

A META-ANALYSIS OF THE EFFECTS OF SOCIAL SUPPORT ON  
ADAPTATION IN ROY'S FOUR MODES

---

A DISSERTATION  
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY  
IN THE GRADUATE SCHOOL OF THE  
TEXAS WOMAN'S UNIVERSITY  
COLLEGE OF NURSING

BY  
CONSTANCE JEAN AYERS B.S.N., M.S.

---

DENTON, TEXAS  
AUGUST 1990

TEXAS WOMAN'S UNIVERSITY  
DENTON, TEXAS

July 11, 1990  
Date

To the Provost of the Graduate School:

I am submitting herewith a dissertation written by Constance Ayers entitled "A Meta-analysis of the Effects of Social Support on Adaptation in Roy's Four Modes." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Nursing.

Helen A. Bush  
Helen A. Bush, Major Professor

We have read this dissertation  
and recommend its acceptance:

David Marshall

Peggy J. Orsato

Barbara Shease

Linda Harrington

Mavis Kasika

Accepted  
Leslie M. Thompson  
Provost of the Graduate School



Copyright c Constance Jean Ayers, 1990

All rights reserved

## ACKNOWLEDGEMENTS

I would like to express my appreciation to the numerous people who provided assistance to me during the course of this research process.

It is indeed a pleasure to thank my major professor, Dr. Helen Bush for her continued guidance, encouragement, and support. She was always eager to listen and discuss my questions. Her opinions and suggestions were very helpful and valuable to me. To my committee: Dr. Barbara Lease, for her consultation, guidance, advice and challenging questions; Dr. Peggy Drapo, Dr. Linda Harrington, Dr. Maisie Kashka, and Dr. David Marshall for their helpful suggestions and guidance, I am grateful.

To my employer, Northeast Missouri State University for the support given to me, including a sabbatical leave for doctoral study, I express my sincere appreciation.

My thanks also to my family and friends. I am especially grateful to my parents, Louis and Doris Ayers, and to Philip, Jan, and their families for their continued words of encouragement along the way. They were always willing to accompany me on trips to TWU, thus making those trips much more enjoyable for me. For all their acts of kindness, my deepest appreciation.

## ABSTRACT

### A META-ANALYSIS OF THE EFFECTS OF SOCIAL SUPPORT ON ADAPTATION IN ROY'S FOUR MODES

by

CONSTANCE JEAN AYERS

AUGUST, 1990

The purpose of the study was to determine the health outcomes of social support as reported in the published and dissertation nursing research for the years 1984-1989. Meta-analytic methods were utilized in order to determine the effects of social support in the nursing studies. Twenty-one subject-studies comprised the sample for the study. Health outcomes were categorized into the four adaptive modes identified by Roy.

The investigator developed coding instruments were used to measure the independent and dependent variables. Data obtained from the instruments were analyzed using oneway analysis of variance to determine the difference in social support effect sizes that were attributable to Roy's four modes of adaptation.

No significant difference was found in the social support correlated effect sizes for the adaptive modes. The results of the study suggest that further investigation of the effects of social support on health outcomes is indicated.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS . . . . .	iv
ABSTRACT . . . . .	v
LIST OF TABLES . . . . .	.viii
Chapter	
I. INTRODUCTION . . . . .	1
Problem of Study . . . . .	3
Purpose of the Study . . . . .	3
Rationale for the Study . . . . .	3
Theoretical Framework . . . . .	6
Assumptions. . . . .	10
Hypothesis . . . . .	10
Definition of Terms . . . . .	11
Limitations . . . . .	12
Delimitations . . . . .	13
Summary . . . . .	13
II. REVIEW OF LITERATURE . . . . .	14
Social Support . . . . .	14
Meta-analysis . . . . .	28
III. PROCEDURE FOR COLLECTION AND TREATMENT OF DATA . . . . .	36
Population and Sample . . . . .	36
Instruments . . . . .	37
Data Collection . . . . .	38
Treatment of Data . . . . .	39
Pilot Study . . . . .	40
IV. ANALYSIS OF DATA . . . . .	42
Description of the Sample . . . . .	42
Findings . . . . .	44
Summary of Findings . . . . .	48
V. SUMMARY OF THE STUDY . . . . .	49
Summary . . . . .	49
Discussion of Findings . . . . .	50

Conclusions and Implications . . . . .	58
Recommendations for Further Study . . . . .	59
REFERENCES . . . . .	61
APPENDICES . . . . .	68
A. Coding Form A . . . . .	69
Coding Form B . . . . .	71
B. Studies Used in the Meta-analysis . . . . .	74

## LIST OF TABLES

I.	Effect Sizes for Self Concept Mode of Adaptation . . . . .	45
II.	Effect Sizes for Role Function-Interdependence Modes of Adaptation . . . . .	46
III.	Effect Sizes for Physiological Mode of Adaptation . . . . .	47
IV.	ANOVA Summary Table for Effect Size Data . . . . .	48

## CHAPTER I

### Introduction

The importance of supportive relationships in enabling persons to perform health behaviors and adapt to the stresses of life has been recognized by nurses and other health professionals for years. Nursing has identified social support as an important aspect of health care, and the enhancement of supportive relationships has been advocated by researchers as an effective nursing intervention (Norbeck, 1981). In addition, social isolation and impaired social interactions have been identified as approved nursing diagnoses by the North American Nursing Diagnosis Association (1988), reinforcing the increasing importance that nursing places on supportive relationships. Assessment of the need for support of clients and the adequacy of social support systems are accepted as integral phases of the nursing process. Furthermore, interventions to enhance support systems have been developed to influence the negative outcomes of inadequate support. Such utilization of social support as a nursing intervention has led to more liberal visiting hours in hospitals and the inclusion of family members in the care of clients.

Nursing is unique in the consideration of person, health, and environment as major concepts for understanding the phenomena of concern to the profession. Social support as a variable for consideration by nursing has the potential for contributing to the understanding of person, health, environment and nursing. For example, health may be affected either positively or negatively by the type, timing, and amount of social support. The provisions of the environment may include the relationships that are available to the person. Consequently, nurses may intervene to enhance support systems for the person in the environment with the objective of positively influencing health. The way in which nursing views the person encompasses the wholeness and integrity of the person. Thus, the person is more than merely a physiological and psychological being. The person is also a social being, and as such, is affected by relationships in the environment, and subsequently affects other persons in the environment.

Recently, researchers have attempted to measure the effect of social support on various health outcomes. The research available concerning social support and health outcomes has contributed to a general acceptance that social support is beneficial for most persons. Numerous studies have been reported which identified significant relationships between social support and recovery,



compliance with therapeutic regimens, adjustment to chronic illness, and health behavior. However, despite the large number of studies available that have examined social support and health outcomes, the magnitude of the effect continues to be unclear.

#### Problem of Study

The problem under investigation was to determine the effects of social support on health outcomes in nursing studies completed between 1984 and 1989.

#### Purpose of the Study

The purpose of the study was to synthesize the existing body of nursing knowledge that examines the health outcomes of social support. The synthesis was performed using meta-analytic techniques, and attempted to identify the impact of social support on adaptation in Roy's four modes (Roy, 1984). In addition, the identification of various changes in client behavior that are enhanced through the use of social support was an important aspect of the study.

#### Rationale for the Study

Without a thorough knowledge of the effects of nursing interventions, quality care of clients is not possible. Therefore, validation of strategies used by nurses is vital. Social support has become increasingly popular as a concept that has the potential to affect a number of health outcomes. The inclusion of family members

in the care of clients is one example of a social support intervention that has been accepted as effective for enhancement of health.

In recent years, studies examining social support in relation to several variables have proliferated. However, a clear understanding of the specific effects of social support is not possible. Integrated information about the value of social support could have important implications for nursing research and practice. Therefore, the utility of social support for enhancing the present knowledge base and generating further research must be understood.

Meta-analysis as a valid research method for nursing is becoming increasingly popular. Waltz and Bausell (1981) discussed the need for meta-analyses of nursing problems as more studies are addressing different aspects of the same problems and variables. Recent meta-analyses of the effects of preoperative instruction on postoperative outcomes have been reported in two separate studies (Devine & Cook, 1986; Hathaway, 1986) where such outcomes as recovery rates, pain, psychological well-being, and satisfaction with care were investigated. Additional meta-analyses of clinical nursing research variables have also been reported. Variables synthesized through the use of meta-analysis have included nonnutritive sucking in preterm infants (Schwartz, Moody, Yarandi, & Anderson, 1987), nursing interventions and patient outcomes (Heater,

Becker, & Olson, 1988), and pain intervention and measurement (Broome, Lillis, & Smith, 1989; Wilkie, Savedra, Holzemer, Tesler, & Paul, 1990).

In a meta-analysis of differences in performance of nurses with different basic educational backgrounds, Johnson (1988) found that differences exist in the performance levels of professional and technical nurses. Significant differences in performance of baccalaureate nurses as opposed to associate degree and diploma nurses were reported. No significant difference between the performance of associate degree and diploma nurses was found. However, leadership behaviors of professional and technical nurses did not differ significantly. The meta-analysis reported by Johnson (1988) should contribute to the efforts to resolve the continued entry into practice issue.

Ganong (1987) reviewed integrative reviews in nursing, and found that a majority of the studies did not meet primary research standards (p. 1). Seventeen reviews from nursing journals were compared with an established set of criteria for reviews to determine the quality and quantity of integrative reviews in nursing. The author found that of the studies reviewed, only two studies used quantitative methods to integrate research results. Suggestions for more rigorous reviews of nursing research were presented.

