

VIDEOTAPED MODELING AND MATERNAL INFLUENCES
ON PERCEIVED MATERNAL SELF-EFFICACY

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
FLORENCE L. CRAWFORD, BSN, MSN

DENTON, TEXAS

MAY 1993

TEXAS WOMAN'S UNIVERSITY
DENTON, TEXAS

May, 1993

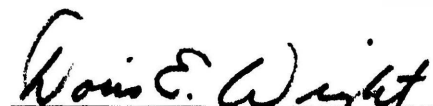
To the Associate Vice President for Research and Dean of the
Graduate School:

I am submitting herewith a dissertation written by Florence L.
Crawford, M.S.N., entitled "Videotaped Modeling and Maternal
Influences on Perceived Maternal Self-Efficacy".

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.

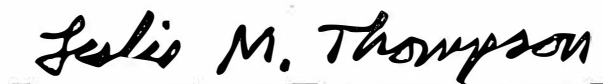

Robin Burke Britt, Ed.D., R. N.
Major Professor

We have read this dissertation
and recommend its acceptance:


Doris E. Wright, Ph.D., R.D.


Anne Young, Ed.D., R. N.

Accepted


Associate Vice President for
Research and Dean of the Graduate
School

Copyright c Florence L. Crawford, 1993

All rights reserved

DEDICATION

This dissertation is dedicated in loving memory of two special people, my mother, Helen Elizabeth Shelton, and my brother-in-law, Jerry Randall Ray. Because of my mother's belief in the importance of an education, this momentous task was possible. Jerry was a remarkable man who truly loved life and was committed to loving and encouraging others--an inspiration to me.

ACKNOWLEDGEMENTS

My sincere gratitude goes to my doctoral committee chairperson, Dr. Robin Burke Britt. Dr. Britt has not only overseen the development of this project and contributed significantly to my understanding of maternal self-efficacy, but she has consistently provided the patience, understanding, and support that I needed through each phase of this work. The remaining members of my doctoral committee, Dr. Doris E. Wright and Dr. Anne Young, have earned my appreciation and respect. A special recognition is extended to my former committee chairperson, Dr. Terry Throckmorton.

I gratefully acknowledge the material support provided by The University of Texas School of Nursing at Galveston. I am also grateful to my colleagues who extended support, encouragement, and assistance during the challenging years of integrating expectations of work and education. I am especially grateful to Dr. Patricia L. Richard. Not only is she my colleague at work and in the doctoral program, but she is a special friend. A special thanks to Carie Lambert for her editorial assistance.

I also owe a special debt of gratitude to Dr. Lucille Moore, a long-time friend and chairperson of the Maternal-Infant and Child Health Department at The University of Texas School of Nursing. In her enthusiasm for attachment theory and her involvement in research, she provided the means for me to explore my ideas and my research results as they developed.

I want to express my love and devotion to five very special people in my life, my sons and their wives, Tom and Linda, John and Christine, and Scott. They have made my experiences as a parent such a joy and have helped me by being special, caring individuals who have supported me in so many ways.

I want to thank my father and his wife, Jack and Elna Shelton, and my sister, Wenona Ray. Their love and belief in my ability have sustained me throughout my educational endeavors.

My husband, Tom Crawford, deserves special thanks. Without his love, understanding, and support, I could never have accomplished this goal.

ABSTRACT

Videotaped Modeling and Maternal Influences on Maternal Self-Efficacy

By Florence L. Crawford
May, 1993

The purpose of this quasi-experimental study was to determine if providing mothers of infants with minor health problems the opportunity to view the videotape, "Yes, Mom, You Can Be Successful," significantly increased perceived maternal self-efficacy. Through two important sources of efficacy information from Bandura's social cognitive theory, verbal persuasion and modeling, the videotape was developed to orient mothers to childcare and feeding methods to use while their infants receive treatments for possible infections. In addition, specific maternal factors (the mother's perception of her infant; time after delivery when mother first saw, held, and fed her infant; number of other living children; age; length of labor; and perceived social support) affecting self-efficacy were also investigated. Sixty subjects were recruited from mothers who delivered their infants at one university hospital in the southwestern United States. Instruments were the Maternal Confidence Questionnaire, Broussard and Hartner's Neonatal Perception Inventories, the Parenting Sense of Competence Scale, the Social Provisions Scale, and Maternal and Infant Demographic Forms. The dependent variable, perceived maternal self-efficacy, was analyzed using analysis of variance for repeated measures. Being in the experimental

group did not result in significantly higher maternal self-efficacy scores. Stepwise multiple regression analyses indicated that perceived social support accounted for approximately 13% of the variance of the dependent variable, perceived maternal self-efficacy. The other maternal variables were not significant in the multiple regression equation.

Although the experimental condition did not represent an effective approach to increasing perceived maternal self-efficacy, study findings indicated an increase in maternal self-efficacy scores from the mothers in both the experimental and control groups. Therefore, the implications for this study included incorporation of nursing interventions into the mothers' plans of care to increase perceived maternal self-efficacy. Since perceived social support explained a significant amount of variance in the dependent variable, mothers at risk for not receiving adequate support need to be identified and referred to support groups and services. Additionally, the positive role of family support in promoting and sustaining perceived maternal self-efficacy should be recognized and used in planning nursing interventions.

TABLE OF CONTENTS

DEDICATION	iv
ACKNOWLEDGEMENTS	v
ABSTRACT	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiv
Chapter	
1. INTRODUCTION	1
Problem of Study	4
Rationale for the Problem	5
Theoretical Framework	7
Assumptions	21
Hypotheses	21
Definitions of Terms	22
Limitations	23
Summary	23
2. REVIEW OF THE LITERATURE	24
Social Cognitive Theory	24
Theoretical Conceptualization of Self-Efficacy.....	25
Measurement of Self-Efficacy.....	29
Maternal Self-Efficacy	30
Maternal Self-Efficacy and Transition to Parenthood	31
Maternal Self-Efficacy and Mother-Infant Relationship	34
Maternal Self-Efficacy and Parenting.....	36
Mediational Role of Maternal Self-Efficacy.....	37
Maternal Perception	40
Perception and Self-Efficacy	40
Maternal Perception and Parenting	41
Maternal Perception and Mother-Infant Relationship	44

Social Support	45
Theoretical Conceptualization of Social Support	46
Social Support and Self-Efficacy.....	48
Measurement of Social Support	49
Social Support and Transition to Parenthood.....	50
Social Support and Maternal Self-Efficacy.....	52
Social Support and Parenting.....	53
Mediational Role of Social Support.....	55
Maternal Characteristics.....	56
Age	57
Parity and Previous Child Care Experiences	59
Labor Experience	60
Infant Characteristics.....	62
Early Separation of Mother and Infant.....	62
Maternal Perceptions of Vulnerability.....	63
Infant Health Status and Maternal Self-Efficacy.....	65
Nursing Role and Maternal Self-Efficacy.....	66
Summary.....	70
 3. PROCEDURE FOR COLLECTION AND TREATMENT OF DATA..	 75
Setting	78
Population and Sample	79
Protection of Human Subjects	81
Instruments	82
Maternal Confidence Questionnaire ..	83
Neonatal Perception Inventories	89
Parenting Sense of Competence Scale	91
Maternal Demographic Forms	96
Data Collection	97
Pilot Study	98
Treatment of Data	99
Summary	100
 4. ANALYSIS OF DATA	 101
Description of Sample	102
Maternal Demographics.....	102
Maternal Age.....	103
Maternal Education.....	103

Number of Other Living	
Children.....	103
Marital Status.....	103
Ethnicity.....	105
Occupation.....	107
Income Classification.....	108
Status of Pregnancy.....	109
Prenatal Classes.....	109
Method of Feeding.....	109
Discharge with Infant.....	110
Maternal Concerns.....	111
Maternal Interaction with	
Infant.....	112
Length of Labor.....	112
Length Membranes Ruptured.....	113
Type of Delivery.....	114
Type of Analgesia and	
Anesthesia.....	115
Intrapartum Obstetrical	
Interventions.....	115
Intrapartum/Postpartum	
Complications.....	115
Intrapartum/Postpartum	
Infections.....	117
Infant Demographics.....	117
Summary of Sample by Demographic	
Variables.....	119
Study Variables.....	121
Measurement of Self-Efficacy.....	121
Measurement of Perception of	
Infant.....	123
Measurement of Perceived Social	
Support.....	123
Findings	124
Hypothesis One	125
Hypothesis Two	127
Additional Findings Related	
to Instruments	133
Factor Structure of the	
Maternal Confidence	
Questionnaire	135
Summary of Findings	136

5. SUMMARY OF THE STUDY	137
Summary	137
Discussion of Findings	141
Hypothesis One	141
Hypothesis Two	147
Conclusions	154
Implications	155
Recommendations for Further Study	157
REFERENCES	160
APPENDIX	
A. Dialogue for Videotape, "Yes, Mom, You Can Be Successful"	174
B. Consent Form.....	177
C. Letters of Approval	181
D. Maternal Confidence Questionnaire.....	184
E. Neonatal Perception Inventory.....	195
F. Instructions for Administering the Neonatal Perception Inventory.....	198
G. Parenting Sense of Competence Questionnaire.....	200
H. Social Provisions Questionnaire.....	202
I. Clinical Assessment of Gestational Age in the Newborn.....	205
J. Apgar Scale	208
K. Maternal Demographic Form	210
L. Infant Demographic Form	213
M. Frequency Distribution and Percentages of Maternal Confidence Questionnaire by Groups.....	215
N. Agency Approval.....	226

LIST OF TABLES

Table

1.	Factor Loadings of Items from Maternal Confidence Questionnaire Scales	87
2.	Frequency Distribution and Percentages of Maternal Age, Highest Completed Grade in School, and Number of Other Living Children by Groups	104 105
3.	Frequency Distribution and Percentages of Marital Status, Ethnicity, Occupation, and Income by Groups.....	106 107
4.	Frequency Distribution and Percentages of Status of Pregnancy, Prenatal Class Attendance, Method of Feeding, Infant Discharge, and Maternal Concern by Groups.	110
5.	Frequency Distribution and Percentages of Maternal Interaction with Infant by Groups.....	113
6.	Frequency Distribution and Percentages of Length of Labor (Hours) by Groups	114
7.	Frequency Distribution and Percentages of Ruptured Membranes (Hours) by Groups	114
8.	Frequency Distribution and Percentages of Type of Delivery, Analgesia or Anesthesia, Intrapartum Obstetrical Interventions, Intrapartum/Postpartum Complications, and Intrapartum/Postpartum Infections by Groups.....	116
9.	Frequency Distribution and Percentages of Apgar Scores by Groups.....	118

10.	Frequency Distribution and Percentages of Infant Birthweight, Gestational Age, Intravenous Infusion, and First Feeding by Groups.....	120
11.	Measures of Central Tendency for Maternal Self-Efficacy by Groups.....	122
12.	Measures of Central Tendency for Maternal Perception of Infant by Groups.....	123
13.	Measures of Central Tendency for Perceived Social Support by Groups.....	124
14.	Summary ANOVA for Maternal Self-Efficacy Scores.....	126
15.	Means of Groups Across Trials for Maternal Self-Efficacy Scores.....	126
16.	Stepwise Multiple Regression Analysis of Independent Variables with Dependent Variable.....	130
17.	Standardized Partial Regression Coefficients for Postmeasurement of Maternal Self-Efficacy and Combination of Maternal Self-Efficacy and Perceived Social Support.....	131

LIST OF FIGURES

Figure

1.	Bandura's Reciprocal Interaction Model....	9
2.	Diagrammatic Representation of the Difference between Efficacy Expectations and Outcome Expectations.....	13

CHAPTER 1

INTRODUCTION

Few events in a woman's life are more dramatic or require greater adjustments than the birth of a child. In most instances, the birth and immediate post-delivery period are uneventful, and infants go home with their mothers with the potential for normal development (Avery, 1987). Unfortunately, not all infants are completely healthy, and soon after delivery, many are at risk for developing further problems (Korones, 1986). For each of these infants, there may be necessary separations that appear to be accompanied by an emotional estrangement on the mother's part. These separations may seriously alter feelings of adequacy in the parenting role (Jones, Green, & Krauss, 1980; Klaus & Kennell, 1982). Furthermore, the nature of the infant's condition or appearance may affect the mother's feelings toward her infant. These factors may affect the quality of the relationship between the mother and infant. Upon becoming aware of factors in a family that may inhibit or delay the development of the mother-infant relationship, the nurse must carefully examine opportunities for interventions to prevent or minimize these factors' effects upon the mother and infant. The infant with a minor health problem often precipitates a major family crisis because of the event's unexpected nature. Brim (1980) proposed exploring the concept of preparation for life events for understanding the responses and consequences that events have upon functioning and

future development. Life events that have a low probability of happening are associated with little anticipatory socialization or advance rehearsal. Therefore, a mother would not be expected to practice caring for an ill infant when there is no reason to believe that she will need such practice. As a result, a mother is not prepared to adapt to an infant with health problems (Divitto & Goldberg, 1979).

Another important factor that may affect the mother-infant relationship is maternal behavior. This relationship is fostered when the mother is involved in infant caregiving tasks. However, successful caregiving may be adversely influenced in the case of an infant with health problems because of an alteration of the mother's perceptions of her abilities (Seashore, Leifer, Barnett & Leiderman, 1977). In addition, the probability of previous successful experiences in caregiving for a similar infant is unlikely (Johnson, 1986). Therefore, the mother's perceived abilities for caring for the infant may play an important role in the relationship's development.

Also important in the mother-infant relationship are environmental factors. Special therapies and equipment frequently restrict a mother's participation in her infant's care. In addition, discrepancy between a mother's mental picture of her infant during pregnancy and its current physical characteristics may adversely affect the relationship (Solnit & Stark, 1961). For example, the necessity for intravenous therapy in an otherwise healthy infant can affect a mother's perception of having a normal infant as well as affect the infant's ability to interact

normally with the mother. Mothers have reported that therapies for infants with minor health problems are upsetting, and they have implied that their infants' conditions were moderate to very serious when the infants' conditions were actually minor (Feinstein, Berkelhamer, Gruazka, Wong, & Carey, 1986).

Assessment of concerns about maternal abilities and reassurance that the infant is basically healthy may lend support to the mother's efficacy for caring for her infant with a minor health problem (Rutledge & Pridham, 1987). Unresolved concerns can result in maternal perceptions of the infant's vulnerability that may increase the risk of development of the vulnerable child syndrome, in which the mother believes that her child has suffered a "close call" and thereafter is vulnerable to serious injury or accident (Green & Solnit, 1964; Kemper, Forsyth, & McCarthy, 1989, 1990; Levy, 1980).

The mother's perceived social support may also influence how she perceives her ability to care for her infant with a minor health problem. Cobb (1979) hypothesized that social support results in self-confidence and a sense of control. In turn, the perception of receiving social support facilitates effective coping behavior. According to Bandura (1977a), judgments of self-efficacy affect willingness to take on difficult tasks, degree of effort expended, and duration of persistence in the face of difficulty. Thus, if social support can enhance a mother's belief in her abilities, it may facilitate her coping with caring for her infant with a minor health

problem. Therefore, social support may influence perceived maternal self-efficacy (Cutrona & Russell, 1988).

Nurses can structure experiences for the mother and infant to facilitate the development of the mother-infant relationship by providing opportunities for contact between a mother and her infant and by enhancing feelings of maternal efficacy for successful caregiving to her infant (Hall, 1980). There is evidence that parent education is effective and that parenting confidence may be the result of such an intervention (Joy, Davidson, Williams, & Painter, 1980). However, hospital stays after delivery have decreased, and some of the teaching and support traditionally provided by staff to mothers is less available. In addition, maternity hospital units may not be adequately staffed to provide individual instruction to each mother. Cost-containment concerns necessitate identifying alternative ways to offer maternal instruction that are efficient in the use of nursing time. In these circumstances, the use of television as a patient education process has been found to be an effective method compared to one-on-one teaching and classroom presentations (Nielson & Sheppard, 1988). Televised programming could enhance a mother's confidence and self-efficacy for taking care of her infant with a health problem.

Problem of Study

The birth of an infant with a minor health problem can influence a mother's perceptions of self-efficacy related to infant caregiving. Moreover, an infant's health problems may alter the mother's perception

of her infant and of her ability to care for the infant. Yet strategies aimed at increasing maternal feelings of self-efficacy for caregiving have not been studied to any extent. This study answers one question: Does viewing a videotape of verbal persuasion and of modeling the holding and feeding of an infant increase perceived maternal self-efficacy? In addition, the following question will guide the study: What is the influence of maternal variables on perceived maternal self-efficacy? The maternal variables are the mother's perception of her infant; time after delivery when the mother first saw, held, and fed her infant; number of other living children; age; length of labor; and perceived social support.

Rationale for Study

Bandura (1977a) reported that belief in one's ability to do a behavior (self-efficacy) is an important link between knowing what to do and actually doing it. Often, simply providing information on infant care to mothers whose infants have health problems may not lead to successful infant caregiving behaviors. These situations occur when mothers are given the information necessary to care for the infants but still believe they are unable to perform the necessary behaviors. Bandura (1986) identified adulthood as a period when people have to learn to cope with many new demands. As in earlier mastery tasks, a firm sense of self-efficacy is an important motivator to the attainment of further competencies. Interventions in the perinatal period may make

an important contribution to increase perceived maternal self-efficacy for infant caretaking tasks throughout infancy.

Investigators have explored the link between a mother's perceived self-efficacy and the mother-infant relationship. Donovan (1981) and Donovan and Leavitt (1978) found that maternal self-efficacy influenced whether or not a mother responded sensitively to her infant's signals. Williams et al. (1987) reported that parenting confidence plays a central role in adaptation during the first two years of motherhood.

Mercer and Ferketich (1990) conducted a prospective longitudinal study of parents eight months after delivery to determine the effects of stress on family functioning. Postpartum parenting confidence was linked strongly to attachment, emotional state, and adaptation to the maternal role. Cutrona and Troutman (1986) investigated the effect of modeling techniques upon parenting self-efficacy. In their study of the mediating effect of social support upon self-efficacy, they found that parenting self-efficacy could be increased. Increasing self-efficacy, according to Bandura (1982), is important because low self-efficacy leads to suboptimal performance of existing skills and a lack of persistence in problem-solving efforts. Thus, the behavior of mothers with little confidence in their parenting ability may lead to relatively low reinforcement from their infants. This low reinforcement in turn may lead to a predominance of self-blaming for failure as a parent (Cutrona & Troutman, 1986). When self-blaming occurs, the mother's confidence in her mothering abilities may be diminished, which may

affect the mother-infant relationship (Vaughn, Crichton, & Egeland, 1982).

Bandura (1977b) stated that individuals need to feel they are capable of performing a task before they are likely to attempt it. Studies are needed to evaluate the effect of strategies to enhance maternal feelings of self-efficacy in relationship to infant caregiving. Although investigators have studied the effect of interventions to reduce the incidence of parental inadequacy or to enhance parental perceptions of the newborn (Joy, et al., 1980; Thelen, Fry, Fehrenbach, & Frautschi, 1979), no published studies were found in which the investigator evaluated the use of televised programming as an intervention to enhance perceived maternal self-efficacy in relationship to infant caregiving. Furthermore, identification of specific maternal factors that may affect self-efficacy has not occurred. Study of these factors will increase understanding of the mother and her perceptions of her ability to care for her infant with a health problem. Thus, nursing assessments and interventions based on findings of this study may improve the mother-infant relationship.

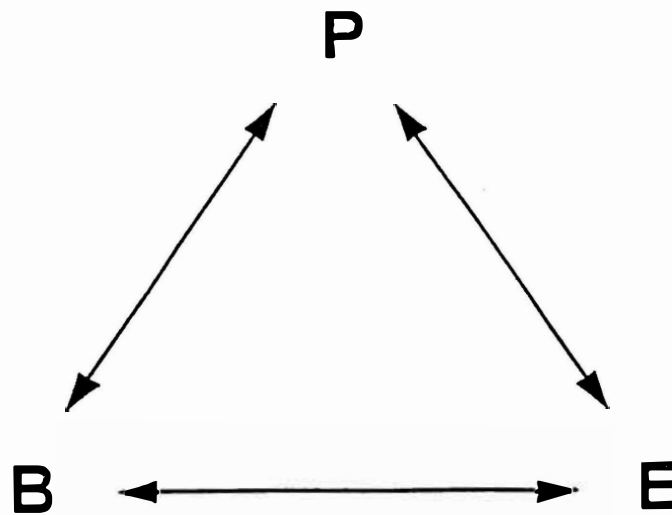
Theoretical Framework

Since the emphasis of this study was on learning by observation, Bandura's (1977a) self-efficacy theory was the theoretical framework for this study. The theory was renamed social cognitive theory by Bandura (1986) in order to distinguish it from a number of other social learning theories. Self-efficacy emerged from the general body of social

learning theory, and Bandura (1977a) conceptualized the idea of efficacy, competence, or mastery. The basic phenomenon in self-efficacy is the focus on individuals' perceptions of the ability to produce and regulate events in their lives. Bandura also proposed that many aspects of functioning involve interaction with other people. Bandura explained human behavior in terms of "a continuous reciprocal interaction between cognitive, behavioral, and environmental determinants" (1977a, p. 7). By a process Bandura (1978b) described as reciprocal determinism, people influence their destinies by controlling environmental forces, which concurrently control their lives. Bandura (1977b) describes determinism as the process through which a person influences events and, thus, their results or effects, rather than the events, independent of the individual, influencing the person's actions.

Bandura's schematic representation of reciprocal determinism is represented in Figure 1. According to Bandura (1978a), the process of reciprocal determinism involves a "triadic reciprocal interaction. Behavior and environmental conditions function as reciprocal interacting determinants. Internal personal factors and behavior also operate as reciprocal determinants of each other" (p. 346).

According to Bandura (1978a), internal personal factors include beliefs, thoughts, preferences, expectations, and self-perceptions. The person is continuously reacting to internal personal factors. The environment provides the person with efficacy information for the person through interactions and observations. These may occur as a result of



Note.

B = Behavior

P = Personal factors

E = Environmental factors

Figure 1. Bandura's reciprocal interaction model (Bandura, 1978b, p. 345).

personal experiences or through observation of events and/or people (Bandura, 1977a). In addition, the environment is also continually supplying information through response consequences under different conditions which modify the person's predictions concerning probabilities of success or failure. For example, a mother's perceptions of self-efficacy influences her behavior toward others, particularly her infant, and the environmental effects (responses of others and her infant) created by her actions in turn alter her maternal self-efficacy beliefs. The mother activates different environmental

reactions by her physical characteristics (e.g., size, race, attractiveness) and by her socially conferred attributes, roles, and status. The differential social treatment from the environment affects the mother's self-perceptions and actions in ways that either maintain or alter the environment's influence (Straddon, 1984).

In addition to addressing reciprocal determinism, Bandura (1977a) cited nine assumptions in his social cognitive theory. The first assumption was that much of human learning is cognitive. Cognitions are considered symbolic representational systems, usually taking the form of thoughts and images. His second said one major source of human learning is response consequences or learning by doing. His third assumption stated that observation is the second major source of learning. Cognitions come about through the observation of the consequences of the person's own behavior and/or the observation of others. The fourth assumption said the attention process is influenced by the model, the observer, and incentive conditions. Observational learning occurs when the person attends to relevant features of a model's actions. Major influences of the model on the person's attention are interpersonal attractiveness as well as the model's perceived competence and related variables of perceived status or social power. People may display different levels of learning due to individual characteristics such as dependency, level of competence, socioeconomic status, race, and gender. In addition, previous social learning experiences, such as rewards for imitation, may affect a person's level of learning. Incentive

conditions can enhance, impede, or channel a person's looking or observing responses. Fifthly, Bandura suggested that coding and rehearsal aid the retentional process. Observed events are retained in symbolic forms for future retrieval. Rehearsal serves to strengthen and to stabilize acquisitions.

Bandura's (1977a) sixth assumption was that the motor reproductive process involves images and thoughts to guide overt performance. The person has physical capabilities to reproduce retained information. Internal cues (images and thoughts) can act as internal stimuli much like the external stimuli which a model provides. His seventh said that the motivational process is influenced by (a) external reinforcement, (b) vicarious reinforcement, and/or (c) self-reinforcement. Proper incentive conditions must be present for an acquired response to be performed. Learned responses that are likely to result in some direct external positive consequence will be translated into behavior. Observation of another person being reinforced for a behavior will lead to performance of a behavior. Behavior can be a self-regulating process which can occur in the absence of external sources of influence. The person experiences covert reinforcement or punishment based on self-evaluation of behavior that has been compared to standards assimilated through observation. His eighth point stated that response information in observational learning is conveyed through demonstration, words, or pictures. A person acquires information from watching a model perform in the environment. Verbal skills are acquired by the

transmission of information through the use of words. Pictorial representation of a model's behavior, such as television or films, is also used to acquire information. His ninth and final point assumed that exposure to a model may produce different effects on the observer's behaviors. A person may acquire novel responses by watching others' behaviors or may already have information available due to previous learning. After observation, however, the person may recombine the information to bring about novel patterns of response, a process called the observational learning effect. The second effect of observation of a model is the strengthening or inhibiting of responses. The person may reduce a response tendency as a result of watching punishing consequences to the model and may increase performance of a generally inhibited behavior after observing rewarding consequences to the model. The third effect of observation of a model is to bring forth a response already available in the person's repertoire. No new response is acquired (Bandura, 1982).

Bandura (1976) proposed that behavior change and maintenance are a function of (1) expectations about the outcomes that will result from one's engaging in a behavior and (2) expectations about one's ability to engage in or execute the behavior. Bandura (1977a) outlined the self-regulatory process in the model of a person engaging in a behavior that will have a consequent outcome (Fig. 2). Thus, behavior is regulated by its consequences and the influence of thought (Bandura, 1977a).

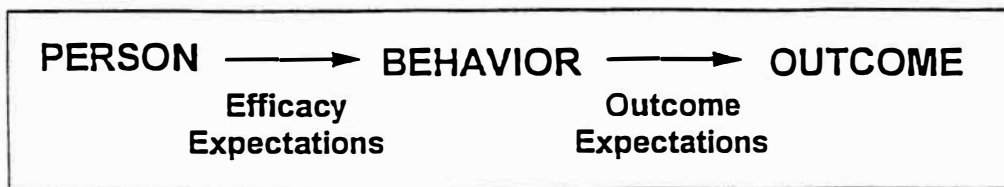


Figure 2. Diagrammatic representation of the difference between efficacy expectations and outcome expectations (Bandura, 1977a, p. 79).

According to this model, "outcome expectations" (p. 10) consist of beliefs about whether a given behavior will lead to given outcomes, whereas "efficacy expectations" (p. 10) consist of beliefs about how capable one is of performing the behavior that leads to those outcomes. Bandura (1982) asserted that self-efficacy expectancies are more influential in determining behavior change than are outcome expectancies. Specifically, he suggested that self-efficacy expectancies determine what behaviors will be initiated, how much effort will be expended in a chosen behavior, and how long a person will persist in a chosen behavior in the face of difficulties. Bandura (1977a) emphasized that both outcome and efficacy expectations reflect a

person's beliefs and capabilities and behavior-outcome links. Thus, it is these perceptions, and not necessarily "true" capabilities, that influence behavior.

Another important component of Bandura's theory (1977a) is how self-efficacy relates to beliefs about capabilities of performing specific behaviors in particular situations. Bandura stated that "self-efficacy does not refer to a personality characteristic or a global trait that operates independently of contextual factors" (p. 194). In other words, efficacy expectations vary greatly depending upon the particular task and context that confronts the person. Bandura (1978) proposed that a person could not be characterized as having "high" or "low" self-efficacy without reference to the specific behavior and circumstance with which the efficacy judgment is associated.

Bandura (1977b) maintained that perceived self-efficacy influences all aspects of behavior, including the acquisition of new behaviors, inhibition of existing behaviors, and disinhibition of behaviors. Self-efficacy also affects choices of behavioral settings, the amount of effort one expends on a task, and the length of time one persists in the face of obstacles. Finally, according to Bandura (1984), self-efficacy affects emotional reactions, such as anxiety and distress, and thought patterns. Therefore, an individual with low self-efficacy about a particular task may focus on personal deficiencies rather than on accomplishments or attending to the task at hand. This focus, in turn, impedes successful performance of the task.

According to Bandura (1977b), efficacy expectations "vary along dimensions of magnitude, strength, and generality" (p. 127). Each of these dimensions has important implications for performance, and each implies slightly different measurement procedures. The first dimension of efficacy expectation is magnitude. Magnitude refers to the ordering of tasks by difficulty level. A person having low-magnitude expectations will feel capable of performing only the simpler of a graded series of tasks, while a person with high-magnitude expectations will feel capable of performing even the most difficult tasks in the series. The second dimension of efficacy expectation, strength, refers to a probabilistic judgment of how certain one is of the ability to perform a specific task (Bandura, 1984). Tryon (1981) stated that measurement procedures for magnitude and strength need to be developed so that measurements of perceived capabilities will be closely tied to the domain of functioning being studied. Generality, the third dimension, concerns the extent to which efficacy expectations about a particular situation or experience generalize to other situations.

