{M} = 4.86$, $\underline{SD} = 2.46$; $\underline{M} = 6.00$, $\underline{SD} = 1.58$, respectively). Neighbors were last ($\underline{M} = 1.11$, $\underline{SD} = 1.58$; $\underline{M} = 2.44$, $\underline{SD} = 1.81$, respectively).

Research Question 4

To answer the fourth research question, How much support do nonprofessionally and professionally employed pregnant women believe that they receive from the five parts of their social networks in their daily life at the time of data collection?, the actual score on variable 8 was used (Table 18). There were 65 nonprofessionally employed pregnant women reporting on all items except neighbor support ($n = 64$), and nine professionally employed pregnant women responded all items (Table 16). Nonprofessionally employed women reported receiving the most support from their partner ($\underline{M} = 8.71$, $\underline{SD} = 1.67$), followed by relatives ($\underline{M} = 7.51$, $\underline{SD} = 1.98$), other kinds of friends ($\underline{M} = 5.48$, $\underline{SD} = 2.66$), co-workers ($\underline{M} = 5.60$, $\underline{SD} = 2.62$), and neighbors ($\underline{M} = 1.30$, $\underline{SD} = 1.76$). Professionally employed pregnant women reported receiving equal amounts of support from partners and other kinds of friends ($\underline{M} = 7.67$, $\underline{SD} = 1.50$ and 1.94 , respectively), followed by relatives ($\underline{M} = 7.56$,

Table 18

Support Received by Nonprofessionally and Professionally
Employed Pregnant Women From Network Subgroups

Subgroup	Nonprofessional (<u>n</u> = 65)			Professional (<u>n</u> = 9)		
	<u>M</u>	(<u>SD</u>)	Range	<u>M</u>	(<u>SD</u>)	Range
Partner	8.71	(1.67)	2-10	7.67	(1.50)	6-10
Relatives	7.51	(1.98)	1-10	7.56	(1.94)	5-10
Others	5.48	(2.66)	0-10	7.67	(1.94)	5-10
Co-workers	5.60	(2.62)	0-10	6.56	(2.40)	4-10
Neighbors	1.30 ^a	(1.76)	0-8	2.33	(2.50)	0-7

^an = 64

Note: Scale range 0 to 10. Higher the score, the greater amount of support perceived as received.

SD = 1.94), co-workers (M = 6.56, SD = 2.40), and neighbors (M = 2.33, SD = 2.50).

Research Question 5

To answer the fifth research question, How satisfied are nonprofessionally and professionally employed pregnant women with the social support they receive from the five parts of their social networks at the time of data collection?, the actual score on variable 9 was used (Table 19). All 65 women in the nonprofessionally employed pregnant group responded to all items with the exception of satisfaction with neighbor support (n = 62). Nine professionally employed pregnant women responded to all items with the exception of the satisfaction with neighbor support category (n = 8). For the nonprofessionally employed group, the mean satisfaction scores were 8.71 (SD = 1.76) for partner, 7.85 (SD = 2.54) for relatives, 6.69 (SD = 2.93) for other kinds of friends, 6.54 (SD = 3.07) for co-workers, and 5.44 (SD = 4.00) for neighbors. In the professionally employed group, satisfaction was highest with other kinds of friends (M = 8.22, SD = 1.72), followed by relatives (M = 8.11, SD = 2.32), co-workers (M = 7.56, SD = 2.35), neighbors (M = 7.12, SD = 3.52) and partner (M = 7.11, SD = 2.42).

Research Questions 6 and 7

The average scores on the adapted IPRI, ranging from 1 (low) to 5 (high), were used to answer Research Questions 6 and 7 (Table 20). The higher the score, the greater the

Table 19

Nonprofessionally and Professionally Employed Pregnant
Women's Satisfaction with Support From Network Subgroups

Subgroup	Nonprofessional (<u>n</u> = 65)			Professional (<u>n</u> = 9)		
	<u>M</u>	(<u>SD</u>)	Range	<u>M</u>	(<u>SD</u>)	Range
Partner	8.71	(1.76)	2-10	7.11	(2.42)	3-10
Relatives	7.85	(2.54)	0-10	8.11	(2.32)	3-10
Others	6.69	(2.93)	0-10	8.22	(1.72)	4-10
Co-workers	6.54	(3.07)	0-10	7.56	(2.35)	3-10
Neighbors	5.44 ^a	(4.00)	0-10	7.12 ^b	(3.52)	0-10

^an = 62

^bn = 8

Note: Scale range 0 to 10. Higher the score, the greater the satisfaction with support.

Table 20

t-tests on Means of IPRI Co-worker Support and Co-worker Conflict Subscales for Nonprofessionally and Professionally Employed Pregnant Women

Scale	Group	<u>n</u>	<u>M</u>	(<u>SD</u>)	<u>t</u>	<u>p</u>
Support ^a	Nonprofessional	64	3.86	(0.81)	-0.15 ^b	0.88 ^c
	Professional	9	3.91	(0.87)		
Conflict ^d	Nonprofessional	64	2.40	(0.73)	1.47 ^e	0.15 ^f
	Professional	9	2.03	(0.46)		

^aCronbach's coefficient alpha = .93

^bdf = 71

^cPooled variances

^dCronbach's coefficient alpha = .87

^edf = 71

^fPooled variances

support or conflict, respectively, perceived. Cronbach's alpha internal consistency reliabilities were calculated for each subscale using the total sample of women ($n = 73$) for whom IPRI data were complete. The alpha for the co-worker support subscale of the IPRI was .93, and the alpha from the conflict with co-worker subscale of the IPRI was .87.

To answer the sixth research question, How much social support do nonprofessionally and professionally employed pregnant women report in their interpersonal relationships with co-workers?, mean scores on the adapted IPRI support subscale were examined. The nonprofessionally employed group ($n = 64$) had a mean score of 3.86 ($SD = 0.81$), and the professionally employed group ($n = 9$) had a mean score of 3.91 ($SD = 0.87$).

To answer the seventh research question, How much conflict do nonprofessionally and professionally employed pregnant women report in their interpersonal relationships with co-workers?, mean scores on the adapted IPRI conflict subscale were examined. The nonprofessionally employed group ($n = 64$) had a mean score of 2.40 ($SD = 0.73$) and the professionally employed group ($n = 9$) had a mean score of 2.03 ($SD = 0.46$).

Research Question 8

To answer the final research question, Are there significant differences between nonprofessionally and professionally employed pregnant women on social support and conflict in co-worker relationships?, t -tests were

calculated on the means reported in Research Questions 6 and 7 (Table 20). There were no significant differences for support($t(71) = -0.15, p = 0.88$) and conflict, ($t(71) = 1.47, p = 0.15$) using pooled variances.

Chapter IV

Discussion

This section begins with a discussion of the sample, specifically related to work and the characteristics which may influence the relevance of the major findings of this study. The remainder of the discussion addresses social network, social support, and the conflict associated with co-worker relationships. Specific attention is given to co-worker network, support, and conflict. Major findings are discussed in relation to the current research literature, especially that of Cronenwett (1984).

Sample of Nonprofessionally and Professionally

Employed Women

In order to interpret the results of this study and accurately compare these findings to other research literature, sample characteristics are examined first. The principle areas of interest are demographics, pregnancy related information, and work related information.

To hold constant any similarity among personal sources of social support, the participants in the nonprofessionally and professionally employed groups were required to be married or partnered, which appeared to have occurred fairly naturally in the population which was sampled. Only four participants' surveys were not used because they did not report being in a married or partnered relationship. The participants' ages reflect the growing trend towards delayed childbearing which has been reported by Killien (1987) from

the National Center for Health Statistics. The mean years of education for both groups were also high; only one respondent had not graduated from high school or received an equivalent degree.

Although none of the participants had a child in their home, about one half of the participants in each occupational group had a previous pregnancy. It is not known what impact a previous pregnancy may have on individual women's social networks or supports; however, this appears to be a more commonly occurring phenomenon in the childbearing population of today, given the woman's right to electively abort a pregnancy or delay childbearing. Mean pregnancy gestations were approximately the same for both occupational groups, more as a result of the childbirth education setting than any sampling purpose.

Concerning the participant's work, the main variable of interest was occupational classification. By adding a requirement of graduate degree to the Census Bureau criteria for professional employment, the sampling plan maximized the differences between employment groups, while including more women in the professionally employed group than would be considered in the standard professions (e.g., law, medicine, academia). As a result, the size of the professionally employed group was nine rather than the four that it would have been if only the standard professions mentioned before were used. If the managerial and professional specialty occupation category from the Census Bureau had been the only

criterion, kindergarten teachers, actresses, and diploma educated nurses would have been in the same category with corporate attorneys and psychiatrists, thus creating greater diversity within the professionally employed group than between this group and the nonprofessionally employed group.

Even though the size of the professionally employed group was nine rather than four, this small sample size will affect the statistical and clinical interpretation of the results of this study. An attempt was made to increase the number of professionally employed women in the study by distributing research packets to women in two non-mainstream childbirth education classes, which typically attract more professionally employed women. This change did result in the increase of professionally employed women in the sample by approximately 25%, while remaining consistent with the planned research procedure. It is important to note this difficulty in finding professionally employed pregnant women. Although their numbers are increasing, they continue to be a minority.

Other work related variables of income and hours worked per week reflected what would be expected of the two occupational groups. Both income and hours worked per week (ie., more overtime) were generally higher for professionally employed women. These distinctions were blurred slightly, however, because of part-time work by some participants in the professionally employed category and the extraordinarily high salaries of a few nonprofessionally

employed women.

Because of the disparate sample sizes between the two groups, it was difficult to demonstrate significant differences between groups. In an attempt to determine if the two occupational groups were different on characteristics other than occupation, t -tests were performed on age and education. The professionally employed group had a significantly higher mean age than the nonprofessionally employed group ($t(71) = -3.69$, $p = 0.005$). The mean years of education of the professionally employed group also was significantly higher than the nonprofessionally employed group ($t(71) = -7.22$, $p < 0.0001$). These differences in age and education were expected.

Social Network Characteristics

Although enough data were collected using the SNI Part I for extensive network analysis, only a few social network variables were selected for this study, based on their use in the research literature and relevance to this childbearing population. These variables were network size, network composition, number of pregnant or expecting network members, number of network members who were parents of children under five years of age, and number of days between contact with network members.

Network Size

The professionally employed group reported a slightly larger network than the nonprofessionally employed group.

Because of the small sample size in the professionally employed group and the limit of ten network members imposed by the SNI Part I, it is doubtful that this difference between groups has clinical significance. Cronenwett (1984) reported a larger mean network size of 8.5 in a similar middle-class primiparous population. Unfortunately Cronenwett's sample included both employed and unemployed women; hence, it is impossible to say that the differences between participants in the two studies can be related to occupational status. Nonetheless, this information about network size of approximately seven people is new information about the employed pregnant population.

Network Composition

The major finding of network composition by subgroups is that nonprofessionally and professionally employed women had nearly identical network composition. The primary network members were relatives, followed by other kinds of friends and then co-workers. Neighbors were rarely listed by women in either occupational group. It is unknown why women in the nonprofessionally employed group listed more relatives and fewer other kinds of friends than did the professionally employed group. It might relate to a closer proximity of relatives for the nonprofessionally employed women's group. On the other hand, greater income in the professionally employed group should enhance the woman's ability to contact relatives regardless of the distance. Perhaps women in the professionally employed group, because

of their greater age, had a smaller pool of relatives (e.g., especially parents and grandparents) from which to gather support, compared with the nonprofessionally employed group.

Other new information uncovered in this study is that peer co-workers are more common in both nonprofessionally and professionally employed women's networks than superiors or subordinates. Previous studies either have not identified co-workers or have not specified the co-worker's relation to the subject (e.g., Cronenwett, 1984).

This same information was discovered when examining the percent of each subgroup in the network rather than actual numbers of people. While the average number of people may have more clinical relevance, the percent distribution may be useful for extrapolation purposes, for example, when comparing networks between studies. Cronenwett (1984) reported more relatives and fewer other kinds of friends than were found in this study. Cronenwett had unemployed women in her sample, however. Cronenwett found a similar number of co-workers, however they actually ranked higher than other kinds of friends which is much different than the findings of this study, especially when considering the fact that only about 40% of the women in Cronenwett's study were employed. Jordan (1987) found that employed women had significantly more co-workers than did unemployed women. Although Cronenwett and Jordan studied participants in the third trimester, as was done in the current study, Richardson (1981) found that social networks in pregnancy

are in a state of constant change. Although Richardson's sample was more ethnically diverse than that of the current study, differences between these related studies may be more a function of when the study occurred in relation to the pregnancy or some other time ordered event in the woman's life. Further comparison with Jordan's research is not done because her sample was multiparous.

Network Members Who Are Pregnant or Parents of Children Under Five Years of Age

Another aspect of pregnant women's social networks is the presence of people whom the woman cares about and who are experiencing similar life changes. Belsky and Rovine (1984) documented an increase in childbearing couples' contacts over the antenatal to postpartal period with people who also had children under five years of age.

In the nonprofessionally employed and professionally employed groups, few women had network members who were currently pregnant (15% and 33%, respectively). On the other hand, in both occupational groups many more network members were parents of children less than five years of age (71% and 55%, respectively). Although this is interesting and new information, it would be more useful if two conditions of the research could be changed. First, a larger sample of professionally employed would present a more generalizable picture of this network characteristic. Next, some women reported network members who had very young children (e.g., three weeks old or five months old).

Clearly, the pregnancies of these network members overlapped the pregnancy of the participant and might have been reported earlier as pregnant network members rather than parent network members. In these instances, it would have been more helpful to have the SNI Part I altered to be more sensitive to reveal the overlap in a network member's and participant's pregnancies. It is also noteworthy that some of the network members reported as pregnant were men whose partners were pregnant. One woman reported that a network member was in the process of adoption.