Two recent nursing articles focused on the methodology of meta-analysis (McCain, Smith, & Abraham, 1986; Smith & Naftel, 1984). McCain et al. (1986) discussed development of the coding instrument which has not been as clearly delineated in any of the prior works on meta-analysis. Of note, however, is the lack of additional nursing related explanations of the methods for integrative reviews, and the scant attention paid to meta-analysis in nursing research textbooks.

Additional meta-analyses of nursing care concepts are necessary to provide a clearer understanding of the status of nursing research completed. A synthesis of completed research through the use of meta-analysis is a viable approach to the understanding of nursing phenomena. The present meta-analysis of published and unpublished nursing research has contributed to the understanding of the effects of social support.

#### Theoretical Framework

The theoretical framework for the meta-analytic study of outcomes of social support was derived from the Roy Adaptation Model of Nursing (Roy, 1984). A description of the theoretical basis for the study is followed by a proposition which has been developed to indicate the relationship of concepts under investigation. Although the utility of a guiding theoretical framework is not always clear in a meta-analytic study, Cook and Leviton (1982)

emphasized that definitions of concepts should be clearly stated so that decisions regarding inclusion or exclusion of studies can be made. However, narrow theoretical formulations of relationships should be avoided, because studies could be excluded needlessly (Cook and Leviton, 1982). For the purpose of the meta-analysis of social support study, the theoretical framework was purposely developed with broad definitions of concepts in order to avoid problems of exclusion of studies that might contribute to the understanding of social support.

#### The Adaptation Model of Nursing

The Roy Adaptation Model of Nursing views the person as a biopsychosocial being. Therefore, adaptation is considered a combination of biological and psychological processes, and social interactions. According to Roy (1984) adaptation is ". . . a process involving holistic functioning to affect health positively" (p. 36). Nursing influences adaptation by promoting "adaptation in the four adaptive modes, thereby contributing to health, quality of life, and dying with dignity" (p. 38). Relationships in the environment may promote adaptation by contributing to adaptation in the interdependence adaptive mode. The physiologic, self-concept, role function and interdependence modes all function together to maintain or enhance health.

Interdependence has evolved significantly since the early description of the Roy Adaptation Model. Initially, interdependence adaptation was considered a balance between independent and dependent behaviors. Such a conceptualization considered the interactions between persons, but did not clearly indicate the importance of interactive relationships. Moreover, such interactions were considered under the subconcept of dependence, emphasizing the negative aspects of relationships (Roy, 1976). Recent developments regarding interdependence have focused on the provisions of affection through close relationships, thus emphasizing a positive value of interdependence.

Social support can be considered a subconcept of interdependence. Tedrow (1984) defined interdependence as "the close relationships of people that involve the willingness and ability to love, respect, and value others, and to accept and respond to love, respect, and value given by others" (p. 306). The interdependence adaptive mode, therefore, is concerned with close relationships and interactions with other persons. Tedrow contended that affectional needs are met through relationships with other persons. Nurturing behavior and accepting nurturance are considered essential to interdependence. The author considered both receptive interdependence behavior and contributive interdependence behaviors as important to

interdependence adaptation. Therefore, receiving affection and providing another person with affection are both necessary. The amount of support, affection, or nurturance contribute to the affectional adequacy needs being met and adaptation in the interdependence mode. Consequently, interdependence adaptation is concerned primarily with the adequacy of relationships and of needs being met through relationships, and is not as concerned with the consequences of ineffective adaptation in the interdependence mode on health outcomes across the other adaptive modes.

Another aspect of adaptation, however, is the affect of adaptation in the interdependence mode on the physiologic, self concept and role function adaptive modes. According to Andrews and Roy (1986), adaptation in one adaptive mode can serve as a contextual stimulus for adaptation in the other adaptive modes. Therefore, effective adaptation in the interdependence mode should influence behavior and adaptation in the physiologic, role function and self-concept modes, also. On the other hand, ineffective adaptation in the interdependence mode could lead to ineffective adaptation in the physiologic, role function, and self concept modes. Thus, the potential relationships between interdependence and health are suggested and form the theoretical basis of the meta-analysis of the effects of social support.

Based upon the theoretical framework which has been described, one proposition was derived. The proposition describes the relationships between concepts that were investigated, and includes both the potential direct and indirect effects of social support. The proposition is consistent with the Adaptation Model of Nursing (Roy, 1984). The proposition tested in the study was the following: The greater the adequacy of social support for the person, the greater the physiological, interdependence, role function, and self concept adaptive outcomes for the person.

#### Assumptions

The following assumptions were important to the study:

1. The person is a social being, living in a complex social environment that provides for interactions among persons.
2. Health can be influenced by interactions among persons.

#### Hypothesis

The following hypothesis was tested in the study:  
There is no significant difference in the social support effect sizes that may be attributable to Roy's four modes of adaptation.



### Definition of Terms

The following terms were defined for the study:

Social support: This was the independent variable and constitutes the enhancement of adequacy of relationships through interactions with persons in the environment. Social support was measured by the quantitative social support measures utilized in studies that met the criteria for inclusion in the meta-analysis.

Health Outcomes: This was the dependent variable and is a classification of all the variables in the sample of nursing research studies that were identified as influenced by or related to social support. Health outcomes were measured by the quantitative instruments utilized in the sample of nursing studies, and were grouped by the researcher into the physiological, self concept, interdependence, and role function categories of adaptive modes specified by Roy (1984). Quantification and categorization of health outcomes were accomplished through the use of the Coding Instrument B (Appendix A).

Physiological Mode: This concerns "the way the person responds physically to stimuli from the environment" (Andrews & Roy, 1986; p. 41). Manifestations of physiological activity include parameters such as blood pressure, heart rate, and respiratory rate.

Self-Concept Mode: This refers to the "composite beliefs and feelings that a person holds about himself or herself at a given time" (Andrews & Roy, 1986; p. 42), and was measured by self-concept measurement instruments.

Role Function Mode: This refers to the roles a person holds in society and was measured by demographic descriptions of samples and role performance instruments in studies.

Interdependence Mode: This refers to the interactions between persons as described in the previous section. Interdependence was measured by social support and interdependence measurement instruments.

#### Limitations

The following limitations of the study were identified:

1. Differences in conceptual definitions and instruments measuring concepts under investigation may have influenced the results of the study.
2. The determination of effects of social support as a treatment was not possible, since experimental nursing studies examining the outcomes of social support are limited.
3. Exclusion of unpublished studies because of unavailability may have contributed to the findings.
4. Statistical data necessary for meta-analysis were not completely reported in the available studies.

### Delimitations

The investigation of data was restricted to the following:

1. studies completed during the years 1984 through 1989, and
2. published nursing studies and unpublished nursing dissertations.

### Summary

The theoretical basis for the meta-analytic study was developed from the Roy Adaptation Model (Roy, 1984). Social support was considered a concept included in interdependence adaptation according to the specifications by Roy (1984), and provided the basis for inclusion of studies in the sample. Chapter I included the theoretical framework, assumptions and hypothesis. Definitions, limitations, and delimitations were also detailed.

## CHAPTER II

### Review of Literature

Although social support is often considered a relatively new concept for nursing research, a growing number of investigators have examined the health outcomes of social support. In addition, meta-analysis as a research method to synthesize data regarding a particular variable has recently gained popularity in nursing. Therefore, the review of literature focuses on theoretical discussions of social support, and studies of social support in nursing and health. In addition, meta-analysis as a method for nursing research was reviewed.

#### Social Support

In an early review of research on social support, Cobb (1976) discussed the protective characteristics of social support against the health consequences of life stress. The author identified a wide range of protective effects of social support. Studies dealing with a variety of situations such as arthritis, tuberculosis, depression, alcoholism, birth and death were reviewed to lend support to the view that social support acts as a moderator on life stress. According to Cobb, "social support may reduce the amount of medication required, accelerate recovery, and facilitate compliance with prescribed medical regimens" (p. 310). From the review of studies, Cobb developed a

conceptual definition of social support that included information that enables a person to feel cared for, esteemed and valued, and belonging to a network of mutual obligation and communication (p. 300).

Further conceptualization of social support was presented by Kahn (1979) with the argument that social support has direct effects in addition to the stress buffering effects identified by Cobb (1976). Even though Kahn (1979) acknowledged the stress buffering effects of social support, the direct effects of social support on health and well-being were emphasized. The author contended that "the adequacy of social support is a determinant of individual well-being, of performance in the major social roles, and of success in managing life-changes and transitions" (p. 84). Kahn defined social support as "interpersonal transactions that include one or more of the following: the expression of positive affect of one person toward another: the affirmation or endorsement of another person's behaviors, perceptions, or expressed views; the giving of symbolic or material aid to another" (p. 85). Thus, the key concepts in supportive transactions are affect, affirmation, and aid.

Weiss (1974) identified six categories of the provisions of relationships. Included in the categories was attachment, social integration, opportunity for nurturance, reassurance of worth, a sense of reliable

alliance, and obtaining guidance. Each provision was conceptualized as important to individuals in different life situations. For example, obtaining guidance was considered important in stressful situations, whereas, opportunity for nurturance was considered important in parent-child relationships (p.23). A strong component of the framework presented by Weiss was attachment, which requires steady accessibility. Research implications of the work by Weiss are apparent. Identification of the types of relationships that provide the various forms of support are needed to validate the categories identified by Weiss. The conceptual definition of social relationships is similar to Kahn's definition, with increased specificity of categories of support. Both investigators relied heavily on attachment as a major dimension of support.