According to Bandura (1977a), efficacy expectations are learned from four major sources of information. The first source, performance accomplishments, refers to learning through personal experience in which one achieves mastery over a difficult or previously feared task and thereby enjoys an increase in self-efficacy. Observing someone performing a behavior successfully, or an event occurring without adverse consequences or with positive rewards, tends to enhance a

person's expectation of mastery. Bandura (1982, 1989) and Litt (1988) have suggested that the relation between self-efficacy and performance is best conceptualized as bidirectional. Self-efficacious individuals tend to persist in a given task until success is achieved, whereas self-inefficacious individuals give up prematurely. In turn, self-efficacy beliefs are enhanced or decreased, respectively, by success or failure experiences. For example, a mother's previous child care experiences (whether successful or unsuccessful) will be continuously used as a reference against which she judges her ongoing performance as a parent. In this referential process, it is the mother's self-comparison that supplies the measurement of her adequacy as a mother.

According to Bandura, (1978b) performance attainments are viewed as having the strongest impact on self-efficacy beliefs, but other sources of information can also be influential. For a mother, another source of information may be comparisons of herself to other mothers. In this case, comparisons may involve expected behaviors for mothers as established by society, the behaviors of particular mothers, or accomplishments of a group of mothers she knows.

The second source of efficacy information is vicarious experience which includes learning that occurs through observation of events and/or people. These events/people are referred to as "models" when they display a set of behaviors or stimuli that illustrate a certain principle, rule, or response (Bandura, 1977a). For the mother with an

infant with a health problem, viewing a model will more likely result in her perceiving herself as efficacious, hence more likely to initiate new caregiving behaviors and persevere when caring for her infant is difficult or discouraging.

In order to positively affect an observer's self-efficacy, it is important that the model's characteristics (e.g., age, gender) be similar to those of the observer. It is also important that the model to be viewed as overcoming difficulties through determined effort rather than with ease. In addition, modeled behaviors presented with clear rewarding outcomes are more effective than modeling with unclear or unrewarded outcomes (Bandura, 1977a).

Verbal persuasion constitutes the third source of efficacy expectations. Persons are led, through suggestion, into believing they can cope with what has overwhelmed them in the past. Efficacy expectations induced in this manner are likely to be weaker than those arising from one's own accomplishments because they do not provide an authentic experiential base (Bandura, 1977a).

According to social cognitive theory (Bandura, 1986), the obvious support of other people increases self-efficacy. Specifically, social-marital supports have been identified as strong influences on self-efficacy. This occurs directly through social persuasion by intimates and by allowing observation of behavior of significant support figures. For example, friends and relatives may reassure a woman that she is a good mother and, by design or accident, they may demonstrate

successful child-care routines for her. Therefore, feelings of maternal self-efficacy may be increased (Teti & Gelfand, 1991).

Finally, one's physiological state provides information that can influence efficacy expectations. Bandura (1977a) noted that the "state of physiological arousal debilitates performance" (p. 82).

Physiological arousal includes activation of the autonomic nervous system and increased secretion of catecholamines (Bandura, 1988). If physiological arousal is controlled, a person is likely to expect success. However, the person may expect failure when very tense and agitated. For example, a mother may experience physiological arousal if she is separated from her infant because of therapies the infant must receive in the newborn nursery. Bandura (1977b) stated that this type of arousal is activated by thought. The mother's cognitive appraisal of physiological arousal may adversely affect perceived maternal self-efficacy. However, the mother who is able to exercise control over physiological arousal will experience maternal self-efficacy rather than maternal self-inefficacy.

Bandura (1982) stressed the importance of distinguishing between information contained in environmental events and information that is processed and transformed. This appraisal of efficacy information is important because data from various sources does not automatically influence perceived efficacy. Instead, information is "weighted and integrated to form a judgment of personal capability" (p. 252). An example of an attentional factor is selective self-monitoring. People

may differ in their tendencies to attend to and remember various aspects of performance. Bandura (1977b) stated that:

Performance judgments will vary substantially depending upon the level of comparison chosen for comparison: self-estimates are enhanced when comparison is made to others of lesser ability, and diminished when the accomplishments of the more talented are used to set the relative standard of adequacy (p. 132).

The impact of efficacy information can also be influenced by how it is weighted. Individuals may accurately self-monitor positive and negative aspects of performance but tend to discount the importance of one aspect. For example, a person with low self-esteem may discount positive efficacy information. Another example is the relative weight given to efficacy information communicated by people who vary in degree of credibility (Bandura, 1977b).

The final type of mediator, interpretation, can be explained by the attribution processes. An achievement will enhance self-efficacy only if it is attributed to one's own ability or skill and not to external, chance, or temporary factors (Bandura, 1977a). Certain characteristics of the situation and task can influence the types of attributions that will be made when an individual experiences success. For example, when success is achieved with minimal effort, it is apt to be attributed to one's ability, which in turn fosters a sense of self-efficacy. On the other hand, the same degree of success achieved through a great deal of effort is less likely to result in attributions

to ability, and, consequently, self-efficacy is less likely to be enhanced. Bandura (1984) noted that a person's self-efficacy also can affect the types of attributions made. For example, a person with a high sense of self-efficacy may attribute occasional failures to chance or to some temporary condition and thus maintain a success orientation.

Bandura (1989) has observed that self-efficacy beliefs that are firmly established are likely to remain strong regardless of whether the person is far removed from the taxing or threatening activities or is about to perform them. Bandura argues that firmly established beliefs are resilient to adversity. In contrast, weakly held self-beliefs are highly vulnerable to change. As the person approaches a taxing activity, self-doubts increase, and negative experiences readily reinstate self-beliefs in one's capabilities (Kent, 1987; Kent & Gibbins, 1987). Therefore, a mother's strong self-efficacy beliefs about her ability to care for her newborn infant may not be negatively influenced if she is unable to care for infant as expected in the early postpartum period or if the condition of the infant changes. A mother with weak self-efficacy beliefs, however, may be adversely affected by changes in the routine care of her infant or by any change in the infant's condition.

Assumptions

Assumptions derived from Bandura's (1977a) theory of self-efficacy that were significant for this study are:

1. Individuals (mothers) can learn ways to respond to others (their infants) by observing another person modeling the necessary behaviors (infant caretaking).

2. Individuals' (mothers') efficacy expectations for a task (caring for their infants) are influenced by their motivation and observed outcomes that result from observation of a task (caretaking of an infant) or by the actual performance of a task (actual caretaking of their infants).

3. Individuals' (mothers') behaviors (toward their infants) can be explained in terms of reciprocal determinism. Individual (maternal) behavior, internal (maternal) factors, and environmental influences all operate as interlocking regulators.

Hypotheses

To accomplish the purpose of the study, two hypotheses were proposed:

H₁: Mothers who view a videotape, "Yes, Mom, You Can Be Successful," will have significantly higher maternal self-efficacy scores than those mothers who do not view the videotape.

H₂: Perceived maternal self-efficacy can be predicted by maternal variables: the mother's perception of her infant; time after delivery when mother first saw, held, and fed her infant; number of other living children; age; length of labor; and perceived social support.

Definitions of Terms

The following terms are defined as applicable to this study:

Infant with minor health problem - a newborn infant receiving antibiotic therapy because of risk for or who had developed an infection due to maternal factors.

Maternal perception of infant - the process by which impressions are formed or developed resulting in an understanding of another individual (Nardi, 1973). For the purpose of this study maternal perception of infant is the process of forming impressions of her newborn (Broussard, 1978). Maternal perception of infant will be measured by the premeasurement score on the maternal perception of infant subscale of the Maternal Confidence Questionnaire.

Maternal self-efficacy - mothers' perceptions of how well they can perform in a given situation (Bandura, 1977a). The term is operationally defined as the postmeasurement score on the maternal self-efficacy subscale of the Maternal Confidence Questionnaire, an instrument designed for measurement of perceived maternal self-efficacy for the task of handling and feeding an infant with a minor health problem.

Perceived social support - the extent to which individuals report feeling that their needs for support are satisfied (Procidano & Heller, 1983). Perceived social support was operationally defined as the score on the Social Provisions Scale, an instrument designed to assess the

degree to which individuals have a broad social network that meets a variety of different social needs (Cutrona, 1986).

Limitations

A convenience sample of mothers who agreed to participate in the study was used. In addition, the investigator was unable to control or experimentally manipulate when the mothers were able to see, hold, and feed their infants. Therefore, the findings of the study cannot be generalized beyond the sample studied.

Summary

Perceived maternal self-efficacy and the effect upon this efficacy of maternal perceptions of their infants with a minor health problem was the focus of this investigation. More specifically, the study was designed to determine the relationship of maternal variables (the mother's perception of her infant, time between delivery and first interaction with infant, number of other living children, age, and length of labor) and the experimental treatment with maternal self-efficacy scores. The experimental condition in the study was a videotape of verbal persuasion and modeling which has been described by Bandura (1977a) as sources of efficacy information. The relationship between perceived social support and perceived maternal self-efficacy was also explored.

CHAPTER 2

REVIEW OF LITERATURE

Much has been written about self-efficacy and the influential role of perceived self-efficacy beliefs in guiding behavior. Recently there have been studies examining the relationship between maternal self-efficacy beliefs and the mother-infant relationship. This chapter will review recent research on self-efficacy and will address several major areas of study as well as a historical perspective of Bandura's work. The first section will provide an overview of social cognitive theory (Bandura, 1986). The remainder of the review is organized into the following sections: (a) perceived maternal self-efficacy and its influence on the mother-infant relationship; (b) relationship between the mother's perception of her infant and perceived maternal self-efficacy; (c) effect of perceived social support on perceived maternal-self efficacy; (d) influence of maternal and infant characteristics, especially the impact of an infant with a minor health problem, on perceived maternal self-efficacy; and (e) nursing role and maternal perceptions of self-efficacy. A final section will integrate the research reviewed and suggest directions for future research.

Social Cognitive Theory

The theoretical framework for this study was Bandura's (1986) social cognitive theory and provided structure for this review of the literature. The basic phenomenon in self-efficacy is the focus on

individuals' perceptions of ability to produce and regulate events in their lives.

Theoretical Conceptualization of Self-Efficacy

Social cognitive theory (Bandura, 1977a) posits that all behavioral change procedures work through altering one's self-efficacy expectations, the conviction that one can successfully perform a particular behavior. Self-efficacy expectations are viewed as the main determinant of whether or not one will perform a behavior, of the amount of effort expended during performance, and of the amount of persistence in the face of obstacles and aversive circumstances.

Social cognitive theory was originally developed to examine the therapeutic change in fearful and avoidant behavior. Thus, the initial studies carried out by Bandura and his colleagues (Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977; Bandura, Adams, Hardy, & Howells, 1980; Bandura, Reese, & Adams, 1982) focused on the relationship between changes in self-efficacy expectancies and changes in the avoidance behavior and fear arousal of phobic subjects. The majority of this early work focused on the behavior of snake phobics.

Bandura and Adams (1977) examined the process of self-efficacy and behavioral change of snake phobics treated through systematic desensitization and participant modeling. The first of two experiments used female snake phobics. Subjects' avoidant behavior and fear arousal and self-efficacy for feared tasks were measured at several points before and after treatment. Subjects also participated in systematic

desensitization treatment until anxiety reactions to the most threatening aversive scenes were eliminated. The results showed that systematic desensitization enhanced self-efficacy for threats similar and dissimilar to those visualized during treatment. Results also showed a high correlation between self-efficacy at the end of treatment and level of approach behavior. Furthermore, measures of congruence between self-efficacy and performance showed that self-efficacy was a highly accurate predictor of approach behavior (84% congruence).

Snake phobics also participated in the second experiment of the Bandura and Adams (1977) study. The assessment procedure was identical to that used in the first experiment, however, the treatment procedure involved participant modeling rather than systematic desensitization. The results showed that self-efficacy was a good predictor of subsequent performance (92% congruence). The investigators concluded that the results provided support for the proposition that psychological influences alter defensive behavior by enhancing self-efficacy.

Bandura, Adams, and Beyer (1977) designed a study to determine the relative powers of direct mastery and of vicarious experience in creating self-efficacy expectations and to test the hypothesized relationship between self-efficacy and behavior change. Severe snake phobics received participant modeling (direct mastery) experiences, modeling alone, or no treatment. The level, strength, and generality of self-efficacy expectations, as well as approach behavior and fear arousal, were measured before and after treatment. It was hypothesized

that direct mastery experience would produce higher, stronger, and more generalized self-efficacy expectations than modeling alone. Additionally, it was hypothesized that self-efficacy would be highly related to performance level.

Pretest efficacy measurements consisted of questionnaires on which subjects rated their self-efficacy expectancies for each task. Subjects were assigned to one or three groups. In the participant modeling procedure, the subjects watched the experimenter perform the tasks and then performed the tasks themselves. The modeling procedure had the subjects only watch the experimenter perform the tasks. Those in the control group were administered the assessments after an equivalent amount of time had passed without treatment.

The results indicated that self-efficacy was an accurate predictor of individual task performance, with congruence between self-efficacy and performance being 89% for performance accomplishments and 86% for vicarious experience alone. It was found that participant modeling and experimenter modeling each produced an increase in self-efficacy expectancy. Additionally, data showed that self-efficacy was increased and subjects experienced less distress while exhibiting coping behavior.

Since the studies conducted to investigate the relationship between perceived self-efficacy and changes in phobic behavior, other investigators have examined the general relationship between self-efficacy expectancy and behavior change. For example, increases in self-efficacy expectancy have been found to accompany posttreatment

improvements in assertive behavior (Kazdin, 1979, 1982; Lee, 1984), self-protective skills (Ozer & Bandura, 1990), pain tolerance (Manning & Wright, 1983; Tan & Poser, 1982), and existence of positive weight status following treatment for obesity (Hartigan, Baker-Stauch, & Morris, 1982).

Further studies have indicated that perceptions of self-efficacy correlate significantly with achievement strivings (Bandura & Schunk, 1981), career choice and development (Betz & Hackett, 1986; Lent & Hackett, 1987), and self-reports of anxiety (Kent & Gibbons, 1987; Lane & Borkovec, 1984). Thus, it appears that perceived self-efficacy is functionally related to a wide variety of behaviors.

A growing number of investigations indicate that self-efficacy expectations are positively and significantly associated with initiation and maintenance of health behaviors (Brubaker, & Wickersham, 1990; Manning & Wright, 1983; Pederson, Strickland, & DesLauriers, 1991; Sallis, Hovell, Hofstetter, Faucher, & Elder, 1989; Stanley & Maddux, 1986; Weinberg, Hughes, Critelli, England, & Jackson, 1984). Self-judgments of efficacy were found to determine choice of behavior--that is, which activities will be attempted and which will be avoided. Attempts to reduce drug, alcohol or cigarette use, weight reduction, increasing exercise levels and practicing relaxation techniques were found to be affected by perceived self-efficacy. Self-efficacy was also found to affect the amount of effort devoted to a task and the length of persistence when difficulties are encountered.

For example, DiClemente, Prochaska, and Gibertini (1985) demonstrated that efficacy expectations were highly related to the subjects' ability to maintain smoking cessation. DiClemente (1981) found that maintenance of smoking cessation at 5-month follow-up was correlated significantly with posttreatment judgments of self-efficacy. McIntyre, Lichtenstein, and Mermelstein (1983) also reported that posttreatment self-efficacy scores correlated significantly with smoking-cessation rates.

The findings of the previously reviewed studies provide support for Bandura's assertion that efficacy expectations of a person's perceived, rather than actual capabilities are important. Furthermore, there is empirical evidence that changes in self-efficacy resulting from interventions are powerful in initiating and maintaining changes in behavior.

Measurement of Self-Efficacy

Measurement of perceived self-efficacy in research studies involves asking individuals to make self-efficacy judgments by rating their ability to perform a number of behaviors that vary in difficulty, complexity, or some other dimension. The dimension depends on the domain of functioning being examined. The investigators ask the individuals to indicate which behaviors they perceive themselves to be capable, the degree of certainty with which they perceive themselves to be capable of performing, and the degree of certainty with which they can make that judgment. Individuals are then provided with some type of treatment designed to enhance perceived self-efficacy.

Self-efficacy judgments are made at three points: (1) immediately after a pretest, (2) following treatment but prior to a post-test, and (3) following the performance of the behavior. Correlational analyses are then conducted and a congruence measure is calculated. The congruence measure is obtained by computing the percentage of accurate correspondence between self-efficacy judgments and actual performance. Any instance in which individuals judge themselves to be incapable and then fail to perform the behavior constitutes congruence (Bandura, 1977a).

Maternal Self-Efficacy

Maternal self-efficacy is often viewed from the perspective of Bandura's social cognitive theory (1986). Maternal self-efficacy is defined as a mother's perception of her ability to care for and understand her infant (Zahr, 1991). However, in many of the studies reviewed, perceived maternal self-efficacy was considered in relation to self-esteem in the maternal role. Self-esteem is conceptualized as the cognitive outcome of a self-evaluation process and defined as the mother's subjective perception of her ability to meet the situational demands of the mother (Gibaud-Wallston, 1977). According to Gibaud-Wallston, there are two components of self-esteem, or competence, in the parenting role: perceived self-efficacy as a parent and the satisfaction derived from parenting. However, only perceived self-efficacy, which is conceptually relevant to Bandura's (1978b) conception of self-efficacy, was examined in this investigation. In

this section, studies that have been conducted to examine perceived maternal self-efficacy beliefs and maternal competence as they relate to the transition to parenthood and to the mother-infant relationship will be discussed. Studies relating to maternal competence were included because perceived maternal self-efficacy was usually measured.

Maternal Self-Efficacy and Transition to Parenthood

To study the transition to parenthood, Gibaud-Wallston (1977) compared two sets of couples ($n = 56$) who were first-time parents. The couples were followed from the birth until their infants were approximately six months old. The purpose of the study was to measure the effects of participation in parent-discussion groups on parenting self-esteem. In addition, the relationships between perception of infant, social support, and participation in parent-discussion groups were examined. The data obtained were derived from instruments designed to measure perception of infant, perceived social support, and parenting sense of competence. Of the couples participating in the study, one-half attended a parent-discussion group weekly for six weeks and then once a month for four months. The control group was comprised of couples who had expressed interest in participating in the parent discussion groups but were unable to do so because they could not attend the meetings at the scheduled times.

This study used the Parenting Sense of Competence Scale to measure parenting self-esteem. Developed by Gibaud-Wallston (1977), the instrument measures parenting self-esteem, including both perceived

self-efficacy and satisfaction with parenting. Self-esteem was conceptualized "as the outcome of a cognitive process of self-evaluation with reference to an explicit or implicit standard, which involves a judgment of relative approval or disapproval, but not the emotional reaction to this cognitive judgment" (p. 41). After extensive study of the concept of self-esteem, the investigator found that global measures of self-esteem were less important in predicting behavior or adjustment in particular situations than was an estimate of the self on dimensions specific to that situation. Therefore, the Parenting Sense of Competence Scale was developed to measure self-esteem in the parenting situation, with reference to the parent's own infant.

Three-way analyses of variance with perception of infant, social support, and participation in parent-discussion groups were computed with the dependent variable, parenting sense of competence scores. Mothers who perceived their infants as relatively easy to take care of had higher levels of parenting sense of competence than mothers who perceived their infants as more difficult to manage. No main effects for social support or participation in parenting discussion groups were found for the mothers in the study (Gibaud-Wallston, 1977).

In a related study, Gibaud-Wallston (1978) found that mothers of infants obtained higher efficacy scores than fathers and that scores increased for both parents over a 6-week period. In addition, general self-esteem correlated with self-efficacy for mothers.

Williams et al. (1987) conducted a longitudinal study of adaptation to motherhood in first-time mothers. Variables in the study included parenting confidence and experience with infants, emotional state, attachment, self-esteem, quality of marital relationship, social support, adaptation to motherhood, and mother-infant/child interactions. Parenting confidence was hypothesized to be a central factor of adaptation to motherhood. Utilizing a 23-item questionnaire designed for the study, parenting confidence was measured along with other study variables during the eighth month of pregnancy ($n = 238$), one month after birth ($n = 165$), and two years after birth ($n = 62$). Preliminary analyses were done consisting of Pearson correlations among the scores obtained for the study variables at each phase of the study. In order to specify the extent to which there may be a significant prediction from one variable in an earlier phase to another later phase in the study, multiple regression analyses were done. Postpartum confidence and attachment were predicted prenatally by mothers who had more experience with infants and a sense of competence in parenting. One month after delivering their infants, the mothers' parenting confidence, attachment, the mother's emotional state, and adaptation to the maternal role were strongly linked. At two years, postpartum parenting confidence and the emotional state were found to be predictors of adaptation to motherhood. In addition, postpartum parenting confidence significantly predicted the quality of the mother-child relationship at two years. Although causal modeling analyses were not completed,

preliminary analyses suggests that parental confidence is the driving force for a healthy parent-child relationship.

Pridham and Schultz (1983) examined influences during the transition to motherhood among 49 mothers who varied with regard to preparation for parenting. Using questionnaires administered seven days after delivery, the investigators found that the greater a mother's sense of being adequately prepared for infant care, the greater the sense of satisfaction and success in parenting reported throughout the infant's first three months.

Maternal Self-Efficacy and Mother-Infant Relationship

Several investigations examined the relationship of perceived maternal self-efficacy and whether or not the mother responds sensitively to her infant's signals (Donovan, 1981; Donovan & Leavitt, 1985, 1989; Donovan, Leavitt, & Walsh, 1990). For example, Donovan & Leavitt (1989) studied 48 mothers of 5-month-old infants to determine the mediating role of self-efficacy on maternal characteristics (attributional style, mood state, perceived social support, perception of infant temperament) and the development of mother-infant attachment.

In a laboratory setting, mothers were asked to estimate their control of a child-care task (Donovan & Leavitt, 1989). Maternal self-efficacy was assessed by measuring maternal perception of control over the termination of an infant cry. The investigators hypothesized that mothers who overestimated their control over their infants' cries would be less attentive toward their infants. As predicted, maternal

self-efficacy was significantly related to quality of attachment as assessed by Ainsworth's Strange Situation (Ainsworth, 1976). Insecure infant attachment was associated with overestimation of maternal perceptions of control over the termination of an infant cry. The investigators suggested that appraisal of self-efficacy by the mothers may have been overestimated in order to create an expectation of control over their infants and may be a maladaptive response to the demands of caring for their infants. Therefore, the role of cognitive appraisal and the influence on perceived efficacy should be considered (Bandura, 1977b).

Mercer and Ferketich (1990) studied parental attachment by testing the theoretical model developed by Mercer, May, Ferketich, and DeJoseph (1986). The study's purpose was to test relationships that had been identified as being associated with parent-infant attachment. Variables in the theoretical model included stress, self-esteem, social support, sense of mastery, and parental competence. In the model, parental competence was predicted to have direct negative effects on anxiety and depression which were predicted to have direct negative effects on parent-infant attachment. Subjects for the study were 121 high-risk women, 61 partners of high-risk women, 182 low-risk women, and 117 partners of low-risk women. Women were considered high-risk if they had been hospitalized for an obstetrical problem during pregnancy and low-risk if they had no chronic diseases or pregnancy problems.

Parental competence in the Mercer and Ferketich (1990) study was measured by the Parenting Sense of Competence Scale, developed by Gibaud-Wallston (1977). Using sets of structural equations, the theoretical model was tested for each of the groups. The predicted direct effects of anxiety and depression on parent-infant attachment were minimal. As predicted, parental competence had direct negative effects on anxiety and depression. Parental competence was found to be a major predictor of parental attachment one week after delivery and at eight months after delivery for all the groups. The results of the study suggest that parent-infant attachment may be facilitated by increasing parental competence. The investigators suggested that health care professionals may be able to facilitate parent-infant attachment by enhancing parenting skills. Role modeling and reinforcement of parents' successes were suggested interventions.

Maternal Self-Efficacy and Parenting

To assess the relationship between mothers' early postpartum experiences and their perceived competence for infant feeding and care, Rutledge and Pridham (1987) conducted a descriptive study of 140 mothers. Specifically, the influence of a mother's appraisal of her competence for feeding and caring for her infant on adaptation to the parenting role was investigated before she left the hospital. Assessment of maternal competence was done with a 68-item questionnaire which included items about competence in infant feeding and caregiving. In addition, the influence of a mother's previous experiences and

prenatal and in-hospital classes on maternal competence was assessed. Mothers who received in-hospital preparation had significantly greater perceived competence for infant feeding and caregiving than mothers who received prehospital preparation. The results suggest that an intervention with an educational dimension for newly delivered mothers could contribute to enhanced maternal competence.

To determine the effect of perceived maternal self-efficacy on parenting behaviors beyond infancy, Belsky and Pensky (1988) studied mothers of 13- to 30-month-old toddlers. Scores of the mothers with high perceptions of maternal self-efficacy were related to responsive, stimulating, and non-punitive caretaking after the effects of educational level were controlled.

Mediational Role of Maternal Self-Efficacy

To examine the influences of maternal depression, social-marital supports, and perceptions of infant temperament on the mother-infant relationship, Cutrona and Troutman (1986) conducted a longitudinal study of 86 mothers (including 48 depressed mothers) and their infants. The investigators posited that the variables' influences were indirect and mediated by mothers' feelings of efficacy in the maternal role. The investigators developed the Maternal Self-Efficacy Scale to measure perceived maternal self-efficacy. The items were measured on a 4-point scale and addressed mothers' feelings of efficacy in relation to specific infant care situations. Maternal competence was assessed through the observation of mothers interacting with their infants.

Perceived maternal self-efficacy was significantly and positively related to social-marital supports and negatively related to maternal depression and infant difficulty. In regression analyses, perceived maternal self-efficacy was significantly associated with maternal competence after statistically controlling for social marital supports, maternal depression, and infant difficulty. Perceived maternal self-efficacy was found to play a central role in determining maternal competence, mediating any influences of maternal depression, social-marital supports, and infant temperament.

To assess the effect of a mothers' self-efficacy on parenting behavior, Teti and Gelfand (1991) proposed a theoretical model of what influences the mother during the first year after her child's birth. Mediating between perceived maternal self-efficacy and parenting behavior were variables such as depression, perceptions of infant temperamental difficulty, and social-marital supports. To test the model, 48 clinically depressed and 38 nondepressed mothers were observed in interaction with their 3- to 13-month-old infants. To measure perceived maternal self-efficacy, the investigators developed the Maternal Self-Efficacy Scale. The 10-item questionnaire addressed mothers' feelings of efficacy in relationship to specific aspects of infant care. Measurement of maternal competence was done by behavioral observations and completion of a questionnaire.

For both depressed and nondepressed mothers in this study (Teti & Gelfand, 1991), perceived maternal self-efficacy was related to maternal

behavioral competence independent of the effects of other variables. When the effects of self-efficacy were controlled, maternal competence no longer related significantly to social-marital supports or maternal depression. In addition, perceived maternal self-efficacy correlated significantly with perceptions of infant difficulty after controlling for family demographic variables. The results suggest that perceived maternal self-efficacy mediates relations between maternal competence and study variables. Furthermore, the findings supported the premise that perceived maternal self-efficacy is specific to a mother's perceived performance in the maternal role. Mothers who felt efficacious in the parenting role demonstrated warm, sensitive, and affectively appropriate behavior toward their infants.

The findings in the previously reviewed studies indicate that perceived maternal self-efficacy is a dynamic process of cognitive appraisal that occurs in the context of social, situational, and temporal circumstances. In addition, self-efficacy expectancies were found to mediate maternal behavior toward the mother's infant. Furthermore, empirical evidence suggests an important link between perceived maternal self-efficacy and transition to parenthood exists. Not only do changes in perceived maternal self-efficacy occur during early motherhood and influence the quality of the mother-child relationship, but perceived maternal self-efficacy is predictive of parenting behavior in older infants and children. Walker (1992)

suggests that more research studies are needed to evaluate the effects of teaching new mothers.

Maternal Perception

A mother's perception of her infant may have an effect on perceived maternal self-efficacy. According to Nardi (1973), perceptions are the outcome of the person engaging in the active processing of information about the environment. The person has perceptions of the environment that usually bear a relationship to external events, however, there may be discrepancies between perception of and the actual environment. Of interest to this study is the mother's perception of her infant.

Perception and Self-Efficacy

According to Bandura (1977a), behavior, internal personal factors, and environmental influences all operate as interlocking regulators (reciprocal determinism). These interlocking regulators are bidirectional, that is, the person influences as well as is influenced by the environment. Moreover, internal personal factors including perception are influenced by and also influence the environment. Lastly, the environment and personal factors influence the behavior of the person.

Through the process of perception, the mother forms impressions of her infant (Bandura, 1977a). These maternal perceptions are the outcome of the mother engaging in processing information about the infant obtained from the environment and from the influence of her own

thoughts, preferences, and expectations about her infant. Additionally, the mother's past experiences with other children may influence her maternal perceptions.