Only Cronenwett's (1984) research gives findings which are comparable to the current study in the area of network members who are parents of children under five years of age. Although Cronenwett did not report pregnant network members, she did report that only 16% of the women's networks were parents of children under age five. This is much lower than the parent rate of 71% in the nonprofessionally employed group and 55% in the professionally employed group in the current study. Although Cronenwett's statistical procedure for calculating the percent of network who are parents of children under five years of age was not explained in the published report of the research, by its use in the literature, the findings of this study appear to be measures of the same phenomena.

Although the differences between occupational groups in the proportion of network members who are parents of children under five years of age may be only an artifact of

sample size difference, it may be that professionally employed women have fewer occupational and social peers who are already parents. The professionally employed group's larger proportion of pregnant network members suggests that a greater proportion of professionally than nonprofessionally employed women are going through the same life transition, childbearing; however, these results may be related to sample size. Actually, the professionally employed population may not have taken the time to develop these types of friendships or relationships because of high work demands.

Although the Research Question 1 addressed the proportion of the network who met the criteria for pregnancy or parenthood, it is also noteworthy that the mean number of pregnant network members was 0.23 (SD = 0.61) and 0.33 (SD = 0.50) for the nonprofessionally and professionally employed groups, respectively. In the case of parents of children under age five years, means were 1.37 (SD = 1.19) and 1.44 (SD = 1.88), respectively. When examined in this fashion the differences between groups on the parenthood and pregnancy variables are virtually nonexistent. The proportional differences described earlier in this section arose because the actual number of network members who were pregnant or parents was considered as a percent of the network size. While the proportional method may show some statistical relevance, clinical relevance is minimal.

Days Between Contact With Network Members

There were two major findings in this area. First, all women, regardless of occupational group, had fewer days between contacts (ie., meaning more frequent contact) with co-workers than with anyone else in their social network. Second, professionally employed women had more days between contacts (ie., less frequent contact) than did nonprofessionally employed with almost all network subgroups.

While in most other studies, frequency of contact rather than days between contact was used, the purpose for changing the method of assessment appears to have helped here. In Cronenwett's study women were asked to report how many times they had contact with each person during a two week period of time. Thus, no distinction could be made between those whose contacts were further apart than two weeks. The professionally employed women who were interviewed by this author in the pilot study responded that by stating the number of days between contacts, they were able to more accurately reflect the true distance between contacts.

Although small sample size may skew the results of the co-worker portion of the analysis, the trend towards almost daily contact with members of the co-worker subgroups of the network is apparent. Because the majority of the women in both occupational groups worked full-time, it is logical that they would encounter their co-workers almost daily. On

the other hand, it must not be assumed that these frequent contacts with co-workers have the same quality or supportive potential as the less frequent contacts made with relatives or other kinds of friends. For instance, both relatives and other kinds of friends were more frequently reported as network members than co-workers were. What this does show is that there is great potential for support to be provided or withheld by the co-worker group because of the frequent contact.

Cronenwett (1984) found that as women's years of education increase, frequency of contact with network members decreased. This phenomena may be seen in the differences between occupational groups on the days between contact with relatives and the days between contact with other kinds of friends. It has been demonstrated that the professionally employed group is significantly more educated. These women did report either no network member or more days between contact than did the nonprofessionally employed group for all network categories except co-worker peer and co-worker subordinate. Neighbors were reported by approximately 5% of the nonprofessionally employed group and by none of the professionally employed group. Comment on the frequency of contact cannot be conclusive based on small sample size.

Belsky and Rovine (1984) reported that frequency of contact increased over time (antepartum to postpartum) for a similar population of pregnant women. It is unknown if the

reports of the women in this study represent a stabilization for the antepartal period or if they were currently on the trend toward increased frequency because this was not a longitudinal study.

In summary, the only major similarities between the current study and the literature were the prevalence of relatives in pregnant women's social networks and the less frequent contact with most network members for the occupational group with the highest education. Differences between the current study and the literature were evident, but it is important to remember that no study focused solely on employed women but rather on all pregnant women. First, even though this study's sample was having their first child, their network size was smaller than that of Cronenwett's (1984) primiparous sample. Next, the current study found other kinds of friends more prevalent than co-workers. This researcher also discovered that networks of nonprofessionally and professionally employed women had a greater proportion of parents of children under age five than reported by previous research (Cronenwett, 1984). In conclusion, some information was new to this study, for instance, all results were based on two occupational groups, nonprofessionally and professionally employed pregnant women. Composition of network within the co-worker subgroup revealed the presence of more peers than superiors or subordinates. Few pregnant network members were reported.

Social Support

In this section, social support is discussed in relation to scores on the three measures of perceived support. First, data from the SNI Part II is used to discuss women's perceptions of social support as it is needed and received from their general social network. Satisfaction with this support also is described. Second, support is discussed in relation to the woman's co-worker network in general, as assessed by the adapted IPRI. Third, the specific types of support received from the co-workers subgroup listed in the SNI Part I are discussed.

Needed and Received Support

The purpose of assessing social support from general network subgroups with the SNI Part II was to describe women's perceptions of three aspects of support, how much is needed versus how much is received and resulting satisfaction.

The major finding related to perceived need for support was that the rank order of sources of needed support was the same for both nonprofessionally and professionally employed pregnant women. For both groups, partner was first, then relatives, other kinds of friends, co-workers, and last, neighbors. This confirms other research literature on the importance of partner support above all other sources of support (Brown, 1986b). Although the statistical significance of the finding has not been tested, it is also interesting to note that women in the nonprofessionally

employed group reported needing more support from their partner than did women in the professionally employed group. However, professionally employed women reported higher needs for support from all other categories than did nonprofessionally employed women.

Another valuable way to examine these data is to consider the relationship between how frequently women in both occupational groups have contact with people in these subgroups, and women's ranking of them as sources of needed support. With the exception of the virtually unneeded neighbor category, co-workers ranked last on sources of needed support. These same co-workers on the other hand are the people that the employed woman is most likely to encounter on a daily basis, with the highest reported frequency of contact, with the exception of the partner who could not be included in the SNI Part I network.

The rank order of needed support can be interpreted also as parallel to the comparative importance of the relationships common to that category of people. For instance, one would expect that the relationship with the partner is the most intimate and valued. It requires the most effort to maintain and offers the most rewards. It is easy to imagine that relationships with relatives would be second only to the partner relationship. Other kinds of friends would rank above co-workers because they exist outside the formal work environment structure and are subject to individual preference in choosing. They also

require commitment to maintain. Co-worker relationships on the whole occur regardless of personal decision making. The co-workers which end up being reported in the women's networks may most likely be more friend-like than co-worker in nature.

By thinking of social relationships in this manner, the focus is shifted from the quantitative perspective of network analysis to a more qualitative value perspective. It may explain why employed women can have the most frequent contact (outside of the partner relationship) with co-workers, and yet need more support from people such as partner and relatives whose relationships they value.

Concerning support which the participants perceive as received, relatively the same order existed as with the needed support. More distinct differences among subgroup mean scores were demonstrated in the nonprofessionally employed group than in the professionally employed group; however, this may have been more a function of the small sample size than any true difference in the sample. In general, it appeared that the professionally employed group received more support than did the nonprofessionally employed group. Their SNI Part II score means and ranges were higher in every category except partner; however, statistically significant differences were not present.

Satisfaction with Support

Although the nonprofessionally employed group's ranking of network subgroups remained the same for satisfaction as for needed and received support, the professionally employed group's rankings on satisfaction differed completely. Even though support by any one network subgroup may have been ranked highly for amount needed or received, satisfaction ratings were not equally high, resulting in a different rank order. In the professionally employed group, satisfaction with partner support fell to the bottom and support from other kinds of friends surpassed relatives, followed by co-workers. One explanation for this is that satisfaction with support is not a well developed construct in this tool. Women may have been responding to their satisfaction with relationship qualities other than support. It is also possible that in the subgroups which were ranked most highly for needed support (e.g., partner), that this expectation of support was greater than what could be represented numerically and, hence, was more difficult to achieve than support from a group from which little or nothing was needed (e.g., neighbors).

Concerning construct validity of the co-worker items on the SNI Part II, needed support, received support, and satisfaction with support all correlated highly with each other which was appropriate. These items also correlated positively with co-worker support from the adapted IPRI as expected. These items correlated negatively with co-worker

conflict from the adapted IPRI even though only satisfaction with support had a significant negative correlation. These inverse correlations were expected. These findings are considered evidence for construct validity for the co-worker items of the SNI Part II.

A more in depth analysis of the results in this section is not warranted, based on the newness of the instrument and because validation was not the purpose of this research. For example, the rankings discussed in this section are imposed by the researcher, based on a single score for each subgroup. It is not known if the participants would arrive at the same ranking if they were instructed to do so. One reason for this is that needing and receiving a "10" in support from one's partner may be qualitatively different than needing and receiving a "10" from a neighbor.

Social Support from Co-workers

The findings describing the social support from co-workers are of two types and come from two sources. These were support scores on the adapted IPRI which assessed all close co-workers in general and types of support from specific co-workers who were listed in the participant's SNI Part I network. Following this section is a summary of social support analysis.

Perceived Support From All Co-workers

On the adapted version of the IPRI, both nonprofessionally and professionally employed pregnant women's scores of close co-worker support were in a medium

to medium high range. Although the professionally employed group mean was higher on co-worker support, it was not significantly higher than the nonprofessionally employed group's mean score. When developing the IPRI, Tilden, Nelson, and May obtained scores on a sample of pregnant women (Tilden et al, in press). The mean support score was 4.3. Pregnant women's co-worker support scores in the present study were slightly lower on support; however, the present study assessed only support from co-workers while the Tilden, Nelson, and May study assessed support in all close relationships.

Because of the descriptive and exploratory nature of the current study, it is important to consider possible reasons for the support scores for the two occupational groups being so similar. Although this co-worker version of the IPRI had very high internal consistency reliability, validity may be a problem as it may not have addressed conceptual areas of support which were specific to work alone. The disparate sub-sample sizes also hamper the discovery of significant differences if they exist. Finally, type of employment may not be the most accurate indicator of co-worker support. Perhaps type of employment alone does not account for the variations which exist in social environments within different occupational settings. Some data quotes below will help illustrate the variation.

Although no professionally employed women provided additional written comments on their social work

environment, the statements of four nonprofessionally employed women illustrate the range of support which is available from co-workers in the social environment of work. In the first and third cases, the women's co-workers were primarily male. First, a pregnant assembly shop supervisor reported:

One very real and disturbing feeling that I have experienced in the workplace while I have been pregnant is that of being patronized.

If I voice dissatisfaction concerning an attitude or a procedure, it is often dismissed as crankiness on my part as a result of pregnancy instead of looked into as a valid opinion.

She did not report any co-workers in her small network on the SNI Part I and her IPRI co-worker support score was 2.46. The second nonprofessionally employed woman was a secretary in an office setting. She reported:

I am new to my current job making it difficult to assess the relationships I have with my co-workers. In general, I would say that I am not close with any of my co-workers.

This woman reported no co-workers in her network either and had a IPRI co-worker support score of 2.54. The third nonprofessionally employed woman who worked as a legal assistant reported:

I started a new job at the same time I became pregnant (almost to the day). I work at a law firm where all

the attorneys are men [and] I was very nervous about telling them I was pregnant, but when I did they were very understanding and most were excited. As the pregnancy progressed they got more thoughtful [and] interested. Although I am not going back to work after the baby is born, I have been invited to [and] they seem to understand that I want an opportunity to stay home with the baby.

I really had no idea that men employers could be as understanding [and] kind.

She listed two co-worker peers in her small network on the SNI Part I and her IPRI co-worker support score was 4.00. The fourth woman, a nurse manager in an outpatient setting, reported:

Work has helped me stay away from a "me" centered environment. As long as I can remain productive I feel good about myself. Because of the fact that I work in an area where alot [sic] of women who also have children are, I sometimes feel like I get too much attention and don't tend to voice alot [sic] of my feelings. It's helpful to have a few close coworkers [sic] to talk with.

This nurse manager reported four co-workers in her small network and had a IPRI co-worker support score of 4.85.

In order to pursue another explanation for possible differences in co-worker support, additional exploratory data analysis of the adapted IPRI scores was done using

groups other than the designated occupational groups. In this analysis, the two groups were women who did not report any co-workers in their SNI Part I network and those women who reported one or more co-workers in their SNI Part I network. The mean co-worker support score for the first group ($n = 22$) (those who did not list a co-worker in their network) was 3.14 ($SD = 0.75$), while the mean for the group of women who listed at least one co-worker ($n = 51$) was 4.18 ($SD = 0.61$). A t -test revealed that the group with co-workers in their network reported significantly higher co-worker support than did those without co-workers in their network ($t(71) = -6.26, p < 0.0001$). Therefore, either having at least one supportive co-worker is enough to make the whole co-worker environment seem more supportive or women's scores of co-worker support truly reflect relationships with only close co-workers as instructed in the directions of the adapted IPRI. Whichever the case, presence of co-workers in the network more accurately reflected co-worker support than did occupational classification.

Types of Support Received From Co-workers in Women's Listed Social Networks

This next part of the discussion continues the examination of co-worker support, but focuses specifically on the four types of support which are received from those chosen co-workers in the woman's small network which was listed on the SNI Part I. Cronenwett's (1984) approach to

analyzing who gives what type(s) of support was, for example, to take the pool of emotional support and describe how much of it was given by relatives, other kinds of friends, co-workers, and neighbors. For example, in Cronenwett's study where only 40% of the sample was employed outside the home, only 7% of the women's networks were composed of co-workers. This 7% provided 13% of all of the information support, 11% of all of the comparison support, 7% of all of the material support, and 3% of all of the emotional support. In the present study, co-workers were 20% of women's networks in both occupational groups. The approach to analyzing these data in the current study was changed to be more specifically descriptive only of the co-worker relationship. First, this researcher looked at the pool of co-workers in each woman's network, and then determined what proportion of those co-workers provided each type of support (e.g., emotional support). On the individual level, these results might describe a co-worker network in which, for example, all of the co-workers provide emotional and comparison support but only 20% provides material support and no one provides information support. Comparison between Cronenwett's study and the current study is difficult because of different approaches were used. Information as found in the current study has not been described in the published literature.