Jacobsen (1986) also contended that different types of social support may be appropriate for different situations. Stress theories were considered the most useful in explaining the effects of social support. The author cited examples from coping theory as evidence for the stress moderating effects of social support. However, utilization of stress and coping theories do not explain the potential direct effects of social support. Similarly, House (1981) considered social support as buffering the effects of stress.

Evidence to support the direct effects of social support on health was presented by Broadhead, et al. (1983). According to the authors, "cross-sectional studies abound and show a direct association between a variety of social support measures and depression, anxiety, other psychologic or psychiatric symptoms, physical or somatic symptoms, self-reported use of health services and blood pressure" (p. 522). Suggestions for research included the identification of the multiple dimensions of social support, and the dimensions that have the most significant effects on health outcomes.

In nursing, a growing number of studies have examined the health consequences of social support. Investigations have focused on the direct effect as well as the buffering effects of social support. However, in the majority of the studies reviewed, the objectives of the investigations were to determine the consequences of social support as a direct effect.

Norbeck (1981) was one of the first nursing researchers to develop a model of social support for clinical research and practice. The model was developed using the nursing process, and considered support available as affecting either positively or negatively the outcome of the situation. Since development of the model, several instruments have been developed to measure the adequacy of social support in various nursing situations

(Brandt & Weinert, 1981; Brown, 1986; Norbeck, Lindsey, & Carrieri, 1981; Tilden & Galyen, 1987). The instrument developed by Norbeck, Lindsey, and Carrieri (1981) was based on the conceptual framework proposed by Kahn (1979) and represented a continuing effort by the author to further the understanding of the importance of social support in health and illness situations. Norbeck has continued to examine the outcomes of social support, and has extended the investigations to include social support for critical care nurses as well (Norbeck, 1985).

Tilden (1985) reviewed definitions of social support and issues surrounding measurement of the concept. Areas of agreement and disagreement were analyzed by the author in order to arrive at a useful definition of social support for nursing. Tilden also discussed the lack of consensus regarding a definition of social support, and the consequences of inadequate theoretical bases for research. According to the author, "absence of theoretical grounding weakens both the definition of social support and research findings" (p. 202).

More recently, Tilden and Galyen (1987) suggested that the effects of social support cannot be considered only in a positive way. Instead, nurses should consider that social support may also have negative effects. Although health care providers have been well aware that relationships may not always be supportive, the authors



suggested that social support research has focused only on the potential for positive effects. The conceptual framework developed by Tilden and Galyen considered that cost and conflict of relationships are as vital to social support as the reciprocity and equity of relationships.

Although such concepts seem valid for studying relationships, it can be argued that the concepts of cost and conflict may relate more to social networks and that social support more clearly represents the positive aspects of relationships. Support implies the positive potential of a relationship, since persons find support from others who are willing to acknowledge the positive aspects about a person. In contrast, negative relationships may exist in a person's social network.

Ellison (1987) considered social support from a developmental perspective. In such a model, social support needs and provisions are different at different developmental stages. The conceptual view was proposed as an explanation for differences in outcomes of studies. However, research is still needed to validate the constructive developmental model.

In a concept analysis of social support, Dimond and James (1983) discussed the various definitions of social support in the literature. Several commonalities among the definitions of the concept were identified by the authors.

The common elements of social support identified by the authors included reciprocity, a sense of belonging, and communication of positive affect (Dimond & James, 1983).

The measurement of social support has been addressed by investigators in addition to Norbeck, et al. (1981). Rock, Green, Wise, and Rock (1984) provided valuable information about the psychometric properties of social support and social network scales. Of note, was the lack of complete information about social support/network scales that were reviewed. For example, only 33.3% of the studies reported reliability estimates for the scale developed. Furthermore, 73% of the studies did not provide information about scale derivation. The authors expressed caution about the use of scales without adequate psychometric data.

Brandt and Weinert (1981) developed the Personal Resource Questionnaire (PRQ) to measure social support. Based on the model developed by Weiss (1974), the scale was constructed using the six relational characteristics of social support. However, analyses of initial data revealed only two dimensions of support: "nurturance and a combination subscale of intimacy, social integration, worth and assistance" (p. 280).

Several investigators have studied social support and various pregnancy and childbirth outcomes. Satisfaction with support during pregnancy was examined by Brown

(1986). No differences were found between men and women in the partner support satisfaction score. In a similar study, Brown (1986) investigated the effects of partner support, others' support, stress, and chronic illness on expectant mothers' and fathers' health. Social support and stress were identified as useful predictors of health. In addition, "partner support appeared to be the most important variable in understanding expectant fathers' health, but social support for mothers included a larger domain and social networks contributed to their health in the same way as partner support" (p. 72).

Brown (1986) also reported the results of the development of the Support Behaviors Inventory (SBI). The instrument represented social support as a multidimensional concept. However, initial testing of the SBI did not support the multidimensionality of the concept.

Postpartum group support was examined by Cronenwett (1980). The author reported that women joined the group to meet women who were experiencing the same experiences, and that personal issues rather than infant issues were most often the topics of discussions. However, the impact of group support on the actual adjustment to a new baby was not identified.

In a similar study, Cronenwett (1985) studied outcomes of pregnancy in relation to social support and social networks. Outcomes of pregnancy that were examined

included "quality of relationship with spouse, perception of spouse participation in child care, gratification from labor and delivery experience, satisfaction with life situation and circumstance, confidence in ability to cope with tasks of parenting, satisfaction with parenthood and infant care, and support for parenting role from parents, friends, and relatives" (p. 95). Cronenwett found that support and network variables were significantly related to satisfaction with parenting and confidence in ability to cope with parenting for both parents. Furthermore, significant relationships were also reported for support/network variables and quality of spouse relationship and support for parenting for fathers.

The influence of stress and social support on maternal discipline was investigated by Brandt (1984). The author reported a significant inverse relationship between social support and restrictive discipline for high stress mothers. However, the results must be interpreted with caution, since the degree of the relationship was small ( $r = -.23$ ,  $p < .06$ ). On the other hand, because no relationship was found between social support and restrictive discipline for low stress mothers, the stress buffering effects of social support were implied.

Ellison (1983) examined parental support for school-aged children. As a subconcept of social support, parental support was considered as consisting of the

following four dimensions: parental availability, companionship, nurturance, and parent as mediator. Differences in support provided by mothers were found for girls and boys. Mothers reported providing more of all types of support for daughters. Similarly, girls reported receiving more support from their mothers than did the boys.

Health practices as outcomes of social support have also been studied (Fuller & Larson, 1980; Giersewski, 1983; Hubbard, Muhlenkamp & Brown, 1984; Laschinger, 1984; Muhlenkamp & Sayles, 1986; Thomas & Hooper, 1983). Hubbard, Muhlenkamp, and Brown (1984) examined the relationship between social support and self-care practices. The hypothesis that a strong, positive association would be found between social support and self-care practices was supported. In addition, married senior center participants scored higher on the health practices and social support instruments than the unmarried senior citizens.

Several authors have attempted to identify the outcomes of social support in critical illness situations. In a study of family visits to critically ill patients, Brown (1976) reported increased blood pressure and heart rates of critically ill patients during and after family visits. Of note is the absence of any determination of the type of interaction between families and patients.

Therefore, conclusions regarding the effects of social support in critical illness situations cannot be made, because visits did not meet the criteria necessary for social support. The author used the data to support the need to decrease visiting periods in intensive care units based on the idea that visits cause increased stress in patients who are critically ill. However, the conclusions may be faulty, since the quality of visits and relationships should provide more valid information about the effects of visits on cardiovascular parameters.

In a similar study, Chatham (1978) examined the effects of instructed involvement by family members on the manifestations of postcardiotomy psychosis by patients. The author found that patients whose family members had instruction about eye contact, touch and orientation needs of patients developed fewer manifestations of postcardiotomy psychosis than patients whose family members had no instruction about the needs of critically ill patients. Although the instruction to family members did not include all criteria for social support, the study demonstrates the potential physiological effects of social support. The author concluded that change of restrictive visiting policies in intensive care units seemed warranted, in contrast to the conclusions by Brown (1976).

Fuller and Foster (1982) studied the differences between family or friend visits and staff interactions with surgical intensive care patients. In contrast to the Brown (1976) study, no significant differences were found for cardiovascular variables and interactions with patients. The results suggest that family or friend visits may be no more stressful than routine nurse-patient interactions (Fuller & Foster, 1982, p. 462), indicating the potential benefits of social support.

Leach (1982) examined the physiological and psychosocial needs of patients with arterial occlusive disease during the preoperative stage of hospitalization. The authors found that patients primarily expressed a need for information and a need for support during the phase of hospitalization. Need for support was identified as necessary for coping with chronic illness and dealing with anxiety about the future.

Social support for patients with terminal cancer and other chronic illnesses has also been investigated. Saunders and McCorkle (1987) investigated the interaction of social support with coping strategies utilizing Lazarus' theory of coping as the conceptual basis for the study. The qualitative study attempted to discover how social support is involved in coping with lung cancer. Help seeking and accepting help were identified as effective

coping strategies. However, the most important problem-solving coping strategy identified by patients was radiation therapy.

In a study to determine the relationship between adaptation to chronic illness and social support for patients receiving maintenance hemodialysis, Dimond (1979) reported significant relationships between social support and adaptation. Specifically, a significant association was found between family cohesiveness and higher morale after the onset of dialysis. In addition, a significant relationship was identified between family cohesiveness and increased social functioning. The presence of a confidant was also significantly related to higher morale and changes in social functioning. Social support indicators for the study included family support, spouse support, and support from a confidant. The author concluded that "the findings of this study provide preliminary evidence to suggest that adaptation to hemodialysis is, in part, a function of distinct dimensions of social support" (p. 107).