Maternal Perception and Parenting

Broussard and Hartner (1970) and Broussard (1976) have reported pioneering work on the effect of maternal perceptions and expectations on the psychological development of the child. They postulated that the unique personality characteristics of the neonate are detected very early by the mother and that her rating of her infant represents a true picture of the child. According to Broussard, "the mother's perception of her infant was influenced by factors within herself rather than the actual physical condition of the infant" (1978, p. 44).

In Broussard's and Hartner's (1970) study, 318 mothers of healthy, full-term infants were followed for 10 years. One of the study's aims was to determine if mothers who originally rated their babies as not being better-than-average after delivery would, after one month, experience a difference between their expectations of the average baby and their perception of own their babies. According to the investigators, a mother who perceived a difference between her expectations of the average baby and her perception of her own baby after delivery would attempt to reduce the difference. Therefore, a change in perception of her infant at one month could be expected. Furthermore, a relationship between maternal perception of her infant and problems in infant behavior was proposed.

To assess maternal perception of her infant, Broussard and Hartner (1971) developed the Neonatal Perception Inventories (NPI). Immediately after delivery, 46.5% of the mothers rated their infants as better-than-average, and 40% of the mothers did not view their infants positively. At one month, 61.2% of the mothers rated their infants as better-than-average. However, at one month, the mothers' perceptions of their infants at delivery was not significantly correlated with problems in the infants behaviors. Even though maternal perceptions of infants after delivery were not correlated with infant-behavior problems at one month, the investigators recommended the use of the NPI before mothers were discharged from the hospital. Whether expectations are negative or positive, Broussard (1979) suggested that health care professionals can assist mothers to recognize the unique characteristics of their infants, thereby helping them to view their babies more positively.

In a follow-up study of the original population, Broussard (1976) found that negative maternal perceptions of the behavior of their one-month-old infants were highly predictive of social and emotional problems when the children were 4 1/2- ($n = 120$) and 10-years-old ($n = 104$). Therefore, the findings of the study provided support for Broussard and Hartner's (1971) suggestion of a relationship between maternal perception of infant behavior and the mother's capacity to provide appropriate nurturance and responsive caregiving.

Lotas and Willging (1979) conducted a study of mothers participating in rooming-in ($n = 46$) that were compared with mothers

($n = 35$) who received traditional hospital care with limited contact with their infants. The purpose of the study was to examine the relationship between a mother's perception of her infant as measured by the NPI and differences in the amount of mother-infant contact. No significant differences were found when the scores of the NPI of the two groups were compared, however, there were proportional differences in maternal perceptions based on number of prenatal classes attended and type of delivery.

Barnard and Eyres (1979) replicated the Broussard study using the Neonatal Perception Inventories (NPI) with a large Seattle sample ($n = 193$). Seventy-nine percent of the mothers rated their infants as better-than-average after delivery, and the scores on the NPI changed from negative at delivery to positive at one month of age in 26 mothers. Palsin (1981) followed 85 mothers from Barnard's and Eyres's study and examined the relationship between NPI scores and social and emotional problems at 4 1/2 years. However, the expected relationship between infant risk scores and later development could not be demonstrated. Palsin, therefore, questioned the predictive validity of the NPI as well as the construct validity of the tool.

Blumberg (1980) conducted a study with 100 mothers, primarily from low-socioeconomic and minority groups, who had recently delivered infants with a wide range of neonatal health problems. One of the purposes of the study was to determine the effect of neonatal risk on a mother's perceptions of her infant. It was hypothesized that higher

levels of neonatal risk would be significantly associated with more negative perceptions of infants.

The NPI was used to measure the mothers' perceptions of their infants (Blumberg, 1980). Infants were classified according to the following risk categories: highest, high, moderate, low, and no risk. Infants with low birth weights (under 2500 g) or who were experiencing severe health problems, such as respiratory or cardiac problems, were considered to be in the highest and high risk categories. Infants were considered low risk if their birth weights were greater than 2,500 g, if they were receiving antibiotics for suspected infections, or if they were being treated for physiological jaundice. In the sample, 35% of the infants were classified as highest or high risk, 60% as moderate and low risk, and 5% with no risk. Mothers of infants at higher risk levels had more negative perceptions of their newborns than did the other mothers. For infants classified in the higher risk levels as well as the lower levels of risk, scores on the NPI were lower than those were reported in Broussard's and Hartner's (1971) sample of normal, full-term infants. Blumberg (1980) suggested that the impact of the infant's condition on the mother should be carefully considered. Even of infants considered at moderate or low risk, the mothers' subjective perceptions could be an important factor in subsequent adaptation to parenting.

Maternal Perception and Mother-Infant Relationship

Feller, Henson, Bell, Wong, and Bruner (1983) conducted a six month longitudinal study of 15 adolescent mothers and their infants.

One of the purposes of the study was to determine what were adolescent mothers' perceptions of their infants. The NPI inventories were used to arrive at a perception score for each mother immediately and one month after her infant's delivery. All but one of the mothers perceived their babies as better-than-average after one month, and 10 mothers changed to a more positive perception between delivery and the inventory after one month.

Nover, Shore, Timberlake, and Greenspan (1984) further investigated the relationship between perception relative to expectation and actual maternal interactive behavior. Particularly, they explored how normal mothers perceived their infants' behaviors, and how these perceptions are specifically related to the mothers' responsiveness to their infants. Mothers who had negative perceptions tended to be less socially interactive with their babies.

The findings in the previously reviewed studies indicate that a mother's negative perception of her infant affects the quality of the mother-infant relationship and the child's behavior. However, the point at which maternal misperceptions become problematic or the differences, if any, in the nature of distortions among mothers is not clear. Additionally, the effects of maternal misperceptions on perceived maternal self-efficacy were not documented in the studies.

Social Support

For more than a half a century, there has been interest in the effects of social relationships on health outcomes. Holmes and Rahe

(1967) found that individuals with high levels of social support suffered fewer negative health consequences following stressful events than those with low levels of support. Study of social support has been expanded to include the impact on the psychological well-being, attitudes, and behaviors of individuals including parents, especially during the transition to parenthood. Cochran and Brassard (1979) suggested that social support "influences parents' attitudes and behavior and, in turn, have both direct and indirect effects on the child's development" (p. 209).

Theoretical Conceptualization of Social Support

Cobb (1976) formulated a widely adopted definition of social support as "information leading individuals to believe they are (a) cared for and loved, (b) esteemed and valued, and that they (c) belong to a network of communication and mutual obligation" (p. 300). Cobb believed that social support provided protection from pathological states, accelerated recovery from illness, and enhanced compliance with medical regimens. More importantly, social support was considered a buffer that was used in situations of crisis rather than to produce a main effect of dramatically improving adaptation.

Although there are many taxonomies of different types of social support (Caplan, 1974; Cobb, 1976, 1979; Cohen & Wills, 1985; Dobb, 1979; Hirsch, 1980; House, 1981; Sarason & Sarason, 1984; Schaefer, Coyne, & Lazarus, 1981), Weiss's (1974) conceptualization of social support provides a basis for examining the concept. According to Weiss,

there are six different social functions or "provisions" that may be obtained from relationships with others. To feel adequately supported and to avoid loneliness, all six provisions are needed. Each of the provisions is most often obtained from a particular kind of relationship, but multiple provisions may be obtained from the same person. The social provisions described by Weiss are divided into two broad categories: assistance-related and non-assistance-related provisions. Functions most directly related to problem solving in the context of stress fall into the first category, assistance-related. Examples of these functions are guidance in the form of advice or information and reliable alliance, which is the assurance that others can be counted upon for tangible assistance. According to Weiss, the other broad category of social provision, non-assistance-related, does not assist an individual directly in problem solving during periods of stress. However, Weiss asserts that non-assistance-related provisions have beneficial effects under conditions of both high and low stress. Reassurance of worth such as recognition of one's competence, skills, and value by others, is an example of a non-assistance-related provision.

The six relational provisions described by Weiss (1974) are (a) attachment, a sense of emotional closeness and security--usually provided by a spouse or loved one; (b) social integration--a sense of belonging to a group of people who share common interests and recreational activities, usually obtained from friends; (c) reassurance

of worth--acknowledgment of one's competence and skill, usually obtained from co-workers; (d) reliable alliance--the assurance that one can count on others for assistance under any circumstances, usually obtained from family members; (e) guidance--advice and information, usually obtained from teachers, mentors, or parent figures; and (f) opportunity for nurturance--a sense of responsibility for the well-being of another, usually obtained from one's children.

Social Support and Self-Efficacy

In order to explore the influence social support may have upon self-efficacy, the process of reciprocal determinism proposed by Bandura (1978a) should be examined. In reciprocal determinism, people are influenced by the interaction between their cognitions, behavior, and the environment. According to Bandura, individuals who have high estimations of their own efficacy attempt more difficult tasks, persist longer at solving problems, and are less self-blaming for failure. If the knowledge that one is supported by others (influence from the environment) increases self-efficacy, then social support should influence both cognition and behavior. Cutrona and Russell (1988) proposed that the benefits of social support, specifically non-assistance-related provisions to an individual, were probably mediated by cognitive processes such as enhancement of self-efficacy. For a mother, increased self-efficacy may be experienced if she receives supportive information from others. As a result of enhanced self-efficacy, effective parenting behaviors should be expected.

Therefore, the relationship between social support and perceived maternal self-efficacy should be explored.

Measurement of Social Support

Currently available measures of social support are divided into three categories: (a) the network model that focuses on the individual's social integration into a group and the interconnectedness of those within that group, (b) the received support model that focuses on what the person actually received or reported to have received, and (c) the perceived support model that focuses on support the person believes to be available if needed (Sarason, Sarason, & Pierce, 1990). According to Crnic and Greenberg (1987), mothers' perceived satisfaction with their support sources may be more influential than the amount or availability of social support.

The focus on perceived social support is on the person's cognitive appraisal. The importance of cognitive processes (cognitive appraisal and mediation) is emphasized in the work of Bandura. Bandura (1977a) posited that cognitions are considered symbolic representational systems and take the form of thoughts and images. Cognitions are both controlling of and controllable by the person's behavior and the environment. Information from the environment comes about through observation and then is appraised, stored, and used in future situations. Thus, perception of satisfaction with support would be more important than the quantity of supportive individuals.

Social Support and Transition to Parenthood

Although the effects of social support have been empirically demonstrated in a wide range of contexts and by varied methods, only recently have studies been conducted on the effects on social support on the transition to parenthood. The variables relative to social support that have been shown to influence the adjustment to parenthood will be reviewed.

Gibaud-Wallston (1977) conducted a study of 50 first-time mothers to identify factors that may contribute to their capabilities to cope with the transition to parenthood. The investigator found that mothers who viewed themselves as being more competent as new parents had high perceptions of social support. Mothers with high scores on perceived social support attained higher Parenting Sense of Competence scores compared to mothers with low social support.

Wandersman, Wandersman, and Cain (1980) explored the effects of different types of social support on the adjustment of first-time parents in the postpartum period. The sample included couples ($n = 23$) who attended parenting groups and couples ($n = 24$) in a comparison group. Couples completed questionnaires at three months and nine months postpartum. Four types of marital support (instrumental, cohesion, consensus, affection), network support, and participation in a support group for new parents were compared.

Adjustment to parenting was assessed by Wandersman et al. (1980) in the following areas: general well-being, satisfaction with life,

marital interaction, and parental sense of competence. Among the measures of marital interaction were affectional expression and marital cohesion (sense of commitment and togetherness). Parental sense of competence was measured with Parenting Sense of Competence Scale (Gibaud-Wallston, 1977). For the mothers in the study, marital support was not significantly related to parental sense of competence. However, marital cohesion was significantly related with feelings of general well-being and perceptions of satisfaction with life. Affectional expression was not significantly related to either measure of general well-being.

Majewski (1987) conducted an exploratory study of first-time mothers ($n = 86$) to identify ways in which they perceived individuals to be supportive during the postpartum period. A majority of women identified their mates as most supportive. Attendance at a parent-support group and guidance offered by friends were also identified by mothers as being helpful in making the transition to motherhood.

Cutrona (1984) conducted a longitudinal study of 71 first-time mothers to assess Weiss's social provisions during pregnancy as predictors of postpartum depressive symptoms. Social support was hypothesized to promote successful coping with the transition to parenthood. The relational provision of guidance (advice and information, usually obtained from teachers, mentors, or parent figures) and social integration (a sense of belonging to a group of people who

share common interest and recreational activities, usually obtained from friends) were found to be the strongest deterrents to depression following childbirth in the mothers studied. These provisions also were found to contribute to skill acquisition in the new mothers.

To determine predictors of diagnosable depression after delivery, O'Hara, Rehm, and Campbell (1983) assessed the role of social support in 99 women who were followed from the second trimester of pregnancy until six months after childbirth. Both instrumental and emotional support from one's spouse (but not from other sources) were associated with a lower incidence of postpartum depression. However, in another study of postpartum women (Paykel, Emms, Fletcher, & Rassaby, 1980), both confiding in the spouse and in another person predicted lower levels of depressive symptoms following childbirth, as did perceived helpfulness of the spouse.

Social Support and Maternal Self-Efficacy

In a longitudinal study of 55 women, Cutrona and Troutman (1986) tested a model of maternal postpartum depression. It was hypothesized that both infant temperamental difficulty and level of social support would affect maternal depression. In addition, mothers' self-efficacy beliefs about themselves in the parenting role were examined as a mediator in the relationship between infant temperament, social support, and maternal depression.

Cutrona and Troutman (1986) collected data during pregnancy and three months after delivery. Various aspects of social support

(instrumental support, especially information and esteem support) were examined. Self-efficacy in the parenting role was assessed with the Parenting Sense of Competence Scale (Gibaud-Wallston, 1977). Results of path analysis testing the hypothesized mediational model of postpartum depression showed that mothers who perceived themselves as having adequate social support had more confidence in parenting their infants and less depressive symptoms than mothers who did not have adequate social support. Based upon the findings of this study, the influence of social support on adaptation to motherhood may be affected through the cognitive mediation of perceived self-efficacy in the parenting role.

Social Support and Parenting

Several recent studies of social support and parental stress suggest that such factors have important influences on parenting and mother-child relationships (Crittenden, 1985; Crnic, Greenberg, Ragozin, Robinson & Basham, 1983; Crockenberg, 1981; Leavett, Weber & Clark, 1986; Weinraub & Wolf, 1983). Although the focus of this investigation is on older mothers, some of the studies reviewed had adolescent populations and will be included in this review.

Colletta (1981) studied the relationship between social support and maternal role behavior in a sample of 50 adolescent mothers of children between the ages of one and three years. Mothers with high levels of social support were more affectionate toward their children. With low levels of social support, the mothers tended to be hostile toward, indifferent to, and rejecting of their children. Emotional

support was found to be most highly related to affectionate maternal behavior, especially if the support was from a partner or spouse. Mothers with supportive emotional relationships reported they received reinforcement for their parenting skills and experienced increased self-esteem.

Crockenberg (1981) studied the influence of infant irritability, maternal responsiveness, and social support on the development of maternal-infant attachment at one year. Forty-eight mothers and infants participated in the study. Using a structured interview to assess social support, maternal social support was found to be significantly related to the security of mother-infant attachment at 12 months. Ainsworth's Strange Situation procedure (Ainsworth & Wittig, 1969) was used to assess mother-infant attachment. Mothers with high social support had less resistant and less avoidant infants than mothers with low social support. The investigators concluded that the adequacy of the mother's social support was associated with the security of the infant-mother attachment.

Mothers with low levels of social support and unhappy marriages have been found to behave less optimally toward their infants than have mothers with more adequate marital and social supports (Cox, Owen, Lewis, & Henderson, 1989; Crockenberg & McCluskey, 1986; Downey & Coyne, 1990; Hann, 1989). For example Cox et al. (1989) found that mothers' perceived stress and social support were significant predictors of their attitudes and the quality of their interactions with their infants. In

the study of 88 mother-infant pairs, two types of social support were assessed: 1) intimate relationships and 2) neighborhood or community support. Mothers with more support and less stress reported significantly greater satisfaction with parenting and more positive maternal interactive behavior during the first eight months after delivery than mothers with less support and greater stress.

Mediational Role of Social Support

In a longitudinal study of 105 mothers, Crnic et al. (1983) assessed the role of maternal social support in mediating parenting behavior, in moderating stress, and in being satisfied with parenting. Utilizing behavioral observations and attitude scales, maternal attitudes and maternal interactional behavior toward their infants were more positive if stress was reduced and social support improved. Mothers with high stress and high support reported greater general life satisfaction than did mothers with high stress and low support. In addition, the mothers with high stress and high support demonstrated more sensitivity to cues from their infants and more frequent social-emotional growth behaviors toward their four-month-old infants than did mothers who experienced high stress and low support. The findings of this study suggest a link between social support, stress, maternal feelings of satisfaction, and mother's behavior toward her infant.

In sum, these studies reveal fairly consistent relationships between the availability of social support and maternal feelings and

behavior during the postpartum period. When mothers have social support from their families, they appear to be more responsive to and involved with their babies and young children. Mothers' perceived satisfaction with their spouses generally showed positive relationships to their reported satisfaction with parenting and to the quality of their behavioral interactions with their infants. Only one study investigated the relationship between social support and perceived maternal self-efficacy (Cutrona & Troutman, 1986). Based upon the findings of the study, social support promoted maternal confidence in parenting through the mediating effects of self-efficacy.

Maternal Characteristics

Only recently has attention been given to identifying maternal attributes that may affect perceived maternal self-efficacy. According to Bandura (1982), the most potent source of self-efficacy information is previous mastery of the particular task or situation. Therefore, mothers who perceive that they have attained mastery of a particular parenting task may be expected to feel more confident about caring for their recently delivered infants. However, the relationship between previous experiences and perceived maternal self-efficacy may be influenced by the interaction among many variables.

Several factors (age, parity, labor experience, race, social status, and education) have been found to be positively related to maternal confidence (Dormire, Strauss, & Clarke, 1989; Gross, Rocissaro, & Roncoli, 1989; Rutledge & Pridham, 1987). Mercer (1981) theorized

that the maternal role is related to socioeconomic status, cognitive level, age, social support, and contributions of the infant. This section will review findings of studies regarding maternal variables that may influence perceived maternal self-efficacy.

Age

Belsky (1984) suggested that primiparous mothers interact with their infants in a more positively affectionate, stimulating, and sensitive manner the older the mothers are. Ragozin, Basham, Crnic, Greenberg, and Robinson (1982) studied mothers ranging in age from 16 to 36 years to determine the effects of maternal age on attitudinal and behavioral components of parenting. Maternal behavior was measured by observed maternal behavior, reported maternal feelings about parenting, and maternal descriptions of the structure of the parenting role. Older mothers attained higher satisfaction with parenting scores, indicating greater pleasure in the parenting role. In addition, increased maternal age was related to increased reported involvement with parenting and to more optimal observed maternal behavior.

Jones et al. (1980) studied age differences and the effects of contact and information on maternal responsiveness toward infants. The ages of the mothers, all primiparas, varied from 17 to 23 years. Mothers 19 years of age and older demonstrated significantly more maternal responsiveness toward their infants than did mothers 18 years and younger.

Mercer (1981) found that primiparous mothers in their thirties have greater psychosocial maturity for mothering, but higher expectations for themselves in the maternal role. Mercer indicated that higher expectations in older primiparous mothers may hinder the mothers' transitions into motherhood.

In a study of 105 mothers, Ragozin et al. (1982) found that young maternal age was associated with strict, angry, and punitive attitudes toward children. As maternal age increased, there was greater satisfaction in parenting, greater time commitment to the parental role, and more sensitive and positive mother-infant interactions in primiparous mothers of term and preterm infants.

Parush and Clark (1988) found that older mothers had higher levels of self-perceived abilities to influence infant development than did younger mothers. Furthermore, the more formal education a mother had received, the more knowledgeable she was concerning the sensory capability of a newborn and the more she perceived herself as influential over her child's development.

In a study of low-income urban Black and Hispanic mothers ($n = 283$), Rauh, Wasserman, and Brunelli (1990) found that maternal age and spoken language accounted for 42.4% of the variance in negative child-rearing attitudes during the postpartum period. The mothers were interviewed within two days after delivery. Younger and Spanish-speaking mothers reported more negative child-rearing attitudes than older, Black, and English-speaking Hispanic mothers.

Parity and Previous Child Care Experiences

Pridham and Schutz (1983) studied 140 mothers and found that mother's parity had no influence on the extent to which a mother perceived herself to be adequately prepared for infant care. However, Rutledge and Pridham (1987) found that parity had a significant main effect on the mothers' parenting sense of competence for infant feeding and care. In addition, the type of cesarean delivery, planned or unplanned, did not significantly affect the total perceived competence score.

In a study of 20 primiparous women, Curry (1983) found that mothers who had previous infant- and child-care experience perceived their adaptation to motherhood as being easy as compared to mothers with no previous experience. Furthermore, lack of social support contributed to their difficulties in adjusting to parenthood. Other variables that might have influenced the adaptation to motherhood such as length of labor, maternal age, and planning of the pregnancy were not statistically significant. The investigators concluded that social support, previous experience with infants, and the acquisition of skills necessary for parenting increased mothers' confidence by increasing their knowledge and their adaptation to that role.

Gross et al. (1989) investigated differences in maternal confidence between mothers of preterm ($n = 62$) and term ($n = 70$) infants. The study's purpose was to explore predictors of maternal confidence during their children's toddlerhood. Study variables

included maternal age, prior childcare experience, birthweight, and maternal confidence. Maternal confidence was measured by the Toddler Care Questionnaire conducted when the infants were between the ages of 12 and 36 months. The investigators found that prior child-care experience, maternal age, and toddler's birthweight explained 38% of the variance.

Labor Experience

A woman may perceive labor as a test of personal competence or a threat to her self-control. If the realities of the labor experience are highly disparate from expectations, mothers in the post-delivery period may blame and be angry with themselves, their families, hospital personnel, and even their infants. Negative feelings about the labor experience may be accentuated if mothers experience extended labor and prolonged pain, are not awake to witness the birth of their infants, or are not permitted to hold their infants in the delivery room as planned (Rubin, 1984). According to Bandura (1977b), self-efficacy involves cognitive appraisal of the person's capabilities to cope with stressful situation and perform required behaviors. When labor is complicated or extended, the mother may feel she has limited success over both internal and external events. With these feelings, negative perceptions of self-efficacy for parenting may develop.

Research indicates that variables related to the labor experience may have an effect on perceptions of and satisfaction with the childbirth experience (Kearney & Cronenwett, 1989; Mercer, Hackley, &

Bostron, 1983; Mercer, 1985). For example, Mercer, Hackley, and Bostron (1983) studied 192 women to identify variables that predicted and correlated with the first-time mother's perceptions of her labor and delivery experience. In the group of women whose ages ranged from 20-29 ($n = 96$), length of labor and perceptions of the birth experience were negatively correlated. Women with longer labors had more negative perceptions of the birth experience. The correlation between length of labor and perceptions of the birth experience was not statistically significant for women whose ages ranged from 30-42 ($n = 64$).

In the studies reviewed, only one study was identified in which social cognitive theory was specifically applied to the study of childbirth. Manning and Wright (1983) studied 52 primiparous women to identify perceptions of self-efficacy and mastery in childbirth. The investigators assessed perceptions of self-efficacy for the ability to control pain without medication. The outcome expectations were nonmedical pain-control techniques that would lead to the ability to control pain of labor and delivery without medication. In addition to perceived self-efficacy and outcome expectations, other study variables were preparation for pain control, length of labor, type of delivery, medication use for pain, and locus of control. Perceptions of self-efficacy for controlling pain positively contributed to persistence in pain control. Length of labor was not related to the use of pain medication during labor.

Research indicates that maternal characteristics contribute significantly to mother-infant relationships. In studying perceived maternal self-efficacy, it is necessary to address maternal variables that may influence perceived maternal self-efficacy. This is best done by controlling some variables in the research design and through analysis of demographic variables not controlled through design.

Infant Characteristics

According to Bandura (1982), feelings of self-efficacy are based on performance accomplishments. The mother's early contact with her newborn and successfully accomplishing infant care and feeding will influence perceived maternal self-efficacy. Additionally, the mother is forming impressions of her infant based upon contact with her infant and with its condition. Bandura (1977a) posited that internal personal factors are influenced by the environment. Through the process of cognitive appraisal, perceptions and expectations are formed. When a mother is separated from her infant due to its health problems or special therapies, she may misinterpret the seriousness of her infant's condition and perceive the infant as being vulnerable (Kemper et al., 1990).

Early Separation of Mother and Infant

An infant's condition at birth may have an effect on the extent and character of a mother's contact with her infant while in the hospital. Brown (1967) postulated that unless the mother has direct contact with her infant, the mother may not perceive herself to be

competent for infant care. Brown's hypothesis was supported by the findings of Greenberg, Rosenberg, and Lind (1973). The investigators learned that mothers who had difficult deliveries had decreased sense of competence in their caregiving abilities because of delayed mother-infant contact.

Brown and Bakeman (1979) proposed that early separation of a mother from her infant changes patterns of maternal-infant interaction and it reduces maternal confidence. This separation can have relatively long-lasting effects on maternal attitudes and behavior towards the infant. Separations are likely to be particularly potent during the period when mothers are making the transition to parenthood and are first evolving a mode of initiation and response to their infants. When an infant spends more than a few days in a special nursery, the mother is likely to return home without the infant. For many parents, this a very difficult period (Brown, 1967).

Whiten (1977) found that separating mothers and their newborn infants during the first two weeks after delivery and while the infants had minor health problems resulted in behavior changes for both mothers and infants. Infants exhibited increased crying at three weeks, and decreased smiling and vocal responsiveness at two months.

Maternal Perceptions of Vulnerability

Green and Solnit (1964) first defined the phenomenon of the vulnerable child syndrome to describe families in which the parents believed that their infant had suffered a "close call" and thereafter

perceived the child as vulnerable to serious injury or accident. The investigators described 25 children who had behavior problems and who had all experienced illnesses or accidents, most in early infancy. All the children had fully recovered, although their parents had expected them to die.

Early research in parental perceptions of vulnerability of their child was exploratory. In a study to determine the use of medical care by parents ($n = 750$), Levy (1980) found that 27% of the parents felt that their children were especially endangered or threatened. In the interviews, the parents tended to view their children as different from other children (and from siblings); they believed the child was likely to become unexpectedly very sick, even though they recognized that the present illness for which they sought health care was not severe. Parents expressed concerns about the potential seriousness, danger, or consequences of an illness or the unpredictability of the illnesses' outcome because they believed their children had special needs.

Kemper et al. (1989) studied maternal reactions to the mothers' infants' jaundice and the related treatments. One month after they were discharged from the hospital, the mothers reported that they perceived jaundice as a serious condition. The investigators concluded that neonatal jaundice and its related treatments were associated with an increased risk of maternal behaviors consistent with the vulnerable child syndrome. The interventions the infants received resulted in

separation from their mother and were reported to upset the mothers and imply that their infants' conditions were moderately to very serious.

In a longitudinal study conducted by Perrin, West, and Culley (1989), maternal perceptions of vulnerability of the mothers' 3-year-old children were examined. The children were either low birth weight infants with respiratory problems ($n = 49$) or full-term infants ($n = 54$). Maternal perceptions of vulnerability were measured with the 12-item Child Vulnerability Scale. Mothers who had infants with health problems described a significantly greater sense of vulnerability concerning their children than did mothers of full-term infants.

Infant Health Status and Maternal Self-Efficacy

The health status of an infant may have some effect on perceived maternal self-efficacy. Seashore et al. (1977) reported that mothers of preterm infants were less confident in their parenting skills than mothers of full-term infants. However, when Gross et al. (1989) compared maternal confidence during toddlerhood among mothers of children born preterm and full-term, there were no differences in maternal confidence. Maternal confidence was defined as the mother's perception of her effectiveness in managing parenting tasks or situations with her toddler and was measured by the Toddler Care Questionnaire (TCQ). The questionnaire consisted of 37 items that addressed the range of tasks relevant to parenting a toddler. There was no difference in the mean TCQ scores for the preterm and the full-term groups.

There is evidence from studies reviewed that a mother can perceive health problems in an infant as a real threat and may influence perceived maternal self-efficacy. In addition, if the mother has an infant with a health problem, even a condition considered minor, maternal perceptions of vulnerability may develop and may persist into the infant's childhood.

Nursing Role and Maternal Self-Efficacy

Over the past decade, the possibility of positively influencing mother-infant relations in the first days of the child's life has gained attention of health care providers (Belsky, 1985). Because the early postpartum period is a critical time with great potential impact for mothers and their infants, interventions to facilitate the mother-infant relationship is important (Anderson, 1977). During this time, the nurse, as a professional, has the expertise to make a difference in the events that occur to the mother after her infant's birth. This is due to the fact that the nurse's contact with mothers during this period is both intense and intimate. Thus, the nurse is in the ideal position to provide educational interventions that may facilitate promotion of the mother-infant relationship (Walker, 1992).