Although more specific information about co-worker's support is available by using this method, there are

limitations also. For example, sample size of the nonprofessionally and professionally employed groups in this analysis is smaller than in the rest of the analysis because only those 52 women (46 nonprofessionally employed and 6 professionally employed) who reported co-workers in their small network are included. Because the sample size of the professionally employed group is only six, significant conclusions about this group's co-worker support are impossible to make. Another effect of the small sample size and measurement method is the inability to make any meaningful inferences about differences between the two occupational groups on types of support which are provided by co-workers. It is unknown if the findings in this area reflect the support which may be provided by all co-workers in the women's work settings. The findings result from an analysis of only those co-workers who were valued enough by the participants to be listed in their SNI Part I network. As mentioned in the results, the primarily all-or-none pattern of responses to types of support may reflect a participant's response style or the true pattern of the phenomenon.

In interpreting these findings, it is important to remember that all the women were reflecting on the support that was for more than pregnancy-related concerns when they answered the SNI Part I. For example, this may also be a reflection of support related to job task or family concerns.

Types of support in the professionally employed group.

The all-or-none distribution of responses was most obvious in the professionally employed group, where the sample sizes were smaller. Almost all of the professionally employed women received emotional and information support from every member of their co-worker network. One half of these women received comparison support from all of their co-worker network, and the majority of them received no material support from co-workers.

This researcher speculates that the emotional support may be related more to the pregnancy, whereas the information may be related more to job tasks. Comparison support may be rather low due to few co-workers who are having simultaneous similar life changes. The material support could be expected to be low because of the relative material wealth of this sample. Overall, it is impossible to know from these data if the lack of mid-range answers (varying proportions of support from co-workers within a network) is a result of the small sample size, response sets, or a true reflection of a certain polarity of support (all-or-none) in their work situation.

Types of support in the nonprofessionally employed group. In the nonprofessionally employed group, clear distinctions about the prevalence of one type of support over another are less easy to discern. For emotional and information support, the response distribution of all or none of the co-worker network providing support, was

evident; however, there were more nonprofessionally than professionally employed women who reported some midrange proportion group. Whereas comparison support was most frequently reported type of support from all co-worker network members, material support was the least frequently reported.

Although the nonprofessionally employed group sample who reported co-worker was larger than the professionally employed group sample, the distribution of scores for the professionally employed group was similar to that of the nonprofessionally employed group. It is possible that this distribution reflected the social work environment, or it may have been an artifact of the instrument. For example, some women tended to list all types of support from all co-workers while others listed only one type of support for each co-worker. Emotional and informational support were not as frequently reported by the nonprofessionally employed group as by the professionally employed group. For the nonprofessionally employed group, frequency of comparison support from at least one co-worker was higher, perhaps because there was a larger co-worker environment from which to draw. Hence, there were more co-workers with similar life experiences with which to compare. Material support may have low frequency because co-workers were unable to afford to give this type of support, or it may just be a type of support that is more likely to come from relatives (Cronenwett, 1984). It also may be culturally unacceptable

for co-workers to give material support.

In comparing Cronenwett's (1984) research with the current study, it appears that both groups of women in the current study reported more emotional support than did Cronenwett's sample of women. Otherwise, women in these two studies may have been similar, reporting low material support and relatively higher information and comparison support. Without further analysis of the data, it is impossible to assert these differences and similarities as real.

In summary of all forms of support measurement, from the analysis of co-worker support in relation to analysis of support from other members of the woman's entire social network (SNI Part II), it was learned that co-workers do not rank as high as other parts of the network in received support. However, from analysis of co-worker relationships using the adapted IPRI, it was learned that a substantial amount of support may or may not be received from co-workers. This may be explained in part by the presence or absence of co-workers in the woman's small network. From the SNI Part I, it was learned that co-workers provide all types of support in varying frequency, with emotional, informational, and comparison supports more frequently reported than material support. All of these findings are new information on the support provided to nonprofessionally and professionally employed pregnant women.

Conflict in Co-worker Relationships

Although the adapted IPRI conflict with co-worker scores were slightly higher for nonprofessionally employed women than professionally employed women, neither group's conflict scores were high, and there was no significant difference between the scores. The pregnant sample of Tilden, Nelson and May (in press) had a mean conflict score of 2.5; this is virtually identical to the score of the nonprofessionally employed group and only slightly higher than the conflict score of the professionally employed group. There are several possible reasons for this lack of difference. The difference in sample size between the nonprofessionally and professionally employed groups made finding statistically significant differences difficult. The lack of difference may stem from an inadequacy in the definition of the occupations. On the other hand, occupation may not be the best variable on which to assess differences in conflict.

Just as an additional exploratory t-test analysis was performed on support scores, the same analysis was performed on conflict scores. The two groups were women who did not list any co-workers ($n = 22$) in their small network on the SNI Part I and women who listed one or more co-workers ($n = 51$) in their small network on the SNI Part I. However, unlike the significant difference which was found on co-worker support, there was no significant difference using t-test analysis ($t(27.42) = 1.35, p = 0.19$, separate

variances) between mean conflict scores of the no co-worker group ($\underline{M} = 2.56$, $\underline{SD} = 0.96$) and the group with at least one co-worker ($\underline{M} = 2.27$, $\underline{SD} = 0.56$).

Another examination of the support and conflict scores of the four nonprofessionally employed women who were quoted earlier provides possible reasons for variation in support and conflict scores. Also suggested is how support may be different between groups but conflict may not. The first woman, the assembly shop supervisor who felt patronized, had a low co-worker support score. Her co-worker conflict score of 4.08 was high. Part of her lack of support might be related to the conflict she experienced specifically as a result of changes perceived by co-workers during her pregnancy. On the other hand, the office secretary who perceived low co-worker support had an even lower conflict score of 1.54. In her case, the lack of support seemed more from being new in the office and not having built relationships with co-workers. There was not a sense of conflict which accompanied the low support. Hence, length of job tenure may be an important variable.

The third and fourth women, a legal assistant and a nurse manager, who had very high support scores, had low conflict scores, 1.75 and 2.61, respectively. It is interesting that the woman with the highest co-worker support, the nurse, also had slightly higher co-worker conflict. In her comments, she stated that she might even get too much attention (support). Therefore, while high

co-worker support appeared to be related to low co-worker conflict, too much support might be a source of conflict itself. On the other hand, this slight conflict might be related to the nurse's supervisory position, rather than the amount of co-worker support.

Obviously, co-worker conflict is a complex concept to assess. Correlation (Pearson r) between co-worker conflict and support for the women with complete IPRI data ($n = 73$) was -0.29 ($p = 0.01$), which is lower than that found by Tilden, Nelson, and May (in press) ($r = -.38$). Unfortunately, this significant inverse correlation was not evident as a significant difference between groups, whether the grouping was based on occupation or the number of co-workers in the SNI Part I network. While comments in the literature about how a primarily male co-worker environment might accentuate problems related to co-worker support and conflict for working women (Johnson & Johnson, 1976; Hamer, 1989), this conclusion might not always be true, as shown by two of the examples presented earlier. Although one woman reported feeling patronized in an all male environment, another woman was surprised by the wealth of support from the men in her office. Another woman felt that she got almost too much support from her female co-workers.

In summary, relatively low conflict scores for both the nonprofessionally and professionally employed pregnant women groups is information which has not appeared in the published literature. While there are comments in the

literature on possible negative qualities of male-dominated work environments for women, this may not necessarily be true in all cases. Co-worker conflict appeared to be related to characteristics of the social environment of work rather than the actual type of work.

Chapter V

Summary, Limitations, and Implications

The population of women in the United States is becoming more educated and is more likely than their mothers or grandmothers to work outside the home. Although changes in work trends, in combination with societal trends, have had a substantial impact on the childbearing intentions of today's women, little is known about the personal experiences of working women during first-time childbearing. The purpose of this study was to describe the social networks and support provided by these networks to pregnant nonprofessionally and professionally employed women.

In the literature on work in women's lives, work has been defined as an activity which one performs and as a setting in which one performs the work activity. The distinctions in the literature between nonprofessional and professional work are difficult to discern. It appears that there is not only a difference between the actual job tasks performed and the preparation for these tasks, but also a qualitative difference between the individuals performing the tasks (e.g., commitment, motivation). Although physical surroundings may be obviously different between nonprofessional and professional employment settings, less described in the literature are the social environments of work. There are mixed findings on the effect of these different work activities and settings on the health of both nonprofessionally and professionally employed women. The

majority of the non-nursing research literature on work during pregnancy addresses the physical hazards of various strenuous work activities and settings. Only recently in the nursing literature have the issues of childbearing intentions of working women, professional image during pregnancy, and work roles been discussed.

On the other hand, social networks and social support during pregnancy have been studied extensively, especially in populations of middle-class, well-educated women. Unfortunately, when employment has been a variable in these studies, the researchers have distinguished between employment versus unemployment rather than between levels of employment (e.g., professional employment). The same is true for studies on satisfaction with social support and conflict in social networks.

A conceptual framework which is based on woman's adult development was used (Brennan & Rosenzweig, in press). The framework describes woman's self understanding (mental health and wellbeing) as growing while the woman passes through life domains, such as childbearing and childrearing. Work, whether inside or outside the home, is crucial to this growth in self understanding, because it provides a setting for the woman to meet two basic needs, to achieve and to affiliate with others. In this study, achievement was operationalized as occupational level and affiliation assessed as social relationships with co-workers. The research questions addressed the description of

nonprofessionally and professionally employed pregnant women's social networks, the support they need and receive from all social relationships, their satisfaction with the support they receive, and support from and conflict with co-workers.

A non-experimental design was used in this descriptive study. The sample of first-time mothers in their third trimester of pregnancy was accessed through childbirth education classes which were offered in two major hospitals and through two independent certified childbirth educators. The instruments included a background information sheet and three measures of social networks and/or support and conflict. On Cronenwett's (1984) SNI (Part I) participants listed up to ten of the people they felt were most important in their lives at the time, provided demographic data on this network, and described the type of social support received from these people. In the SNI Part II, participants scored subgroups of their entire social network for the amount of support they need, the support they receive, and their satisfaction with this support. Tilden's Short Form of the IPRI (Tilden et al, in press) was used in an adapted format to assess co-worker support and conflict.

This researcher attended one of the first childbirth education classes in each of 18 series from October, 1989 through January, 1990. During class, the study was explained and all women who believed they met the study criteria of employment outside the home and expecting the

first child in their home were encouraged to take a research packet. Participants completed the research packet at home and returned it to the researcher at the next class or to their childbirth educator at a subsequent class.

The final sample consisted of 65 nonprofessionally and 9 professionally employed pregnant women. No one in the sample had a history of surgical treatment for infertility, but approximately one half of the sample had at least one previous pregnancy not resulting in a child in their home. The professionally employed group was significantly older and had more years of education than the nonprofessionally employed group; their income level was also higher.

Concerning the major findings of the current study, nonprofessionally employed women reported slightly larger networks than the professionally employed group on the SNI Part I. However, the mean sizes for both groups were smaller than the mean network size reported in Cronenwett's (1984) similar study of primigravida women in their third trimester, of whom only 40% were employed outside the home. Excluding partners from the analysis, the network members most frequently listed by women in both occupational groups were relatives, followed by other kinds of friends, co-workers, and neighbors. Within the co-worker subgroup, peers were listed more frequently than superiors and subordinates for both occupational groups.

While few women reported having network members who were also pregnant, women in both occupational groups

reported networks with 50% or more of the members being parents of children under five years of age. This is much higher than what Cronenwett (1984) found in her sample.

Excluding partner from the analysis, women in both occupational groups had the most frequent contact with co-workers. In addition, professionally employed women had less frequent contact with almost all network subgroups than did the nonprofessionally employed women's group.

Women in both groups reported that support was needed and received from the broad network in the following order, from highest to lowest: partner, relatives, other kinds of friends, co-workers, and neighbors. Although not assessed with the same instrument, the rank order confirms what Brown (1986b) found, that partner always ranked first, but significant amounts of support came from other areas of the woman's network also.

Concerning satisfaction with the support received from these major groups, the same order as for needed and received support was present for satisfaction in the nonprofessionally employed group. Satisfaction scores were higher in the professionally employed group than in the nonprofessionally employed group; however, professionally employed women's satisfaction with partner support was rated the lowest of all the subgroups.

Concerning perceived support from co-workers, although women in the professionally employed group had a higher mean score than the nonprofessionally employed group, the

difference was not significant. When the groups were changed for additional analysis women who had listed at least one co-worker in their SNI Part I network had significantly higher co-worker support scores on their adapted IPRI than did those women who did not list a co-worker in their small network. In a few case examples, it was noted that high and low support did not necessarily relate to work environments that were all male or all female.

Further analyzing co-worker support using the SNI Part I, women in both groups reported the types of support received from co-workers in a primarily bimodal pattern. Emotional, informational, and comparison support was provided more frequently by co-workers, and material support was rarely provided by co-workers.

There was no significant difference between the fairly low IPRI co-worker conflict scores based on either groups defined by occupation or groups defined by the presence or absence of co-workers in the network. It was suggested that although conflict correlated inversely with support, that it was not the opposite of support. Reasons were cited for possible causes of conflict in co-worker relations.

Limitations

Because this was a nonexperimental study, many of the common threats to internal validity do not apply. However, two possible limitations in this area are possible. First, there may have been some systematic loss of potential

participants who may have been working but had already left employment because of poor working conditions, ill health, or impending parenthood. What effect a group of such women would have had on the results is unknown. Second, although the criteria for inclusion were set to try to exclude conditions or states which may pose rival hypotheses, women who had previous pregnancies were included in the study. It is possible that some women could still be grieving and have different support systems and support needs during this time. Because approximately the same number of women in each group had previous pregnancies, this is not considered a serious threat but nonetheless worth mentioning.