The provisions of social support for elderly persons has also been the focus of studies. Ide (1983) examined the dimensions of social network support for low income elderly persons. A factor analysis of the social network support measure revealed that the concept may have two dimensions. Accessibility criteria and interactional criteria were identified as the dimensions of social



network support. However, the inclusion of accessibility criteria differs from most studies of social support. Such definitions appear to be more related to social network theoretical definitions.

The relationship between social support and locus of control of elderly persons has also been investigated. Thomas and Hooper (1983) reported that the group of elderly persons showed both high availability of casual and intimate contacts and internal orientation to health. Furthermore, a strong relationship between internal locus of control and the availability of social integration was found.

Well-being and social relationships of the elderly was examined by Baldassare, Rosenfield, and Rook (1984). The most noteworthy finding by the authors was that perceived lack of companionship was significantly related to unhappiness among the elderly. Based on the findings, the authors contended that social relationships as predictors of elderly well-being merit additional investigation.

Given the amount of research available regarding social support, analysis of the current status of research findings seems valid. The information gained from such an analysis could be significant for nursing theory

development, research and practice. The approach to conducting the integration of research studies, known as meta-analysis, will be discussed in the following section.

### Meta-Analysis

Most investigators agree that the results of a single study will not adequately confirm an issue. Therefore, the integration of results of several studies could provide valuable information about the state of the art in a particular research area. In the following section, the purpose, limitations and methods of meta-analysis are presented.

Because diversity in outcomes of studies may be related to study characteristics such as setting and sample, meta-analyses attempt to discover patterns in studies that show divergent outcomes (Bangert-Drowns, 1986). In addition, strengths of relationships and effects can become clearer through the use of meta-analysis. According to Bangert-Drowns, the application of statistics to quantitative outcomes of studies is the distinguishing characteristic of meta-analytic method.

Several methods of meta-analysis are available. The major methods for meta-analysis have been proposed by Glass, McGaw, and Smith (1981), Hedges and Olkin (1985), Hunter, Schmidt, and Jackson (1982), and Rosenthal (1984). Perhaps the most popular method has been proposed by Glass, et al. (1981). According to Glass, et al., the methodology

for meta-analysis involves the calculation of effect sizes for the outcomes of each study. The effect size provides information about the difference a treatment makes, and allows for comparisons across different scales of various dependent variables. After the computation of the effect size for study outcomes, the average outcome of study groups and the variance of the outcomes can be determined. In addition, relationships between independent variables and dependent measures are identified.

Formulas for effect size determinations are available for most statistical tests including the  $t$ -test,  $F$ -test, chi-square tests, and correlations (Cohen, (1969)). Most formulas are similar to the calculation of  $d$ , the effect size for the  $t$ -test of differences between means. Formulas are also available for conversion of  $d$  to a correlation, which will then allow for the determination of the variance. For studies reporting correlations, the value of the correlation coefficient is considered the effect size. Again, the variance is computed from the product-moment correlation coefficient.

Hedges and Olkin (1985) presented a methodology for meta-analysis that consisted of computing effect sizes for all outcomes of the independent variable. The method differs from the method suggested by Glass, et al. (1981) in that it proposes the use of a pooled estimate of the population variance for effect size calculations. The

authors suggested that using the square root of the weighted pooled variance for effect size computations would result in more precise estimates of effect size when two groups are compared, but no control group situation exists, as with studies involving gender comparisons. In addition, for the calculation of an overall mean effect size, the authors have suggested the calculation of a weighted mean for a group of effect sizes to reflect a more precise effect of the independent variable. The technique which consists of weighting the effect size by the reciprocal of the effect size variance results in a larger weight for the more precise effect sizes with smaller variances.

For correlational data, Hedges and Olkin proposed the use of the weighted  $z$ -transformation of  $r$  to describe the effect size. The authors opposed using the product-moment correlation coefficient to estimate the effect size because of the dependence of the correlation coefficient on the actual but unknown population variance. The authors proposed the use of Fisher's  $z$ -transformation of  $r$  to stabilize the variance making the statistic useful with smaller sample sizes.

Other methods for the meta-analysis proposed by Hedges and Olkin (1985) consist of tests of homogeneity and weighted regression techniques for examining the effects of study characteristics on the dependent variable. The

authors suggested the use of the homogeneity test to determine if the effect sizes are estimates of the same population effect.

Hunter, et al. (1982) also presented a method for meta-analysis which has been considered an extension of the meta-analysis techniques described by Glass, et al. (1981). The procedures suggested by the authors "deal with variations in study effect sizes due to sampling error and other artifacts and restrictions" (p. 140). The method primarily consists of calculating effect sizes which are subsequently corrected for sampling error, computational error, and measurement reliability and validity error. Then, the variance of effect sizes that is due to artifacts is determined, and correlations between study characteristics and study effect sizes are examined. Finally, if the effect size variation is large, the influence of moderator variables is determined.

A different method for meta-analysis was described by Rosenthal (1984). The method proposed by Rosenthal involved combining probability values from each test of relevant hypotheses. The methods for combining probabilities include the cumulation of significance levels to produce an overall  $p$  value for the set of studies. Cohen's  $d$  is also calculated to measure effect size that is considered less reliant on sample size than the significant level. Finally, the authors suggested

calculating the "fail-safe N" in order to determine the number of no effect studies that would be needed to convert a significant probability to a nonsignificant probability. The "fail safe N" controls for the file drawer problem. Because published studies may represent a biased sample of the population of studies on a particular topic, the fail-safe N is meant to indicate the null results that might be in file drawers or missed in the data collection process. In contrast to the method proposed by Glass, et al. (1981), the study is the unit of analysis for the combined probability method. Rosenthal discussed nine methods for combining probabilities.

Hedges and Olkin (1985) and Bangert-Drowns (1986) identified drawbacks of the combined probability method. According to Bangert-Drowns (1986) the major problem with combining significance levels across studies is that most of the results will be significant, yielding a less conservative view of the effect of a treatment. In addition, differences in study features do not receive the degree of attention that other methods have given such features, omitting the effect of a poorly designed study. The author does recognize the value of combining probabilities for estimating the effect of a treatment, and the potential for broad generalizations from the results.

Because the fail-safe N procedures described by Rosenthal (1984) were developed for use with the combined probability method of meta-analysis, the procedure is not compatible for use with effect size data. Orwin (1983), however, developed a method of estimating the fail-safe N for effect size data. The procedure consists of estimating the number of no effect results in the file drawer necessary to reduce the overall effect size estimate to a negligible level.

Cooper (1982) described the methods for meta-analysis, and illustrated the potential problems that may be encountered during each phase of the process. The author emphasized the importance of carefully defining the concepts for study. For the meta-analytic study, broad definitions of concepts are desirable, because the researcher can potentially reach more "definitive and robust conclusions than reviewers using narrow definitions" (p. 294). Cook and Leviton (1982) also discussed the need for broad definition of concepts and constructs. Consequently, the data should determine if relationships need respecified. In addition, the more operational details that are examined, the more valid the conclusions. Cooper (1982) also emphasized that more than one evaluator should be employed to determine inter-rater reliability of data collection techniques.

Numerous criticisms of meta-analysis have been offered by various authors. Perhaps one of the most vocal critiques has been provided by Hedges (1982) who described meta-analysis as "garbage in--garbage out" (p. 246), indicating that flaws in studies may affect outcomes. Also, according to the author, "meta-analysis may lead to oversimplified conclusions about the effect of treatment because it condenses the results of a series of studies into a few parameter estimates" (p. 246). Cook and Leviton (1982) also cautioned about the limitations of meta-analysis. Such limitations include undetectable bias and the inappropriateness of the method for small samples of studies. Furthermore, Bangert-Drowns (1986) described the apples and oranges problem of meta-analysis. The problem involves investigating dependent measures that examine different constructs (p. 397).

Cohen (1981) reported on the use of meta-analysis techniques for combining results of correlational studies. In the study of student ratings of instruction, Cohen synthesized studies of the relationship between the student ratings and student achievement. The author found that the synthesis of correlational research was useful in providing an understanding of the status of research in the field as well as leading to conclusions about the relationship that exists between ratings of instruction and achievement.



Relevant articles were reviewed that identified the outcomes of social support. The number and focus of the articles suggests that social support has been widely studied by nurses. In addition, articles have been reviewed, and a description of the methodology of meta-analysis has been provided. Meta-analysis as a useful research method for the synthesis of research studies of social support was presented.

## CHAPTER III

### Procedure For Collection and Treatment of Data

In order to synthesize the available data regarding the effects of social support in nursing, the meta-analytic methodology described by Glass, et al. (1981) and Hedges and Olkin (1985) was utilized. The research was descriptive in nature, and determined the effects of social support on adaptation in Roy's four adaptive modes by investigating effect sizes and differences in effect sizes for the adaptive groups.

### Population and Sample

The population of data for the meta-analysis included all nursing studies in which the health outcomes of social support were examined. The sample was drawn from the population of studies and included published and unpublished nursing research studies that met the following criteria:

1. completed between 1984 and 1989,
2. social support was an independent variable,
3. health outcomes were dependent variables, and
4. results of statistical tests performed were reported.

Potential subject-studies were identified by computer and manual searches of the Dissertation Abstracts International and manual searches of the Cumulative Index

to Nursing and Allied Health and for the years 1984 through 1989. In addition, a manual search of the International Nursing Index was performed. Reference lists of all potential subject-studies were also searched to identify additional studies which were appropriate for inclusion in the study.