The influential role of educational interventions on enhancement of self-efficacy can be understood in relation to the primary sources of self-efficacy information. Two sources information, vicarious experiences and verbal persuasion, are powerful sources of self-efficacy information. Vicarious information can enhance self-efficacy as an

individual sees others perform successfully in given situations. According to Bandura (1977b), observational learning provides the opportunity to develop self-efficacy in situations in which the observer's anxiety is minimized. Information about self-efficacy may also be provided through verbal persuasion that encourages people to believe they possess the required capabilities to cope with specific situations. Studies involving early interventions to enhance the mother-infant relationship will be reviewed, and those relevant to various interventions, some within the framework of Bandura (1977a), will be included later in this review.

Joy et al. (1980) determined that the trend by professionals from various fields of study was to establish formal and informal educational programs aimed at providing educational assistance to parents during the perinatal period. In a descriptive study conducted to determine teaching priorities of mothers during the postpartum period, Davis, Brucker, and Macmullen (1988) found that mothers identified infant care as an important topic. Care of an infant with an illness received the highest priority of the 117 women in the study. In a similar study, Rutledge and Pridham (1987) found that mothers ($n = 140$) who were prepared for hospitalization through prenatal classes had significantly higher perceived competence in infant care and feeding than mothers who were not prepared.

Other reviewed studies focused on the effects of parent education on parental awareness of infant behavior. For example, Hall (1980)

examined the relationship between structured, informative, in-home teaching about infant behavior and maternal perceptions of the mothers' newborns. Thirty women between the ages of 18 and 30 completed Broussard's Neonatal Perception Inventories (NPI) two to three days after their infants' births. The experimental group received structured teaching about infant behavior two to four days after discharge. There was a significantly positive change of perception in the experimental group's NPI scores one month after mothers gave birth.

Riesch and Munns (1984) conducted a study of 140 mothers to determine how a mother's awareness of her infant's behavior can be increased and can possibly affect the quality of interaction between the mother and her infant. The intervention used in the study was an audiotape with accompanying text. The tape presented different aspects of neonatal behavior and maternal behaviors in order to enhance the mother-infant relationship's potential. As a result, the treatment group mothers reported significantly more observations of their own and their infants' behaviors.

Although standards of care for mothers and infants specify that mothers be instructed in infant care, relatively few studies on the effects of instruction exist. Broussard (1976) used television to increase confidence of mothers in meeting their infants' needs. Before being discharged from the hospital after delivery, mothers were instructed via videotape about infant care and feeding as well as infant behavior and feelings commonly associated with the childbirth

experience. Maternal perceptions of the mothers' infants after one month were enhanced significantly by the televised intervention. Bradley-Johnson and Johnson (1980) also demonstrated the effectiveness of a televised program in increasing new mothers' knowledge about parenting skills and infant behavior.

Moore (1986) conducted a study of 159 mothers with the experimental intervention being a videotape entitled "Baby's Talking -- Are You Listening?" which focused on the manner in which infants, from birth to 9 months, exhibit their multisensory capabilities for communication, and how interaction with the infant can enhance these capabilities. Results indicated that viewing the videotape was significantly correlated with higher attachment scores.

Poley-Strobel and Beckmann (1987) tested a teaching-modeling intervention on 20 postpartum mothers. Teaching mothers methods for eliciting infant responsiveness and facilitating infant behavioral capabilities (Brazelton, 1973) was the intervention. Variables measured in the study were mother-infant interaction, maternal perceptions of infant behaviors, and maternal self-confidence. For the mothers in the intervention group, there were significant increases in maternal and dyadic interactive behaviors. However, there were no significant increases in maternal perceptions of infant behaviors or in maternal self-confidence.

Studies of interventions for the purpose of enhancing maternal awareness of infant behavior and preparation for parenthood have

demonstrated positive results on mother-infant relationships and perceived maternal competence. The literature review showed that early parenting education is available on videotape and is shown to mothers while they are still in the hospital after delivery. However, very few investigations focused on the immediate impact of televised education on early maternal behaviors toward the infants, and no studies were found that evaluated the use of an intervention to enhance perceived maternal self-efficacy in relationship to infant caregiving.

Summary

This study addressed two problems: (1) the determination of the effects on perceived maternal self-efficacy of (1) an experimental intervention, a videotape orientating mothers to childcare and feeding methods to use while their infants with minor health problems receive treatments; and (2) the effects of maternal variables of age, the mother's perception of her infant, perceived social support, and the childbirth experience on the mother's perceived self-efficacy. The literature reviewed suggest that perceived maternal self-efficacy can be influenced by certain maternal characteristics, such as the mother's age and her perception of her infant, and negatively related to stressful situations such as lack of social support. To date, there are few published studies that include actual tests of the relationship between perceived maternal self-efficacy and these maternal variables.

The maternal variables were identified as extraneous variables that may have influenced the study and confounded the findings.

Inclusion of each of these maternal variables was justified by support from the literature: (1) age (Belsky, 1984; Jones et al., 1980; Mercer, 1981; Parush & Clark, 1988; Ragozin et al., 1990; Rauh et al., 1990); (2) the mother's perception of her infant (Barnard & Eyres, 1979; Blumberg, 1980; Broussard & Hartner, 1970; Broussard, 1976; Feller et al., 1983; Lotas & Willging, 1979; Nover et al., 1984); (3) perceived social support (Colletta, 1981; Crockenberg, 1981; Cox et al., 1989; Crnic et al., 1983; Cutrona, 1984; Cutrona & Troutman, 1986; Gibaud-Wallston, 1977; Majewski, 1987; O'Hara et al., 1983; Wandersman et al., 1980); and (4) the childbirth experience (Kearney & Cronenwett, 1989; Manning & Wright, 1983; Mercer et al., 1983; Mercer, 1985). These maternal variables were controlled by including them in the research design as independent variables (Polit-O'Hara & Hungler, 1987).

This study builds upon the work of Bandura's social cognitive theory (1986). Bandura defined self-efficacy as a person's perceptions of how well he or she performs in a given situation (Bandura, 1977a). Based upon the review of literature, the birth of an infant is widely recognized as a period of adjustment for mothers. Many studies were conducted to assess maternal perceptions of confidence or perceived maternal self-efficacy for infant caregiving. Mothers' perceptions of self-efficacy or feelings of confidence in their ability to care for their infants were found to be important for healthy adaptation to parenthood (Gibaud-Wallston, 1977; Gibaud-Wallston & Wandersman, 1978; Pridham & Schultz, 1981; Williams et al., 1987) and a positive

mother-infant relationship (Donovan & Leavitt, 1989; Mercer & Ferketich, 1990; Rutledge & Pridham, 1987; Cutrona & Troutman, 1986; Teti & Gelfand, 1991).

The studies reviewed that measured self-efficacy and focused on changes in self-efficacy supported Bandura's (1977a) assertion that efficacy expectations of a person's perceived, rather than actual, capabilities should be assessed. The literature was divided by different foci. Bandura and Schunk (1981) studied achievement strivings. Career choice and development was the focus of Betz and Hackett (1986) and Lent and Hackett (1987). Kent and Gibbons (1987) and Lane and Borkovec (1984) focused on self-reports of anxiety. Other studies examined the influence of self-efficacy expectations on the initiation and maintenance of health behaviors (Brubaker & Wickersham, 1990; Manning & Wright, 1983; Pederson et al., 1991; Sallis et al., 1989; Stanley & Maddux, 1986; Weinberg et al., 1984). However, despite the importance of perceived maternal self-efficacy for caring for the infant, no studies were found that attempted to measure it in relation to infants with minor health problems. The Parenting Sense of Competence Scale (Gibaud-Wallston, 1977) was the instrument used most frequently to assess perceived maternal self-efficacy. However, this instrument contains only seven items that measure self-efficacy and is considered a global measure of parental self-efficacy. Therefore, one of the goals of this study was to develop a more specific, reliable, and easy-to-use instrument to assess mothers' self-efficacy for infant care.

Specific behavioral tasks, a common format for efficacy scales (Bandura, 1977a), was used.

The influence of previous childcare experiences on perceived maternal self-efficacy was documented in studies of mothers of both term and preterm infants (Curry, 1983; Gross et al., 1989; Pridham & Schutz, 1981). According to Bandura (1977a), performance accomplishments are important sources of efficacy information. However, there was a lack of studies investigating the effects on perceived maternal self-efficacy of separating a mother and infant due to the child's minor health problems or therapies. When separated from her infant, the mother cannot measure her perceptions of her ability against her actual performance. More importantly, she is not able to practice caretaking skills and to receive her infant's response to her care. Therefore, an important source of efficacy information, performance accomplishments, cannot occur.

The reviewed studies supported the positive effects of instruction on mother-infant outcomes. A recurrent theme among the findings of the reviewed studies was the mothers' increased feelings of self-confidence, as well as more positive maternal behaviors toward the infants (Hall, 1980; Poley-Strobel & Beckman, 1987; Riuesch & Munns, 1984; Rutledge & Pridham, 1987). The positive outcomes suggest that teaching strategies for mothers of infants with minor health problems may have similar results. However, mothers' perceptions about their ability to care for

and understand their infants were not found to be used as a basis for teaching and support after the mothers gave birth.

Studies using several types of instruction were reviewed.

Broussard (1976) used television to increase confidence of mothers in meeting their infants' needs. Bradley-Johnson and Johnson (1980) and Moore (1986) used televised programming to increase new mothers' knowledge about parenting skills and infant behavior. According to Bandura (1977a), important sources of efficacy information are learning through observation and verbal persuasion. Although the usefulness of both approaches has been demonstrated in many areas of health education, study of the effectiveness of these interventions with mothers of infants with minor health problems has not been conducted. Specifically, the immediate impact of televised content on a mother's self-efficacy for caring for her infant with a minor health problem has not been the focus of systematic investigation.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

A quasi-experimental (one experimental and one control group), before-after explanatory design (Groups A and B) provided the structure for the testing of the hypotheses which were related to perceived maternal self-efficacy and the influence of maternal variables on perceived maternal self-efficacy. According to the criteria for the design, manipulation of the independent variable and a control group existed, but randomization was missing (Polit-O'Hara & Hungler, 1987). In addition, this design was selected so before-after comparisons could be made (Abdellah & Levine, 1986). The dependent variable, maternal self-efficacy was measured twice, before and after the manipulation of the independent variable. Premeasurement was also used to evaluate the effectiveness of randomization in providing equivalent groups (Burns & Grove, 1987). Since a convenience sample was used, random selection was not done. However, subjects admitted to the study were systematically assigned to groups with a random start done by flip of a coin.

The independent variables were the videotape, "Yes, Mom, You Can Be Successful," and maternal variables. The maternal variables included in the study were the mother's perception of her infant; number of other living children; length of labor; time when mother first saw, fed, and held her infant after delivery; age; and, perceived social support. The independent variable of viewing the videotape was manipulated by

assigning subjects to either the experimental group or the control group. The effect of viewing the videotape of verbal persuasion and modeling on the dependent variable, perceived maternal self-efficacy, was measured. All hypotheses were tested at the .05 confidence level.

The intervention to which the experimental group of mothers was exposed was a ten-minute videotape, "Yes, Mom, You Can Be Successful," specifically designed to orient mothers to handling and feeding methods which they could use while their infants with minor health problems are receiving treatments. The film's central purpose was to increase perceived maternal self-efficacy through two important sources of efficacy information identified by Bandura (1977a): (1) verbal persuasion and (2) modeling. There is a demonstration of handling and feeding an infant requiring intravenous therapy. In addition to the demonstration, verbal persuasion was incorporated into the dialogue. Bandura (1986) asserted that both modeled performances and verbal persuasion constitute important sources of information about self-efficacy. Receiving particular emphasis in the videotape was the behavioral cues that signal that the infant is exhibiting readiness cues for interactions with the mother. Increased awareness of these infant behaviors has been demonstrated to positively influence maternal perceptions of the infant (Perry, 1983).

The videotape, "Yes Mom, You Can Be Successful," was written and produced by the investigator. Filmed in a television studio at a university school of nursing in the southwestern United States, the

investigator used a color videocamera to record the demonstration on a one-half inch VHS videotape. The investigator recorded the narrative after filming was completed. Content validity for the script for the videotape was determined by consulting a panel of experts consisting of three doctorally prepared nurses with clinical expertise in maternal-child nursing. The three judges agreed that the modeling and verbal persuasion adequately reflected behaviors for handling and feeding an infant with intravenous therapy. In addition, the judges agreed that the videotape was adequate to orient mothers to the behavioral capabilities of infants for interaction. The videotape was pilot tested by the investigator with ten mothers at a large, urban, university hospital. The mothers met criteria for admission to the study and represented a variety of ages, ethnic backgrounds, and childbearing experiences. The mothers were interviewed to determine their reactions to the content of the videotape. Each of the mothers indicated verbally they comprehended the information presented. Since eight of the mothers had already fed their infants, they were able to report that the tasks in the videotape adequately represented the task of handling and feeding an infant with intravenous therapy. A copy of the dialogue for the videotape is included in Appendix A.

The dependent variable was maternal self-efficacy scores. The measurement format and scoring procedure for perceived maternal self-efficacy was similar to those used by Bandura (1977b). Subjects completed the measurement of perceived self-efficacy before and after

the treatment so that analysis of the effects of the independent variables could be determined. According to Bandura (1977a), self-efficacy judgments are also made by subjects following performance of a specific task. However, a third measurement of perceived self-efficacy was not obtained. The nature of the therapy for the infants' minor health problems and variations in the number of opportunities for the mothers to feed and handle their infants would have interfered with obtaining the third measurement of perceived self-efficacy.

Setting

The setting for this study was a large, urban, university hospital in the southwestern United States. The state-supported, teaching hospital has a large obstetric service, delivering approximately 4800 infants per year.

Obstetrical services include an outpatient clinic for prenatal care, a labor and delivery unit, postpartum units, and newborn and infant special care nurseries. The traditional labor and delivery experience as well as a birthing room are available for mothers. Rooming-in units for mothers and infants are also available. The mothers are attended by obstetricians in training under the supervision of an obstetrician who is a member of the medical school faculty. Some mothers have private obstetricians. Nursing care is provided by registered nurses and licensed vocational nurses. Parent education on positioning, handling, and feeding an infant is done by the nursing

staff in structured, small-group sessions or on an individual basis. However, parent instruction for handling and feeding an infant requiring intravenous therapy is not structured and varies depending upon factors such as time availability, expertise, and interest of the nurse caring for the mother and/or infant.

Population and Sample

The population under study consisted of women who delivered infants with minor health problems. There is a mean number of 350 to 400 births per month in the hospital. Approximately 20 percent of these births are by cesarean section. Five percent of the total births are infants born with minor health problems or at risk for developing them shortly after birth.

The population was of varied socioeconomic and multiethnic backgrounds and consisted mainly of Caucasian, Black, and Mexican-American subjects. The largest proportion of mothers in this population were from poor families. Many of the mothers had infections during pregnancy (syphilis, amnionitis, urinary tract infection) or developed them due to complications of labor or delivery (prolonged rupture of membranes or precipitous delivery). In populations like that used in this study, infants may either have infections or be at risk for developing infections (Avery & Taeusch, 1984). Infants in these circumstances are routinely treated with intravenous antibiotics for 3 to 10 days.

Criteria for admission of subjects to the study were as follows.

Mothers were:

1. at least 18 years of age;
2. English-speaking;
3. able to read and write;
4. able to view a videotape on the first day after vaginal delivery or the second day after cesarean delivery; and
5. mothers of infants who:
 - a. either had infections or were at risk for infections because of intrapartal maternal infections,
 - b. were born after the 37th week of pregnancy,
 - c. were singleton births, and
 - d. lacked physically disfiguring anomalies.

A convenience sample was used in this study. This nonprobability sampling method was selected in order to obtain an adequate sample size within a realistic time period. Even though there was an element of randomness, it was not a true random sample because the subjects were not selected from a larger population in which all members had a chance of being selected (Abdellah & Levine, 1986). Power analysis was used to determine the sample size. Cohen and Cohen (1975) recommended that power be set at .80 "in absence of some preference to the contrary" (p. 152). With regard to effect size, Cohen and Cohen suggested that an effect size of .30 be regarded as "medium." To detect a population R^2 as small as .30 with an 80% probability of rejecting the null hypothesis

at the .05 level of significance when the effect size is .20, the sample size would need to be at least 60 (Cohen & Cohen, 1975).

After being identified in the convenience sample, mothers were included once they gave consent and met the selection criteria. The final sample consisted of 60 subjects. Subjects were assigned to groups by systematic assignment with a random start. The first subject was assigned to group A if the toss of the coin was "heads." If the coin was "tails," the first subject was assigned to group B. Subsequently, each subject was alternately assigned to either group A or B.

Protection of Human Subjects

The study was designed to comply with all current rules and regulations of the Human Subjects Review Committee of both Texas Woman's University and the hospital. Subjects were recruited on the first postpartum day for mothers with vaginal deliveries and on the second postpartum day for mothers with cesarean section deliveries (not counting day of delivery). They were oriented to the major purpose of the study, the basic procedure for data collection, and the required time commitment. In addition, subjects were informed of potential risks and benefits associated with participation in the study. The investigator's name and telephone number was given to the subjects. Subjects who agreed to participate indicated their willingness by signing a consent form (Appendix B).

Measures were taken for protection of confidentiality by using coded numbers instead of subjects' names. Since a premeasurement and a

postmeasurement required data collection from subjects at more than one time, the subjects' names were kept on a separate list and remained separate from the data collection tools. The completed questionnaires for the two measurements were stored separately and all data collection instruments were identified solely by coded numbers. The master list of coded numbers and completed questionnaires were kept in a locked file cabinet in the investigator's office. The list and questionnaires were maintained only until the data collection was complete. At that time, the list and questionnaires were shredded and discarded. In any written report of the findings of this study only aggregate data will be reported.

Subjects recruited for the study were informed that they could refuse to participate or stop participation at any time without prejudice or change in the care they or their infants received. In addition, information concerning withdrawal from the study would not be entered into the subjects' hospital records. Subjects in the study were informed that the hospital or university did not have a mechanism for compensation of injured research subjects other than the usual treatment provided to the general public.

Instruments

Six instruments were employed in this study. The Maternal Confidence Questionnaire (MCQ), Broussard and Hartner's Neonatal Perception Inventories (NPI), the Parenting Sense of Competence Scale (PSOC), the Social Provisions Scale (SPS), and Maternal and Infant

Demographic Forms were used in data collection. Copies of letters of permission to use the instruments are included in Appendix C.

Maternal Confidence Questionnaire

The first instrument, the Maternal Confidence Questionnaire (MCQ), was a 38-item instrument developed by the investigator to be administered to newly delivered mothers of infants with minor health problems. The instrument consisted of two subscales, maternal perceived abilities for holding and feeding her infant and maternal perception of infant. Also included in the questionnaire were seven items ascertaining whether or not the mother has any special worries about her infant's health or feels the need for extra cautiousness; whether or not the mother believes that her baby's behavior is affected by illness; satisfaction with the infant's gender; if she attended prenatal classes; whether or not the pregnancy was planned; and when the mother first saw, held, and fed her baby after delivery.

The first subscale of the instrument related to maternal perceived abilities for holding and feeding her infant. Following the procedure used by Bandura (1977a), the mother was provided with a list of the tasks involved in handling and feeding an infant and was asked to describe her ability to perform the tasks. Ratings of efficacy expectations for performing the tasks were obtained using a 5-point scale ranging from strongly disagree to strongly agree. The total possible scores ranged from 15 to 75. The scores for the postmeasurement of maternal self-efficacy were summed and averaged to

yield a mother's self-efficacy score. For the second subscale, maternal perception of infant, the mother was asked to describe her perception of how she expected her infant to respond to her during feeding. The rating scale, the same as the first subscale, resulted in total possible scores ranging from 17 to 85. Premeasurement scores for maternal perception of infant were summed and averaged to yield a mother's perception of her infant score.

The MCQ originally consisted of three subscales: (1) maternal self-efficacy for holding and feeding her infant, (2) maternal perception of infant, and (3) general self-efficacy. This subscale was developed as a measure of perceived maternal self-efficacy that was not tied to a specific situation or behavior. After pilot testing of the instrument, the third subscale was deleted because the focus of this study was on a mother's perception of her abilities to hold and feed her infant rather than a more global measure of maternal self-efficacy.

Five nurses experienced in caring for postpartum mothers were asked to judge whether the items in the MCQ reflected general and specific feeding behaviors for infants and mothers as identified in their own practice and in the literature. In addition, they were asked if the items appeared to measure what the investigator intended. Further evidence of the instrument's content validity was obtained by consulting a panel of experts consisting of three doctorally prepared nurses with a clinical expertise in maternal-child nursing. The operational definitions for self-efficacy and perception were reviewed,

and they were asked to determine whether or not the items in the subscales represented an adequate sample of behaviors within the boundaries of the definitions. The three judges agreed that perceived maternal self-efficacy and perception of a mother's expectations of her infant in relationship to feeding had been adequately sampled. The experts were also requested to assess the appropriateness of the reading level of the instrument. They agreed that the reading level was appropriate for the subjects in the study.

Pilot testing of the MCQ was done by administration of the instrument to 30 postpartum mothers at a large, urban, university hospital. Factor analysis was used for evidence of construct validity. However, the limited sample in relationship to the number of variables for factor interpretation could affect confidence in the factor analysis (Thorndike, 1978). The number and nature of the constructs underlying the set of items in the instrument were assessed. When the instrument was developed, three factors were identified (perceived maternal self-efficacy, the mother's perception of her infant, and general maternal self-efficacy). Since the instrument was composed of three subscales, it would be assumed that three factors would be extracted. However, when principal component factor analysis with Varimax rotation was done, ten factors were identified.

Inspection of the resulting factor structure indicated that a four-factor solution provided the optimal number of interpretable factors without unduly reducing the accounted-for percentage of total

variance. To be retained, an item was required to load at the .50 level or above on only one factor, and at least four items were required within a factor (Thorndike, 1978). After items were deleted because of low item-total correlations (less than .30), there were three factors that had at least four items with a factor loading of .50 or above. Factor 1 had four items relative to general behaviors of a mother toward her baby and two items relative to feeding an infant. Seven items were from the perceived maternal self-efficacy subscale and six items were from the general self-efficacy subscale. Factor 2 had five items relative to maternal perceptions of her infant. All of these items were from the second subscale. Factor 3 had four items related to the feeding of an infant with three items from the perceived maternal self-efficacy subscale and one item from the general self-efficacy subscale. The items for the three factors are presented in Table 1. The results of the analysis provided preliminary evidence for construct validity for two factors, self-efficacy and perception. However, Factor 1 included items relating to both perceived maternal self-efficacy concerning infant care during feeding as well as items relating to general self-efficacy. The items in the general self-efficacy subscale have been deleted. Since the sample was small, the factor analysis was repeated with the sample from this study.

Preliminary analyses using item intercorrelations were conducted on the subscales. All negatively worded items were recoded prior to data analysis. All but two of the items on the perceived maternal

Table 1
Factor Loadings of Items from Maternal Confidence Scales

Item	Factor Loading
Factor 1. Maternal Self-Efficacy	
<u>Maternal self-efficacy subscale</u>	
Touch baby	.598
Hold baby in a comfortable position	.708
Rock baby	.876
Place baby on shoulder and pat on back to burp	.804
Kiss, caress, hug baby	.927
Soothe baby when baby cries	.851
Talk to baby	.927
Quiet baby	.586
<u>General self-efficacy subscale</u>	
Handling baby before and during feeding	.661
Holding baby during feeding	.971
Feeding baby	.601
Burping baby	.682
Interpret needs of baby	.559
Respond to baby's needs	.779
Factor 2 - Maternal Perception of Infant	
<u>Maternal perception of infant subscale</u>	
Baby will accept feeding right away, swallowing promptly	.589
Baby will be calmed by being picked up	.782
When baby is crying, baby will settle down when being held	.598
Baby will respond to gentle touch	.710
Baby will touch me	.535
Factor 3 - Feeding of Infant	
<u>Maternal self-efficacy subscale</u>	
Support baby's head and back when burping	.702
Burp baby during and at end of feeding	.506
Start or stop feeding when baby cries	.754
<u>Maternal perception of infant subscale</u>	
Baby will want and will take feeding	.670

self-efficacy subscale were statistically significant ($r > .30$). However, on the maternal perception of infant subscale, six items were below the statistically significant level. Five of these items were negatively worded items. All six of the items on the general self-efficacy subscale were statistically significant. The maternal perception of infant subscale was revised, and, instead of the probability scale with the response choices varying from "completely unsure" to "completely sure," the response choices vary from "strongly disagree" to "strongly agree."

Internal consistency reliability was obtained by the computation of Cronbach's alpha coefficient (Waltz, Strickland, & Lenz, 1984). Since the instrument was designed to measure factors of the theoretical constructs of self-efficacy and perception, the alpha was obtained for each subscale using raw scores. Alpha reliability coefficients were .88 with a standardized alpha of .91 for the self-efficacy subscale and .45 with a standardized alpha of .57 for the perception subscale. The alpha coefficient was determined three more times after the deletion of items. The alpha coefficient was .56 (standardized alpha .65) after item 3 was omitted, .54 (standardized alpha .64) after item 7 was omitted, and .57 (standardized alpha .68) after item 13 was omitted. The low reliability coefficient for the perception subscale may have been due to the wording of the response choices of the scale. In addition, there were items relating to feeding behaviors in the subscale when factor analysis was done. The response choices of the scale have been changed and items

with specific reference to feeding have been deleted. The alpha coefficient was determined with the study sample. If the alpha was low, items with low-item intercorrelations were deleted and the alpha again determined. A copy of the revised MCQ is included in Appendix B.

Neonatal Perception Inventories

The second instrument, developed to derive a mother's perception of her neonate, was the Broussard and Hartner's Neonatal Perception Inventories (NPI) (1971). Broussard developed the items on the NPI after extensive clinical experience with primiparous mothers with term, normal newborns. The inventories consisted of six questions each. A scale-rating system was used for each question with values from 1 for none to 5 for a great deal. The mother rated her infant in terms of how much difficulty she perceived in six behavioral areas. The six behaviors rated were crying, feeding, spitting up or vomiting, bowel movements, and a predictable pattern of eating and sleeping. She then rated an "average" infant on these same behaviors. The total score for how she perceived her baby was subtracted from the total score of the average baby form. A positive score indicated that the mother perceived her infant more favorably on these behaviors than she perceived an average infant; a negative score indicated that the mother perceived her infant less favorably and had more difficulty than she expected with an average infant. The NPI was originally designed to be administered one to four days after birth and administered one month later. Broussard and Hartner (1971) reported total scores ranging from 7 to 23 out of a

possible score of 6 to 30, and differences between the scores ranging between +9 to -9. The sample consisted of 318 primiparas who delivered normal, full-term, single births. This instrument yielded data on an interval scale.

Reliability and validity for the NPI has been assessed by several investigators. Blumberg (1980) conducted a study with 100 mothers, primarily from low-socioeconomic and minority groups, who had recently delivered infants with a wide range of neonatal conditions. Perception of the newborn using the NPI was made between the first and fifth postpartum days. The alpha reliability coefficients for the "Average Baby" and "Your Baby" scales were .63 and .74, respectively. Freese and Thoman (1978) examined test-retest reliability of the NPI using two samples of 20 primiparas and 20 multiparas. Test-retest reliabilities for the NPI immediately after delivery and at one month were .22 and .82 respectively. Reliability coefficients for multiparas were .70 on both measurements of the NPI.

Broussard (1978) reported construct and criterion validity for the NPI at one month, but not the NPI immediately after delivery, in identifying children who might develop problems needing intervention. The sample consisted of 120 first-born, healthy, full-term infants. The median NPI score was 1.81 at one to two days following birth and 2.40 approximately one month later (Walker, 1982). However, Palsin (1981) did not find a relationship between infant-risk scores and later development in a replication study with a large Seattle population.

Palsin, therefore, questioned the predictive validity of the NPI as well as the construct validity of the tool. Since there is conflicting validity evidence for the NPI, confidence that the NPI is a valid measure of maternal perceptions is questionable. Other measures of maternal perception were not found in the literature. Therefore, the maternal perception of infant subscale of the MCQ was used in this study and the NPI was used to assess concurrent validity for the MCQ. Further analysis of reliability and validity was done. A copy of the NPI is included in Appendix E, and directions for administration are included in Appendix F.

Parenting Sense of Competence Scale

The Parenting Sense of Competence Scale (PSOC) was also used to assess perceived maternal self-efficacy (Gibaud-Wallston, 1977). Only the seven-item self-efficacy subscale was used. The second subscale which assesses the amount of value of the parenting role was not utilized because this variable was not conceptually relevant to the study. Each item on the PSOC was answered on a 5-point scale ranging from strongly disagree to strongly agree. Scores on the items were summed and averaged to obtain a maternal self-efficacy score. Higher scores indicated greater perceived maternal self-efficacy.

Although the MCQ was used to measure the dependent variable, perceived maternal self-efficacy, the PSOC was utilized to assess concurrent validity of the MCQ. The MCQ is a more specific measure than is the PSOC about the mother's beliefs about her capabilities of caring

for her infant. According to Bandura (1977a), measurement of self-efficacy expectations should be as specific as possible. In addition, specific items of the MCQ could be a useful tool for nurses to assess the mother's concerns about caring for her infant.