The generalizability of the findings is limited by the sample to other urban, working women who are primarily white and middle-class. The results from the professionally employed group need to be reassessed because of the small sample size in that group. Data from the author-developed SNI Part II should be used only as a guide for further assessment. This type of information is useful. While the SNI Part II has had no formal reliability and content validity testing during its development, the correlation pattern among related concepts for this sample produced some evidence supportive of construct validity for the co-worker related items.

Implications for Nursing Theory

The theoretical base for this study came from Brennen and Rosenzweig's (1989) model of women's adult development.

Although it was not the purpose of this study to test this model, it has some relevance for future analysis of women and work. Seen in this study as a lack of differences between the two occupational groups of women, commonalities among all women are highlighted by the use of the model. According to the model, all women need some form of work and derive from their accomplishments and affiliations some greater understanding of themselves. So, it may be that basic needs of all women are similar. Differences may be in women's specific environments and in interaction with their environments. In this study, it was assumed that differences were also in the women. The literature would lead one to believe that women in different occupations are qualitatively different. Although the current study does not disprove this, in the case of social support the difference appears not to depend on the woman herself but on her social environment and her ability to use it as a resource.

In future research, this researcher suggests retaining the Brennan and Rosenzweig (in press) model, but adding other instruments which address assessment of the entire social environment of work.

Implications for Nursing Practice

The implications for nursing practice reflect a growing sense of the needs of the employed, pregnant population. Although the generalizability of data from the professionally employed group, especially, is limited

because of small sample size, the practicing nurse can learn from this study that working women get support from a variety of sources. Although contact is often more frequent with co-workers, it does not necessarily mean that the woman is close to or senses support from her co-worker.

Similarly, the co-worker relationship is not necessarily conflicted. The nurse who provides care to the pregnant working woman should be prepared to assess for potential problems with co-workers, especially if pregnant woman is new to the area or job. The nurse should not assume that a male dominated work environment is hostile and that a female dominated work environment is hospitable. In the event that some normally occurring element in the woman's social network is missing (e.g., relatives, other kinds of friends), the nurse may be able to counsel the woman about developing relationships in the work environment, a natural resource.

Nurses may apply this information in a variety of settings. Besides the traditional antepartum office setting for nurses, nurse practitioners, midwives, antepartum hospital nurses, occupational health nurses, and employee assistance program nurses may also use these findings to heighten their awareness of the social environment of work and co-worker related concerns of the pregnant woman.

Implications for Nursing Research

Two directions for research implications are considered. First is methodological change to improve on

the current study. For example, changes in the coding of the SNI Part I could make subsequent analysis of the data easier by foregoing the complex transformations process that is currently needed to organize the data. The SNI Part II could be developed into a more refined instrument. One improvement would be to add a "not applicable" column for each category; some of the women in the current study did this themselves in the neighbor column. The adapted IPRI could benefit from item analysis and subsequent shortening, as some of the inter-item correlations were very high.

One major methodological shift would involve the addition of interviews and grounded theory analysis to the study of the professionally employed women's group. Their numbers are so small that this may be the best way to discover significant information about this population.

Another research direction is to study certain findings of the current study in more depth. For example, the definitions of professional and nonprofessional occupations should be examined for not only their relevance but also how well these labels reflect the social environment of work. One could also study the benefit of having a close network member who is currently pregnant, for example, what characteristics of this type of a supportive relationship are or are not present in other relationships. Finally, longitudinal research on the co-worker relationship over the antepartal through postpartal and return to work period would provide information on the "staying power" of co-

worker relationships and their ultimate importance in the total pool of support which is available to the woman during the transition to parenthood.

This description of the social networks and social supports of nonprofessionally and professionally employed pregnant women was a necessary beginning to a more extensive future study of these women and their total health needs. Nurses must strive to understand pregnant women's needs on both global and personal levels. Only when nurses act to learn what keeps pregnant women healthy can they react efficiently and effectively to promote continued health or prevent poor outcomes when health is threatened.

References

- Aaronson, L. S. (1989). Perceived and received support effects on health behavior during pregnancy. Nursing Research, 38(1), 4-9.
- Barnett, R.C., & Baruch, G.K. (1987). Social roles, gender, and psychological distress. In R. C. Barnett, Biener, & G. K. Baruch (Eds.), Gender and Stress. New York: Free Press.
- Barrera, M. (1986). Distinctions between social support concepts, measures, and models. American Journal of Community Psychology, 14(4), 413-445.
- Baruch, G. K., Biener, L., Barnett, R. C. (1987). Women and gender in research on work and family stress. American Psychologist, 42(2), 130-136.
- Belsky, J., & Rovine, M. (1984). Social network contact, family support, and the transition to parenthood. Journal of Marriage and the Family, 46(5), 455-462.
- Berkman, L. (1984). Assessing the physical health effects of social networks and social support. Annual Review of Public Health, 5, 413-432.
- Blasko, D. G., O'Brien, E. J., Huester, M. T., & O'Brien, J. P. (1989). Sex differences in the effects of pregnancy status on perceptions of personality and business success. (Manuscript submitted for publication.)
- Bostrom, A. (1987). CRUNCH [Computer program]. Oakland, CA: Crunch Software Corporation.

- Brennan, E. M., & Rosenzweig, J. M. (in press). Women and work: Toward a new developmental model. Social Case Work.
- Brown, M. A. (1987). Employment during pregnancy: Influences on women's health and social support. Health Care for Women International, 8(2/3), 151-167.
- Brown, M. A. (1986a). Social support during pregnancy: A unidimensional or multidimensional construct? Nursing Research, 35, 4-9.
- Brown, M. A. (1986b). Social support, stress, and health: A comparison of expectant mothers and fathers. Nursing Research, 35, 72-76.
- Bryant, H. E. (1985). Antenatal counseling for women working outside the home. Birth: Issues in Perinatal Care & Education, 12(4), 227-232.
- Chamberlain, G., & Garcia, J. (1983). Pregnant women at work. Lancet, 29, 228-230.
- Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic Medicine, 38(5), 300-314.
- Cronenwett, L. R. (1984). Social networks and social support of primigravida mothers and fathers. Birth Defects, 20(5), 167-203.
- Cronenwett, L. R. (1985a). Network structure, social support, and psychological outcomes of pregnancy. Nursing Research, 34(2), 93-99.

- Cronenwett, L. R. (1985b). Parental network structure and perceived support after birth of first child. Nursing Research, 34(6), 347-352.
- Duvall, E. R. (1978). Family development (2nd ed.). Philadelphia: J. B. Lippincott.
- Dyer, E. D. (1963). Parenthood as crisis: A restudy. Marriage and Family Living, 25, 196-201.
- Gilbert, L. A., Holahan, C. K., & Manning, L. (1981). Coping with conflict between professional and maternal roles. Family Relations, 30, 419-426.
- Glaser, R. G., & Strauss, A. L. (1967). The discovery of grounded theory. Chicago: Aldine Press.
- Hamer, B. (1989, June 15). Pregnant boss: Management, coworkers must adjust to new situation. The Pantagraph, C-1.
- Hibbard, J. H., & Pope, C. R. (1985). Employment status, employment characteristics, and women's health. Women & Health, 10, 59-77.
- Hobbs, D. F. (1965). Parenthood as crisis: A third study. Journal of Marriage and the Family, 27, 367-372.
- Hobbs, D. F., & Cole, S. P. (1976). Transition to parenthood: A decade replication. Journal of Marriage and the Family, 38, 723-731.
- House, J. S. (1981). Work stress and social support. Reading, MA: Addison-Wesley.

- Johnson, F. A., & Johnson, D. L. (1976). Role strain in high-commitment career women. Journal of the American Academy of Psychoanalysis, 4(1), 13-36.
- Jordan, P. L. (1987). Differences in network structure, social support, and parental adaptation associated with maternal employment status. Health Care for Women International, 8(2/3), 133-150.
- Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles, and social support. In P. B. Baltes & O. G. Brim (Eds.), Life-span development and behavior (Vol. 3) (pp. 253-286). Orlando: Academic.
- Killien, M. (1987). Childbearing choices of professional women. Health Care for Women International, 8(2/3), 121-131.
- King, A. C., & Winett, R. A. (1986). Tailoring stress reduction strategies to populations at risk: Comparisons between women from dual-career and dual-worker families. Family & Community Health, 9(3), 42-50.
- Klaus, M. H., Kennel, J. H., Robertson, S. S., & Sosa, R. (1986). Effects of social support during parturition on maternal and infant morbidity. British Medical Journal, 293, 585-587.

- LaCroix, A. Z., & Haynes, S. G. (1987). Gender differences in the health effects of workplace roles. In R. C. Barnett, L. Biener, & G. K. Baruch (Eds.), Gender and Stress. New York: Free Press.
- LeMasters, E. E. (1957). Parenthood as crisis. Marriage and Family Living, 19, 352-355.
- Mamelle, N., Laumon, B., & Lazar, P. (1984). Prematurity and occupational activity during pregnancy. American Journal of Epidemiology, 119(3), 309-322.
- National Center for Education Statistics. (1988). Digest of education statistics (CS 88-600). Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement.
- National Center for Health Statistics. (1988). Health, United States, 1987. (DHHS Publication No. PHS 88-1232). Washington, D.C.: U.S. Government Printing Office.
- Norbeck, J. S., & Tilden, V. P. (1983). Life stress, social support, and emotional disequilibrium in complications of pregnancy: A prospective, multivariate study. Journal of Health and Social Behavior, 24, 30-46.
- Nuckolls, K., Cassel, J., & Kaplan, B. (1972). Psychosocial assets, life crisis and the prognosis of pregnancy. American Journal of Epidemiology, 95, 431-441.

- Oakley, A. (1985). Social support in pregnancy: The 'soft' way to increase birthweight? Social Science Medicine, 21, 1259-1268.
- O'Rourke, M. W. (1986). The influence of social, demographic, employment, and health factors on the psychological well-being of employed women. Issues in Mental Health Nursing, 8(2), 121-141.
- Papiernik, E., Bouyer, H., Dreyfus, J., Collin, D., Winisdorffer, G., Guegen, S., Lecomte, M., & Lazar, P. (1985). Prevention of preterm births: A perinatal study in Haguenau, France. Pediatrics, 76(2), 154-158.
- Papiernik, E., Bouyer, J., Yaffe, K., Winisdorffer, G., Collin, D., Dreyfus, J. (1986). Women's acceptance of a preterm birth prevention program. American Journal of Obstetrics and Gynecology, 155(5), 939-946.
- Poloma, M. M. (1970). The married professional woman: An empirical examination of three myths. Doctoral dissertation. Case Western Reserve.
- Poloma, M. M., & Garland, T. N. (1971). Jobs or careers? The case of the professionally employed married woman. In A. Michel (Ed.), Family Issues of Employed Women in Europe and America. Leiden, Netherlands: E. J. Brill.
- Regan, M. C., & Roland, H. E. (1985). Rearranging family and career priorities: Professional women and men of the eighties. Journal of Marriage and the Family, 47(4), 985-992.

- Richardson, P. (1981). Women's perceptions of their important dyadic relationships during pregnancy. Maternal-Child Nursing Journal, 10, 159-174.
- Riesch, S. K. (1984). Occupational commitment and the quality of maternal-infant interaction. Research in Nursing and Health, 7, 305-313.
- Russell, C. S. (1974). Transition to parenthood: Problems and gratifications. Journal of Marriage and the Family, 36, 294-301.
- Stewart, A. S., & Malley, J. E. (1987). Role combination in women in the early adult years: Mitigating agency and communion. In F. Crosby (Ed.), Spouse, parent, worker: On gender and multiple roles. New Haven, CT: Yale University Press.
- Tardy, C. H. (1985). Social support measurement. American Journal of Community Psychology, 13(2), 187-202.
- Tietjen, A. M., & Bradley, C. F. (1985). Social support and maternal psychosocial adjustment during the transition to parenthood. Canadian Journal of Behavioural Science, 17(2), 109-121.
- Tilden, V. P. (1983). The relation of life stress and social support to emotional disequilibrium during pregnancy. Research in Nursing and Health, 6, 167-174.
- Tilden, V. P. (1985). Issues of conceptualization and measurement of social support in the construction of nursing theory. Research in Nursing and Health, 8, 199-206.

- Tilden, V. P., & Galyen, R. D. (1987). Cost and conflict: The darker side of social support. Western Journal of Nursing Research, 9(1), 9-18.
- Tilden, V. P., Nelson, C. A., & May, B. A. (in press). The interpersonal relationship inventory: Development and psychometric characteristics. Nursing Research.
- U.S. Department of Commerce. (1982). 1980 census of population: Classified index of industries and occupations (PHC80-R4). Washington, DC: U.S. Government Printing Office.
- U.S. Department of Labor. (1988). Education level of U.S. labor force continues to rise (USDL 88-423). Washington, DC: U.S. Government Printing Office.
- U.S. Department of Labor. (1986). Half of mothers with children under 3 now in labor force (USDL 86-345). Washington, DC: U.S. Government Printing Office.
- Verbruagge, L. M. (1983). Multiple roles and physical health of women and men. Journal of Health and Social Behavior, 24, 16-30.
- Weiss, R. (1969). The fund of socialability. Trans-Action, 6, 36-43.
- Wilkie, J. (1981). The trend towards delayed childbearing. Journal of Marriage and the Family, 43(3), 583-591.
- Winslow, W. (1987). First pregnancy after 35: What is the experience? Maternal-Child Nursing, 12, 92-97.

Appendix A

U.S. Census Bureau Job Classification

(U.S. Department of Commerce, 1982, pp. xi-xviii)

Occupational Classification System

138

Equivalent numeric codes follow the alphabetic code. Either code may be used, depending on the processing method. Numbers in parentheses following the occupation categories are the 1980 Standard Occupational Classification code equivalents. The abbreviation "pt" means "part" and "n.e.c." means "not elsewhere classified."