According to Jackson (1980), "there is no way of ascertaining whether a set of located studies is representative of the full set of existing studies on the topic. Consequently, the best protection against an unrepresentative set is to locate as many of the existing studies as possible" (p. 444). Therefore, the decision to include both published and unpublished research in the study sample was considered necessary to avoid bias from published or unpublished data.

#### Instruments

A coding instrument developed by the investigator according to the guidelines suggested by Glass, et al., (1981), Jackson (1981), and McCain, et al., (1986) was utilized for data collection (Appendix A). The coding instrument was used to extract information from the subject-studies, and constituted the primary research tool for the meta-analysis. Data regarding both methodological variables and substantive variables were collected. Methodological characteristics measured included characteristics involving the quality of the study, and

addressed the study design, characteristics of the sample, and statistical treatment of the data. Substantive variables measured included the theoretical basis of the study, characteristics of the dependent variable, and measures of the independent and dependent variables. Coding of data from subject-studies was completed by the investigator. Therefore, inter-rater reliability was not a problem.

Efforts were made to increase the validity of the coding instruments. Items selected for coding represented a comprehensive review of methods for coding studies for meta-analysis. The coding instrument developed for the present study was developed after careful consideration of the data that were needed for analysis.

#### Data Collection

Following identification of potential subject-studies, efforts were made to secure unpublished nursing dissertations for collection of data. In addition, published studies were concurrently collected for coding. After determining suitability for inclusion in the sample, studies were coded for methodological and substantive characteristics.

Several subject-studies in the sample reported correlation coefficients for subscales of the measures of the independent and dependent variables, and did not report correlation coefficients for the total scores for

the scales. To avoid the problem of non-independence of data described by Glass, et al. (1981), data for subscales were pooled to provide a total effect size for each dependent variable identified in the subject-study. Hedges and Olkin (1985) detailed the methods for pooling subscale data, and suggested that a pooled average would provide an adequate description of the total scale correlation. The authors suggested the following method for combining subscale data. "First the correlated estimators within each study are pooled, and then the independent estimators, are, in turn pooled across studies" (Hedges and Olkin, 1985, p. 210). For studies reporting both subscales and total scale data, subscale data were used for calculating effect sizes. Some studies, however, reported only total scale data, which were subsequently used for effect size calculation.

#### Treatment of Data

The outcomes of each study were determined by computation of the effect size for correlated designs described by Hedges and Olkin (1985). For correlational data, the product-moment correlation coefficient  $r$  and Fisher's  $z$ -transformation of  $r$  was utilized for effect size computation. The effect size was calculated using the Fisher  $z$ -transformation of  $r$  and calculating a weighted average of the  $z$ -transformations using the following formula:  $ES = \sum (\underline{n} - 3)(\underline{z}) / \sum (\underline{n} - 3)$  (Hedges

and Olkin, 1985). According to Hedges and Olkin, the product-moment correlation coefficient is not very useful for approximating the effect size because unless the sample size is very large, the variance of the product-moment correlation coefficient depends on the true unknown population variance. Therefore, the authors suggested the  $z$ -transformation of  $r$  to stabilize the variance, and suggested that the distribution of  $z$  is accurate even with smaller sample sizes. Hedges and Olkin contended that the use of the product-moment correlation coefficient for the effect size would not be accurate unless the sample had an  $N$  of several hundred (p. 227).

After computation of effect sizes for the dependent variables in each study, social support effect sizes that were attributable to the four adaptive groups identified by Roy were determined. Differences in effects for each of the adaptive modes were determined by analysis of variance.

#### Pilot Study

A pilot study was completed in order to examine the type and amount of data available and the adequacy of the coding forms. Three correlational studies were coded for all study substantive and methodological characteristics. Correlation coefficients were coded for the three studies. All correlation coefficients were then transformed to the corresponding  $z$  value for  $r$ , and weighted average  $z$  was

calculated according to specifications by Hedges and Olkin (1985). All outcomes were classified into one category of adaptation for the purposes of the pilot study, because not enough outcomes were tested to examine the effect size for each category of adaptation. Furthermore, only correlational effects were tested for the pilot study.

The coding forms were revised after coding of the sample studies, to reflect more clearly the data needed for coding. Specific mean value items were added to Coding Form A for calculating effect sizes. In addition, items for coding subscales of social support indicators and reliability and validity data of measurement scales were included on Coding Form B.

The method for collection and treatment of data has been presented in this section. Rigorous criteria were used to determine inclusion of studies in the sample, and for the coding of study characteristics. Effect sizes were calculated according to accepted meta-analytic techniques. Data were analyzed using a computerized program for analysis of variance.

## CHAPTER IV

### Analysis of Data

A meta-analysis of studies of social support in the current nursing literature was conducted to determine the effect of social support on adaptation in the four adaptive modes identified by Roy (1984). The results and statistical analysis of the data are presented in this chapter. The characteristics of the sample are detailed in addition to the correlated effect sizes for each adaptive mode and the findings of the data that address the null hypothesis: There is no significant difference in the social support effect sizes that may be attributable to Roy's four modes of adaptation.

#### Description of the Sample

The sample for the present study was selected from the population of published nursing studies and nursing dissertations for the years 1984-1989 that investigated the relationship between social support and health outcomes. A number of studies were not included in the meta-analysis because the criteria for inclusion in the study were not met. Initially, twenty seven nursing studies met the criteria for inclusion in the meta-analysis. Of the twenty seven studies, six studies were omitted from the final data analysis because of inadequate data reported or disparity in the findings reported.



The sample included studies of 2251 persons in a variety of settings. Nineteen samples in the individual subject-studies were selected using nonrandom techniques, and two samples used random assignment of subjects to groups. Subjects in the individual subject-studies included both males and females. A variety of client health problems, potential health problems, and health behavior were investigated in the individual subject-studies, and subsequently categorized into Roy's four adaptive modes.

Nursing theories were not identified as the theoretical basis for any of the subject-studies, however, most studies cited a social support conceptualization as the basis for the study. Five studies indicated the use of Kahn's (1979) conceptualization of social support, two studies used the social support conceptualization developed by Weiss (1974), and the conceptualizations developed by Cobb (1976), and House (1981) were each identified in one study. Other frameworks used included stress and coping and health promotion models. Two studies did not identify a theoretical basis for the study.

A variety of instruments were used to measure the independent and dependent variables of the subject-studies. Social support instruments utilized in studies included the Personal Resource Questionnaire (PRQ) developed by Brandt and Weinert (1981), the Norbeck Social

Support Questionnaire (NSSQ) developed by Norbeck, Lindsey, and Carrieri, (1981, 1983), and other investigator developed measures of social support. Four studies used the PRQ for the measure of social support, four studies used the NSSQ for the measure of social support, and thirteen studies used investigator developed or other instruments to measure social support.

### Findings

A total of twenty nine correlated effect sizes were computed from the twenty one subject-studies. The twenty-nine effect sizes were categorized according to the dependent variable reported in the subject-study into the four adaptive modes of self concept, role function, interdependence, and physiological needs (Roy, 1884). Fourteen effect sizes were identified for the self concept mode of adaptation, ten effect sizes were identified for the role function mode of adaptation, one effect size was identified for the interdependence mode of adaptation, and four effect sizes were identified for the physiological mode of adaptation. Because only one effect size was identified for the interdependence mode of adaptation, interdependence and role function effects were categorized together, for a total of eleven effect sizes.

The effect sizes for self concept are presented in Table 1. Effect sizes ranged from .06 to .576 with a mean effect size of .2841. The weighted correlated effect size for self concept for the fourteen studies was .2439 which converted to  $r = .235$ .

Table 1

Effect Sizes for Self Concept Mode of Adaptation

Study	<u>n</u>	<u>ES</u>
1	25	.448
2	164	.245
3	87	.510
4	44	.161
5	100	.172
6	69	.151
7	78	.060
8	185	.077
9	50	.448
10	98	.576
11	73	.234
12	51	.299
13	67	.472
14	204	.124

Combined role function-interdependence effect sizes ( $n=11$ ) ranged from .056 to .758 with a mean of .3231. Individual effect sizes for combined role function-interdependence are detailed in Table 2. The eleven studies included in the combined role function-interdependence group yielded a weighted correlated effect size of .2637 and was converted to  $r = .254$ .

Table 2

Effect Sizes for Role Function-Interdependence Modes of Adaptation

---

Study	<u>n</u>	<u>ES</u>
1	73	.460
2	91	.183
3	97	.388
4	133	.648
5	60	.056
6	164	.192
7	98	.255
8	185	.230
9	51	.310
10	30	.758
11	299	.074

---

Physiological effect sizes ( $n=4$ ) ranged from .00 to .17 and are presented in Table 3. The mean effect size for the physiological mode was .073. The weighted correlated effect size for the four studies was .1198 and converted to  $r = .119$ .

Table 3

Effect Sizes for Physiological Mode of Adaptation

Study	<u>n</u>	<u>ES</u>
1	25	.000
2	69	.010
3	61	.110
4	203	.172

Oneway analysis of variance was utilized to test the null hypothesis: There is no significant difference in the social support effect sizes that may be attributable to the four adaptive modes identified by Roy (1986). The results are given in Table 4. The  $F$  ratio was not significant at the .05 level. Therefore, the null hypothesis was retained.