The PSOC has been shown to be a reliable measure of perceived maternal self-efficacy (Cutrona & Troutman, 1986; Gibaud-Wallston, 1977; Johnston & Mash, 1989; Mash, Johnston, & Kovitz, 1983). Gibaud-Walltson (1977) conducted a study of 76 Caucasian, middle-class parents participating in a parent-discussion group or in a control group whose infants were approximately 10 weeks of age (half were male and half were female). The Cronbach's alpha was .80 for the self-efficacy subscale. Satisfactory six-week test-retest correlations were also obtained (.74) for self-efficacy (Gibaud-Wallston, 1977). In a study of 303 women and 278 of their partners, Mercer and Ferketich (1990) obtained alpha reliabilities ranging from .82 to .87 one week and eight months after delivery.

Support for the construct validity of the PSOC scales was established through factor analysis (Johnston & Mash, 1989). The sample consisted of 297 mothers and 212 fathers of 4- to 9-year-old boys and girls, primarily from the middle class. Principal-component analysis of the PSOC revealed two factors: satisfaction and efficacy. One item in the original self-efficacy subscale loaded on the satisfaction factor. The Cronbach's alpha coefficient for the self-efficacy subscale was .76.

Criterion validity of the PSOC has also been studied. Lower self-efficacy scores were significantly correlated with more reported child-behavior problems (Johnston & Mash, 1989). Cutrona and Troutman (1986) found that new mothers' self-efficacy scores on the PSOC were correlated with general self-esteem and mediated the effects of infant temperament and social support on postpartum depression. Scores on the PSOC were predictive of mother behavior during play and task interactions with their children (Mash, Johnston, & Kovitz, 1983). The investigators found that abusive mothers reported lower PSOC scores than those reported by nonabusive mothers. A copy of the PSOC is provided in Appendix G.

Social Provisions Scale

The Social Provisions Scale (SPS) was developed by a research group at The University of California at Los Angeles in 1978 to assess the social relational provisions described by Weiss (1974). Weiss described six different functions, or "provisions", that may be obtained from relationships with others. The six social provisions are intimacy, social integration, nurturance, worth, alliance, and guidance. The original SPS consisted of 12 items in which respondents were asked to rate the degree to which their social relationships were currently supplying each of the provisions. Each provision was assessed by two items: one that described the presence and one that described the absence of the provision. Respondents indicated on a 7-point scale (ranging from completely true to not-at-all true) the extent to which

each statement described their current social relationships. The items for each dimension were summed and constituted a score for each social provision. A total social support score was derived by summing the six individual provision scores (Cutrona, 1981).

Reliability of the measure was assessed by administering the SPS to 505 undergraduate and graduate students at a large midwestern university (Russell, Cutrona, Rose, & Yurko, 1984). Correlations between the two items that measured each provision ranged from .33 for reassurance of worth to .56 for reliable alliance (mean correlation = .49). In a sample of elderly adults, test-retest reliability for the total score was .55 over a 6-month period (Cutrona, Russell, & Rose, 1986).

The SPS was revised to include 12 new items, two items for each of the six social provisions. In addition, the response format was changed to a four-point rating scale. Cutrona and Russell (1987) conducted factor analyses on the revised SPS for the existence of the six dimensions of support described by Weiss (1974). Using data from a sample of 1,792 individuals (which included college students, public school teachers, and nurses), factor analysis results suggested that the measures of individual social provisions formed separate factors. All of the item loadings on the respective factors were statistically significant and sizeable in magnitude (ranging from .39 to .78). The Cronbach's alpha for each subscale varied from .65 to .76. Cutrona

(1982) conducted a factor analysis of responses to the original SPS. Among first-year college students, six factors were confirmed.

The SPS has been studied in terms of criterion validity. Cutrona (1984) reported that scores on the SPS obtained during pregnancy were predictive of depressive symptoms in postpartum mothers. The same pattern of results was found in another sample of postpartum mothers (Cutrona & Troutman, 1986). In a study conducted at a United States Army medical center, Constable and Russell (1986) investigated the relationship between burnout and social support with 308 nurses. Results confirmed relationships between scores on two of the SPS subscales and several measures of burnout. Among a sample of 110 elderly adults, the total scale score on the SPS correlated from .23 to .31 with measures of life satisfaction, loneliness, and depression (Cutrona et al., 1986). Russell et al. (1984) found that, as predicted by Weiss (1974), individual social provisions correlated significantly and differentially with ratings of different relationship categories. Among 242 first-year college students, Cutrona and Russell (1987) found social integration correlated most highly of all the provisions with perceived quality of friendships ($r = .69$), and attachment correlated most highly with satisfaction with romantic or marital relations ($r = .53$). In addition, the correlations between scores on the SPS and other measures of social support were higher than they were with measures of other variables (depression, introversion-extraversion, and neuroticism). A copy of the SPS is included in Appendix H.

Maternal and Infant Demographic Forms

Demographic information was collected on maternal variables. The maternal variables that yielded nominal level data were type of delivery, type of intrapartum pain-relief medication and anesthesia, incidence of intrapartum obstetrical interventions, complications of cesarean section, presence of infectious disorders, whether or not pregnancy was planned, whether or not mother attended prenatal classes, ethnicity, highest completed grade in school, income classification, number of pregnancies, and occupation of mother and head of household. The maternal variables, age and length of time membranes were ruptured prior to delivery, yielded ratio level data. Infant variables of gender and whether or not infection was present yielded nominal level data. Gestational age and physical status at one and five minutes after birth (APGAR score) yielded interval level data. The birth weight of the infant and number of days of antibiotic therapy yielded ratio level data.

The infant's score on the Dubowitz was used as the measure of gestational age (Dubowitz, Dubowitz, & Goldberg, 1977). The Dubowitz score reflects the degree to which eleven external physical characteristics and ten neurological criteria are present at birth. The Dubowitz assessment is done by trained health care providers as part of the first physical examination, and the total score is recorded on the infant's chart. A copy of the Dubowitz scoring system is included in Appendix I. The infant's physical state at one and five minutes after

birth is also assessed in the delivery room by a nurse or physician using the Apgar rating scale (Apgar & James, 1962). The infant is given a score of 0, 1, or 2 on each of five observable characteristics (i.e., heart rate, respiratory rate, muscle tone, reflex irritability, and color). The Apgar score at one and five minutes after birth is recorded on the delivery records of both the infant and the mother. A copy of the Apgar scoring system is included in Appendix J. Copies of the Maternal and Infant Demographic Forms are included in Appendices K and L, respectively.

Data Collection

Recruitment of subjects, completion of inventories and assessments, and viewing of videotapes was done individually in patients' hospital rooms. After permission was obtained from Texas Woman's University and the hospital, potential subjects who met the study criteria were asked to participate. Two potential subjects declined participation in the study. Each subject was then randomly assigned to the experimental group (A) or the control group (B). Systematic assignment with a random start was achieved by the toss of a coin to assign the first subject to either group (A) or group (B) and thereafter to alternately assign subjects to the experimental group or the control group.

On the first postpartum day (second day for cesarean section mothers), subjects in groups A and B were asked to complete the MCQ, NPI, PSOC and SPS questionnaires. The Maternal and Infant Demographic

forms were completed with information from the subjects' charts. After completion of the questionnaires, mothers in Group A viewed the videotape, "Yes, Mom, You Can Be Successful." Immediately after the mothers in Group A viewed the videotape, they completed the MCQ. After approximately six hours, the mothers in Group B again completed the MCQ and were given an opportunity to view the videotape. The time required for a mother to complete the questionnaires and to view the videotape was approximately 40 minutes. At the conclusion of the study, all data collection forms were shredded and discarded.

Pilot Study

Ten newly delivered mothers volunteered from the postpartum unit at a large, urban, university hospital in the southwestern United States. They were systematically assigned to either the control or experimental group with a random start. The groups were a convenience sample of mothers from varied socioeconomic and ethnic backgrounds. Each mother completed the Maternal Confidence Questionnaire (MCQ) and the Neonatal Perception Inventories (NPI). The experimental group viewed the videotape, "Yes, Mom, You Can Be Successful." Both groups again completed the questionnaires, and subjects in the control group were given the opportunity to view the videotape.

Due to the very small sample, the Fisher exact probability test was used to establish whether differences existed between the experimental and control groups on maternal self-efficacy scores. Analysis of data showed no significant differences between the two

groups ($p < .05$). Although the results of the data analyses indicated that the videotape used at the experimental condition did not exert a significant positive influence of perceived maternal self-efficacy, this may have been due to the small sample size. The correlation coefficient between the MCQ and NPI was statistically significant ($r = .56$, $p = .21$). These results suggested a relationship between maternal perception of infant and perceived maternal self-efficacy.

Treatment of Data

Data analysis included descriptive and inferential techniques. Demographic characteristics of the total sample of mothers (the experimental and control groups) are reported with descriptive statistics. The statistics included the mean, standard deviation, frequencies, and percents for variables with interval level measures. Frequencies, percents, and modes were given for nominal level categorical variables (Roscoe, 1974). Descriptive statistics for the dependent variables included mean, standard deviation, frequencies, and percents.

The first hypothesis, there will be significantly higher maternal self-efficacy scores between mothers who view the videotape, "Yes, Mom, You Can Be Successful," and those mothers who do not, was tested using a two-way analysis of variance (ANOVA). A subscale of the MCQ was used to measure perceived maternal self-efficacy. To test Hypothesis Two, perceived maternal self-efficacy can be predicted by maternal variables, multiple regression analyses were conducted.

Summary

Subjects for this quasi-experimental explanatory study were recruited from mothers who delivered their infants at one university hospital. Mothers in the experimental group viewed a videotape the first day after delivery (second day for cesarean section). Assessment of perceived maternal self-efficacy was completed after viewing the videotape, and significant differences in scores between the experimental and control groups was tested. Analyses to determine the effects of selected maternal variables were accomplished with multiple regression analyses.

CHAPTER 4

ANALYSIS OF DATA

This quasi-experimental explanatory study was conducted to investigate the effect of viewing a videotape of verbal persuasion and modeling as an intervention to enhance perceived maternal self-efficacy. The sample was comprised of mothers who recently delivered infants with minor health problems. Additionally, the study was designed to determine the relationship of the maternal variables (maternal perception of the mother's infant, time between delivery and first interaction with infant, number of other living children, age, length of labor, and perceived social support) and the experimental treatment with maternal self-efficacy scores. A convenience sample of mothers was recruited and each mother was assigned to either the control or the experimental group. Pre- and postmeasurements of perceived maternal self-efficacy were collected. In addition, scores were obtained measuring maternal perception of the mother's infant and perceived social support prior to the intervention.

The presentation and analysis of data are discussed within this chapter. Information is provided concerning the demographic characteristics of the total sample of mothers and their infants, and the differences between mothers and infants in the control and experimental groups with regard to demographic characteristics. The results of analysis of variance which was used to analyze the dependent

variable are presented. This chapter concludes with the results of stepwise multiple regression analyses to test the hypothesis regarding the relative influences of selected maternal and infant variables on perceived maternal self-efficacy. Data were analyzed using the Statistical Package for the Social Sciences (Norusis, 1990), and tables are included to show the findings.

Description of Sample

Data were collected from 60 mothers over a 9-month period in 1992. The sample was comprised of mothers who had recently delivered infants with minor health problems. The following information is divided into maternal and infant demographics.

Maternal Demographics

The demographic data were analyzed through the use of descriptive statistical analysis. Maternal demographic characteristics included the following: age, highest completed grade in school, number of other living children, marital status, ethnicity, occupation of mother and head of household, income classification, status of pregnancy, prenatal classes, method of feeding, infant discharge, maternal concerns, the mother's interaction with her infant, length of labor, length of ruptured membranes, type of delivery, type of analgesic/anesthesia during labor, intrapartum obstetrical interventions, intrapartum/postpartum complications, and presence of intrapartal infection. The statistics include mean, range, standard deviation, and

standard error for variables with interval level measures. Percents are given for categorical variables.

Maternal Age. Ages of the mothers varied from 18 to 34 with a mean of 24.12 and standard deviation of 4.38 years. In the experimental group, the ages varied from 18 to 32 with a mean of 24.10, while the ages in the control group varied from 18 to 34 with a mean of 24.13. Descriptive statistics for maternal age are presented in Table 2.

Maternal Education. The mothers' years of formal education varied from 6 to 16 years, with a mean of 11.89 and a standard deviation of 1.92 (Table 2). In the experimental group, the responses for the highest grade in school varied from 6 to 16, with a mean of 11.68 years and standard deviation of 0.42. The mean for the control group was 12.12 and scores varied from 9 to 16 years. The standard deviation was 1.62. Only one mother (1.7%) had less than a ninth-grade education, and only five (8.3%) had more than two years of college.

Number of Other Living Children. Although 28 (46.7%) of the mothers in the study had just delivered their first infants, only four mothers had as many as four other children (Table 2). The number of other children for mothers in both the experimental and the control groups varied from one to five.

Marital Status. The marital status of the sample consisted of six categories: married, divorced, separated, never married, living with significant partner, and widowed. As presented in Table 3, data revealed that 34 (56.7%) of the mothers were married, while 17 (28.3%)

Table 2

Frequency Distribution and Percentages of Maternal Age, Highest Completed Grade in School, and Number of Other Living Children by Groups
(N = 60)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Age (Years)</u>						
18	4	13.3	1	3.3	5	8.3
19	1	3.3	4	13.3	5	8.3
20	3	10.0	4	10.0	6	10.0
21	2	6.7	2	6.7	4	6.7
22	1	3.3	4	13.3	5	8.3
23	2	6.7	3	10.0	5	8.3
24	2	6.7	2	6.7	4	6.7
25	4	13.3	1	3.3	5	8.3
26	2	6.7			2	3.3
27	3	10.0	2	6.7	5	8.3
28	1	3.3	1	3.3	2	3.3
29	1	3.3	2	6.7	3	5.0
30	1	3.3	3	10.0	4	6.7
31	2	6.7			2	3.3
32	1	3.3			1	1.7
34			2	6.7	2	3.3
<u>Highest Completed Grade in School (Years)</u>						
6	1	3.3			1	1.7
9	4	13.3	2	6.7	6	10.0
10	1	3.3	2	6.7	3	5.0
11	4	13.3	2	6.7	6	10.0
12	13	43.3	15	50.0	28	46.7
13	1	3.3	3	10.0	4	6.7
14	1	3.3	2	6.7	3	5.0
16	3	10.0	2	6.7	5	8.3
Missing	2	6.7	2	6.7	4	6.7

Table 2 (Con't)

Frequency Distribution and Percentages of Maternal Age, Highest Completed Grade in School, and Number of Other Living Children by Groups
(N = 60)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Number of Other Living Children</u>						
0	16	53.3	12	40.0	28	46.7
1	7	23.3	12	40.0	19	31.7
2	2	6.7	4	13.3	6	10.0
3	2	6.7	1	3.3	3	5.0
4	1	3.3			1	1.7
5	2	6.7	1	3.3	3	5.0

had never married. Three (4%) subjects were separated and 5 (8.3%) lived with a significant partner. In the experimental group, 15 (50%) of the subjects were married, while 9 (30%) of the mothers had never married. Two (6.7%) of the subjects were separated and 4 (13.3%) lived with a significant partner. In the control group, 19 (63.3%) of the mothers were married and 8 (26.7%) mothers were single. One (3.3%) mother in this group lived with a significant partner and 2 mothers (6.7%) were separated.

Ethnicity. The cultural background of the demographic form included five categories: Black, Caucasian, Mexican-American, Oriental, American Indian, mixed, and other (Table 3). Twenty-two (36.7%) of the mothers were Black, 21 (35%) were Caucasian, while 12 (20%) of the mothers were Mexican-American. One (1.7%) of the mothers was classified

Table 3

Frequency Distribution and Percentages of Marital Status,
 Ethnicity, Occupation, and Income by Groups
 (N = 60)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Marital Status</u>						
Married	15	50.0	19	63.3	34	56.7
Divorced	0	00.0	0	00.0	0	00.0
Separated	2	6.7	2	6.7	4	6.7
Never Married	9	30.0	8	26.7	17	28.3
Living with Significant Other	4	13.3	1	3.3	5	8.3
Widowed	0	00.0	0	00.0	0	00.0
<u>Ethnicity</u>						
Black	11	36.7	11	36.7	22	36.7
Caucasian	12	40.0	9	30.0	21	35.0
Mexican-Amer.	5	16.7	7	23.3	12	20.0
Oriental	0	00.0	0	00.0	0	00.0
American Indian	0	00.0	0	00.0	0	00.0
Mixed	0	00.0	1	3.3	1	1.7
Other	2	6.7	2	6.7	4	6.7
<u>Maternal Occupation</u>						
Laborer	9	30.0	6	20.0	15	25.0
Semi-Skilled	10	33.3	13	43.3	23	38.3
Skilled	5	16.7	9	30.0	14	23.3
Other	6	20.0	2	6.7	8	13.3

mixed cultural background, and four (8%) were classified as other. In the experimental group, 12 (40%) of the mothers were Caucasian, while 11 (36.7%) of the mothers were Black and 5 (16.7%) were Mexican-American. Two mothers (6.7%) were classified in the other category. Eleven (36.7%) of the mothers in the control group were Black, 9 (30%) mothers

Table 3 (Con't)

Frequency Distribution and Percentages of Marital Status, Ethnicity,
Occupation, and Income by Groups
(N = 60)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Head of Household Occupation</u>						
Laborer	8	26.7	8	26.7	16	26.7
Semi-Skilled	10	33.3	9	30.0	19	31.7
Skilled	5	16.7	7	23.3	12	20.0
Other	1	3.3	2	6.7	3	5.0
Missing	6	20.0	4	13.3	10	16.7
<u>Income Classification</u>						
Under - \$4,999	12	39.5	13	43.0	25	41.3
\$5,000 - \$9,999	7	24.7	7	24.1	14	24.4
\$10,000 - \$14,999	3	9.9	4	12.7	7	11.3
\$15,000 - \$19,999	1	3.7	2	5.1	3	4.4
\$20,000 - \$24,999	2	4.9	1	3.8	3	4.4
\$25,000 - \$24,999	2	4.9	2	7.6	4	6.3
\$30,000 plus	3	6.3	1	3.8	4	8.1

were Caucasian, and 7 (23.3%) were Mexican-American. Two mothers (6.7%) were classified in the other category. One (3.3%) mother in the control group was classified as mixed cultural background.

Occupation. Data regarding occupation of the mothers and heads of households was asked by the investigator (Table 3). Fifteen (25%) of the mothers reported that they were in jobs which required manual labor and were classified for the purposes of this study as unskilled. Mothers who worked in jobs which required some degree of technical skill acquired through on the job training, i.e., gas station attendant and cashier, were classified as semi-skilled, and 23 (38.3%) of the mothers

described themselves in this way. Jobs were classified as skilled if they required more extensive technical or some formal education. Fourteen (23.3%) of the mothers were described as being in skilled jobs, and eight (13.3%) mothers were unemployed or had never been employed. In the experimental group, nine (30%) were classified as unskilled, ten (33.3%) as semi-skilled, five (16.7%) as skilled, and four (20%) as either unemployed or never employed. For the control group, 6 (20%) were classified as unskilled, 13 (43.3%) as semi-skilled, 9 (30%) as skilled, and 2 (6.7%) as either unemployed or never employed.

Sixteen (26.7%) mothers reported that the persons who they considered heads of their households were in unskilled jobs. Nineteen (31.7%) heads of households worked in semi-skilled jobs, and 12 (20%) worked in skilled jobs. Three (5%) heads of households were either unemployed or had never worked. For the experimental group, 8 (26.7%) heads of households were classified as unskilled, 10 (33.3%) semi-skilled, 5 (16.7%) as skilled, and 1 (1.1%) either unemployed or never employed. For the control group, eight (26.7%) heads of household were classified as unskilled, nine (30%) as semi-skilled, seven (23.3%) as skilled, and two (6.7%) were either unemployed or never employed.

Income Classification. The data regarding income were obtained from the maternal charts. As presented in Table 3, 46 mothers (76.9%) reported incomes below \$14,999, while 14 (23.1%) reported incomes of \$15,000 and above. Twenty-five mothers (41.3%) reported incomes of \$4,999 or less.

Status of Pregnancy. The data presented in Table 4 were obtained from the Maternal Confidence Questionnaire which asked mothers if this was or was not a planned pregnancy. Of the mothers in the study, 37 (61.7%) indicated that they planned this pregnancy, while 23 (38.3%) indicated the pregnancy was not planned. In the control group, 13 (43.5%) of the mothers indicated this was a planned pregnancy while 10 (33.3%) mothers in the experimental group indicated that the pregnancy was planned.

Prenatal Classes. Data obtained from the mothers indicated that 51 (85%) had not attended any prenatal classes (Table 4). Twenty-seven (66.7%) of the mothers in the experimental group had not attended prenatal classes. In the control group, 24 (80%) of the mothers had not attended prenatal classes.

Method of Feeding. As presented in Table 4, 42 (70%) of the mothers in the study stated that they planned to bottle feed their infants. Sixteen (26.7%) of the mothers in both the experimental and control groups stated that they planned to breast feed their infants. Twenty-one (70%) of the mothers in each group planned bottle feeding.

Discharge with Infant. Of the mothers in the study, 27 (45%) stated that they expected their infants to be discharged with them (Table 4). However, only 15 (25%) of the infants were discharged with their mothers. In the experimental group, 16 (53.3%) expected their infants to be discharged with them, but only 9 (53.3%) were discharged with their infants. Nineteen (63.3%) of the mothers in the

Table 4

Frequency Distribution and Percentages of Status of Pregnancy, Prenatal Class Attendance, Method of Feeding, Infant Discharge, and Maternal Concerns by Groups
(N = 60)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Status of Pregnancy</u>						
Planned	10	33.3	13	43.3	23	38.3
Unplanned	20	66.7	17	56.7	37	61.7
<u>Prenatal Class Attendance</u>						
Attendance	3	10.0	6	20.0	9	15.0
Non-Attendance	27	90.0	24	80.0	51	85.0
<u>Method Of Feeding</u>						
Breast	7	23.3	9	30.0	16	26.7
Bottle	21	70.0	21	70.0	42	70.0
Missing	2	6.7	0	00.0	2	3.3
<u>Infant Discharge</u>						
With Mother	9	30.0	6	20.0	15	25.0
Without Mother	16	53.3	20	66.7	36	60.0
Missing	5	16.7	4	13.3	9	15.0
<u>Maternal Concerns</u>						
<u>Infant's Health</u>						
Concerns	9	30.0	9	30.0	18	30.0
No Concerns	21	70.0	21	70.0	42	70.0
<u>Cautiousness</u>						
Concerns	10	33.3	16	53.3	20	43.3
No Concerns	20	66.7	14	46.7	34	56.7

control group expected their infants to be discharged with them.

However, only 6 (20%) of the infants were discharged at the time the mothers were discharged.

Maternal Concerns. The data presented in Table 4 were obtained by asking the mothers to respond to the question of whether or not they had any special worries about their infants' health or felt the need for extra cautiousness. They also were asked whether or not they believed that their infants' behaviors were affected by illness. Nine (30%) mothers in the experimental and in the control groups had concerns about their infants' health. Ten (33.3%) mothers in the experimental group and 16 (53.3%) mothers in the control group indicated they had concerns about their infants' behaviors being affected by illness. For both questions, the mothers were asked to write comments to explain their concerns.

Concerns about the infant experiencing pain accounted for the greatest number of responses by the mothers who believed that their infants' behaviors were affected by illness or treatments. The next most frequently listed concern related to how quiet and listless the infant seemed to be due to an elevated temperature and medications the infant was receiving. Several mothers stated that their infants were irritable and fussy due to the therapies the infants were receiving. Additional concerns included rapid respirations and the seriousness of the infant having an infection.

The most frequently expressed response related to special worries of the mother about her infant's health or the need for extra cautiousness was how sick the infant appeared to be. For example, one mother commented, "She is so small and her cry is so light and airy.

It's like she will need extra gentle treatment for a long time." The possible effects of current medications and treatments were also listed as reasons for concern.

Maternal Interaction with Infant. Data were available with regard to the mothers being awake at delivery and with their having seen, held, and fed their infants since delivery (Table 5). Fifty-one (85%) of the mothers were awake for delivery and 41 (68.3%) of the mothers reported that they had seen their infants during the first hour after delivery. Eight (13.3%) of the mothers saw their infants within two to eight hours after delivery, while 11 (18.3%) reported it was longer than eight hours. Of the mothers in the study, 27 (45%) indicated that they had held their infants within the first hour after delivery, while 15 (25%) indicated that they had held their infants within two to eight hours after delivery. Eighteen (30%) of the mothers reported that they first held their infants more than eight hours after delivery. In each group, 7 (23.3%) of the mothers reported that they had fed their infants within eight hours after delivery, while 23 (76.7%) in each group reported that more than eight hours passed after delivery before they fed their infants.

Length of Labor. Data were collected concerning the number of hours spent in labor (Table 6). Of the mothers in the study, the number of hours in labor varied from 0 to 54 hours with a mean of 22.25 hours. In the control group, the mothers spent from 0 to 45 hours in labor with

Table 5

Frequency Distribution and Percentages of Maternal
Interaction with Infant by Groups
($N = 60$)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Time Seen After Delivery</u>						
First Hour	20	66.7	21	70.0	41	68.3
3-8 Hours	3	10.0	5	16.7	8	13.3
Longer Than 8 Hours	7	23.3	4	13.3	11	18.3
<u>Time Held After Delivery</u>						
First Hour	13	43.3	14	46.7	27	45.0
3-8 Hours	6	20.0	9	30.0	15	25.0
Longer Than 8 Hours	11	36.7	7	23.3	18	30.0
<u>Time Fed After Delivery</u>						
First Hour	1	3.3	0	00.0	1	1.7
3-8 Hours	6	20.0	7	23.3	13	21.7
Longer Than 8 Hours	23	76.7	23	76.7	46	76.7

a mean of 19.67. The mean amount of time spent in labor for the mothers in the experimental group varied from 2 to 54.

Length Membranes Ruptured. Data were collected concerning the number of hours the membranes ruptured prior to delivery. As presented in Table 7, the number of hours the membranes were ruptured for the mothers in the study varied from less than one hour to 99 hours with a mean of 21.83 hours. For the control group, the length of time of ruptured membranes prior to delivery varied from 0 to 99 hours. The

Table 6

Frequency Distribution and Percentages of
Length of Labor (Hours) by Groups
(N = 60)

Value	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
0 - 11	8	26.7	11	36.7	19	31.7
12 - 27	10	33.3	10	23.3	20	33.3
28 - 54	12	30.0	9	30.0	21	35.0

length of time of ruptured membranes prior to delivery for the experimental group varied from 0 to 73 hours with a mean of 16.28 hours.

Table 7

Frequency Distribution and Percentages of
Length of Ruptured Membranes
(Hours) by Groups
(N = 60)

Value	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
0 - 9	13	43.3	7	23.3	20	33.3
10 - 24	10	33.3	10	33.4	20	33.3
25 - 99	7	23.3	13	43.3	20	33.3

Type of Delivery. The data presented in Table 8 were obtained from the maternal charts to determine if deliveries were vaginal or cesarean section and if the cesarean sections were expected or emergencies. Eighteen (30%) of the mothers had emergency cesarean sections and one (1.7%) mother had an elective cesarean section.

Twenty-one (70%) of the mothers in the experimental group and 20 (66.7%) of the mothers in the control group had vaginal deliveries.

Type of Analgesia and Anesthesia. Data were obtained from the delivery logs and from the maternal charts to determine the types of analgesia and anesthesia (Table 8). Two (3.3%) mothers had no analgesia or anesthesia. Twenty (33.3%) mothers had epidural anesthesia, while seven (11.7%) of the mothers had local anesthetics. Four of the mothers (6.7%) only received analgesics which were usually combinations of Stadol and Phenergan. Four (6.7%) of the mothers had general anesthesia. Of the remaining mothers in the study, 23 (38.3%) received a combination of analgesics and anesthesia.

Intrapartum Obstetrical Interventions. In this study, 52 (86.7%) of the mothers had intrapartum obstetrical interventions (Table 8). Twenty-one (35%) had only pitocin augmentation. At time of delivery, 12 (20%) had episiotomies and forceps were used with 3 (5%) of the mothers. Sixteen (26.7%) of the mothers had a combination of interventions.