Occupation code	Occupation category	Occupation code	Occupation category
MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS		MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.	
Executive, Administrative, and Managerial Occupations		Professional Specialty Occupations—Con.	
003	Legislators (111)	048	Chemical engineers (1626)
004	Chief executives and general administrators, public administration (112)	049	Nuclear engineers (1627)
005	Administrators and officials, public administration (1132-1139)	053	Civil engineers (1628)
006	Administrators, protective services (1131)	054	Agricultural engineers (1632)
007	Financial managers (122)	055	Electrical and electronic engineers (1633, 1636)
008	Personnel and labor relations managers (123)	056	Industrial engineers (1634)
009	Purchasing managers (124)	057	Mechanical engineers (1635)
013	Managers, marketing, advertising, and public relations (125)	058	Marine engineers and naval architects (1637)
014	Administrators, education and related fields (128)	059	Engineers, n.e.c. (1639)
015	Managers, medicine and health (131)	063	Surveyors and mapping scientists (164)
016	Managers, properties and real estate (1353)	064	Mathematical and computer scientists
017	Postmasters and mail superintendents (1344)	065	Computer systems analysts and scientists (171)
018	Funeral directors (pt 1359)	066	Operations and systems researchers and analysts (172)
019	Managers and administrators, n.e.c. (121, 126, 127, 132-139, except 1344, 1353, pt 1359)	067	Actuaries (1732)
	Management related occupations	068	Statisticians (1733)
023	Accountants and auditors (1412)	069	Mathematical scientists, n.e.c. (1739)
024	Underwriters (1414)	073	Natural scientists
025	Other financial officers (1415, 1419)	074	Physicists and astronomers (1842, 1843)
026	Management analysts (142)	075	Chemists, except biochemists (1845)
027	Personnel, training, and labor relations specialists (143)	076	Atmospheric and space scientists (1846)
028	Purchasing agents and buyers, farm products (1443)	077	Geologists and geodesists (1847)
029	Buyers, wholesale and retail trade, except farm products (1442)	078	Physical scientists, n.e.c. (1849)
033	Purchasing agents and buyers, n.e.c. (1449)	079	Agricultural and food scientists (1853)
034	Business and promotion agents (145)	083	Biological and life scientists (1854)
035	Construction inspectors (1472)	084	Forestry and conservation scientists (1852)
036	Inspectors and compliance officers, exc. construction (1473)	085	Medical scientists (1855)
037	Management related occupations, n.e.c. (149)	086	Health diagnosing occupations
	Professional Specialty Occupations	087	Physicians (261)
	Engineers, architects, and surveyors	088	Dentists (262)
043	Architects (161)	089	Veterinarians (27)
	Engineers	095	Optometrists (281)
044	Aerospace engineers (1622)	096	Podiatrists (283)
045	Metallurgical and materials engineers (1623)	097	Health diagnosing practitioners, n.e.c. (289)
046	Mining engineers (1624)	098	Health assessment and treating occupations
047	Petroleum engineers (1625)	099	Registered nurses (29)
		103	Pharmacists (301)
		104	Dietitians (302)
		105	Therapists
			Inhalation therapists (3031)
			Occupational therapists (3032)
			Physical therapists (3033)
			Speech therapists (3034)
			Therapists, n.e.c. (3039)

Occupation code	Occupation category	Occupation code	Occupation category
	MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.		MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS—Con.
	Professional Specialty Occupations—Con.		Professional Specialty Occupations—Con.
	Health assessment and treating occupations—Con.		Social, recreation, and religious workers
106	Physicians' assistants (304)	174	Social workers (2032)
	Teachers, postsecondary	175	Recreation workers (2033)
113	Earth, environmental, and marine science teachers (2212)	176	Clergy (2042)
	Biological science teachers (2213)	177	Religious workers, n.e.c. (2049)
114	Chemistry teachers (2214)		Lawyers and judges
115	Physics teachers (2215)	178	Lawyers (211)
116	Natural science teachers, n.e.c. (2216)	179	Judges (212)
117	Psychology teachers (2217)		Writers, artists, entertainers, and athletes
118	Economics teachers (2218)	183	Authors (321)
119	History teachers (2222)	184	Technical writers (398)
123	Political science teachers (2223)	185	Designers (322)
124	Sociology teachers (2224)	186	Musicians and composers (323)
125	Social science teachers, n.e.c. (2225)	187	Actors and directors (324)
126	Engineering teachers (2226)	188	Painters, sculptors, craft-artists, and artist printmakers (325)
127	Mathematical science teachers (2227)	189	Photographers (326)
128	Computer science teachers (2228)	193	Dancers (327)
129	Medical science teachers (2231)	194	Artists, performers, and related workers, n.e.c. (328, 329)
133	Health specialties teachers (2232)		Editors and reporters (331)
134	Business, commerce, and marketing teachers (2233)	195	Public relations specialists (332)
135	Agriculture and forestry teachers (2234)	197	Announcers (333)
136	Art, drama, and music teachers (2235)	198	Athletes (34)
137	Physical education teachers (2236)	199	
138	Education teachers (2237)		TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS
139	English teachers (2238)		Technicians and Related Support Occupations
143	Foreign language teachers (2242)		Health technologists and technicians
144	Law teachers (2243)		Clinical laboratory technologists and technicians (362)
145	Social work teachers (2244)		Dental hygienists (363)
146	Theology teachers (2245)		Health record technologists and technicians (364)
147	Trade and industrial teachers (2246)		Radiologic technicians (365)
148	Home economics teachers (2247)		Licensed practical nurses (366)
149	Teachers, postsecondary, n.e.c. (2249)	203	Health technologists and technicians, n.e.c. (369)
153	Postsecondary teachers, subject not specified	204	Technologists and technicians, except health
154	Teachers, except postsecondary	205	Engineering and related technologists and technicians
	Teachers, prekindergarten and kindergarten (231)	206	Electrical and electronic technicians (3711)
155	Teachers, elementary school (232)	207	Industrial engineering technicians (3712)
N (156)	Teachers, secondary school (233)	208	Mechanical engineering technicians (3713)
P (157)	Teachers, special education (235)		Engineering technicians, n.e.c. (3719)
158	Teachers, n.e.c. (236, 239)		Drafting occupations (372)
159	Counselors, educational and vocational (24)		Surveying and mapping technicians (373)
163	Librarians, archivists, and curators		Science technicians
	Librarians (251)	213	Biological technicians (382)
164	Archivists and curators (252)	214	Chemical technicians (3831)
165	Social scientists and urban planners	215	Science technicians, n.e.c. (3832, 3833, 384, 389)
	Economists (1912)	216	
166	Psychologists (1915)	217	
167	Sociologists (1916)	218	
168	Social scientists, n.e.c. (1913, 1914, 1919)	223	
169	Urban planners (192)	224	
173		225	

Occupation code	Occupation category	Occupation code	Occupation category
	TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.		TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.
	Technicians and Related Support Occupations—Con.		Administrative Support Occupations, Including Clerical—Con.
	Technicians, except health, engineering, and science		Supervisors, administrative support occupations—Con.
226	Airplane pilots and navigators (825)		Supervisors; distribution, scheduling, and adjusting clerks (4522, 4524-4528)
227	Air traffic controllers (392)	307	Computer equipment operators
228	Broadcast equipment operators (393)		Computer operators (4612)
229	Computer programmers (3971, 3972)	308	Peripheral equipment operators (4613)
233	Tool programmers, numerical control (3974)	309	Secretaries, stenographers, and typists
234	Legal assistants (396)		Secretaries (4622)
235	Technicians, n.e.c. (399)		Stenographers (4623)
			Typists (4624)
	Sales Occupations	R (313)	Information clerks
		314	Interviewers (4642)
243	Supervisors and proprietors, sales occupations (40)	315	Hotel clerks (4643)
	Sales representatives, finance and business services		Transportation ticket and reservation agents (4644)
253	Insurance sales occupations (4122)	316	Receptionists (4645)
254	Real estate sales occupations (4123)	317	Information clerks, n.e.c. (4649)
255	Securities and financial services sales occupations (4124)	318	Records processing occupations, except financial
256	Advertising and related sales occupations (4153)	319	Classified-ad clerks (4662)
257	Sales occupations, other business services (4152)	323	Correspondence clerks (4663)
	Sales representatives, commodities except retail	325	Order clerks (4664)
258	Sales engineers (421)	326	Personnel clerks, except payroll and timekeeping (4692)
259	Sales representatives, mining, manufacturing, and wholesale (423, 424)	327	Library clerks (4694)
	Sales workers, retail and personal services	328	File clerks (4696)
263	Sales workers, motor vehicles and boats (4342, 4344)	329	Records clerks (4699)
264	Sales workers, apparel (4346)		Financial records processing occupations
265	Sales workers, shoes (4351)	335	Bookkeepers, accounting, and auditing clerks (4712)
266	Sales workers, furniture and home furnishings (4348)	336	Payroll and timekeeping clerks (4713)
267	Sales workers; radio, television, hi-fi, and appliances (4343, 4352)	S (337)	Billing clerks (4715)
268	Sales workers, hardware and building supplies (4353)	338	Cost and rate clerks (4716)
269	Sales workers, parts (4367)	339	Billing, posting, and calculating machine operators (4718)
274	Sales workers, other commodities (4345, 4347, 4354, 4356, 4359, 4362, 4369)	343	Duplicating, mail and other office machine operators
275	Sales counter clerks (4363)	344	Duplicating machine operators (4722)
Q (276)	Cashiers (4364)		Mail preparing and paper handling machine operators (4723)
277	Street and door-to-door sales workers (4366)	345	Office machine operators, n.e.c. (4729)
278	News vendors (4365)	346	Communications equipment operators
	Sales related occupations	347	Telephone operators (4732)
283	Demonstrators, promoters and models, sales (445)		Telegraphers (4733)
284	Auctioneers (447)	348	Communications equipment operators, n.e.c. (4739)
285	Sales support occupations, n.e.c. (444, 446, 449)	349	Mail and message distributing occupations
		353	Postal clerks, exc. mail carriers (4742)
	Administrative Support Occupations, Including Clerical	354	Mail carriers, postal service (4743)
		355	Mail clerks, exc. postal service (4744)
303	Supervisors, administrative support occupations	356	Messengers (4745)
	Supervisors, general office (4511, 4513-4519, 4529)	357	Material recording, scheduling, and distributing clerks, n.e.c.
304	Supervisors, computer equipment operators (4512)		Dispatchers (4751)
305	Supervisors, financial records processing (4521)	359	Production coordinators (4752)
306	Chief communications operators (4523)	363	

Occupation code	Occupation category	Occupation code	Occupation category
	TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS—Con.		SERVICE OCCUPATIONS—Con.
	Administrative Support Occupations, Including Clerical—Con.		Protective Service Occupations—Con.
	Material recording, scheduling, and distributing clerks, n.e.c.—Con.	425	Guards
364	Traffic, shipping, and receiving clerks (4753)	426	Crossing guards (5142)
365	Stock and inventory clerks (4754)	427	Guards and police, exc. public service (5144)
366	Meter readers (4755)		Protective service occupations, n.e.c. (5149)
368	Weighers, measurers, and checkers (4756)		Service Occupations, Except Protective and Household
369	Samplers (4757)	433	Food preparation and service occupations
373	Expeditors (4758)		Supervisors, food preparation and service occupations (5211)
374	Material recording, scheduling, and distributing clerks, n.e.c. (4759)	434	Bartenders (5212)
	Adjusters and investigators	U (435)	Waiters and waitresses (5213)
375	Insurance adjusters, examiners, and investigators (4782)	436	Cooks, except short order (5214)
376	Investigators and adjusters, except insurance (4783)	437	Short-order cooks (5215)
377	Eligibility clerks, social welfare (4784)	438	Food counter, fountain and related occupations (5216)
378	Bill and account collectors (4786)	439	Kitchen workers, food preparation (5217)
	Miscellaneous administrative support occupations	443	Waiters'/waitresses' assistants (5218)
379	General office clerks (463)	444	Miscellaneous food preparation occupations (5219)
383	Bank tellers (4791)		Health service occupations
384	Proofreaders (4792)	445	Dental assistants (5232)
385	Data-entry keyers (4793)	446	Health aides, except nursing (5233)
386	Statistical clerks (4794)	447	Nursing aides, orderlies, and attendants (5236)
387	Teachers' aides (4795)		Cleaning and building service occupations, except household
389	Administrative support occupations, n.e.c. (4787, 4799)	448	Supervisors, cleaning and building service workers (5241)
	SERVICE OCCUPATIONS		Maids and housemen (5242, 5249)
	Private Household Occupations	449	Janitors and cleaners (5244)
403	Launderers and ironers (503)	V (453)	Elevator operators (5245)
404	Cooks, private household (504)	454	Pest control occupations (5246)
405	Housekeepers and butlers (505)	455	Personal service occupations
406	Child care workers, private household (506)	456	Supervisors, personal service occupations (5251)
T (407)	Private household cleaners and servants (502, 507, 509)	457	Barbers (5252)
	Protective Service Occupations	458	Hairdressers and cosmetologists (5253)
	Supervisors, protective service occupations	459	Attendants, amusement and recreation facilities (5254)
413	Supervisors, firefighting and fire prevention occupations (5111)	463	Guides (5255)
414	Supervisors, police and detectives (5112)	464	Ushers (5256)
415	Supervisors, guards (5113)	465	Public transportation attendants (5257)
	Firefighting and fire prevention occupations	466	Baggage porters and bellhops (5262)
416	Fire inspection and fire prevention occupations (5122)	467	Welfare service aides (5263)
417	Firefighting occupations (5123)	468	Child care workers, except private household (5264)
	Police and detectives	469	Personal service occupations, n.e.c. (5258, 5269)
418	Police and detectives, public service (5132)		FARMING, FORESTRY, AND FISHING OCCUPATIONS
423	Sheriffs, bailiffs, and other law enforcement officers (5134)	W (473)	Farm operators and managers
424	Correctional institution officers (5133)	474	Farmers, except horticultural (5512-5514)
		475	Horticultural specialty farmers (5515)
		476	Managers, farms, except horticultural (5522-5524)
			Managers, horticultural specialty farms (5525)
XIV			