Table 4

ANOVA Summary Table for Effect Size Data

Source	df	SS	MS	F
Between groups	2	0.1890	0.0945	2.68*
Within groups	26	0.9155	0.0352	
Total	28	1.1045		

\*  $p = .0872$

## Summary of Findings

The problem of the study was to determine the difference in social support effect sizes that were attributed to Roy's four modes of adaptation. Using oneway analysis of variance, differences in effect sizes for self concept, combined role function-interdependence, and physiological needs were determined. No significant difference was found in the social support correlated effect sizes for the adaptive modes.

## CHAPTER V

### Summary of the Study

Chapter five presents a summary of the study and discussion of the findings. Conclusions, implications, and recommendations for future research are given.

#### Summary

The sample for the study was selected from the population of published nursing research studies and unpublished nursing dissertations for the years 1984-1989. Seven nursing dissertations and fourteen published nursing studies were included in the final data analysis. Using the investigator developed coding instrument, data were collected from the individual subject-studies. Twenty-nine correlated effect sizes were computed according to the procedures outlined by Hedges and Olkin (1985) and categorized into the four modes of adaptation described by Roy (1984). Because only one effect size was categorized as interdependence, the interdependence effect size was combined with the role function effect sizes to form one group. Using oneway analysis of variance, the data were analyzed to determine the differences in the social support effect sizes for the adaptive groups. The analysis of data revealed no significant difference in the social support

effect sizes that were attributable to self concept, role function-interdependence, and physiological adaptation. Therefore, the null hypothesis was retained.

### Discussion of Findings

The present meta-analysis does not provide statistical support for the use of social support in the enhancement of adaptation in the four modes identified by Roy (1984). The social support effect sizes of .235 for the self concept mode, .254 for the combined role function-interdependence modes, and .1198 for the physiological mode of adaptation are small to medium effects according to the operational definitions of the magnitude of effect sizes provided by Cohen (1977). Cohen described correlated effect sizes of .50 or greater as large, effect sizes of .30 as medium, and effect sizes of .10 as small. With  $r = .10$ , only one percent of the variance of one variable can be associated with the variance of the other variable, which, according to Cohen "would not be perceptible on the basis of casual observation" (p. 79).

The results of the statistical analysis of the differences in social support effect sizes for the adaptive modes do not support the use of social support as a stimulus for adaptive behavior in the self concept, physiological, or combined role function-interdependence adaptive modes. The results are in contrast to many of the



conclusions arrived at in the current discussions of social support in the literature. However, the larger individual effect sizes for self concept and role function-interdependence suggest that social support may be of some benefit. The number of effect sizes available might be considered a limiting factor in the interpretation of the results of the present study.

Several factors contributed to the exclusion of available subject-studies from the present study. Because the current study analyzed the sample of studies that examined relationships between social support and health outcomes, studies that investigated the relationship of social support in combination with other variables to predict health outcomes were not included in the sample. Several studies used multiple regression analysis procedures and were not included in the present study.

In addition, only the current research involving social support was included in the present study. Inclusion of studies prior to 1984 may have led to different findings. The sample of current studies was chosen to limit the sample size and to contribute to the understanding of the current status of social support research. Early nursing studies of social support have reported significant relationships between social support and health outcomes (Chatham, 1978; Dimond, 1979; Thomas & Hooper, 1983). Studies since 1984 included in the present

study have also reported significant relationships between social support and health outcomes. However, as is clear from the meta-analysis of those findings, the combination of the findings led to small to medium effect sizes. Clearly, when very large samples are used for studies, a small relationship may be statistically significant, which could lead to erroneous conclusions regarding the practical effect of the independent variable on the dependent variables.

Differences in research methods and measures of social support may have also contributed to the small to medium effect sizes that were found in the present study. The most popular scales used in studies included the Norbeck Social Support Questionnaire (Norbeck, Lindsey, & Carrieri, 1981, 1983) and the Personal Resource Questionnaire (Brandt & Weinert, 1981). Reliability and validity data were included for both scales. However, some studies used measurement instruments for social support with inadequate explanation given of the reliability and validity of such instruments. Obviously, a valid and reliable instrument to measure social support is necessary to obtain accurate findings. The meta-analysis of social support was crucially dependent on the validity and reliability of the instruments used in the individual subject studies. Rock, et al. (1984) expressed concern regarding the psychometric properties of social support

scales, especially the lack of reliability reports in studies. Norbeck (1988) also discussed the use of unvalidated social support measures and suggested that "with the existence of several validated general social support instruments, the use of exploratory measures is now appropriate only when new concepts or approaches are studied, such as the use of situation-specific measures" (p. 103).

Reports of statistically significant findings in subject-studies at times were misleading. Because results from subscales of measures of the independent and dependent variables were pooled to provide one effect size, statistically significant findings reported for one subscale may have led to a small total effect size. Also, inadequate reporting of data in some studies necessitated adding in zero effect sizes for findings where data were not provided in order to control for the inaccurate positive skewing of findings. Clearly, completeness in reporting of data in studies is necessary to provide an accurate view of the status of social support research.

As described in the present study, most studies have examined relationships between social support and psychosocial variables, with self concept outcomes studied most frequently. The use of social support to enhance the self concept has generally been accepted in nursing, and consequently, the frequency of investigations of

relationships between social support and self concept variables is not surprising. In addition, studies of social support and role performance have also been undertaken frequently, with health behavior studied with more frequency. Such studies could contribute to the understanding of intervention methods that could be successful in promoting adaptive role function behavior.

The large effect sizes of  $r = .57$  and  $r = .637$  found for health behavior were particularly noteworthy. The effect sizes suggest that social support could be more effective in promoting adaptive health behavior than other types of behavior. However, not enough studies are available to support conclusions regarding the effect of social support on health behavior.

Clearly, too few studies of social support and physiological adaptation were available to contribute to an understanding of the relationship between the two variables. For years, investigators have discussed the potential positive effects of social support on such adaptive physiological outcomes as blood pressure stability, exercise, and sleep (Broadhead, et al., 1983; Cobb, 1976; Kahn, 1979; Pender, 1987). However, investigations of those relationships are not available in the current nursing literature. Because only four studies of relationships between social support and physiological

behavior were included in the present study, the very small effect size found for physiological outcomes must be interpreted with caution.

Even though social support has been widely recognized for its positive impact on health and longevity of life (Cobb, 1976), studies in nursing have not for the most part been designed to make apparent that positive effect. No current nursing studies employing experimental or comparative designs to investigate the effects of social support have been documented in the published or dissertation literature. Therefore, the effect of social support as an intervention on health outcomes could not be ascertained. The present study provided a synthesis of the available published and nursing dissertation literature through the use of the correlated effect size described by Hedges and Olkin (1985) in order to impart a clearer understanding of the current status of social support research in nursing. The correlated effect size provides useful information about the size of relationships but does not provide information about the effect of social support intervention.

Strube and Hartmann (1983) discussed the contributions of meta-analysis to the understanding of a body of research. Among the contributions is the identification of gaps in knowledge. The authors indicated that "taking stock" of what is known and what is not known

about a particular area of research is clearly a beneficial outcome of a meta-analytic study (p. 23). The present meta-analysis may contribute to an understanding of how social support could potentially lead to adaptive behavior. Clearly, the positive but small effect sizes indicate a need for additional research of the effects of social support intervention. The findings of the present study indicate that serious gaps in the understanding of the effects of social support exist, and further investigation is necessary before conclusions can be made.

According to Strube and Hartmann (1983), the "accumulation of research evidence carries with it an accumulation of research methods and procedures" (p. 22). Clearly, the primary use of descriptive/correlational designs by investigators in the individual subject studies, and the lack of experimental and comparative designs indicates a need for intervention studies. In a recent review, Stewart (1989) also identified a deficit in social support intervention studies, and the need for empirical studies of social support intervention.

Interpretation of the findings of the present study must also be made with consideration of the concerns that some authors have expressed regarding meta-analytic methods. Meta-analytic techniques have been criticized for the combination of "apples and oranges." For the present

study, such criticisms may be of interest because of the variety of health outcomes coded as effect sizes. However, health outcomes were categorized into the four modes of adaptation according to the criteria provided by Roy (1984). The combination of the one interdependence effect size with the role function group was done because both groups are considered modes of psychosocial adaptation.

In addition, Glass, et al. (1981) discussed the criticisms of the apples and oranges problem, illustrating the problem with combining studies with different measurement scales and different sample characteristics. According to the authors "the claim that only studies which are the same in all respects can be compared is self-contradictory; there is no need to compare them since they would obviously have the same findings within statistical error. The only studies which need to be compared or integrated are different studies" (p. 218-219).

Another criticism of meta-analysis discussed by Glass, et al. (1981) was the problem of including data from methodologically poor studies. The authors contended that poorer quality studies should be included in the sample for the meta-analysis to provide a more complete picture of the total effects. Suggestions were made by the authors to study the difference between effect sizes of the higher quality studies and the lower quality studies. Because of

the small sample size and the lack of experimental designs and random selection of samples in the subject-studies, which were major criteria of high quality studies, comparisons in the present study were not possible. All studies that met the selection criteria were included in the present study.

### Conclusions and Implications

The findings suggest that social support research is still in the early stages, and additional investigations of the effects of social support are necessary. Of note is the lack of intervention studies of social support, and the need to direct investigations on interventions. The present study does provide a useful synthesis of the current status of social support research.

Effect sizes for the present study were positive and near the medium size for the self-concept and role function-interdependence adaptive modes. The findings for self-concept and role function suggest a need for further investigation, especially in view of the small sample size for the present study. The lack of studies of physiological needs also indicates a need for more research directed at the effects of social support on physiological adaptation, especially since authors have addressed the potential effects of social support on physiological



adaptation. The findings of the present study do not statistically support the use of social support in enhancing adaptation in the four adaptive modes.