Intrapartum/Postpartum Complications. According to hospital charts, 43 (71.7%) of the mothers had either intrapartum or postpartum complications (Table 8). The intrapartum complications listed on the maternal chart were: elevated temperature (\underline{n} = 18), premature contractions (\underline{n} = 2), uterine atony (\underline{n} = 5), precipitous delivery (\underline{n} = 3), and vaginal wall and uterine lacerations (\underline{n} = 3). In addition, the following maternal health problems were identified that may have contributed to intrapartum and/or postpartum complications: asthma

Table 8

Frequency Distribution and Percentages of Type of Delivery, Analgesia or Anesthesia, Intrapartum Obstetrical Interventions, Intrapartum/Postpartum Complications, and Intrapartum/Postpartum Infections by Groups
(N = 60)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Type Of Delivery</u>						
Vaginal	21	70.0	20	66.7	41	68.3
Cesarean						
Emergency	9	30.0	9	30.0	18	30.0
Elective	0	0.0	1	3.3	1	1.7
<u>Analgesia/Anesthesia</u>						
None	2	6.7	0	00.0	2	3.3
Epidural	11	36.7	9	30.0	20	33.3
Local	3	10.0	4	13.3	7	11.7
Analgesic	1	3.3	3	10.0	4	6.7
General	2	6.7	2	6.7	4	6.7
Combination	11	36.7	12	40.0	23	38.3
<u>Intrapartum Obstetrical Interventions</u>						
None	6	20.0	2	6.7	8	13.3
Pitocin	8	26.7	13	43.3	21	35.5
Episiotomy	6	20.0	6	20.0	12	20.0
Forceps	1	3.3	2	6.7	3	5.0
Combination	9	30.0	7	23.3	16	26.7
<u>Intrapartum/Postpartum Complications</u>						
Yes	18	60.0	25	83.3	43	71.7
No	11	36.7	5	16.7	16	26.7
Missing	1	3.3	0	00.0	1	1.7
<u>Intrapartum/Postpartum Infections</u>						
Yes	11	36.7	22	73.3	40	66.7
No	18	60.0	8	26.7	19	31.7
Missing	1	3.3	0	00.0	1	1.7

(\underline{n} = 1), sickle cell disease (\underline{n} = 1), pneumonia (\underline{n} = 2), diabetes (\underline{n} = 2), and pregnancy-induced hypertension (\underline{n} = 6). Postpartum complications included excessive blood loss (\underline{n} = 3) and urinary retention (\underline{n} = 1). Intrapartum complications of the infant included fetal increased (\underline{n} = 4) and decreased heart rates (\underline{n} = 7), breech presentations (\underline{n} = 2), cord wrapped around neck (\underline{n} = 5), and thick meconium in the amniotic fluid (\underline{n} = 14).

Intrapartum/Postpartum Infections. The maternal charts were reviewed to determine whether or not intrapartum or postpartum infections were present (Table 8). Forty (66.7%) of the mothers had infections. The organisms listed were: Chlamydia (\underline{n} = 5), condyloma accuminata (\underline{n} = 1), Enterobacter cloacae (\underline{n} = 2), Gardnerella (\underline{n} = 4), Hepatitis B (\underline{n} = 1), Lactobacillus bacteriosis fragiles (\underline{n} = 5), Plasmodium (\underline{n} = 1), Neisseria gonorrhoeae (\underline{n} = 2), Treponema pallidum (\underline{n} = 2), Streptococcus B (\underline{n} = 12), Staphylococcus (\underline{n} = 3), and Trichomonas vaginalis (\underline{n} = 1).

Infant Demographics

Infant demographic characteristics are presented in Tables 9 and 10. The demographic characteristics were: birth weight, gestational age as indicated by the Dubowitz score, the Apgar scores at one and five minutes after birth, numbers of hours for intravenous infusion, number of days on antibiotic therapy, number of hours before first feeding, length of hospitalization, presence of neonatal infection, complications of infant, and gender.

Birth weights of the infants varied from 2015 to 5188 grams with a mean of 3432.61. The mean Dubowitz score was 51.97 and varied from 35 to 63. In terms of calendar weeks, the mean Dubowitz score was equivalent to 38 weeks with one standard deviation approximating one and one-half weeks.

Data measuring the physiological stability of the infants' conditions after birth were determined by Apgar scores. Apgar scores taken at one minute after birth varied from 3 to 9. Seven (11.6%) of the infants scored 5 or below, while 53 (88.4%) scored 6 or above. Apgar scores taken at 5 minutes reflected all infants scored 6 or above.

Table 9
Frequency Distribution and Percentages of
Apgar Scores by Groups
(N = 60)

Variables	Experimental n = 30		Control n = 30		Total N = 60	
	Freq.	%	Freq.	%	Freq.	%
<u>Apgar Score 1 Minute</u>						
0 - 3	1	3.3	1	3.3	2	3.3
4 - 6	7	13.3	7	23.4	14	23.3
7 - 10	22	73.3	22	73.3	44	73.4
<u>Apgar Score 5 Minutes</u>						
0 - 3	0		0		0	
4 - 6	1	3.3	0		1	1.7
7 - 10	29	96.7	30	100.0	59	98.3

Fluids were administered intravenously (IV) for 2 to 108 hours. The mean number of hours for an IV was 23.44 with a standard deviation

of 3.80. Antibiotics were administered over a period of several days if the infant developed or was at risk for developing an infection. Of the infants in the study, antibiotics were administered from 2 to 10 days, with a mean of 3.68 and a standard deviation of 1.82. Only 13 infants in the study had infections as confirmed by positive cultures of the blood, urine, or cerebrospinal fluid. The organisms identified by culture were Group B streptococcus and Escherichia coli.

The mean length of hospital stay for the infants in the study was 5.31 days with a standard deviation of 2.91. The length of stay varied from 3 to 17 days.

Twenty-eight (46.7%) of the infants had some types of health problems after delivery. Health problems listed on the chart were aspiration of meconium ($\underline{n} = 3$), tachypnea ($\underline{n} = 11$), substernal retractions ($\underline{n} = 5$), hypoglycemia ($\underline{n} = 4$), lethargy ($\underline{n} = 2$), poor feeding ($\underline{n} = 2$), sepsis ($\underline{n} = 1$), pneumothorax ($\underline{n} = 2$), respiratory depression ($\underline{n} = 2$), hypotension ($\underline{n} = 1$), and elevated temperature ($\underline{n} = 2$).

Of the 60 mothers in the study, 33 (55%) had male infants and 27 (45%) had female infants. Twelve (40%) of the infants in the control group were female, and 18 (60%) were male. In the experimental group, 15 (50%) infants were male and 15 (50%) were female.

Summary of Sample by Demographic Variables

The demographic data pertinent to both the experimental and control groups were analyzed to determine if these variables posed a

Table 10

Frequency Distribution and Percentages of Infant Birthweight,
Gestational Age, Intravenous Infusion, and
First Feeding by Groups
(N = 60)

Variables	Experimental n = 30	Control n = 30	Total N = 60
<u>Birthweight (Grams)</u>			
Mean	3536.76	3331.93	3432.61
Minimum	2215.00	2015.00	2015.00
Maximum	5040.00	5188.00	5188.00
Missing	1.00	0.00	1.00
St. Deviation	654.66	736.50	699.13
St. Error	121.57	134.47	91.02
<u>Gestational Age (Dubowitz Score)</u>			
Mean	52.26	51.70	51.97
Minimum	35.00	40.00	35.00
Maximum	63.00	60.00	63.00
Missing	3.00	0.00	3.00
St. Deviation	6.97	5.34	6.12
St. Error	1.34	.98	.81
<u>Intravenous Infusion (Hours)</u>			
Mean	28.12	18.93	23.44
Minimum	0.00	0.00	0.00
Maximum	108.00	70.00	108.00
Missing	2.00	1.00	3.00
St. Deviation	32.14	24.71	28.72
St. Error	6.07	4.59	3.80
<u>First Feeding (Hours After Delivery)</u>			
Mean	24.72	16.54	20.70
Minimum	3.00	3.00	3.00
Maximum	99.00	64.00	99.00
Missing	1.00	2.00	3.00
St. Deviation	23.32	16.31	19.86
St. Error	4.15	3.08	2.63

threat to the internal validity of the study. Demographic variables yielding interval data were subjected to t -tests while the remaining variables were analyzed using a Chi-Square Test. The only variable on which the groups differed was length of hospital stay of mother ($p = .05$). All differences regarding other demographic variables were judged to be non-significant and therefore do not pose a threat to the conclusions of the study.

In summary, mothers who participated as subjects in this study were most frequently between the ages of 20 and 27 with at least a twelfth grade education. Typically the maternal subjects had no more than two children, and approximately one-half were having their first babies. The majority of the mothers were married and from households with an income of less than \$1,000 per month. Subjects and heads of households were employed with somewhat greater frequency in unskilled and semi-skilled occupations. Approximately one-third of the subjects was Caucasian and one-third was Black. Mexican-American women were in the minority.

Study Variables

Descriptive data for the independent variables of maternal age; number of living children; length of labor; and when the mothers first saw, held, and fed their infants were presented in the discussion of the maternal demographics.

Measurement of Maternal Self-Efficacy. The measurements of perceived maternal self-efficacy from the subscale of the Maternal

Confidence Questionnaire (MCQ) were obtained and summed. Appendix M lists all the descriptive data gathered on the MCQ for both the experimental and control groups. The mean of the first measurement of all subjects was 69.25 out of a possible score of 0 to 75, and scores varied from 59 to 75 with a standard deviation of 4.57 (Table 11). The scores on the second measurement for all subjects varied from 61 to 75 with a mean of 70.83 and a standard deviation of .54. An item analysis of the scale yielded a Cronbach's alpha coefficient of .67 with a standardized alpha of .70 for the premeasurement and .77 with a standardized alpha of .79 for the postmeasurement.

Table 11
Measures of Central Tendency for Maternal
Self-Efficacy, by Groups
(N = 60)

Variables	Experimental n = 30	Control n = 30	Total N = 60
<u>Premeasurement</u>			
Mean	69.10	68.97	69.25
Minimum	59.00	56.00	59.00
Maximum	75.00	75.00	75.00
St. Deviation	4.64	5.12	4.57
St. Error	.85	.94	.60
<u>Postmeasurement</u>			
Mean	71.10	70.13	70.83
Minimum	64.00	58.00	61.00
Maximum	75.00	75.00	75.00
St. Deviation	3.57	5.14	4.13
St. Error	.65	.94	.54

Measurement of Perception of Infant. The maternal perception of infant score was obtained by summing the premeasurement scores of the Maternal Confidence Questionnaire (Table 12). Postmeasurement scores were obtained to establish concurrent validity of the instrument. The total scores on the first measurement varied from 34 to 73 with a mean of 53.16 and a standard deviation of 7.41. For the second measurement, the scores were from 42 to 72 with a mean of 56.10 and a standard deviation of 6.43. The Cronbach's alpha for the premeasurement was .73 with a standardized alpha of .73. For the postmeasurement, the alpha coefficient was .67 with a standardized alpha of .68.

Table 12
Measures of Central Tendency for Maternal
Perception of Infant, by Groups
(N = 60)

Variables	Experimental n = 30	Control n = 30	Total N = 60
Mean	53.03	52.87	53.16
Minimum	34.00	36.00	34.00
Maximum	69.00	73.00	73.00
St. Deviation	7.02	7.71	7.41
St. Error	1.28	1.41	.98

Measurement of Perceived Social Support. Perceived social support of the mothers was assessed by summing the items of the Social Provisions Scale (SPS). The mean for the SPS was 83.21 and a standard deviation of 8.71. The scores varied from 55 to 95 (Table 13). To test

the internal consistency of the SPS, Cronbach's alpha was computed. The alpha was .86 with a standardized alpha of .86.

Table 13
Measures of Central Tendency for Perceived
Social Support, by Groups
(N = 60)

Variables	Experimental n = 30	Control n = 30	Total N = 60
Mean	81.97	83.68	83.21
Minimum	55.00	64.00	55.00
Maximum	96.00	96.00	95.00
St. Deviation	9.34	8.24	8.71
St. Error	1.71	1.51	1.15

Findings

The purpose of the study was to determine if providing mothers of infants with minor health problems the opportunity to view the videotape, "Yes, Mom, You Can Be Successful," significantly increases perceived maternal self-efficacy. In addition, the specific maternal factors that may affect perceived maternal self-efficacy were investigated. The following sections explore the results of the hypotheses testing by examining each hypothesis.

Hypothesis One

Hypothesis One stated that: Mothers who view a videotape, "Yes, Mom, You Can Be Successful," will have significantly higher maternal self-efficacy scores than those mothers who do not view the videotape.

Data collected for this hypothesis were the maternal self-efficacy scores. The measurements of maternal self-efficacy were obtained by summing the scores on the premeasurement and postmeasurement on the Maternal Confidence Questionnaire. The scores were subjected to a two-way analysis of variance for repeated measures (ANOVA). A 2 (Group) X 2 (Trials) two-factor factorial multivariate analysis of variance was done to achieve an analysis of variance for repeated measures. A summary of the ANOVA is presented in Table 14. The results of the data comparing the effect of the intervention on perceived maternal self-efficacy was reviewed. Nonsignificant main effects were obtained for Group ($F(1,9.08) = 0.24, p = .628$). Significant main effects were obtained for Trial ($F(1,75.21) = 14.35, p = .000$). A nonsignificant interaction effect of Group X Time ($F(1,5.21) = .99, p = .323$) was obtained. The maternal self-efficacy scores of the mothers indicated an increase in perceived maternal self-efficacy from Time 1 to Time 2. However, there were no significant differences in perceived maternal self-efficacy between groups. Mothers in both groups had comparable scores for the postmeasurement of maternal self-efficacy.

The means of the experimental and control groups were compared across groups and trials. As noted in Table 15, the mean for the postmeasurement of maternal self-efficacy score for the experimental group increased only 2 points from Trial 1 to Trial 2, while the control group increased 1.17 points from Trial 1 to Trial 2. In the comparison of groups, a difference of 0.13 points existed between the Trial 1 mean

Table 14
Summary ANOVA for Maternal Self-Efficacy Scores

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Group	1	9.08	9.08	2.4	.628
Trial	1	75.21	75.21	14.35	.000

scores of the experimental and control groups. In Trial 2, the difference in the means was 0.97. The interpretation of simple main effects revealed that the hypothesis was accepted as the scores for the experimental group did not differ significantly from Trial 1 to Trial 2. There were no significant differences in perceived maternal self-efficacy after the intervention.

Table 15
Means of Groups Across Trials for
Maternal Self-Efficacy Scores

Trial 1		Trial 2	
TPREF Score	Mean	TPSTEF Score	Mean
Experimental	69.10	Experimental	71.10
Control	68.96	Control	70.13
Total	69.03	Total	70.62

Note.

TPREF	Premeasurement of Maternal Self-Efficacy
TPSTEF	Postmeasurement of Maternal Self-Efficacy

Hypothesis Two

Hypothesis Two stated that: Perceived maternal self-efficacy can be predicted by the maternal variables: the mother's perception of her infant; time after delivery when mother first saw, held, and fed her infant; age; length of labor; and perceived social support.

The first step in the analysis of the data was an examination of validity coefficients for the independent and dependent variables. When the mother first saw her infant was found to be significantly related to when the mother first held her infant ($r = .64$, $p = .000$). The mother's perception of her infant was found to be significantly related to the premeasurement of perceived maternal self-efficacy ($r = .47$, $p = .000$). Additionally, perceived social support was significantly related to the premeasurement of perceived maternal self-efficacy ($r = .29$, $p = .026$).

Analyses were conducted to evaluate the association between the pre- and postmeasurements of perceived maternal self-efficacy and the six subscales of Social Provisions Scale (SPS). The attachment subscale of the SPS was significantly related to both measurements of perceived maternal self-efficacy (premeasurement $r = .30$, $p = .02$; postmeasurement $r = .28$, $p = .03$). Additionally, the nurturance subscale was significantly related to both measurements of perceived maternal self-efficacy (premeasurement $r = .33$, $p = .01$; postmeasurement $r = .35$, $p = .007$). The social integration subscale was significantly related to the postmeasurement of perceived maternal self-efficacy ($r = .33$, $p = .01$) and the reassurance of worth subscale was significantly related

to the postmeasurement of perceived maternal self-efficacy ($r = .29$, $p = .02$).

Stepwise multiple regression was used to test the hypothesis addressing the relative influence of selected maternal variables on perceived maternal self-efficacy. In initial stepwise multiple regression analyses, four subsets were entered in the multiple regression model. The first subset entered into the equation was maternal age and parity. Perceived social support (TSPS) and the premeasurement of perceived maternal self-efficacy (TPREF) was second; length of labor (LABOR) and when the infant was first seen (SEE), held (HELD), and fed (FED) was third; and the premeasurement of perceived maternal self-efficacy (TPREF) and maternal perception of the mother's infant (DIFFPER) was the fourth and last subset entered in the model. Variables were identified by their significant standardized partial regression coefficients as making a significant contribution to perceived maternal self-efficacy when variables in each and every other set were taken into account. Stepwise multiple regression was combined with backward selection in subsequent analyses to identify variables which best accounted for the variance in maternal self-efficacy scores.

Table 16 contains the incremental contributions to the variance in the maternal self-efficacy total raw scores on the four sets of independent variables considered separately and in combination. Standardized partial regression coefficients for the maternal variables are also included in the table. In combination, perceived social

support and the premeasurement of perceived maternal self-efficacy explained a significant amount of the variance in postmeasurement of maternal self-efficacy scores (R^2 .60, ($F(2,56) = 41.91$, $p = .000$)). This finding suggests that both the premeasurement of perceived maternal self-efficacy and perceived social support explain the total variance in postmeasurement maternal self-efficacy scores. The standardized partial regression coefficient for premeasurement of maternal self-efficacy was significant ($\beta = .759$, $t = 8.807$, $p = .000$) when considered independently. The standardized partial regression coefficient for perceived social support, however, did not make a significant contribution to the postmeasurement of perceived maternal self-efficacy ($\beta = .159$, $t = 1.80$, $p = .08$). All other study variables entered into the multiple regression formula failed to produce significant results.

Stepwise multiple regression with backward selection was used to confirm the unique and collective contributions of perceived social support and the interaction of the premeasurement of perceived maternal self-efficacy with perceived social support to the postmeasurement maternal self-efficacy scores. When entered into a multiple regression equation, perceived social support explained a significant proportion of the variance (13%) in the postmeasurement of perceived maternal self-efficacy ($R^2 = .128$, ($F(1,58) = 8.53$, $p = .005$)). The standardized partial regression coefficient for perceived social support was significant ($\beta = 0.358$, $t = 2.921$, $p = .005$). When the premeasurement of perceived maternal self-efficacy and perceived social

Table 16
Stepwise Multiple Regression Analysis of Independent
Variables with Dependent Variable

Dependent Variable - Postmeasurement of Maternal Self-Efficacy								
Step	Variable Entered	B wt	SE	t	Sig t	Multiple R (Adj R ²)	R ² Change	F Value
1	Parity	-.120	4.409	-.899	.372	.227 (.052)	.052	
	Age	-.167		-1.256	.214			
2	TPREF	.712*	2.866	8.053	.000*	.774 (.585)	.559	41.912*
	TSPS	.159		1.798	.078			
3	TPREF	.769*	2.952	8.365	.000*	.598 (.559)	.021	15.752*
	SEE	.054		.467	.643			
	LABOR	.056		.640	.525			
	HELD	.063		.511	.612			
	FED	-.113		-1.202	.235			
4	TPREF	.771*	2.926	8.820	.000*	.763 (.567)	.005	39.016*
	DIFFPER	.077		4.050	.381			

* p = .000

TPREF = Premeasurement of Maternal Self-Efficacy
TSPS = Perceived Social Support
SEE = First Time Infant Is Seen
DIFFPER = Maternal Perception of the Mother's Infant

LABOR = Length of Labor
HELD = First time Held
FED = First time Fed

support were combined, the combination explained 59% of the variance in the postmeasurement of perceived maternal self-efficacy ($R^2 = .58896$, ($F(2,57) = 27.93$, $p = .000$)). The standardized partial regression coefficient ($\beta = 1.459$, $t = 7.99$, $p = .000$) for the combined set was significant (Table 17).

Table 17

Standardized Partial Regression Coefficients for
Postmeasurement of Maternal Self-Efficacy and
Combination of Premeasurement of
Maternal Self-Efficacy and
Perceived Social Support

		TSPS	$\beta = .358^*$
		COMB	$\beta = 1.459^*$
Note.			
TSPS	Perceived Social Support		
COMB	Combined premeasurement and postmeasurement Maternal Self-Efficacy		
* $p = .000$			

With the total postmeasurement scores of perceived maternal self-efficacy scores as the dependent variable and with all independent variables in the equation, the null hypothesis was rejected. One maternal variable, perceived social support, significantly contributed to postmeasurement maternal self-efficacy scores.

Since the coefficients between the measurements of perceived maternal self-efficacy and perceived social support were significantly related, the possibility of collinearity was explored. Collinearity can occur whenever two independent variables used in a multiple regression

equation are not independent but are correlated (Schroeder, Sjoquist, & Stephan, 1987). According to Draper and Smith (1981), collinearity occurs when variables are likely to be interrelated. If this were to occur in this study, any changes in postmeasurement maternal self-efficacy scores could not be attributed exclusively to either premeasurement maternal self-efficacy or perceived social support scores. Therefore, it would be difficult to sort out the direct and interactive effects of perceived social support and perceived maternal self-efficacy.

Schroeder, Sjoquist, and Stephan (1987), suggest that, when collinearity is a possibility, measurement of collinearity should be conducted to separate out the effects of the independent variables on the dependent variable. The tolerance of a variable (TOL) was the first measure of collinearity assessed. If the TOL is small, there would be almost a linear combination of the premeasurement of perceived maternal self-efficacy and perceived social support. The second measure of collinearity is the variance inflation factor (VIF). As the VIF increases, so does the variance of the regression. Therefore, if the premeasurement maternal self-efficacy and perceived social support scores are independent, then high tolerances and low VIFs will occur. Upon inspection of the data, this was found to be true. The third measure of collinearity was to compare the eigenvalues of the scaled, uncentered, cross-products matrix to determine if any were much larger than others. If some of the eigenvalues are larger than others, the

data matrix is said to be "ill-conditioned", and small changes in the values of the independent and dependent variables may lead to large changes in the solution. When the premeasurement of perceived maternal self-efficacy and perceived social support scores were entered into the equation with the postmeasurement of maternal self-efficacy scores, none of the eigenvalues were smaller than the others. Based upon analysis of the three measurements of collinearity, the presence of collinear data was not detected. Therefore, the premeasurement of maternal self-efficacy and perceived social support scores in the multiple regression equation were not interrelated.

Additional Study Findings

As planned, the investigator assessed the concurrent validity of the perceived maternal self-efficacy subscale of the Maternal Confidence Questionnaire (MCQ). This was accomplished by correlating the MCQ with a more established self-efficacy measurement, the Parenting Sense of Competence Scale (PSOC). Correlations among the two measurements of self-efficacy were expected to be found, but only of moderate magnitude because the PSOC is a more global measurement of self-efficacy than is the MCQ. Subjects were asked to complete the PSOC at the same time they completed the premeasurement of perceived maternal self-efficacy (MCQ). For the mothers in the study, PSOC scores varied from 7 to 34. The mean was 25.73 with a standard deviation of 5.88. The Cronbach's alpha was .86 with a standardized alpha of .86. A significant correlation was found ($r = .30$, $p = .02$) between the measurements. The magnitude of the

correlation provided support for the concurrent validity of the MCQ and suggested that the two instruments were measuring related but distinct constructs.

The total scores on the Neonatal Perception Inventories (NPI) for the "Average Baby" scale varied from 12 to 26 with a mean of 19.58. The total scores for the "Your Baby" scale varied from 13 to 29 and the mean was 20.61 with a standard deviation of 3.13. The ratings on each scale were added separately, and then the total from "Your Baby" was subtracted from the "Average Baby" scale. This resulted in the NPI score, the possible range of which is from -24 to +24. For the mothers in the study, the scores varied from -10 to +6 with a mean of -1.03 and a standard deviation of 3.33. The negative NPI scores indicated that some of the mothers perceived their infants as having more difficulty on the criteria of the NPI than the average baby and thus represented negative perceptions of their infants.

Cronbach's alpha was computed to test the internal consistency of the NPI. The coefficient alpha reliability for the "Your Baby" scale was .71 with a standardized alpha of .70. For the NPI "Average Baby" scale, the alpha coefficient was .83 with a standardized alpha of .83.

To determine the relationship between the NPI and the measurement of maternal perception of infant subscale of the Maternal Confidence Questionnaire, correlations were computed between the NPI and the pre- and postmeasurement of the mothers' perceptions of their infants. There were nonsignificant negative correlations between the NPI and the

premeasurement ($r = -.17$, $p = .21$) and the postmeasurement of the mothers' perceptions of their infants ($r = -.14$, $p = .33$). An inspection of the items of the NPI reveals that their content taps somewhat different domains than the maternal perception of infant subscale. The six behavioral areas assessed by the NPI were crying, feeding, spitting up or vomiting, bowel movements, and predictable patterns of eating and of sleeping. However, the maternal perception of infant subscale of the Maternal Confidence Questionnaire was designed to specifically assess the mother's perceived expectations of how her infant will respond to her during feeding. Only two items of the NPI assess feeding; this may explain the lack of a significant correlation between the two instruments.

Factor Structure of the Maternal Confidence Questionnaire. In order to ensure that the Maternal Confidence Questionnaire was assessing the separate constructs of perceived maternal self-efficacy and maternal perception of the mother's infant, the factor structure of the instrument was evaluated. Preliminary analyses using item intercorrelations were conducted on the subscales. Items that were not statistically significant ($r < .30$) were deleted prior to factor analysis. Inspection of the resulting factor structure indicated a two-factor solution. All of the item loading on the two factors were statistically significant and sizeable in magnitude (ranging from .506 to .927), indicating that each item adequately represented the construct that it was designed to assess. The factor analysis results suggested

that the measurements of perceived maternal self-efficacy and a mother's perceptions of her infant were separate factors.

Summary of Findings

In this chapter, the results of the descriptive and inferential statistical analyses were reported. The sample of mothers and their infants in the study was described. In addition, the scores representing maternal self-efficacy, maternal perception of the mother's infant, and perceived social support were reported. Findings related to the hypotheses were presented.

The interpretation of the analysis of variance (ANOVA) revealed that the first hypothesis was accepted, as the mean maternal self-efficacy scores for both groups were not significantly different from Trial 1 to Trial 2. Statistical analyses using a stepwise model of multiple regression was used to test the second hypothesis. The analysis indicated that perceived social support accounted for 13% of the variance attributed to the dependent variable, the postmeasurement perceived maternal self-efficacy scores. Therefore, the second hypothesis was rejected.

CHAPTER 5

SUMMARY OF THE STUDY

The purpose of this study was to determine if the intervention of showing mothers a videotape of verbal persuasion and modeling would result in a significant increase in perceived maternal self-efficacy for caring and feeding an infant with a minor health problem. Another purpose of the study was to determine the relationship of maternal variables and perceived maternal self-efficacy. In this chapter, a summary of the study is provided. Conclusions are presented and discussed, and recommendations for nursing interventions and further research are suggested.

Summary

Bandura's social cognitive theory (1986) was the theoretical framework for the study. Bandura defined self-efficacy as a person's perception of how well he or she can perform in a given situation (Bandura, 1977a). According to Bandura, efficacy expectations for performing a specific task may be acquired through observation and verbal persuasion. Since a mother's feelings of self-efficacy in the infant-caregiving role may be influenced by the birth of an infant with a health problem, an intervention incorporating observation and verbal persuasion may make an important contribution to increasing perceived maternal self-efficacy in a mother's caring for her infant. Therefore, a problem was formulated for the study: Does viewing a videotape

of verbal persuasion and of modeling the holding and feeding of an infant increase perceived maternal self-efficacy? In addition, the following research question was developed: What is the influence of maternal variables on perceived maternal self-efficacy? The following hypotheses were tested:

H₁: Mothers who view a videotape, "Yes, Mom, You Can Be Successful," will have significantly higher maternal self-efficacy scores than those mothers who do not view the videotape.

H₂: Perceived maternal self-efficacy can be predicted by the maternal variables, the mother's perception of her infant; time after delivery when mother first saw held, and fed her infant; number of other living children; age; length of labor; and, perceived social support.

A two-group, quasi-experimental experimental design was used for the study. The population from which the sample for this study was recruited were women who delivered infants at risk for or who had developed minor health problems. The sample consisted of mothers who consented to participate in the study. Both mother and infant had to meet the selection criteria. After mothers were recruited into the study, they were assigned to either the experimental or control group by systematic assignment with a random start. Both the experimental and control groups consisted of 30 mothers. Data collection was done on the first postpartum day for mothers with vaginal deliveries and on the second postpartum day for mothers with cesarean section deliveries. Data were collected from 60 mothers over a 9-month period in 1992.

The maternal self-efficacy subscale of the Maternal Confidence Questionnaire (MCQ) developed by the investigator was used to measure the dependent variable. The rating scale measured maternal perceived abilities for holding and feeding her infant. A 10-minute videotape, "Yes, Mom, You Can Be Successful," was selected as the experimental condition. The film's central purpose was to increase perceived maternal self-efficacy through two important sources of efficacy information identified by Bandura (1977a): (1) verbal persuasion and (2) modeling.

In order to control for the influence of extraneous maternal variables, the following independent variables were included in the study: the mother's perception of her infant, time between delivery and first interaction with infant, number of living children, age, length of labor, and perceived social support. Instruments used to measure these variables were Broussard and Hartner's Neonatal Perception Inventories (NPI), the Parenting Sense of Competence Scale (PSOC), the Social Provisions Scale (SPS), and Maternal and Infant Demographic Forms.