Occupation code	Occupation category	Occupation code	Occupation category
	FARMING, FORESTRY, AND FISHING OCCUPATIONS—Con.		PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.
	Other agricultural and related occupations		Mechanics and repairers—Con.
	Farm occupations, except managerial		Mechanics and repairers, except supervisors—Con.
477	Supervisors, farm workers (5611)		Miscellaneous mechanics and repairers
479	Farm workers (5612-5617)		Camera, watch, and musical instrument repairers (6171, 6172)
483	Marine life cultivation workers (5618)	535	Locksmiths and safe repairers (6173)
484	Nursery workers (5619)	536	Office machine repairers (6174)
	Related agricultural occupations	538	Mechanical controls and valve repairers (6175)
485	Supervisors, related agricultural occupations (5621)	543	Elevator installers and repairers (6176)
486	Groundskeepers and gardeners, except farm (5622)	544	Millwrights (6178)
487	Animal caretakers, except farm (5624)	547	Specified mechanics and repairers, n.e.c. (6177, 6179)
488	Graders and sorters, agricultural products (5625)		Not specified mechanics and repairers
489	Inspectors, agricultural products (5627)		Construction trades
	Forestry and logging occupations	549	Supervisors, construction occupations
494	Supervisors, forestry and logging workers (571)		Supervisors; brickmasons, stonemasons, and tile setters (6312)
495	Forestry workers, except logging (572)	553	Supervisors, carpenters and related workers (6313)
496	Timber cutting and logging occupations (573, 579)	554	Supervisors, electricians and power transmission installers (6314)
	Fishers, hunters, and trappers	555	Supervisors; painters, paperhangers, and plasterers (6315)
497	Captains and other officers, fishing vessels (pt 8241)	556	Supervisors; plumbers, pipefitters, and steamfitters (6316)
498	Fishers (583)	557	Supervisors, n.e.c. (6311, 6318)
499	Hunters and trappers (584)	558	Construction trades, except supervisors
	PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS	563	Brickmasons and stonemasons (pt 6412, pt 6413)
	Mechanics and repairers	564	Brickmason and stonemason apprentices (pt 6412, pt 6413)
503	Supervisors, mechanics and repairers (60)	565	Tile setters, hard and soft (6414, pt 6462)
	Mechanics and repairers, except supervisors	566	Carpet installers (pt 6462)
	Vehicle and mobile equipment mechanics and repairers	Y (567)	Carpenters (pt 6422)
X (505)	Automobile mechanics (pt 6111)	569	Carpenter apprentices (pt 6422)
506	Automobile mechanic apprentices (pt 6111)	573	Drywall installers (6424)
507	Bus, truck, and stationary engine mechanics (6112)	575	Electricians (pt 6432)
508	Aircraft engine mechanics (6113)	576	Electrician apprentices (pt 6432)
509	Small engine repairers (6114)	577	Electrical power installers and repairers (6433)
514	Automobile body and related repairers (6115)	579	Painters, construction and maintenance (6442)
515	Aircraft mechanics, exc. engine (6116)	583	Paperhangers (6443)
516	Heavy equipment mechanics (6117)	584	Plasterers (6444)
517	Farm equipment mechanics (6118)	585	Plumbers, pipefitters, and steamfitters (pt 645)
518	Industrial machinery repairers (613)	587	Plumber, pipefitter, and steamfitter apprentices (pt 645)
519	Machinery maintenance occupations (614)	588	Concrete and terrazzo finishers (6463)
	Electrical and electronic equipment repairers	589	Glaziers (6464)
523	Electronic repairers, communications and industrial equipment (6151, 6153, 6155)	593	Insulation workers (6465)
525	Data processing equipment repairers (6154)	594	Paving, surfacing, and tamping equipment operators (6466)
526	Household appliance and power tool repairers (6156)	595	Roofers (6468)
527	Telephone line installers and repairers (6157)	596	Sheetmetal duct installers (6472)
529	Telephone installers and repairers (6158)	597	Structural metal workers (6473)
533	Miscellaneous electrical and electronic equipment repairers (6152, 6159)	598	Drillers, earth (6474)
534	Heating, air conditioning, and refrigeration mechanics (616)		

Occupation code	Occupation category	Occupation code	Occupation category
PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.		PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS—Con.	
	Construction trades—Con.		Precision production occupations—Con.
	Construction trades, except supervisors—Con.		Precision workers, assorted materials—Con.
599	Construction trades, n.e.c. (6467, 6475, 6476, 6479)	684	Miscellaneous precision workers, n.e.c. (6869)
	Extractive occupations	686	Precision food production occupations
613	Supervisors, extractive occupations (632)	687	Butchers and meat cutters (6871)
614	Drillers, oil well (652)	688	Bakers (6872)
615	Explosives workers (653)		Food batchmakers (6873, 6879)
616	Mining machine operators (654)	689	Precision inspectors, testers, and related workers
617	Mining occupations, n.e.c. (656)	693	Inspectors, testers, and graders (6881, 828)
	Precision production occupations		Adjusters and calibrators (6882)
633	Supervisors, production occupations (67, 71)	694	Plant and system operators
	Precision metal working occupations	695	Water and sewage treatment plant operators (691)
634	Tool and die makers (pt 6811)	696	Power plant operators (pt 693)
635	Tool and die maker apprentices (pt 6811)	699	Stationary engineers (pt 693, 7668)
636	Precision assemblers, metal (6812)		Miscellaneous plant and system operators (692, 694, 695, 696)
637	Machinists (pt 6813)		
639	Machinist apprentices (pt 6813)		
643	Boilermakers (6814)		
644	Precision grinders, fitters, and tool sharpeners (6816)		
645	Patternmakers and model makers, metal (6817)		
646	Lay-out workers (6821)		
647	Precious stones and metals workers (jewelers) (6822, 6866)	703	
649	Engravers, metal (6823)	704	
653	Sheet metal workers (pt 6824)	705	
654	Sheet metal worker apprentices (pt 6824)		
655	Miscellaneous precision metal workers (6829)	706	
	Precision woodworking occupations		
656	Patternmakers and model makers, wood (6831)	707	
657	Cabinet makers and bench carpenters (6832)	708	
658	Furniture and wood finishers (6835)		
659	Miscellaneous precision woodworkers (6839)	709	
	Precision textile, apparel, and furnishings machine workers		
666	Dressmakers (pt 6852, pt 7752)	713	
667	Tailors (pt 6852)	714	
668	Upholsterers (6853)	715	
669	Shoe repairers (6854)	717	
673	Apparel and fabric patternmakers (6856)		
674	Miscellaneous precision apparel and fabric workers (6859, pt 7752)	719	
	Precision workers, assorted materials	723	
675	Hand molders and shapers, except jewelers (6861)	724	
676	Patternmakers, lay-out workers, and cutters (6862)	725	
677	Optical goods workers (6864, pt 7477, pt 7677)		
678	Dental laboratory and medical appliance technicians (6865)	726	
679	Bookbinders (6844)	727	
683	Electrical and electronic equipment assemblers (6867)	728	
			OPERATORS, FABRICATORS, AND LABORERS
			Machine Operators, Assemblers, and Inspectors
			Machine operators and tenders, except precision
			Metalworking and plastic working machine operators
			Lathe and turning machine set-up operators (7312)
			Lathe and turning machine operators (7512)
			Milling and planing machine operators (7313, 7513)
			Punching and stamping press machine operators (7314, 7317, 7514, 7517)
			Rolling machine operators (7316, 7516)
			Drilling and boring machine operators (7318, 7518)
			Grinding, abrading, buffing, and polishing machine operators (7322, 7324, 7522)
			Forging machine operators (7319, 7519)
			Numerical-control machine operators (7326)
			Miscellaneous metal, plastic, stone, and glass working machine operators (7329, 7529)
			Fabricating machine operators, n.e.c. (7339, 7539)
			Metal and plastic processing machine operators
			Molding and casting machine operators (7315, 7342, 7515, 7542)
			Metal plating machine operators (7343, 7543)
			Heat treating equipment operators (7344, 7544)
			Miscellaneous metal and plastic processing machine operators (7349, 7549)
			Woodworking machine operators
			Wood lathe, routing, and planing machine operators (7431, 7432, 7631, 7632)
			Sawing machine operators (7433, 7633)
			Shaping and joining machine operators (7435, 7635)

Occupation code	Occupation category	Occupation code	Occupation category
	OPERATORS, FABRICATORS, AND LABORERS—Con.		OPERATORS, FABRICATORS, AND LABORERS—Con.
	Machine Operators, Assemblers, and Inspectors—Con.		Machine operators, Assemblers, and Inspectors—Con.
	Machine operators and tenders, except precision—Con.		Machine operators and tenders, except precision—Con.
	Woodworking machine operators—Con.		Machine operators, assorted materials—Con.
729	Nailing and tacking machine operators (7636)	777	Miscellaneous machine operators, n.e.c. (pt 7479, 7665, 7679)
733	Miscellaneous woodworking machine operators (7434, 7439, 7634, 7639)	779	Machine operators, not specified
	Printing machine operators		Fabricators, assemblers, and hand working occupations
734	Printing machine operators (7443, 7643)	783	Welders and cutters (7332, 7532, 7714)
735	Photoengravers and lithographers (6842, 7444, 7644)	784	Solderers and brazers (7333, 7533, 7717)
736	Typesetters and compositors (6841, 7642)	785	Assemblers (772, 774)
737	Miscellaneous printing machine operators (6849, 7449, 7649)	786	Hand cutting and trimming occupations (7753)
	Textile, apparel, and furnishings machine operators	787	Hand molding, casting, and forming occupations (7754, 7755)
738	Winding and twisting machine operators (7451, 7651)	789	Hand painting, coating, and decorating occupations (7756)
739	Knitting, looping, taping, and weaving machine operators (7452, 7652)	793	Hand engraving and printing occupations (7757)
743	Textile cutting machine operators (7654)	794	Hand grinding and polishing occupations (7758)
744	Textile sewing machine operators (7655)	795	Miscellaneous hand working occupations (7759)
745	Shoe machine operators (7656)	796	Production inspectors, testers, samplers, and weighers
747	Pressing machine operators (7657)		Production inspectors, checkers, and examiners (782, 787)
748	Laundering and dry cleaning machine operators (6855, 7658)	797	Production testers (783)
749	Miscellaneous textile machine operators (7459, 7659)	798	Production samplers and weighers (784)
	Machine operators, assorted materials	799	Graders and sorters, except agricultural (785)
753	Cementing and gluing machine operators (7661)		Transportation and Material Moving Occupations
754	Packaging and filling machine operators (7462, 7662)		Motor vehicle operators
755	Extruding and forming machine operators (7463, 7663)	803	Supervisors, motor vehicle operators (8111)
756	Mixing and blending machine operators (7664)	Z (804)	Truck drivers, heavy (8212, 8213)
757	Separating, filtering, and clarifying machine operators (7476, 7666, 7676)	805	Truck drivers, light (8214)
758	Compressing and compacting machine operators (7467, 7667)	806	Driver-sales workers (8218)
759	Painting and paint spraying machine operators (7669)	808	Bus drivers (8215)
763	Roasting and baking machine operators, food (7472, 7672)	809	Taxicab drivers and chauffeurs (8216)
764	Washing, cleaning, and pickling machine operators (7673)	813	Parking lot attendants (874)
765	Folding machine operators (7474, 7674)	814	Motor transportation occupations, n.e.c. (8219)
766	Furnace, kiln, and oven operators, exc. food (7675)		Transportation occupations, except motor vehicles
768	Crushing and grinding machine operators (pt 7477, pt 7677)	823	Rail transportation occupations
769	Slicing and cutting machine operators (7478, 7678)	824	Railroad conductors and yardmasters (8113)
773	Motion picture projectionists (pt 7479)	825	Locomotive operating occupations (8232)
774	Photographic process machine operators (6863, 6868, 7671)	826	Railroad brake, signal, and switch operators (8233)
		826	Rail vehicle operators, n.e.c. (8239)
			Water transportation occupations
		828	Ship captains and mates, except fishing boats (pt 8241, 8242)
		829	Sailors and deckhands (8243)
		833	Marine engineers (8244)
		834	Bridge, lock, and lighthouse tenders (8245)
			Material moving equipment operators
		843	Supervisors, material moving equipment operators (812)
		844	Operating engineers (8312)

Occupation code	Occupation category	Occupation code	Occupation category
	OPERATORS, FABRICATORS, AND LABORERS—Con.		OPERATORS, FABRICATORS, AND LABORERS—Con.
	Transportation and Material Moving Occupations—Con.		Handlers, Equipment Cleaners, Helpers, and Laborers—Con.
	Material moving equipment operators—Con.	869	Construction laborers (871)
845	Longshore equipment operators (8313)	873	Production helpers (861, 862)
848	Hoist and winch operators (8314)		Freight, stock, and material handlers
849	Crane and tower operators (8315)	875	Garbage collectors (8722)
853	Excavating and loading machine operators (8316)	876	Stevedores (8723)
855	Grader, dozer, and scraper operators (8317)	877	Stock handlers and baggers (8724)
856	Industrial truck and tractor equipment operators (8318)	878	Machine feeders and offbearers (8725)
859	Miscellaneous material moving equipment operators (8319)	883	Freight, stock, and material handlers, n.e.c. (8726)
	Handlers, Equipment Cleaners, Helpers, and Laborers	885	Garage and service station related occupations (873)
863	Supervisors; handlers, equipment cleaners, and laborers, n.e.c. (85)	887	Vehicle washers and equipment cleaners (875)
864	Helpers, mechanics and repairers (863)	888	Hand packers and packagers (8761)
	Helpers, construction and extractive occupations	889	Laborers, except construction (8769)
865	Helpers, construction trades (8641-8645, 8648)	999	OCCUPATION NOT REPORTED¹
866	Helpers, surveyor (8646)		
867	Helpers, extractive occupations (865)		

¹ Code used when not-reported cases are not allocated.