Because of the nature of nursing research at this time, the research designs of many studies do not lend themselves easily to the application of meta-analytic methods. The method is quite useful for summarizing research. The information acquired in the present study is of use in providing an understanding of the social support effects even though there were limitations in individual subject-study designs and the sample size was small.

#### Recommendations for Further Study

The meta-analytic study of the effects of social support provides a direction for further research. The small sample size for the meta-analysis suggests a need for further study of social support outcomes in all the adaptive modes. Furthermore, the lack of experimental and comparative designs suggests a need for studies with those designs in order to provide a clearer understanding of the usefulness of social support. The continued investigation of social support using correlational designs is a question. Clearly, more research is needed before concluding that social support is or is not useful in nursing care situations.

The following recommendations for future research are made:

1. Meta-analyses of small clusters of studies of nursing care concepts and interventions should be completed to provide direction for further research.

2. Because of the differences in measures of social support, a qualitative investigation describing patients' experiences of social support would provide useful information about the conceptual basis of social support.

3. Based on qualitative results, a valid measure of social support needs to be developed that accurately reflects the dimensions of social support.

4. Experimental studies with random assignment of subjects to groups should be undertaken to examine the effects of social support as a treatment.

5. Studies of physiological outcomes of social support need to be designed to portray the effects, if any, in situations other than the psychosocial situations.

6. Identification of effective nursing interventions based upon social support should be tested in nursing care situations.

## REFERENCES

- Andrews, H.A., & Roy, C. (1986). Essentials of the Roy adaptation model. Norwalk, CT: Appleton-Century-Crofts.
- Baldassare, M., Rosenfield, S., & Rook, K. (1984). The types of social relations predicting elderly well being. Research on Aging, 6, 549-559.
- Bangert-Drowns, R.L. (1986). Review of developments in meta-analytic method. Psychological Bulletin, 99, 388-399.
- Brandt, P.A. (1984). Stress-buffering effects of social support on maternal discipline. Nursing Research, 33, 229-234.
- Brandt, P.A., & Weinert, C. (1981). The PRQ--A social support measure. Nursing Research, 30, 277-280.
- Broadhead, W. E., Kaplan, B. H., James, S. A., Wagner, E. H., Schoenback, V. J., Grimson, R., Heyden, S., Tibblin, G., & Gehlback, S. H. (1983). The epidemiologic evidence for a relationship between social support and health. American Journal of Epidemiology, 117, 521-537.
- Broome, M. E., Lillis, P. P., & Smith, M. C. (1989). Pain interventions with children: A meta-analysis of research. Nursing Research, 38, 154-158.
- Brown, A. (1976). Effect of family visits on the blood pressure and heart rate of patients in the CCU. Heart and Lung, 5, 291-296.
- Brown, M. A. (1986). Marital support during pregnancy. JOGNN, 475-483.
- Brown, M. A. (1986). Social support during pregnancy: A unidimensional or multidimensional construct? Nursing Research, 35, 4-9.
- Brown, M. A. (1986). Social support, stress, and health: A comparison of expectant mothers and fathers. Nursing Research, 35, 72-76.
- Chatham, M. S. (1978). The effect of family involvement on patient's manifestations of post cardiectomy psychosis. Hearth and Lung, 7, 995-999.

- Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic Medicine, 38, 300-314.
- Cohen, J. (1969). Statistical power analysis for the behavioral sciences. New York: Academic Press.
- Cohen, J. (1977). Statistical power analysis for the behavioral sciences (Rev. ed). New York: Academic Press.
- Cohen, P. A. (1981). Student ratings of instruction and student achievement: A meta-analysis of multisection validity studies. Review of Educational Research, 51, 281-309.
- Cook, R. D., & Leviton, L. E. (1980). Reviewing the literature: A comparison of traditional methods with meta-analysis. Journal of Personality, 48, 449-472.
- Cooper, H. M. (1982). Scientific guidelines for conducting integrative research reviews. Review of Educational Research, 52, 291-302.
- Cronenwett, L. R. (1980). Elements and outcomes of a postpartum support group program. Research in Nursing and Health, 3, 33-41.
- Cronenwett, L. R. (1985). Network structure, social support, and psychological outcomes of pregnancy. Nursing Research, 34, 93-99.
- Devine, E. C., & Cook, T. D. (1986). Clinical and cost-saving effects of psychoeducational interventions with surgical patients: A meta-analysis. Research in Nursing and Health, 9, 89-105.
- Dimond, M. (1979). Social support and adaptation to chronic illness: The case of maintenance hemodialysis. Research in Nursing and Health, 2, 101-108.
- Dimond, M., & Jones, S. L. (1983). Social support: A review and theoretical integration. In P. Chinn (Ed.), Advances in nursing theory development. Rockville, MD: Aspen.
- Ellison, E. S. (1983). Parental support and school-aged children. Western Journal of Nursing Research, 5, 145-153.

- Ellison, E. S. (1987). Social support and the constructive-developmental model. Western Journal of Nursing Research, 9, 19-28.
- Elmore, S. K. (1984). The moderating effect of social support upon depression. Western Journal of Nursing Research, 6(3), 17-22.
- Fawcett, J., & Downs, F. S. (1986). The relationship of theory and research. Norwalk, CT: Appleton-Century-Crofts.
- Fuller, B., & Foster, G. (1982). The effects of family/friend visits vs. staff interaction on stress/arousal of surgical intensive care patients. Heart and Lung, 11, 457-463.
- Fuller, S. S., & Larson, S. B. (1980). Life events, emotional support and health of older people. Research in Nursing and Health, 3, 47-55.
- Ganong, L. H. (1987). Integrative reviews of nursing research. Research in Nursing and Health, 10, 1-11.
- Gierszewski, S. A. (1983). The relationship of weight loss, locus of control, and social support. Nursing Research, 32, 43-47.
- Glass, G. V. (1976). Primary, secondary, and meta-analysis research. Educational Researcher, 5, 3-8.
- Glass, G. V., McGaw, B., & Smith, M. L. (1981). Meta-analysis in social research. Beverly Hills, CA: Sage Publications.
- Hathaway, D. (1986). Effect of preoperative instruction on postoperative outcomes: A meta-analysis. Nursing Research, 35, 269-275.
- Heater, B. S., Becker, A. M., & Olson, R. K. (1988). Nursing interventions and patient outcomes: A meta-analysis of studies. Nursing Research, 37, 303-307.
- Hedges, L. V. (1982). Fitting continuous models to effect size data. Journal of Educational Statistics, 7, 245-270.
- Hedges, L. V., & Olkin, I. (1985). Statistical methods for meta-analysis. Orlando: Academic Press, Inc.

- House, J. S. (1981). Work stress and social support. Reading, MA: Addison-Wesley Publishing Co.
- Hubbard, P., Muhlenkamp, A. F., & Brown, N. (1984). The relationship between social support and self-care practices. Nursing Research, 33, 266-270.
- Hunter, J. E., Schmidt, F. L., & Jackson, G. B. (1982). Meta-analysis: Cumulating research findings across studies. Beverly Hills, CA: Sage Publications.
- Ide, B. A. (1983). Social network support among low-income elderly: A two factor model? Western Journal of Nursing Research, 5, 235-244.
- Jackson, G. B. (1980). Methods for integrative reviews. Review of Educational Research, 50, 438-460.
- Jacobsen, D. E. (1986). Types and timing of social support. Journal of Health and Social Behavior, 27, 250-264.
- Johnson, J. H. (1988). Differences in the performances of baccalaureate, associate, and diploma nurses. Research in Nursing and Health, 11, 183-197.
- Kahn, R. L. (1979). Aging and social support. In M. W. Riley, (Ed.), Aging from birth to death: Interdisciplinary perspectives. Boulder, CO: Westview Press.
- Laschinger, S. J. (1984). The relationship of social support to health in elderly people. Western Journal of Nursing Research, 6, 341-350.
- Leech, J. E. (1982). Psychosocial and physiologic needs of patients with arterial occlusive disease during the preoperative phase of hospitalization. Heart and Lung, 11, 442-449.
- Lenz, E. R. (1986). Life change and instrumental support as predictors of illness in mothers of 6 month olds. Research in Nursing and Health, 9, 17-24.
- McCain, N. L., Smith, M. C., & Abraham, I. C. (1986). Meta-analyses of nursing interventions: The codebook as a research instrument. Western Journal of Nursing Research, 8, 155-167.

- Muhlenkamp, A. F., & Sayles, J. A. (1986). Self-esteem, social support, and positive health practices. Nursing Research, 35, 334-338.
- Norbeck, J. S. (1981). Social support: A model for clinical research and application. Advances in Nursing Science, 3(4), 43-59.
- Norbeck, J. S. (1988). Social support. In J. J. Fitzpatrick, R. L. Taunton, & J. Q. Benoliel, (Eds.), Annual Review of Nursing Research, (Vol.6, pp.85-109). N.Y.: Springer.
- Norbeck, J. S. (1985). Types and sources of social support for managing job stress in critical care nursing. Nursing Research, 34, 225-230.
- Norbeck, J. S., Lindsey, A. M., & Carrieri, V. L. (1981). The development of an instrument to measure social support. Nursing Research, 30, 264-269.
- Norbeck, J. S., Lindsey, A. M., & Carrieri, V. L. (1983). Further development of the Norbeck Social Support Questionnaire: Normative data and validity testing. Nursing Research, 32, 4-9.
- North American Nursing Diagnosis Association. (1988). NANDA approved nursing diagnostic categories. Nursing Diagnosis Newsletter, 15(1), 1-3.
- Orwin, R. G. (1983). A fail-safe N for effect size in meta-analysis. Journal of Educational Statistics, 8, 157-159.
- Pender, N. J. (1987). Health promotion in nursing practice (2nd Ed.). Norwalk, CT: Appleton & Lange.
- Rock, D. L., Green, K. E., Wise, B. K., & Rock, R. D. (1984). Social support and social network scales: A psychometric review. Research in Nursing and Health, 7, 325-335.
- Rosenthal, R. (1984). Meta-analytic procedures for social research. Beverly Hills, CA: Sage Publications.
- Roy, C. (1984). Introduction to nursing: An adaptation model. (2nd Ed.), Englewood Cliffs, NJ: Prentice-Hall.
- Roy, C. (1976). Introduction to nursing: An adaptation model. Englewood Cliffs, NJ: Prentice-Hall.