Subjects in the experimental and control groups were asked to complete the MCQ, NPI, PSOC, and SPS questionnaires. The Maternal and Infant Demographic Forms were completed by reviewing the mothers' charts and asking the mothers to answer questions. After completing the questionnaires, mothers in the experimental group viewed the videotape and immediately completed the MCQ. After completing the questionnaires,

mothers in the control group again completed the MCQ and then were given an opportunity to view the videotape.

The demographic data were analyzed to compare samples for homogeneity and to identify possible intervening variables. Using t-tests and Chi-Square Tests, the only significant difference between the two groups was the lengths of hospital stays for the mothers. The possibility of the mothers' lengths of hospitalization as a serious threat to the internal validity of the study was not considered, however, because data collection was done on the first and second postpartum day, usually before a mother had any information about plans for discharge from the hospital. Other analyses indicated no significant differences between the groups for the remaining demographic variables, therefore, they did not appear to threaten the internal validity of the study.

Analysis of the results of the demographic variables indicated that the sample appeared to differ from other studies of maternal self-efficacy (Cutrona & Troutman, 1986; Donovan & Leavitt, 1985, 1989; Gibaud-Wallston, 1977, 1978; Mercer & Ferketich, 1990; Pridham & Schultz, 1983; Rutledge & Pridham, 1987; Williams et al., 1987) in relation to mothers' ethnicity, marital and socioeconomic status, and the physical conditions of the infants. In these studies the subjects were predominantly Caucasian, married, and of middle- to upper-socioeconomic status and had healthy infants. In this study, approximately one-third of the subjects was Caucasian and one-third was

Black. The majority of the mothers were from low income households. All of the infants had a minor health problem.

Statistical analysis of the dependent variable was performed using analysis of variance (ANOVA). Results indicated nonsignificant main effects for Group. For perceived maternal self-efficacy, the scores between the experimental and control groups were not statistically different. For the maternal demographic variables, multiple regression analysis indicated that perceived social support was the only variable accounting for variance attributed to the dependent variable, maternal self-efficacy scores.

Discussion of Findings

Findings from the present study were examined and related to other pertinent research findings in the literature. The discussion of these findings in the following section will focus on the hypotheses.

Hypothesis One

H₁: Mothers who view a videotape, "Yes, Mom, You Can Be Successful," will have significantly higher maternal self-efficacy scores than those mothers who do not view the videotape.

Maternal self-efficacy scores of mothers, in this present study, indicated an increase in perceived maternal self-efficacy from Time 1 to Time 2. The increase in maternal self-efficacy may be attributed to several factors. First, the majority of the mothers in both groups had the opportunity to interact with their infants which may have influenced their perceived self-efficacy. According to Bandura (1977a) performance

attainments are viewed as having the strongest impact on self-efficacy beliefs. Second, other sources of efficacy information could have influenced the mothers. For example, information about the care of infants may have been provided by the nursing staff.

There were no significant differences in perceived maternal self-efficacy between groups. Mothers in both groups had comparable scores for the postmeasurement of maternal self-efficacy. Considering maternal and infant variables and the measurement of perceived maternal self-efficacy, there are several explanations for the lack of differences in perceived maternal self-efficacy after the intervention. One explanation may be that the role of cognitive appraisal and the influence on perceived self-efficacy (Bandura 1977b) may explain the lack of significant differences between the groups. During the immediate postpartum period, mothers may rate themselves higher in maternal self-efficacy than in the subsequent weeks after delivery. Seashore et al. (1977) suggested that mothers are both physiologically and psychologically ready to assume the maternal role. A mother's uncertainty about her ability to care for her infant may not have yet developed.

A second explanation may be that the mothers may have rated themselves higher on maternal self-efficacy because they had infants with minor health problems rather than healthy, term infants. Care of these infants may have been perceived by the mothers to be more difficult than that of normal infants. Donovan and Leavitt (1989) found

that insecure infant attachment was associated with overestimation of maternal perceptions of control over an infant care task. The investigators suggested that appraisal of maternal self-efficacy in insecurely attached dyads may have been overestimated in order to create an expectation of control over their infants and may have been a maladaptive response to the demands of caring for their infants.

A third explanation is that the mothers in the study may not have perceived their infants' illness as being serious. However, when the mothers were asked to respond to the question of whether or not they had any special worries about their infants' health or felt the need for extra cautiousness, 30% of the mothers expressed concerns about their infants' health. In addition, in response to being asked whether or not they believed that their infants' behaviors were affected by illness, 43.3% of the mothers indicated they had concerns about their infants' behaviors. Since a large number of mothers expressed concern about their infants' health status, it would appear these perceptions may have had some influence on perceived maternal self-efficacy. Studies by Green and Solnit (1964), Levy (1980), Kemper et al. (1989), and Perrin et al. (1989) found that mothers who had infants with health problems described their children as vulnerable to future illnesses and injury. Seashore et al. (1977) reported that mothers of preterm infants were less confident in their parenting skills than were mothers of full-term infants. However, Gross et al. (1989) found no differences in maternal confidence among mothers of children preterm and full-term children.

Although the results of the study do not support a relationship between perception of vulnerability and perceived maternal self-efficacy, future studies may document the effect of an infant with a minor health problem on a mother's perception of her child's vulnerability and of perceived maternal self-efficacy.

Fourth, for mothers in the study, only two measurements of perceived maternal self-efficacy were conducted. According to Bandura (1977a), a third measurement of self-efficacy should be obtained from the subjects following performance of a specific task. Bandura (1977a) found that learning, which occurred through performance accomplishments in which one achieved mastery over a difficult or previously feared task, resulted in increased self-efficacy. The third measurement of maternal self-efficacy for the mothers in the study would have been after feeding their infants. However, the third measurement was not considered because variations in the number of opportunities for the mothers to feed and handle their infants would have interfered with obtaining the third measurement on all mothers. A greater effect of the intervention may be realized by a third measurement. This would allow a longer period of time for integrating the information provided in the videotape as well as opportunity for the mother to feed her infant before assessing maternal self-efficacy.

Finally, the instrument may not have adequately assessed the efficacy expectations of maternal self-efficacy. According to Bandura (1977b), there are three dimensions of efficacy expectations:

magnitude, strength, and generality. Magnitude refers to the ordering of tasks by difficulty level. The second dimension, strength, refers to a probabilistic judgment of how certain one is of the ability to perform a specific task (Bandura, 1984). Generality, the third dimension, concerns the extent to which efficacy expectations about a particular situation or experience generalize to other situations. The maternal self-efficacy subscale of the Maternal Confidence Questionnaire was designed to measure the efficacy expectation, dimension of strength. Due to the nature of the task of handling and feeding an infant, the items on the scale were ordered according to the usual sequence of feeding an infant. The magnitude efficacy expectation dimension was not assessed. Before the maternal self-efficacy subscale of the Maternal Confidence Questionnaire is used again, the items could be reordered as well as include directions to respond to the items in terms of magnitude of task.

The findings of this study did not provide support for the videotape's effectiveness in influencing perceived maternal self-efficacy. Although previous studies (Broussard, 1976; Bradley-Johnson & Johnson, 1980; Moore, 1986) demonstrated the effectiveness of televised programming in increasing maternal confidence and maternal behavior toward her newborn, there are several possible explanations for the lack of these findings in this study. First, there may have been limitations in terms of visual and verbal content of the videotape. The videotape used as the experimental intervention in this

study shows the model, a Black mother, taking her infant from the crib and feeding the baby. According to Bandura (1977a), the model should be similar to the observer with regard to characteristics such as age, gender, and ethnicity. However, approximately one-third of the mothers were Caucasian and 20% Mexican-American. Only one-third of the study's participants were Black. Another possible difference between the model in the videotape and mothers in the study was the infant held and fed by the model was receiving intravenous therapy. Since many of the infants had only a heparin lock for intermittent venous access, the mothers may not have perceived the infant in the videotape as being similar to their infants.

The second possible reason for the lack of effectiveness of the videotaped intervention is based upon Bandura's (1977a) conviction that, in performance accomplishments, the model should be viewed as overcoming difficulties through determined effort rather than with ease. Perhaps the mothers in the study did not perceive the model as overcoming a difficult task. In terms of maternal self-efficacy, the specific instructional needs of the mothers of infants with minor health problems might better be met by another videotape incorporating several models of different ethnic groups who clearly demonstrate feeding an infant as a difficult task that is successfully accomplished.

One last factor that may have contributed to the lack of significant differences in perceived maternal self-efficacy could possibly be the sample size, which may have influenced the outcome of

the statistical procedures. Although the sample size used was appropriate for the study (Cohen & Cohen, 1975), a larger sample may have produced different results. The larger the sample size, the more precise will be the findings of the study.

Hypothesis Two

H₂: Perceived maternal self-efficacy can be predicted by the maternal variables: the mother's perception of her infant; time after deliver when mother first saw, held, and fed her infant; number of other living children; age; length of labor; and perceived social support.

To test the hypothesis which addresses the relative influence of the maternal variables on perceived maternal self-efficacy, stepwise multiple regression analysis was used.

The maternal variables were entered in the regression model as subsets (age & parity; premeasurement of perceived maternal self-efficacy and perceived social support; length of labor and when mother first saw, held, and fed her infant; premeasurement of perceived maternal self-efficacy and maternal perception of the mother's infant). In combination, perceived social support and the premeasurement of perceived maternal self-efficacy explained a significant amount of the variance in postmeasurement maternal self-efficacy scores. However, the standardized partial regression coefficient for perceived social support did not make a significant contribution to the postmeasurement of perceived maternal self-efficacy. All other study variables entered into the multiple regression formula failed to produce significant

results. To confirm the contribution of perceived social support and perceived maternal self-efficacy, perceived social support scores and the premeasurement maternal self-efficacy scores were entered stepwise into a multiple regression equation. The R^2 was .128 when perceived social support alone was used in the equation. When the premeasurement of perceived maternal self-efficacy and perceived social support were combined and entered into the regression equation, the R^2 was .58896. The second approach suggests that both the premeasurement of perceived maternal self-efficacy and perceived social support explain the total variance in postmeasurement maternal self-efficacy scores.

While the variable, the mother's perception of her infant, did not explain a significant proportion of the variance in postmeasurement maternal self-efficacy scores, the validity coefficients for maternal perception of infant and the premeasurement of perceived maternal self-efficacy were found to be significantly related. The negative NPI scores indicated that there were mothers who perceived their infants as having more difficulty on the criteria of the NPI than the average baby. The effect of a mother's perception of her infant on perceived maternal self-efficacy cannot be ruled out completely without further analysis of rating of the mothers one month after delivery. According to Broussard and Hartner (1971), mothers who perceive a difference in their expectations of the average baby and perception of their own babies after delivery will attempt to reduce the difference. Therefore, a

change in a mother's perception of her infant after one month could be expected.

When the number of living children was considered in conjunction with maternal age, neither of the demographic variables was significant in terms of their contribution to perceived maternal self-efficacy. According to Bandura (1982), the most potent source of self-efficacy information is previous mastery of the particular task or situation. Therefore, mothers who perceive that they have attained mastery of a particular parenting task in the past may be expected to feel more confident for caring for their recently delivered infants. In this study, the lack of contribution of these variables may be consistent with conflicting findings from earlier studies. Pridham and Schutz (1983) found that parity had no influence on the extent to which a mother perceived herself to be adequately prepared for infant care. However, Gross et al. (1989) found that maternal age and previous childcare experience influenced maternal confidence. Additionally, parity was found to have a significant effect on mothers' parenting sense of competence by Rutledge and Pridham (1987). The findings from this study relative to the influence of age and parity provides a basis for further research, especially because two of the previous studies were done on mothers who delivered healthy, term infants.

When the mother first saw, held, and fed her infant and the experimental condition were not found to make a significant contribution to the variance in the postmeasurement maternal self-efficacy scores.

Although 68.3% of the mothers in the study reported seeing their infants during the first hour after delivery, many of the mothers reported that it was longer than eight hours before they held (30%) or fed (76.7%) their infants. Previous research findings concerning early separation of mother and infant (Brown, 1967; Greenberg et al., 1973; Brown & Bakeman, 1979; Whiten, 1977) indicated that lack of early contact resulted in a reduction of maternal confidence. Findings of this study would seem to contradict these findings. This may be due to the measurement of maternal confidence several weeks to several months after delivery in the previous studies. Additionally, the infants in the previous studies had a variety of health problems that ranged from minor to severe conditions.

Findings indicted that length of labor was not a significant variable in the multiple regression equation. Rubin (1984) reported that negative feelings about the labor experience and maternal role may be accentuated if mothers experience extended labor or prolonged pain or are not awake to witness their infants' births. These negative feelings about the labor experience may have an impact on maternal role competence. Study findings by Kearney and Cronenwett (1989); Mercer, Hackley, and Bostron (1983); and Mercer (1985) found that women with longer labors experienced more negative perceptions of the birth experience than did women with shorter labors. By the process of cognitive appraisal (Bandura 1977b), negative perceptions of self-efficacy for parenting may result from these negatively perceived

birth experiences. Among the mothers in the study, many experienced long and difficult labors, many of which culminated in a cesarean section. Therefore, length of labor may have an influence on maternal self-efficacy scores, however, this study's results suggested no significant influence of length of labor on perceived maternal self-efficacy.

A significant proportion of the variance in perceived maternal self-efficacy was explained by the measurement of perceived social support. Using the Social Provisions Scale, the extent to which the mothers' current relationships satisfied six social needs or "provisions" was assessed. Four of the provisions were significantly correlated with postmeasurement maternal self-efficacy scores. The first dimension of these four, reassurance of worth, is the recognition of one's competence, skills, and value through other's recognition. Nurturance, the second provision, is the sense that others rely upon one for their well-being. According to Weiss (1974), "an important aspect of interpersonal relationships is feeling needed by others" (p. 19). Weiss further suggested that the most frequent sources of opportunity for nurturance are one's children, although the spouse is another frequent source. The third provision, social integration, involves being enmeshed in a social network, such as with friends, where the person shares common interests and engages in social activities. The fourth provision is attachment, which is emotional closeness from which one derives a sense of security. Weiss suggested that attachment is

most often provided by the spouse, but may be also be derived from close friendships or family relationships.

One possible explanation for the influence of perceived social support on perceived maternal self-efficacy comes from the review of literature. Through the process of reciprocal determinism (Bandura, 1978a), the relationship between perceived social support and perceived maternal self-efficacy was explored. According to Bandura, people are influenced by interaction between their cognitions, behavior, and the environment. Knowledge that one is supported by others (information from the environment), is an important source of efficacy information. The information is used cognitively by an individual to create efficacy expectations which may then influence the individual's behavior. Therefore, the individual who receives supportive information from others experiences an increase in self-efficacy and can be expected to cope more effectively and suffer fewer deleterious effects of stress than an individual whose support system does not provide such information. Cutrona and Russell (1988) suggested that social support has beneficial effects under conditions of both high and low stress. These effects are probably mediated by the cognitive process of the enhancement of self-efficacy. Cutrona and Troutman (1986) found that social support promoted maternal confidence in parenting through the mediating effects of self-efficacy.

A second factor that may explain the influence of social support on perceived maternal self-efficacy is the new mother's need for

additional help and support due to the increased physical and emotional demands imposed on the mother by the birth of an infant. Additionally, the potential role of the infant who is experiencing health problems may be an additional stress for the mother necessitating increased social support. According to Weiss (1974), the provisions of social relationships aid in adapting to stress. In times of stress, self-efficacy beliefs have been linked to effective coping behavior (Bandura, 1977b). The mothers in the study may have perceived they needed to expend high levels of effort to care for their infants. At this time, their perceptions of being valued for their competence and skills (reassurance of worth) by a spouse or other close relationship may have positively influenced perceived maternal self-efficacy. In this study, the findings suggest the positive influence of reassurance of worth on perceived maternal self-efficacy.

The dimension of nurturance was also positively associated with perceived maternal self-efficacy. According to Russell and Cutrona (1984), the dimension of nurturance is typified by the parent-child relationship, in which the mother is responsible for the child's care and well-being. Since the birth of an infant provides opportunities for nurturance by the mother (i.e., to provide social support to others), the relationship between nurturance and maternal self-efficacy was expected. The dimensions of social integration and attachment were found to be particularly important in the review of literature (Cox et al., 1989; Crnic et al., 1983; Crockenberg, 1981; Cutrona & Troutman,

1986). As a result of enhanced perceived maternal self-efficacy, the mothers in the study who had higher scores for dimensions of social support, social integration and attachment, may have been better able to cope with the stress of caring for their infants and to function more effectively than mothers with lower scores. Thus the presence of a supportive relationship may lessen the deleterious effects of the birth of an infant with a health problem on a mother's perception of maternal self-efficacy.

Conclusions

Based on the findings of this study, some conclusions can be made regarding perceived maternal self-efficacy in mothers who deliver infants who are at risk for or who have developed minor health problems. The conclusions are as follows:

1. Mothers in both groups had similar premeasurement maternal self-efficacy scores. Both groups were similar in demographic characteristics except for lengths of hospital stays.

2. The intervention of verbal persuasion and modeling did not positively influence perceived maternal self-efficacy. Although there were changes in maternal self-efficacy scores between the pre- and postmeasurements, the experimental group, which received the intervention, did not score significantly different than did mothers in the control group.

3. The maternal variables of the mother's perception of her infant; time after delivery when the mother first saw, held, and fed her

infant; number of other living children; age; and length of labor did not significantly predict or influence perceived maternal self-efficacy. However, there were a significant number of mothers who had negative perceptions of their infants and expressed concerns about their infants' health.

4. Mothers with high levels of perceived social support had higher levels of perceived maternal self-efficacy for caring for an infant with a minor health problem than did mothers with lower levels of perceived social support.

Implications

The implications that may be inferred from the results of this study are indicated as follows:

1. Nursing interventions should be incorporated into the hospital plan of care to increase perceived maternal self-efficacy, i. e., initiating activities with the mother to assist her in handling and feeding her infant such as demonstrations and support during care of the infant and discussion groups with other mothers of infants with similar problems. Since these nursing interventions may be limited due to staffing and decreased contact with mothers due to short hospital stays after delivery, support for mothers after discharge should be considered. Possible approaches could be follow-up by telephone or home visits, especially for mothers who have low perceptions of maternal self-efficacy.

Maternal self-efficacy scores for mothers both in the experimental and control groups increased from Time 1 to Time 2. Although the direct effect of the intervention on perceived maternal self-efficacy was not demonstrated, the effects of other nursing interventions may have accounted for an increase in maternal self-efficacy scores.

2. For the mothers who had negative perceptions of their infants and seemed to perceive their infants' illness as a major concern, follow-up of these mothers after discharge is suggested, especially for the first few months after delivery. An early intervention program to provide support for these mothers may contribute to positive maternal perceptions of her infant and decreased feelings of her child's vulnerability.

3. Because perceived social support was the only maternal variable to explain variance in the dependent variable, mothers at risk for not receiving adequate support need to be identified prior to discharge from the hospital. These mothers may require more professional support to counteract what they lack from their naturally occurring relationships. When mothers with limited social support are identified, they could be referred to support groups and services. Furthermore, the positive role of family support in promoting and sustaining perceived maternal self-efficacy should be recognized. Spouses, family, and other relations that are viewed by the mothers as major sources of social support should be included in the hospital plan of care as much as possible.

Recommendations for Further Study

Further research is needed to test Bandura's social cognitive theory (1986) with regard to efficacy expectations and interventions to enhance perceived maternal self-efficacy in mothers of newly delivered infants with minor health problems. To further enhance the body of knowledge of nursing, the following recommendations, derived from this study, are suggested:

1. This study should be replicated using the same theoretical framework. Social cognitive theory (Bandura, 1986) may still provide a useful conceptual framework for interventions to increase perceived maternal self-efficacy in mothers of infants with minor health problems. For the study, another videotape should be selected or the videotape used in this study should be revised to meet the mothers' needs. The revised videotape should show several models of different ethnic groups to demonstrate care of infants with both intravenous therapy and a heparin lock for intermittent venous access with placement in a scalp vein. In addition, both breast and bottle feeding methods of feeding should be demonstrated. Furthermore, a third measurement of perceived maternal self-efficacy should be incorporated into the study design. This measurement should occur after the mothers have opportunities to interact with their infants. In addition, the maternal self-efficacy subscale of the Maternal Confidence Questionnaire needs to be revised to assess the efficacy expectations dimensions of magnitude and strength.

2. Replication of the study should be conducted in a population which includes a larger sample size with a greater variety of ethnic groups and socioeconomic backgrounds to determine if the intervention influences perceived maternal self-efficacy.

3. The study should be replicated with the sample expanded to include mothers of healthy infants for the premeasurement of perceived maternal self-efficacy. This may increase understanding of the possible score differences between mothers of healthy infants and mothers of infants with minor health problems.

4. Further research should include a sample of mothers of infants with a wide-range of conditions, from minor to serious health problems. A study including the levels of risk would permit the effect of the infants' risk degree on perceived maternal-self efficacy to be assessed.

5. Other studies should be conducted to document the effect of an infant with a minor health problem on a mother's perception of her infant and of her perception of her infant's vulnerability on perceived maternal self-efficacy.

6. A longitudinal study should be conducted to examine the effects of the birth of an infant with a minor health problem and of social support on perceived maternal self-efficacy. Additionally, such a study could aid understanding the process through which social support enhances or sustains perceived maternal self-efficacy.

7. A study should be conducted which combines interventions to increase perceived maternal self-efficacy and perceived social support. A study such as this could increase understanding of the relationship between the two variables.

REFERENCES

- Abdellah, F. G., & Levine, E. (1986). Better patient care through nursing research. New York: Macmillan.
- Apgar, V., & James, L. S. (1962). Further observations of the newborn scoring system. American Journal of Diseases of Children, 104, 419-428.
- Ainsworth, M. D. S. (1976). Attachment as related to mother-infant interaction. In J. S. Rosenblatt, R. A. Hinde, C. Beer, & M. Busnel (Eds.), Advances in the study of behavior (pp. 1-51). New York: Academic Press.
- Ainsworth, M. D. S., & Wittig, A. (1969). Attachment and exploratory behavior of one-year-olds in strange situation. In B. M. Foss (Ed.), Determinants of infant behavior (pp. 111-136). London: Methuen and Co., Ltd.
- Anderson, G. (1977). The mother and her newborn: Mutual caregivers. Journal of Obstetric, Gynecological, and Neonatal Nursing, 6, 50-57.
- Avery, G. (1987). Neonatology: Pathophysiology and management of the newborn. Philadelphia: Lippincott.
- Avery, M., & Taeusch, H. (1984). Schaffer's diseases of the newborn. Philadelphia: W.B. Saunders.
- Bandura, A. (1977a). Social learning theory. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1977b). Self-efficacy: Toward a unifying theory of behavior therapy. Psychological Review, 84, 191-215.
- Bandura, A. (1978a). The self system in reciprocal determinism. American Psychologist, 33, 344-358.
- Bandura, A. (1978b). Reflections on self-efficacy. In S. Rachman (Ed.), Advances in behaviour research and therapy (Vol. 1) (pp. 237-269). Oxford: Pergamon Press.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, 37, 122-147.
- Bandura, A. (1984). Recycling misconceptions of perceived self-efficacy. Cognitive Therapy and Research, 8, 231-255.

- Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1988). Self-efficacy conception of anxiety. Anxiety Research, 1, 77-98.
- Bandura, A. (1989). Human agency in social cognitive theory. American Psychologist, 44, 1175-1184.
- Bandura, A., & Adams, N. E. (1977). Analysis of self-efficacy theory of behavioral change. Cognitive Therapy and Research, 1, 287-308.
- Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. Journal of Personality and Social Psychology, 41, 586-598.
- Bandura, A., Adams, N. E., & Beyer, J. (1977). Cognitive processes mediating behavioral change. Journal of Personality and Social Psychology, 35, 125-139.
- Bandura, A., Adams, N. E., Hardy, A. B., & Howells, G. N. (1980). Test of the generality of self-efficacy theory. Cognitive Therapy and Research, 4, 39-66.
- Bandura, A., Reese, L., & Adams, N. E. (1982). Microanalysis of action and fear arousal as a function of differential levels of perceived self-efficacy. Journal of Personality and Social Psychology, 43, 5-21.
- Barnard, K. E., & Eyres, S. J. (1979). Child health assessment, part 2, the first year of life. (DHEW Publication No. HRA 79-25). Hyattsville, MD: U.S. Department of Health, Education, and Welfare, Public Health Service, HRA, Bureau of Healthy Manpower, Division of Nursing.
- Belsky, J. (1984). The determinants of parenting: A process model. Child Development, 55, 83-96.
- Belsky, J. (1985). Experimenting with the family in the newborn period. Child Development, 56, 407-414.
- Belsky, J., & Pensky, E. (1988). Developmental history, personality, and family relationships: Toward an emergent family system. In R. Hinde & J. S. Hinde (Eds.), Relationships within families: Mutual influences (pp. 193-217). Oxford: Clarendon Press.

- Betz, N. E., & Hackett, G. (1986). Applications of self-efficacy theory to understanding career choice behavior. Journal of Social and Clinical Psychology, 4, 279-289.
- Blumberg, N. L. (1980). Effects of neonatal risk, maternal attitude, and cognitive style on early postpartum adjustment. Journal of Abnormal Psychology, 89, 139-150.
- Bradley-Johnson, S., & Johnson, C. M. (1980). A comparison of parenting education methods in maternity wards. Infant Mental Health Journal, 1, 34-41.
- Brazelton, T. B. (1973). Neonatal behavioral assessment scale. Philadelphia: Lippincott.
- Brim, O. G. (1980). Types of life events. Journal of Social Issues, 36(1), 148-157.
- Broussard, E. R. (1976). Neonatal prediction and outcome at 10/11 years. Child Psychiatry and Human Development, 7, 85-93.
- Broussard, E. R. (1978). Psychosocial disorders in children: Early assessment of infants at risk. Continuing Education for the Primary Nurse, 44, 47-48, 55-57.
- Broussard, E. R. (1979). Assessment of the adaptive potential of the mother-infant system: The neonatal perception inventories. Seminars in Perinatology, 3, 91-100.
- Broussard, E. R., & Hartner, M. S. S. (1970). Maternal perception of the neonate as related to development. Child Psychiatry and Human Development, 1, 16-25.
- Broussard, E. R., & Hartner, M. S. S. (1971). Further considerations regarding maternal perception of the newborn. In J. Hellmuth (Ed.), Exceptional infant (pp. 432-449). New York: Brunner/Mazel.
- Brown, L. S. (1967). Effectiveness of nursing visits to primigravida mothers. Canadian Nurse, 63, 45-49.
- Brown, J., & Bakeman, R. (1979). Relations of human mothers with their infants during the first year of life: Effects of prematurity. In R. Bell & W. Smotherman (Eds.), Maternal influences and early behavior (pp. 342-356). New York: Spectrum.
- Brubaker, R. G., & Wickersham, D. (1990). Encouraging the practice of testicular self-examination: A field application of the theory of reasoned action. Health Psychology, 9, 154-163.

- Burns, N., & Grove, S. K. (1987). The practice of nursing research: Conduct, critique and utilization. Philadelphia: W. B. Saunders.
- Caplan, G. (1974). Support systems and community mental health. New York: Behavioral Publications.
- Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic Medicine, 38, 300-314.
- Cobb, S. (1979). Social support and health through the life course. In M. W. Riley (Ed.), Aging from birth to death: Interdisciplinary perspectives (pp. 93-106). Boulder, CO: Westview Press.
- Cochran, M. M., & Brassard, J. A. (1979). Child development and personal social networks. Child Development, 50, 601-616.
- Cohen, J., & Cohen, P. (1975). Applied multiple regression/correlation analysis for the behavioral sciences. New York: Halstead Press.
- Cohen, S., & Wills, T. A. (1985). Stress, social support and the buffering hypothesis. Psychological Bulletin, 98, 310-357.
- Colletta, N. D. (1981). Social support and the risk of maternal rejection by adolescent mothers. The Journal of Psychology, 109, 191-197.
- Constable, J. F., & Russell, D. W. (1986). The effect of social support and the work environment upon burnout among nurses. Journal of Human Stress, 12, 20-26.
- Cox, M. J., Owen, M. T., Lewis, J. M., & Henderson, V. K. (1989). Marriages, adult adjustment, and early parenting. Child Development, 60, 1015-1024.
- Cranley, M. S., Hedahl, K. J., & Pegg, S. H. (1983). Women's perceptions of vaginal and cesarean deliveries. Nursing Research, 32, 10-15.
- Crittenden, P. M. (1985). Social networks, quality of childrearing, and child development. Child Development, 56, 1299-1313.
- Crnic, K., & Greenberg, M. (1987). Maternal stress, social support, and coping: Influences on the early mother-infant relationship. In C. E. Z. Boukydis (Ed.), Research on support for parents and infants in the postnatal period (pp. 25-40). Norwood, NJ: Ablex Publishing.