Appendix B
SNI Pilot Study

In a pilot study done by this author, Cronenwett's (1984) SNI was mailed to six married, expectant couples. The pregnancies were in the second or third trimester and all parents were expecting their first child. All women were employed outside the home. One was also a graduate student. Three women were professionally educated and employed (two in law, one in academia). After completion of the SNI, all couples were asked for interviews. Five of the women were interviewed on separate occasions, four in person and one over the telephone. One husband was able to be with his wife for the interview. Although information was gathered similarly with the men, only the women's results will be reported here.

Besides a general desire to gain practical experience in SNI administration there were several objectives for the pilot study with the SNI. The first objective was to get pregnant working women's perceptions on qualities such as clarity and adequacy of network description with the SNI. The second objective was to learn more about the experience of combining work and pregnancy. This information could lead to finding the appropriate time to assess social networks in pregnancy in cross-sectional research. The third objective was to assess specific social support concerns and determine if the SNI was adequate to assess these. Findings which are of particular interest to the current study will be reported here.

The interviews provided useful, practical feedback

about the SNI. The women found the SNI easy to follow. They reported that ten people was an adequate number to list for their most important network members. The women stated that they would tend to list as many as there were spaces, although this related more to their desire to "fill up" the page than to the size of their immediate networks. They found the social support definitions easy to understand and stated that all possible types of support that they receive were included.

Concerning support, women rated spouse support the highest, although all women (all professionally employed) stated that co-worker support was very important. They stated that a deficit in support from co-workers could not be compensated for by the spouse; the opposite was also true. All of the women interviewed stated that they were the first women at their current job level to become pregnant. The women spent much time and effort in negotiation for time off and an adjusted work schedule after the baby's birth. Women considered maternity policy a form of support also, that is, when it was in fact supportive.

Co-workers responded differently to the women's pregnancies with some co-workers adopting a maternal role (e.g., nurturing her, asking how she was feeling). However, others did not even regard her as pregnant; the topic of pregnancy was never mentioned, even though "it was common knowledge" and "visible". Another group of co-workers, usually the young single adults, detached themselves from

the pregnant woman. One woman described their behavior as mentally "trying on" her role and then sitting back to watch what happened to her. The co-workers described as most supportive were men who had very young children of their own. Another co-worker support listed was the occasional secretary who would "cover for her" while she rested.

Based on these co-worker examples, it appeared necessary to differentiate the type of role a co-worker has, for example, peer, boss, or subordinate. It also might be necessary to gather additional information (beyond the SNI) about the woman's work so that the SNI results could be put in the proper context.

In addition to the general network information, this author found that three changes could be made to help the SNI flow more smoothly and reflect concerns of this population. First, because some subjects made errors in coding the types of support received, the letters A, B, C, and D could be changed to the first letter of the word describing the particular type of support (e.g., E for emotional support). Second, many subjects felt that reporting the frequency of visits in number of days instead of how many times in one week would be more appropriate. Because of their busy lives, they sometimes only saw or talked to network members every 10 to 14 days or less. Third, all of them related some stories about wanting to find other couples who were going through the same experiences. Changing the wording of the SNI question

relating to ages of children of network members to include pregnant members would provide a way to assess this.

Based on these pilot interviews alone, the best time point in pregnancy for collecting social network data is still not clear. All women were healthy throughout pregnancy but those with the most morning sickness in the first trimester felt that they needed the most support early in the pregnancy. The situation was reversed for the women with little morning sickness; they saw the greatest need for support coming after the birth. Co-worker support was needed especially while they began and continued to modify their work role. For some of the professional women, getting this support was problematic because there was no one else to do her job.

Another issue of importance to the women was the desire to quantify support in some way. They spoke of the same types of support provided by many people but in varying amounts and of varying importance to them. The term "satisfaction" alone was inadequate to describe what support meant to them, because it left out relative amounts between people. Through trial and error the following questions were devised and added to the end of the SNI: How much support do you feel you need from ...(each group listed separately)? How much support do you feel you get from...(each group listed separately)? Although Cronenwett did not have subjects include their mates in their SNI network, this author had subjects list mates as a separate

category in order to judge the mate's relative importance to the other network members. Women responded on a support scale of whole numbers from 0 (none) to 10 (a great deal) highlighted areas of satisfaction with support, something that the SNI alone does not do. Satisfaction in this case was determined by the difference, or actually the lack of difference, between what support the woman felt that she needed and the support she actually received. For example, one woman needed and received a value of 5 (or moderate amount of support) from co-workers and, hence, was satisfied. On the other hand, when needed and received scores did not match, areas of potential stress or conflict were highlighted. This occurred when too much or too little support was received in relation to need. Also, it demonstrated how the amount of support needed and received from groups or persons varied between them. This information has not appeared in the published research literature and is not assessable using any existing published measure known to this researcher.

In conclusion, trial of the SNI and selected follow-up interviews with a sample of expectant couples revealed encouraging information about the SNI. It appeared to be an easily understood and effective measure of social networks and the support provided by them. Areas of further SNI development which would enhance its capabilities to assess population relevant characteristics were discussed and suggestions were presented.

Appendix C
Assumptions

Two assumptions guided the researcher in this study. One assumption is that pregnancy is a time of wellness or a normal, developmental transition. As with any time of change, there is potential for illness or crisis, but the whole transition is not perceived as a crisis. This reflects the change in thinking about transition to parenthood, as a whole, from the crisis perspective (LeMasters, 1957; Dyer, 1963) to the normal transition perspective (Hobbs, 1965; Russell, 1974; Hobbs & Cole, 1976). The transition approach to pregnancy fits the life domain change part of Brennan and Rosenzweig's (in press) theory.

Another assumption is that pregnancy affects the whole woman. Thus, health in pregnancy must be defined from a holistic perspective. This author defines health in general as one's biologic, psychological, social, cultural, and spiritual ability to live in one's environment. If one's abilities match or meet environmental needs, one is well; if not, one is ill. Without a predetermined point of illness or wellness, individual variability is expected. Included in this assumption is the ability to function in one's work environment, an aspect which is key to this research. This assumption combines aspects of physical pregnancy health with development that is psychosocially healthy as described by the Brennan and Rosenzweig (in press) theory.

Appendix D
Research Packet

Dear Mom-to-be,

As a nurse and a mother, I have learned that many things can affect general well-being in pregnancy, for example, proper diet, rest, and exercise. A supportive network of people may be also important during this special time. The help provided by these social networks during pregnancy has been studied, generally, but not specifically in relation to the special needs of women who work outside the home. This is why your thoughts and concerns are so important.

Enclosed in this research packet are four forms. Each must be completed for your information to be used.

1. Consent Forms -- Provided for your information and protection. Sign one and get a witness to your signature, then return it to me. Sign and keep the other one.
2. Background Information Form -- Helps me understand more about you, your pregnancy, and your work.
3. Social Network Inventory -- Part I lets you describe the network of people who are important to you. Part II lets you rate how you feel about their support.
4. Interpersonal Relationship Inventory -- Lets you answer broader questions about your co-worker network.

Because your time, effort, and thoughts are appreciated, please take the opportunity to enter a drawing with the other participants of this study (about 60 moms-to-be), and complete the form on the final page with your name, address, and evening phone number. This information will be used for the drawing only. You will be notified by January 31, 1990 if you have won. Prizes will be gift certificates or gifts which will be appropriate, regardless of the age or sex of your baby.

Thank you again for your help and CONGRATULATIONS!!!

Sincerely yours,

Laura Koppenhoefer
503/641-7050

(Sign this and RETURN it.)

OREGON HEALTH SCIENCES UNIVERSITY
Consent Form

TITLE Social networks and social support perceived by professionally and nonprofessionally employed pregnant women.

PRINCIPLE INVESTIGATOR Laura Koppenhoefer, R.N., B.S.N.

PURPOSE I understand that the purposes of this study are to describe the social networks of pregnant women who work and to learn more about the support they receive during pregnancy from the people who are important to them.

PROCEDURES If I agree to be in the study, I will complete the enclosed questionnaires and return them in the sealed envelope to Laura Koppenhoefer at the next childbirth class.

RISKS AND DISCOMFORTS I understand there are no physical risks; however, answering the questionnaires may take up to 40 minutes.

BENEFITS I understand that the only benefit to me may be having a chance to think about the support I receive. However, nurses and physicians may benefit from learning about what is important to me and people like me. The information may help pregnancy health care providers and employers learn more about the needs of pregnant employees.

CONFIDENTIALITY I understand that my name and all my answers are strictly confidential. My questionnaires will have only a subject number assigned. Any people, who I may list by initial only, will not be identified in any way. Neither my name nor my identity will be used for publication or publicity purposes. I understand that the faculty committee supervising the study may see my questionnaire but not my name, and that a federal regulating agency may review records from the research.

COSTS There are no financial costs to me for this research.

LIABILITY "The Oregon Health Sciences University, as an agency of the State, is covered by the State Liability Fund. If you suffer any injury from the research project, compensation would be available to you only if you establish that the injury occurred through the fault of the University, its officers or employees. If you have further questions, please call Dr. Michael Baird at (503) 279-8014."

I know that I may refuse to participate or withdraw from this study at any time and it will not affect my relationship with Oregon Health Sciences University, my childbirth educator, or Emanuel or Meridian Park Hospitals. Laura Koppenhoefer (phone # -- 503/641-7050) has offered to answer any of my questions and will provide me a copy of this form.

I have read the above, and agree to participate in this study.

Signature of Participant

Signature of Witness

Date

(Sign this and KEEP it.)

OREGON HEALTH SCIENCES UNIVERSITY
Consent Form

TITLE Social networks and social support perceived by professionally and nonprofessionally employed pregnant women.

PRINCIPLE INVESTIGATOR Laura Koppenhoefer, R.N., B.S.N.

PURPOSE I understand that the purposes of this study are to describe the social networks of pregnant women who work and to learn more about the support they receive during pregnancy from the people who are important to them.

PROCEDURES If I agree to be in the study, I will complete the enclosed questionnaires and return them in the sealed envelope to Laura Koppenhoefer at the next childbirth class.

RISKS AND DISCOMFORTS I understand there are no physical risks; however, answering the questionnaires may take up to 40 minutes.

BENEFITS I understand that the only benefit to me may be having a chance to think about the support I receive. However, nurses and physicians may benefit from learning about what is important to me and people like me. The information may help pregnancy health care providers and employers learn more about the needs of pregnant employees.

CONFIDENTIALITY I understand that my name and all my answers are strictly confidential. My questionnaires will have only a subject number assigned. Any people, who I may list by initial only, will not be identified in any way. Neither my name nor my identity will be used for publication or publicity purposes. I understand that the faculty committee supervising the study may see my questionnaire but not my name, and that a federal regulating agency may review records from the research.

COSTS There are no financial costs to me for this research.

LIABILITY "The Oregon Health Sciences University, as an agency of the State, is covered by the State Liability Fund. If you suffer any injury from the research project, compensation would be available to you only if you establish that the injury occurred through the fault of the University, its officers or employees. If you have further questions, please call Dr. Michael Baird at (503) 279-8014."

I know that I may refuse to participate or withdraw from this study at any time and it will not affect my relationship with Oregon Health Sciences University, my childbirth educator, or Emanuel or Meridian Park Hospitals. Laura Koppenhoefer (phone # -- 503/641-7050) has offered to answer any of my questions and will provide me a copy of this form.

I have read the above, and agree to participate in this study.

Signature of Participant

Signature of Witness

Date

Background Information

Information about you...

Age _____

Education _____ (years of education completed)

Marital Status (1) _____ Single
 (2) _____ Married
 (3) _____ Partnered
 (4) _____ Separated
 (5) _____ Divorced
 (6) _____ Widowed

Degrees (1) _____ H.S. diploma
 (2) _____ Associates
 (3) _____ Bachelors
 (4) _____ Masters
 (5) _____ Ph.D. or professi
 (M.D., J.D., etc
 (6) _____ Other, please spe

Information about your work...

Job title _____

Hours worked per week (1) _____
 (2) _____
 (3) _____
 (4) _____

Work setting _____

Estimate of yearly income (1) _____ less than \$15,000
 (from your job alone) (2) _____ \$15,001 to \$30,000
 (3) _____ \$30,001 to \$45,000
 Do not include (4) _____ \$45,001 to \$60,000
 partner's income. (5) _____ more than \$60,001

Information about your pregnancy...

Month of pregnancy you are in _____ Due date ____/____/____

Have you had previous pregnancy? (1) _____ yes (2) _____ no

If you have had a previous pregnancy, please check all that apply:

	Pregnancies...				
	1	2	3	4	5
Full term pregnancy, adopted out.....	_____	_____	_____	_____	_____
Miscarriage.....	_____	_____	_____	_____	_____
Abortion.....	_____	_____	_____	_____	_____
Other.....	_____	_____	_____	_____	_____

Personal history of surgical treatment for infertility? (1) _____ yes (

Do you consider this pregnancy to be "normal"? (1) _____ yes (2) _____ n

If the pregnancy is not what you consider to be normal, state why. _____

SOCIAL NETWORK INVENTORY PART I

These are the directions for filling out the Social Network Inventory (SNI). There is a separate answer sheet with marked rows and columns for your answers. Please fill out the SNI answer form one column at a time, following the directions carefully.

Following the directions, there are three separate questions for you to answer.

Column A:

In this column, I would like you to list at least one and at most ten people who are important in your life right now. These people may be family neighbors, co-workers, or friends. Do not include your spouse or partner SNI. The people you list should be those with whom you share something significant--anything from a favorite sport or hobby to your innermost feelings. Do not write out the whole names of these people. Instead, use two initials for each person. It is not necessary to enter ten people. Only list people who are truly meaningful to you. On the other hand, if there are ten people you would like to name, just list the ten most important ones. They do not need to be listed in any particular order.

Column B:

Please state the marital status of each person in Column A by entering the number from the list shown here which describes each person.

- 1 - Never Married
- 2 - Married
- 3 - Separated
- 4 - Divorced
- 5 - Widowed

Column C:

Please list the approximate age of each person listed in Column A.

Column D:

Please list the sex of each person in Column A as "M" (male) or "F" (female).