- Saunders, J.M., & McCorkle, R. (1987). Social support and coping with lung cancer. Western Journal of Nursing Research, 9, 29-42.
- Schwartz, R., Moody, L., Yarandi, H., & Aderson, G. C. (1987). A Meta-analysis of critical outcome variables in nonnutritive sucking in preterm infants. Nursing Research, 36, 292-295.
- Smith, M. C., & Naftel, D. C. (1984). Meta-analysis: A perspective for nursing synthesis. Image: The Journal of Nursing Scholarship, 16, 9-13.
- Stewart, M. J. (1989). Social support intervention studies: A review and prospectus of nursing contributions. International Journal of Nursing Studies, 26, 93-114.
- Strube, M.J. & Hartmann, D. P. (1983). Meta-analysis: Techniques, applications, and functions. Journal of Consulting and Clinical Psychology, 51, 14-27.
- Tedrow, M. P. (1984). Interdependence: Theory and development. In C. Roy. Introduction to nursing: An adaptation model (pp. 306-322). Englewood Cliffs, NJ: Prentice-Hall.
- Thomas, R. D., & Hooper, E. M. (1983). Healthy elderly: Social bonds and locus of control. Research in Nursing and Health, 6, 11-16.
- 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., & Gaylen, R. D. (1987). Cost and conflict: The darker side of social support. Western Journal of Nursing Research, 9, 9-18.
- Waltz, C. F., & Bausell, R. B. (1981). Nursing research: Design, statistics and computer analysis. Philadelphia: F. A. Davis Co.
- Weiss, R. S. (1974). The provisions of social relationships. In Z. Rubin (Ed.), Doing unto others. Englewood Cliffs, NJ: Prentice-Hall.



Wilkie, D. J., Savedra, M. C., Holzemer, W. L., Tesler, M. D., & Paul, S. M. (1990). Use of the McGill Questionnaire to measure pain: A meta-analysis. Nursing Research, 39, 36-41.

APPENDIX A  
Coding Instruments

CODING INSTRUMENT FORM A  
METHODOLOGICAL CHARACTERISTICS

Study Identification Number \_\_\_\_\_

Reference: \_\_\_\_\_

Source of study:

Index search \_\_\_\_\_

Computer search \_\_\_\_\_

Reference list search \_\_\_\_\_

Study Design:

Experimental \_\_\_\_\_

Quasiexperimental \_\_\_\_\_

Descriptive/Correlational \_\_\_\_\_

Sampling Method:

Random \_\_\_\_\_

Nonrandom \_\_\_\_\_

Sample Size:

Treatment Group \_\_\_\_\_

Control Group \_\_\_\_\_

Number of Dependent Variables: \_\_\_\_\_

Outcome Measurement:

Rating scale \_\_\_\_\_

Questionnaire \_\_\_\_\_

Physiologic measure \_\_\_\_\_

Interview \_\_\_\_\_

Other (specify) \_\_\_\_\_

Statistic \_\_\_\_\_

DF \_\_\_\_\_

p Value \_\_\_\_\_

Group 1 pre-mean \_\_\_\_\_

Group 1 post-mean \_\_\_\_\_

Group 1 standard deviation \_\_\_\_\_

Group 2 pre-mean \_\_\_\_\_

Group 2 post-mean \_\_\_\_\_

Group 2 standard deviation \_\_\_\_\_

Correlation coefficient \_\_\_\_\_

Effect size \_\_\_\_\_

Funding source \_\_\_\_\_

## CODING INSTRUMENT FORM B

## STUDY SUBSTANTIVE CHARACTERISTICS

Study Identification Number \_\_\_\_\_

## Theoretical Framework:

Nursing Theory \_\_\_\_\_

Nonnursing Theory \_\_\_\_\_

Concept/Construct \_\_\_\_\_

## Setting:

Hospital \_\_\_\_\_

Home \_\_\_\_\_

Nursing Agency \_\_\_\_\_

University \_\_\_\_\_

Other \_\_\_\_\_

## Sample Characteristics:

Age group \_\_\_\_\_

Educational level \_\_\_\_\_

Gender \_\_\_\_\_

Health Status \_\_\_\_\_

Sociocultural group \_\_\_\_\_

Socioeconomic group \_\_\_\_\_

## Source of Outcome Data:

Client \_\_\_\_\_

Family member \_\_\_\_\_

Nurse \_\_\_\_\_

Other \_\_\_\_\_

Social Support Measurement \_\_\_\_\_

Reliability \_\_\_\_\_

Validity \_\_\_\_\_

Subscales \_\_\_\_\_

Outcome Indicator:

Name \_\_\_\_\_

Measurement Device \_\_\_\_\_

Reliability \_\_\_\_\_

Validity \_\_\_\_\_

**Outcome Adaptive Mode:**

Interdependence \_\_\_\_\_

Physiological \_\_\_\_\_

Role Function \_\_\_\_\_

Self Concept \_\_\_\_\_

**APPENDIX B**  
**Studies Used in the Meta-analysis**



## STUDIES USED IN THE META-ANALYSIS

- Ahmadi, K. S. (1985). The experience of being hospitalized: Stress, social support and satisfaction. International Journal of Nursing Studies, 22, 137-148.
- Baillie, V., Norbeck, J. S., & Barnes, L. E. A. (1988). Stress, social support, and psychological distress of family caregivers of the elderly. Nursing Research, 37, 217-222.
- Bechtel, G. A. (1986). Purpose-in-life and social support in gay men with the acquired immunodeficiency syndrome (AIDS) (Doctoral dissertation, Texas Woman's University, 1986). Dissertation Abstracts International, 47, 3292B.
- Brandt, P. A. (1984). Stress-buffering effects of social support on maternal discipline. Nursing Research, 33, 229-234.
- Cowan, M. E., & Murphy, S. A. (1985). Identification of post disaster bereavement risk predictors. Nursing Research, 34, 71-75.
- Firth, H., McIntee, J., McKeown, P., & Britton, P. (1986). Interpersonal support amongst nurses at work. Journal of Advanced Nursing, 11, 273-282.
- Haack, M. (1985). Antecedents of the impaired nurse: burnout, depression, and substance abuse among student nurses (Doctoral dissertation, University of Illinois at Chicago Health Sciences Center, 1985). Dissertation Abstracts International, 46, 2623B.
- Hall, L. A., Schaefer, E. S., & Greenberg, R. S. (1987). Quality and quantity of social support as correlates of psychosomatic symptoms in mothers with young children. Research in Nursing and Health, 10, 287-298.
- Hilbert, G. A. (1985). Spouse support and myocardial infarction patient compliance. Nursing Research, 34, 217-220.
- Hubbard, P., Muhlenkamp, A. F., & Brown, N. (1984). The relationship between social support and self-care practices. Nursing Research, 33, 266-270.

- Laschinger, S. J. (1984). The relationship of social support to health in elderly people. Western Journal of Nursing Research, 6, 341-350.
- Lindgren, C. L. (1985). A descriptive study of stress, anxiety, burnout, and social support in lay caregivers of adult chronically-ill family members (Doctoral dissertation, University of Texas at Austin, 1985), Dissertation Abstracts International, 46, 3783B.
- McNett, S. C. (1987). Social support, threat, and coping responses and effectiveness in the functionally disabled. Nursing Research, 36, 98-103.
- Mischel, M. H., & Braden, C. J. (1987). Uncertainty: A mediator between support and adjustment. Western Journal of Nursing Research, 9, 43-57.
- Muhlenkamp, A. F., & Sayles, J. A. (1986). Self-esteem, social support, and positive health practices. Nursing Research, 35, 334-338.
- Mull, C. S. (1989). Interrelationships of religiosity, social resources, coping responses, and well-being among older adults (Doctoral dissertation, University of Illinois at Chicago Health Sciences Center, 1985), Dissertation Abstracts International, 50, 1856B.
- Norbeck, J. S. (1985). Types and sources of social support for managing job stress in critical care nursing. Nursing Research, 34, 225-230.
- Oh, Kasil. (1984). Family functioning and social support of Korean families with mentally retarded children (Doctoral Dissertation, Texas Woman's University, 1984), Dissertation Abstracts International, 48, 796B.
- Pascucci, M. (1987). Health values, incentives, and social support related to health promotion behaviors in the well elderly (Doctoral Dissertation, Texas Woman's University, 1987), Dissertation Abstracts International, 48, 1006B.
- Robinson, K. M. (1989). Predictors of depression among wife caregivers. Nursing Research, 38, 359-363.
- Suave, M. J. M. (1984). Survivors of sudden cardiac death: The medical psychosocial factors related to self-reports of physical health, mental health and perceived health status (Doctoral Dissertation, University of California-San Francisco, 1984).