Column E:

Insert one of the following letters in Column D to indicate what relationship you hold with each person in Column A; that is, insert

- R if this person is a relative
 - CW if this person is a co-worker
- (If the person is a co-worker, state also in the same column what type of this person is. Use either CW-superior, CW-peer, or CW-subordinate.)
- N if this person is a neighbor
 - O if this person is any other kind of friend

If the person who is your co-worker is now also your friend too, still list only as a type of co-worker.

Column F:

Answer the question shown below for each person in Column A. Enter either Yes or No in the spaces under Column F.

Question: Does this person have any children right now?
(These can be biological, adopted, or stepchildren.)

Column G:

If the answer to the question in Column F was Yes or if the person is expecting a child (as a mother or father), please enter the approximate ages of the children or write P for pregnant if expecting.

Column H:

Please show how long you have known each person in column A by entering the number of years in Column H. If you have known some persons in your Social Network Inventory less than one year, show what fraction of a year you have known them, such as 1/2.

Column I:

Enter the average frequency of contact in number of days that you have with the person in Column A. "Contact" means any form of communication--whether it is by telephone, by letter, or face-to-face. For example, if you have contact every day write a "1", if it is every three days write "3", or every two weeks write "14", etc.

Column J:

Please think about the people you have listed in terms of what kinds of support they give you. Four kinds of support are defined below. Please read these before filling in Column J.

- E - Emotional - The person communicates love, caring trust, or concern for you.
- M - Material - The person directly helps you, such as through gifts of money, help with house chores, help with your work, etc.
- I - Information - The person tells you things you need to know; helps you solve your problems by sharing information or finding out things for you.
- C - Comparison - This person helps you learn about yourself just by being someone in the same situation or someone with similar experiences; he or she is like you in some important way and you feel supported because you can share ideas and feelings with someone like yourself.

Now, thinking about the people you have listed, show which kind or kinds of support you get from each person by writing E, M, I, and/or C for that person under Column J. If you receive none of these forms of support from a person, enter an X in Column J for that person. In other words, you may be entering an X or you may be entering one letter or any combination of E, M, I, C for each person in Column J.

Social Network Inventory Part II

You just described the people who are most important to you. Now, your relationships with relatives, co-workers, neighbors, and other kind friends, in general. In Part I, you may have listed different types of you receive from different people. It is very likely that you need diff amounts of support from people also.

For Part II, consider the amount of support you need and receive (b given to you and that is just available to you). Then think about how s are with this support. Circle the response that is closest to how you Notice that there is a separate category for your partner in this sectio example, if you need no support, you circle "0" (none), etc.

		None										
1. How much support do you <u>need</u> from ...	your partner	0	1	2	3	4	5	6	7	8		
	relatives	0	1	2	3	4	5	6	7	8		
	co-workers	0	1	2	3	4	5	6	7	8		
	neighbors	0	1	2	3	4	5	6	7	8		
	other kinds of friends	0	1	2	3	4	5	6	7	8		
2. How much support do you <u>receive</u> from ...	your partner	0	1	2	3	4	5	6	7	8		
	relatives	0	1	2	3	4	5	6	7	8		
	co-workers	0	1	2	3	4	5	6	7	8		
	neighbors	0	1	2	3	4	5	6	7	8		
	other kinds of friends	0	1	2	3	4	5	6	7	8		
		Not at all										Com
3. How <u>satisfied</u> are you with the support you receive from...	your partner	0	1	2	3	4	5	6	7	8		
	relatives	0	1	2	3	4	5	6	7	8		
	co-workers	0	1	2	3	4	5	6	7	8		
	neighbors	0	1	2	3	4	5	6	7	8		
	other kinds of friends	0	1	2	3	4	5	6	7	8		

INTERPERSONAL RELATIONSHIP INVENTORY

Most relationships with co-workers we feel close to are both helpful and Below are statements that describe close personal relationships with co- The term "co-worker" can refer to any of the people you work with -- bos subordinates. Also, "co-worker" may include people with whom you have a related relationship but don't share a common employer, for example, a p meet by working with a cooperating agency. Please read each statement a the number that best fits your situation now while you are pregnant. Th right or wrong answers.

These first statements ask you to disagree or agree.

	Strongly Disagree	Neut	
1. I know a co-worker who makes me feel confident in myself.	1	2	3
2. Some co-workers share similar views with me.	1	2	3
3. There is a co-worker I can turn to for helpful advice about a problem.	1	2	3
4. I can talk openly about anything with at least one co-worker.	1	2	3
5. There is a co-worker I could go to for anything.	1	2	3
<hr/>			
6. Some co-workers in my life are too pushy.	1	2	3
7. I can count on a co-worker to make me feel better when I need it.	1	2	3
8. There is a co-worker in my life who gets mad if we have different opinions.	1	2	3
9. It's safe for me to reveal my weaknesses to a co-worker I know.	1	2	3
10. A co-worker I am close to stands by me through good times and bad times.	1	2	3
<hr/>			
11. I have the kind of co-workers who really help out in an emergency.	1	2	3
12. There is a co-worker I care about that I can't count on.	1	2	3
13. If I need help at work, all I have to do is ask.	1	2	3
14. I have enough opportunity to talk things over with co-workers I care about.	1	2	3

These next statements ask you how often something happens.

	Never		Som tim
15. I have enjoyable times with co-workers I am close to.	1	2	3
16. I spend time doing things for co-workers when I'd really rather not.	1	2	3
17. Some co-workers I care about invade my privacy.	1	2	3
18. I am embarrassed by what a co-worker I care about does.	1	2	3
<hr/>			
19. A co-worker I am close to tends to take advantage of me.	1	2	3
20. Some co-workers I am close to are a burden to me.	1	2	3
21. I wish some co-workers I care about were more sensitive to my needs.	1	2	3
22. Co-workers I am close to make me do things I don't want to do.	1	2	3
<hr/>			
23. There is tension between me and a co-worker I care about.	1	2	3
24. I have trouble pleasing some co-workers I am close to.	1	2	3
25. At least one co-worker I am close to lets me know they believe in me.	1	2	3
26. Some co-workers I feel close to expect too much of me.	1	2	3

Thank you for your help!

When you are finished, return the questionnaires to the envelope that th
Make sure the separate SNI Part I answer sheet gets in the envelope also
have any comments about your experience of combining work and pregnancy,
this study, feel free to include them on the back of the SNI Part I answ
Your may keep the introductory letter and your copy of the consent form.
sealed envelope to Laura Koppenhoefer at the next childbirth class. If
to do this, return the envelope to your childbirth class instructor as s
possible. She will forward the sealed packet to Laura.

**Please complete the bottom portion of this page
to enter drawing for gift certificate.**

(This form will be torn off when your packet is returned to Laura Koppen

NAME _____

ADDRESS _____

EVENING PHONE NUMBER (_____) _____ - _____

Appendix E
Permission to Recruit Subjects

Permission to Recruit Subjects

Project Title: Social Networks and Social Supports Perceived by
Professionally and Nonprofessionally Employed
Pregnant Women

Researcher: Laura A. Koppenhoefer, R.N., B.S.N.
Graduate Student, Family Nursing
Oregon Health Sciences University

1. Laura Koppenhoefer has explained to me that the purpose of her study is to describe the social supports and social networks of women who are employed outside the home during pregnancy.
2. I understand that her research project has the approval of her research committee which is chaired by Margaret Imle, Ph.D. (OHSU phone # -- 279-7796). This research also has the approval of the Committee on Human Research at OHSU. I have been given a copy of this approval letter for my file.
3. I agree to allow Laura Koppenhoefer to use my childbirth education classes to recruit subjects for her research. The procedure for recruitment has been described to me, and I approve.
4. I understand that I can withdraw my support at any time and it will not effect any relationship with OHSU.
5. Laura Koppenhoefer has offered to share the results of her research with me on completion of this project.

Signature

Witness

Date

(One copy to instructor, one for researcher.)

Laura Koppenhoefer
12620 SW Butner Rd.
Beaverton, OR 97005
(503) 641-7050

Appendix F
Presentation to Childbirth Classes

Hi, my name is Laura Koppenhoefer. I'm a graduate student in Family Nursing at OHSU, and I'm here to tell you briefly about my research and ask for your help.

As a nurse and a mother, I've learned that many things can affect a woman's health in pregnancy...things like proper diet, rest, and exercise you hear about every day. Something that can also keep you healthy is having a network of family, friends, neighbors, and co-workers to help and support you during this special time. The social networks of pregnant women and men have been studied in generally in the past, but not recently in light of many changes in the lives of today's new parents. To date, there is no specific information about the social networks of women who work outside the home during pregnancy. As a nurse who works with expectant parents, I know that it's important to understand more about how much help moms-to-be need and who they need that help from. This is why your thoughts and concerns are so important.

In this study, I'm distributing research packets to all women who meet the following criteria:

1. currently taking childbirth classes through Emmanuel or Meridian Park Hospitals.
2. currently working outside the home, at least part-time.
3. pregnant with the first child that will be in your home....in other words, you may have had a previous pregnancy, but there aren't any children living with you.

To participate, you need to do three things:

1. Sign out a research packet
2. Take it home and complete it.
3. Return it to me at the next childbirth class

So far, moms have reported that it takes about 20 minutes to read and complete.

Inside the packet you will find:

1. A letter which explains all this again.
2. Two identical consent forms-- one must be witnessed by someone, for example your husband or a friend, and returned to me.
3. Two questionnaires. The answer sheet is separate for one of them to make it easier to complete.
4. AND, a form for entering a drawing which I'll tell you more about.

Your results are confidential. When you return the sealed packet, the consent form and form for the drawing with your name will be removed. The subject number is there to help me keep track of how many forms I have distributed and keep returned forms assembled appropriately.

Because I appreciate your time and thoughts, I've set up a drawing for a \$50 gift certificate at Fred Meyers. I want all participants to have an equal chance, so the drawing will occur when all my questionnaires are completed...about January 31, 1990. I need about 60 moms-to-be. There are some sponsors that haven't responded yet, so there may be more than one prize.

If you have any questions, or problems, contact me -- not your instructor. My number is in the packet.

Again, thanks for your time. AND, because I know that all moms and dads are "working" moms and dads, I have something for all of you. [This is when brochures on infant stimulation or toys were distributed along with packets.]

Appendix G
Analytic Procedures for Each Variable

Research Question	Variable Number	Analytic Procedure
-------------------	-----------------	--------------------

1	1	The average network size was determined by counting the number of people listed in Column A of the SNI Part I for each subject and then finding the average number for each occupational group.
---	---	---

1	2	Method 1 - Means per subgroup (e.g., relatives) were calculated by summing the number of network members in each subgroup and then finding the mean number of subgroup members for each occupational category.
---	---	--

Method 2 - The portion of the whole network that each subgroup represented was calculated by summing the number of members for each network subgroup and then dividing by the individual's network size. These subgroup proportions were then averaged for each occupational group.

1	3	The proportion of women's networks which was composed of pregnant women or expecting men members was calculated by adding the total number of network members who were reported as pregnant or expecting a child on the SNI Part I, dividing this number by the individual's network size, and then multiplying by 100.
---	---	---

1	4	The proportion of women's networks which was composed of parents of children who are less than five years of age was calculated by adding the total number of network members who were reported as having children who are less than five years of age on the SNI Part I, dividing this number by the individual's network size and then multiplying by 100.
---	---	--

1	5	Scores for the number of days between contacts were calculated by categorizing the network members into subgroups and then determining the average frequency of contact within subgroups for each subject.
---	---	--

- 2 6 Method 1 - To determine what types of support were received from the co-worker portion of the whole network, the types of support (emotional, material, information, and comparison) that women reported they received were counted for each subject.
- Method 2 - To further describe the support provided by co-workers, in each woman's case, the total number of reports for each type of support was divided by the number of co-workers listed in the SNI Part I and multiplied by 100, resulting in a measure of what percent of the women's network provided each type of support (e.g., two reports of emotional support from co-workers divided by a total of 4 co-workers in the network, times 100 equals 50% of the co-worker network providing emotional support).
- 3 7 The score used to calculate the occupational group means for needed support was the actual score on the first item of the SNI Part II.
- 4 8 The score used to calculate the occupational group means for received support was the actual score on the second item of the SNI Part II.
- 5 9 The score used to calculate the occupational group means for satisfaction with support was the actual score on the third item of the SNI Part II.
- 6 10 Scores on the adapted IPRI support subscale were calculated by averaging each woman's score across the support subscale and then determining a group mean score.
- 7 11 Scores on the adapted IPRI conflict subscale were calculated by averaging each woman's score across the conflict subscale and then determining a group mean score.
- 8 10,11 Independent t-tests were performed on the group mean scores for support and conflict.

Abstract

Title: Social Networks and Social Support Perceived by
Professionally and Nonprofessionally Employed
Pregnant Women

Author: La [REDACTED], B.S.N.

Approved: [REDACTED]

Margaret Imie, R.N., Ph.D., Advisor

The social support provided by social networks of professionally and non-professionally employed pregnant women has not been described in the research literature. The purpose of this study was to describe the social networks and the support provided by these networks to these employed pregnant women, with specific attention to the co-worker social environment. When approached in childbirth education settings, 74 married or partnered employed women in their third trimester volunteered for this descriptive research. Participants completed a one-time assessment using Cronenwett's Social Network Inventory (SNI), an adaptation of Tilden's Interpersonal Relationship Inventory (IPRI), and an author-developed addendum to the SNI. Women in both groups (65 nonprofessionally employed and 9 professionally employed) reported an average of seven network members, with relatives and other kinds of friends being listed most frequently. Few network members were pregnant, but about 50% of network members were parents of children under five years of age. Co-workers provided mainly comparison, emotional, and informational support and

little material support. There was no significant difference between employment groups on IPRI co-worker support and on conflict; both groups had relatively high co-worker support and low co-worker conflict. Both groups reported needing and receiving the most support from partners, followed by relatives, other kinds of friends, and co-workers. Satisfaction with support did not follow this rank order in the professionally employed group. Generalizability of findings is limited by the small sample size of the professionally employed group and by the white, middle-class, urban sample. The results of this study provide useful information about an unresearched aspect of the pregnant working population.