- Crnic, K. A., Greenberg, M. T., Ragozin, A. S., Robinson, N. M., & Basham, R. B. (1983). Effects of stress and social support on mothers and preterm and full-term infants. Child Development, 54, 209-217.
- Crockenberg, S. (1981). Infant irritability, mother responsiveness, and social influences on the security of infant-mother attachment. Child Development, 52, 857-865.
- Crockenberg, S., & McCluskey, K. (1986). Changes in maternal behavior during the baby's first year of life. Child Development, 57, 746-753.
- Curry, M. A. (1983). Variables related to adaptation to motherhood in normal primiparous women. JOGN Nursing, 12, 115-121.
- Cutrona, C. E. (1981). Depressive attributional style and nonpsychotic postpartum depression. (Doctoral dissertation, University of California, 1981) Dissertation Abstracts International, 42, 3413B.
- Cutrona, C. E. (1982). Transition to college: Loneliness and the process of social adjustment. In L. A. Peplau & D. Perlman (Eds.), Loneliness: A sourcebook of current theory, research, and therapy (pp. 291-309). New York: Wiley Interscience.
- Cutrona, C. E. (1984). Social support and stress in the transition to parenthood. Journal of Abnormal Psychology, 93, 378-390.
- Cutrona, C. E. (1986). Objective determinants of perceived social support. Journal of Personality and Social Psychology, 50, 349-355.
- Cutrona, C. E., & Russell, D. W. (1988). The provisions of social relationships and adaptation to stress. In W. H. Jones & D. Perlman (Eds.), Advances in personal relationships (pp. 37-67). Greenwich, CT: JAI Press.
- Cutrona, C. E., Russell, D., & Rose, J. (1986). Social support and adaptation to stress by the elderly. Psychology and Aging, 1, 47-54.
- Cutrona, C. E., & Troutman, B. R. (1986). Social support, infant temperament, and parenting self-efficacy: A mediational model of postpartum depression. Child Development, 57, 1507-1518.
- Davis, J. H., Brucker, M. C., & Macmullen, N. J. (1988). A study of mothers' postpartum teaching priorities. Maternal Child Nursing Journal, 17, 41-50.

- Deutsch, H. (1973). The psychology of women: Vol. 2 Motherhood. New York: Spectrum.
- DiClemente, C. C. (1981). Self-efficacy and smoking cessation maintenance: A preliminary report. Cognitive Therapy and Research, 5, 175-187.
- DiClemente, C. C., Prochaska, J. O., & Gibertini, M. (1985). Self-efficacy and the stages of self-change of smoking. Cognitive Therapy and Research, 9, 181-200.
- Divitto, B., & Goldberg, S. (1979). The effects of newborn medical status on early parent-infant interaction. In T. M. Field, A. M. Sostek, S. Goldberg, & H. H. Shuman (Eds.), Infants born at risk (pp. 311-332). New York: S. P. Medical & Scientific Books.
- Dobb, S. (1979). Social support and health through the life course. In M. W. Riley (Ed.), Aging from birth to death: Interdisciplinary perspectives (pp. 93-106). Boulder, CO; Westview Press.
- Donovan, W. L. (1981). Maternal learned helplessness and physiologic response to infant crying. Journal of Personality and Social Psychology, 40, 919-926.
- Donovan, W. L., & Leavitt, L. A. (1978). Early cognitive development and its relation to maternal physiologic and behavioral responsiveness. Child Development, 49, 1251-1254.
- Donovan, W. L., & Leavitt, L. A. (1985). Simulating conditions of learned helplessness: The effects of interventions and attributions. Child Development, 56, 594-603.
- Donovan, W. L., & Leavitt, L. A. (1989). Maternal self-efficacy and infant attachment: Integrating physiology, perceptions, and behavior. Child Development, 60, 460-472.
- Donovan, W. L., Leavitt, L. A., & Walsh, R. O. (1990). Maternal self-efficacy: Illusory control and its effect on susceptibility to learned helplessness. Child Development, 61, 1638-1647.
- Dormire, S. L., Strauss, S. S., & Clarke, B. A. (1989). Social support and adaptation to the parent role in first-time adolescent mothers. Journal of Obstetric, Gynecologic, and Neonatal Nursing, 18, 327-337.
- Downey, G., & Coyne, J. C. (1990). Children of depressed parents: An integrative review. Psychological Bulletin, 108, 50-76.
- Draper, N. R., & Smith, H. (1981). Applied regression analysis. New York: John Wiley.

- Dubowitz, L. M. S., Dubowitz, V., & Goldberg, C. (1977). Gestational age of the newborn. Reading, MA: Addison-Wesley.
- Fawcett, J. (1981). Needs of cesarean birth parents. Journal of Obstetric, Gynecological Nursing and Neonatal Nursing, 10, 372-376.
- Feinstein, J. M., Berkelhamer, J. E., Gruszka, M. E., Wong, C. A., & Carey, A. E. (1986). Factors related to early termination of breast-feeding an urban population. Pediatrics, 78, 210-215.
- Feller, C. M., Henson, D., Bell, L. A., Wong, S., & Bruner, M. (1983). Assessment of adolescent mother-infant attachment. Issues in Health Care of Women, 4, 237-250.
- Freese, M. P., & Thoman, E. B. (1978). The assessment of maternal characteristics for the study of maternal-infant interactions. Infant Behavior and Development, 1, 95-105.
- Gibaud-Wallston, J. A. (1977). Self-esteem and situational stress: Factors related to sense of competence in new parents (Doctoral dissertation, George Peabody College for Teachers, 1977). Dissertation Abstracts International, 39, 379B.
- Gibaud-Wallston, J. A. (1978). Development and utility of the Parenting Sense of Competence Scale. Paper presented at the meeting of the American Psychological Association, Toronto, Ontario, Canada.
- Green, M., & Solnit, A. J. (1964). Reactions to the threatened loss of a child: A vulnerable child syndrome. Pediatrics, 34, 58-66.
- Greenberg, M., Rosenberg, I., & Lind, J. (1973). First mothers rooming-in with their newborns: It's impact upon the mother. American Journal of Orthopsychiatry, 43, 783-788.
- Gross, D., Rocissaro, L., & Roncoli, M. (1989). Maternal confidence during toddlerhood: Comparing preterm and fullterm groups. Research in Nursing and Health, 12, 1-9.
- Hall, L. A. (1980). Effect of teaching primiparas perceptions of their newborns. Nursing Research, 29, 317-322.
- Hann, D. M. (1989). A systems conceptualization of the quality of mother-infant interaction. Infant Behavior and Development, 12, 251-263.
- Hartigan, E. J., Baker-Stauch, D., & Morris, G. W. (1982). Perceptions of the causes of obesity and responsiveness to treatment. Journal of Counseling Psychology, 29, 478-485.

- Hirsch, B. (1980). Natural support systems and coping with major life changes. American Journal of Community Psychology, 8, 159-172.
- Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213-218.
- House, J. S. (1981). Work stress and social support. Reading, MA: Addison Wesley.
- Johnson, S. H. (1986). Nursing assessment and strategies for the family at risk: High-risk parenting. Philadelphia: J. B. Lippincott.
- Johnston, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. Journal of Clinical Child Psychology, 18, 167-175.
- Jones, F. A., Green, V., & Krauss, D. R. (1980). Maternal responsiveness of primiparous mothers during the postpartum period: Age differences. Pediatrics, 65, 579-584.
- Joy, L. A., Davidson, S., Williams, T. M., & Painter, S. L. (1980). Parent education in the perinatal period: A critical review of the literature. In P. M. Taylor (Ed.), Parent-infant relationships (pp. 211-237). New York: Grune & Stratton.
- Kazdin, A. E. (1979). Imagery elaboration and self-efficacy in the covert modeling treatment of unassertive behavior. Journal of Consulting and Clinical Psychology, 47, 725-733.
- Kazdin, A. E. (1982). The separate and combined effects of covert and overt rehearsal in developing assertive behavior. Behavior and Research Therapy, 20, 17-25.
- Kearney, M., & Cronenwett, L. R. (1989). Perceived perinatal complications and childbirth satisfaction. Applied Nursing Research, 2, 140-141.
- Kemper, K., Forsyth, B. W., & McCarthy, P. L. (1989). Jaundice, terminating breast-feeding, and the vulnerable child. Pediatrics, 84, 773-778.
- Kemper, K., Forsyth, B. W., & McCarthy, P. L. (1990). Persistent perceptions of vulnerability following neonatal jaundice. American Journal of Diseases of Children, 44, 238-241.
- Kent, G. (1987). Self-efficacious control over reported physiological, cognitive and behavioral symptoms of dental anxiety. Behaviour Research and Therapy, 25, 341-347.

- Kent, G., & Gibbons, R. (1987). Self-efficacy and the control of anxious cognitions. Journal of Behavior Therapy and Experimental Psychiatry, 18, 33-40.
- Klaus, M. H., & Kennell, J. H. (1982). Parent-infant bonding. St. Louis: C. V. Mosby.
- Korones, S. B. (1986). High-risk newborn infants: The basis for intensive nursing care. St. Louis: C. V. Mosby.
- Lane, T. W., & Borkovec, T. D. (1984). The influence of therapeutic expectancy/demand on self-efficacy ratings. Cognitive Therapy and Research, 8, 95-106.
- Leavitt, M. J., Weber, R. A., & Clark, M. C. (1986). Social network relationships as sources of maternal support and well-being. Developmental Psychology, 22, 310-316.
- Lee, C. (1984). Accuracy of efficacy and outcome expectations in predicting performance in a simulated assertiveness test. Cognitive Therapy and Research, 8, 37-48.
- Lent, R. W., & Hackett, G. (1987). Career self-efficacy: Empirical status and future directions. Journal of Vocational Behavior, 30, 347-382.
- Levy, J. C. (1980). Vulnerable children: Parents' perspectives and the use of medical care. Pediatrics, 65, 956-963.
- Litt, M. D. (1988). Cognitive mediators of stressful experience: Self-efficacy and perceived control. Cognitive Therapy and Research, 12, 241-260.
- Lotas, M. B., & Willging, J. M. (1979). Mothers, babies, perception. Image, 11, 45-51.
- Manning, M. M., & Wright, T. L. (1983). Self-efficacy expectancies, outcome expectancies, and the persistence of pain control in childbirth. Journal of Personality and Social Psychology, 45, 421-431.
- Manut, J. S., & Mercer, R. T. (1979). Comparison of primiparas perception of vaginal and cesarean birth. Nursing Research, 28, 260-266.
- Mash, E. J., Johnston, C., & Kovitz, K. (1983). A comparison of the mother-child interactions of physically abused and non-abused children during play and task situations. Journal of Clinical Child Psychology, 12, 337-346.

- Majewski, J. (1987). Social support and the transition to the maternal role. Health Care for Women International, 8, 397-407.
- McIntyre, K. O., Lichtenstein, E., & Mermelstein, R. J. (1983). Self-efficacy and relapse in smoking cessation: A replication and extension. Journal of Consulting and Clinical Psychology, 51, 632-633.
- Mercer, R. T. (1981). A theoretical framework for studying factors that impact on the maternal role. Nursing Research, 30, 73-77.
- Mercer, R. T. (1985). Relationship of the birth experience to later mothering behaviors. Journal of Nurse-Midwifery, 30, 204-211.
- Mercer, R. T. (1986). First time motherhood: Experiences from teens to forties. New York: Springer.
- Mercer, R. T., & Ferketich, S. L. (1990). Predictors of parental attachment during early parenthood. Journal of Advanced Nursing, 15, 268-280.
- Mercer, R. T., Hackley, K. C., & Bostron, A. G. (1983). Relationship of psychosocial and perinatal variables to perception of childbirth. Nursing Research, 32, 202-207.
- Mercer, R. T., May, K. A., Ferketich, S., & DeJoseph, J. (1986). Theoretical models for studying the effect of antepartum stress on the family. Nursing Research, 35, 339-346.
- Moore, L. (1986). Effects of mediated instruction, the cesarean experience, and infant characteristics on maternal attachment behavior. Unpublished doctoral dissertation, University of Houston, Houston.
- Nardi, A. (1973). Person-perception research and the perception of life-span development. In P. B. Baltes & K. W. Schaie (Eds.), Life-span developmental psychology (pp. 285-301). New York: Academic Press.
- Nielson, E. & Sheppard, M. A. (1988). Television as a patient education tool: A review of its effectiveness. Patient Education and Counseling, 11, 3-16.
- Nover, A., Shore, M. F., Timberlake, E. M., & Greenspan, S. I. (1984). The relationship of maternal perception and maternal behavior. American Journal of Orthopsychiatry, 54, 210-223.

- O'Hara, M. W., Rehm, L. D., & Campbell, S. B. (1983). Postpartum depression: A role for social network and life stress variables. Journal of Nervous and Mental Disease, 171, 346-341.
- Ozer, E. M., & Bandura, A. (1990). Mechanisms governing empowerment effects: A self-efficacy analysis. Journal of Personality and Social Psychology, 58, 472-486.
- Palsin, H. (1981). The neonatal perception inventory: A review. Nursing Research, 30, 285-289.
- Parush, S., & Clark, F. (1988). The reliability and validity of a sensory developmental expectation questionnaire for mothers of newborns. The American Journal of Occupational Therapy, 42, 11-16.
- Paykel, E. S., Emms, E. M., Fletcher, J., & Rassaby, E. S. (1980). Life events and social support in puerperal depression. British Journal of Psychiatry, 136, 339-346.
- Pederson, L. L., Strickland, C., & DesLauriers, A. (1991). Self-efficacy related to smoking cessation in general practice patients. The International Journal of the Addictions, 26, 467-485.
- Perrin, E. C., West, P. D., & Culley, B. S. (1989). Is my child normal yet? Correlates of vulnerability. Pediatrics, 83, 355-363.
- Perry, S. E. (1983). Parent's perceptions of their newborn following structured interactions. Nursing Research, 32, 208-212.
- Poley-Strobel, B. A., & Beckmann, C. A. (1987). The effects of a teaching-modeling intervention on early mother-infant reciprocity. Infant Behavior and Development, 10, 467-476.
- Polit-O'Hara, D., & Hungler, B. P. (1987). Nursing research: Principles and methods. New York: J. B. Lippincott.
- Pridham, K. F., & Schutz, M. E. (1983). Preparation of parents for birthing and infant care. Journal of Family Practice, 13, 181-188.
- Procidano, M. E., & Heller, K. (1983). Measures of perceived social support from friends and family: Three validation studies. American Journal of Community Psychology, 11, 1-24.
- Ragozin, A. S., Basham, R. B., & Crnic, K. A., Greenberg, M. T., & Robinson, N. M. (1982). Effects of maternal age on parenting role. Developmental Psychology, 18, 627-634.

- Rauh, V., Wasserman, G. A., & Brunelli, S. A. (1990). Determinants of maternal child-rearing attitudes. Journal of American Academy of Child and Adolescent Psychiatry, 29, 375-381.
- Riesch, S., & Munns, S. K. (1984). Promoting awareness: The mother and her baby. Nursing Research, 35, 271-276.
- Roscoe, J. T. (1975). Fundamental research statistics for the behavioral sciences. New York: Holt, Rinehart & Winston.
- Rossetti, L. M. (1986). High risk infants: Identification, assessment and intervention. San Diego: College Hill Press.
- Rubin, R. (1984). Maternal identity and the maternal experience. New York: Springer.
- Russell, D., & Cutrona, C. E. (1984, August). The provisions of social relationships and adaptation to stress. Paper presented at the meeting of the American Psychological Association, Toronto, Ontario, Canada.
- Russell, D., Cutrona, C. E., Rose, J., & Yurko, K. (1984). Social and emotional loneliness: An examination of Weiss's typology of loneliness. Journal of Personality and Social Psychology, 46, 1313-1321.
- Rutledge, D., & Pridham, K. F. (1987). Postpartum mothers perception of competence for infant care. Journal of Obstetric Gynecological and Neonatal Nursing, 16, 185-194.
- Sallis, J. F., Hovell, M. F., Hofstetter, C. R., Faucher, P., & Elder, J. P. (1989). A multivariate study of determinants of vigorous exercise in a community sample. Preventive Medicine, 18, 20-34.
- Sarason, B. R., & Sarason, I. G., & Pierce, G. R. (1990). Social support: An interactional view. New York: John Wiley & Sons.
- Sarason, I. G., & Sarason, B. R. (1984). Life changes, moderators of stress, and health. In A. Bawn, S. E. Taylor, & J. E. Singer (Eds.). Handbook of psychology and health (pp. 23-49). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Schaefer, C., Coyne, J. C., & Lazarus, R. S. (1981). The health-related functions of social support. Journal of Behavioral Medicine, 4, 381-406.
- Schroeder, L. D., Sjoquist, D. L., & Stephan, P. E. (1987). Understanding regression analysis. Beverly Hills, CA: Sage Publications.

- Seashore, M. J., Leifer, A. D., Barnett, C. R., & Leiderman, P. H. (1977). The effects of denial of early mother-infant interaction on maternal self-confidence. In J. L. Schwartz & L. H. Schwartz (Eds.), Vulnerable infants (pp. 136-150). New York: McGraw-Hill.
- Solnit, A. J., & Stark, M. H. (1961). Mourning and the birth of a defective child. Psychoanalytic Study of the Child, 16, 523-537.
- Stanley, M. A., & Maddux, J. E. (1986). Cognitive processes in health enhancement: Investigation of a combined protection motivation and self-efficacy model. Basic and Applied Social Psychology, 7, 101-113.
- Straddon, J. E. R. (1984). Social learning theory and the dynamics of interaction. Psychological Review, 91, 502-507.
- Tan, S. Y., & Poser, E. G. (1982). Acute pain in a clinical setting: Effects of cognitive-behavioral skills training. Behavior Research and Therapy, 20, 535-545.
- Teti, D. M., & Gelfand, D. M. (1991). Behavioral competence among mothers of infants in the first year: The mediational role of maternal self-efficacy. Child Development, 62, 918-929.
- Thelen, M. H., Fry, R. A., Fehrenbach, P. A., & Frautschi, N. M. (1979). Therapeutic videotape and film modeling: A review. Psychological Bulletin, 86, 701-720.
- Thorndike, R. M. (1978). Correlational procedures for research. New York: Gardner Press.
- Tryon, W. W. (1981). A methodological critique of Bandura's self-efficacy theory of behavioral change. Journal of Behavior Therapy and Experimental Psychiatry, 12, 113-114.
- Vaughn, B. E., Crichton, L., & Egeland, B. (1982). Individual differences in qualities of caregiving during the first six months of life: Antecedents in maternal and infant behavior during the newborn period. Infant Behavior and Development, 5, 77-95.
- Walker, L. O. (1982). Neonatal perception inventories. In S. S. Humenick (Ed.), Analysis of current assessment of strategies in health care of young children and childbearing families (pp. 164-170). Norwalk, CN: Appleton-Century-Crofts.
- Walker, L. O. (1992). Parent-infant nursing science: Paradigms, phenomena, methods. Philadelphia: F. A. Davis.

- Waltz, C. F., Strickland, O. L., & Lenz, E. R. (1984). Measurement in nursing research. Philadelphia: F. A. Davis.
- Wandersman, L., Wandersman, A., & Cain, S. (1980). Social support in the transition to parenthood. Journal of Community Psychology, 8, 332-342.
- Weinberg, R. S., Hughes, H. H., Critelli, J. W., England, R., & Jackson, A. (1984). Effects of preexisting and manipulated self-efficacy on weight loss in a self-control program. Journal of Research of Personality, 18, 352-358.
- Weinraub, M., & Wolf, B. M. (1983). Effects of stress and social supports on mother-child interactions in single- and two-parent families. Child Development, 54, 1297-1311.
- Weiss, R. S. (1974). The provisions of social relationships. In Z. Rubin (Ed.), Doing unto others (pp. 17-26). Englewood Cliffs, NJ: Prentice-Hall.
- Whiten, A. (1977). Assessing the effects of perinatal events on the success of the mothers-infant relationship. In H. R. Schaffer (Ed.), Studies in mother-infant interaction (pp. 403-425). New York: Academic Press.
- Williams, J. M., Joy, L. A., Travis, L., Gotowiec, A., Bloom-Stelle, M., Aiken, L. S., Painter, S. L., & Davidson, S. M. (1987). Transition to parenthood: A longitudinal study. Infant Mental Health Journal, 8, 251-265.
- Zahr, L. K. (1991). The relationship between maternal confidence and mother-infant behaviors in premature infants. Research in Nursing and Health, 14, 279-286.

Appendix A

Dialogue for Videotape, "Yes, Mom, You Can Be Successful"

Dialogue for Videotape, "Yes, Mom, You Can Be Successful"

You've had a baby. You have spent many months waiting for your baby. You may have had a picture in your mind of a perfect, healthy baby. You are holding, hugging, patting, touching, kissing, smiling and talking to your baby. And look at your baby - see those bright eyes, those open hands, and even body movements - all of these are signals that your baby is ready to interact with you. But something has happened. Your baby seems to be different - this may be due to treatments your baby must have. It may be necessary for your baby to receive intravenous or phototherapy. Now you will need to learn skills in order for you to handle and feed your baby. You may feel concerned and wonder if you will be able to do these things for your baby.

You can learn how to care for your baby while your baby has these temporary treatments. You can have feelings of confidence. To help you handle and feed your baby, this program will show ways in which you can do this while your baby is receiving treatment.

First, take time to look, talk, and touch your baby. Soon you will be able to see that your baby is listening to your voice and responding to your gentle touch - eyes are bright, arms and legs are moving, hands are open - your baby is ready to interact with you. Next, pick up your baby. Even though there may seem to be a lot of equipment, you can do it. Just place your hand under the baby's back and use the other hand to support the head. Now pick up your baby and sit in the chair. Take time to find a position that seems to be most comfortable for you and your baby. Keep supporting the head and back. Hold your baby close to you, but find a position so that you can look into your baby's eyes. You are already beginning to feel less anxious and more relaxed. Take time again to smile, talk to and touch your baby. You may even want to rock your baby or hold your baby close to you. This is a good time to interact with your baby.

You may notice that your baby seems to be hungry - even may begin to suck, squirm, kick, or become fussy. Put the nipple in the baby's mouth. Your baby is eager for the feeding - sucks well, swallowing promptly. During the feeding, stop and burp your baby. Place your baby either on your shoulder or lap and gently pat on the back. See, you can support your baby's head and back while burping. After the feeding, look at how satisfied your baby seems to be - arms and legs are relaxed and a relaxed facial expression. Your baby may even fall asleep.

Sometimes your baby will seem fussy or start crying during the feeding. Stop the feeding and take time to soothe your baby. Talk, stroke, pat, rock, or change your baby's position - look how your baby was calmed down by talking, stroking or changing position. You can comfort your baby.

Now it's time to put your baby back in the crib. Using your hands to support your baby's head and back, stand up and move toward the crib. Place the baby in the crib in a side lying position.

You have feelings of confidence for handling and feeding your baby. Feelings of confidence as a mother will help you feel more affectionate, relaxed and attentive as you care for your baby.

Appendix B
Consent Form

Consent Form

I have been asked to participate as a subject in a study entitled "Videotaped Modeling and Maternal Influences on Perceived Maternal Self-Efficacy." This study will be conducted by Florence L. Crawford, R.N., M.S.N.

I understand that the purpose of this research project is to study the effects of viewing a videotape about a particular aspect of infant care on mothers' approaches to caring for their infants. Mothers will also complete a questionnaire before and after viewing a videotape.

I understand that if I volunteer to participate in the study, I will be randomly assigned to one of two groups. If I am in the first group, I will view a videotape on a particular aspect of infant care. If I am in the second group, I will be provided an opportunity to see the videotape after I have completed two questionnaires and when information for the study has been collected.

I understand that in addition to completing the questionnaires and watching the videotape, I will be asked to provide specific information about myself. This questionnaire should take 10 to 20 minutes to complete. In addition, information about my pregnancy and childbirth as well as my infant's condition and care will be obtained from hospital records.

I have been told that the potential risks to myself for participating in this study are minimal. The completion of the questionnaires and viewing the videotape might cause fatigue or some anxiety. Since the results of the questionnaires are confidential, anxiety will probably be minimal. If I experience anxiety and would like to stop my participation in the study, I understand that I may withdraw from the study without prejudice. I understand that although loss of confidentiality is a potential risk, confidentiality will be maintained. My name and my infant's name will not be requested on any questionnaires or on any form and all information collection tools will be identified by a code number. The list of code numbers will be kept in a locked file cabinet in the investigator's office. All forms and code numbers will be destroyed once the information is collected and analyzed. The findings of the study will all be reported on a group basis and will be anonymous.

I have been told that the benefit that I might receive from participating in this study may be learning how to better handle and feed my infant. I have been told that a possible alternative approach to learning how to care for my infant, other than viewing the videotape, could possibly be through routine nursing care given by the nurses on the postpartum units or from the newborn nursery.

I have been told that I may stop participation in the study at any time without prejudice or any change in the care given to myself or my infant. I understand that no information about participation in this study will be entered into hospital records.

1. I understand that informed consent is required of all persons in this project.
2. The principal and alternate procedures, including the experimental procedures in this project, have been identified and explained to me in language that I can understand.
3. The risks and discomforts from the procedures have been explained to me.
4. The expected benefits for the procedures have been explained to me.
5. An offer has been made to answer any questions that I may have about these procedures. If I have any questions before, during or after the study, I may contact Ms. Florence L. Crawford at (409) 772-8233.
6. I have been told that I may refuse to participate or stop my participation in this project at any time without prejudice and without jeopardizing my medical care at UTMB. All new findings during the course of this research which may influence my desire to continue or not to continue to participate in this study will be provided to me as such information becomes available.
7. I have been told that The University of Texas Medical Branch at Galveston and Texas Woman's University, like virtually all other Universities in the United States, does not have a mechanism for compensation of the injured research subject. Therefore, I understand that I cannot look to any such mechanism to receive financial remuneration for any such injuries resulting from my participation in this project. If physical injury occurs as a direct result of this research, emergency treatment which is available to the general public will be available to me. Neither UTMB, Texas Woman's University, or Florence L. Crawford can assume financial responsibilities or liability for the expenses of such treatment.
8. If I have any questions regarding my rights as a patient participating in this study or research-related injury, I may contact Dr. E. Ray Stinson, Director of the Office of Sponsored Programs-Academic at (409) 772-3482.
9. I have a right to privacy, and all information that is obtained in connection with this study and that can be identified with me will remain confidential as far as possible within state and federal law. However, information gained from this study that can be identified with me may be released to no one other than the investigator, my physician, and to the other participating medical centers in this study. The results of this study may be published in scientific journals without identifying me by name.

I voluntarily agree to participate as a subject in the above-named study.

Date

Signature of Subject

Signature of Witness

Using language that is understandable and appropriate, I have discussed this project and the items listed above with the subject and/or his/her authorized representatives.

Date

Signature of Project
Director

Appendix C
Letters of Approval

The University of Iowa

Iowa City, Iowa 52242

Department of Psychology
Spence Laboratories of Psychology

319/335-2406



1847

June, 1991

~~November 19, 1990~~

Dear Colleague:

I am enclosing a copy of the Social Provisions Scale and information on its psychometric properties and scoring. I am pleased that you are interested in the scale, and I give my permission for you to use this copyrighted instrument.

Sincerely yours,

Carolyn E. Cutrona

Carolyn E. Cutrona, Ph.D.
Associate Professor

Dear Ms. ~~Chambers~~

Thank you for your interest in the Parenting Sense of Competence Scale. Since the address at which you wrote to me was ~~incorrect~~ ^{my husband's} your letter took a long time to find me. I am sorry for the delay in responding to you, and hope the information enclosed herewith will still be of some use to you.

The PSOC was developed for use with parents whose babies are very young - newborn to 9 or 12 months of age. Our data on this population have been slim. I myself used the scale only in the study reported in my dissertation (1977). Although I have had many inquiries about the scale, I do not know if anyone else has done further work with it, except for the study reported by Mash and Johnston in the Journal of Consulting and Clinical Psychology (1983, Vol. 51, No. 1. 86-99). Lois Wandersman, who has published a fair amount on the transition to parenthood, has submitted our original paper for publication, and we are in the process of revising it. However, I do not know when or if it will appear. You can obtain a copy of that original paper, which was presented at APA in 1978, by writing to the Peabody Education Library of Vanderbilt University here in Nashville.

Sincerely yours,

Jonatha Gibaud, Ph.D.
Clinical Psychologist

Enclosure: Parenting Sense of Competence Scale

JG:cp

P.S. You have my permission to use the scale.

Appendix D
Maternal Confidence Questionnaire

Code _____

Maternal Confidence Questionnaire

FORM 1

Using the following scale, please circle the number which comes closest to how you agree to each statement describing your ability to care for your baby during feeding. Each item is followed by five (5) choices.

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree	
						<u>CIRCLE CHOICE</u>
<u>STATEMENT</u>						
1. Touch baby			1	2	3	4 5
2. Look into baby's eyes			1	2	3	4 5
3. Hold baby in a comfortable position			1	2	3	4 5
4. Put nipple in baby's mouth			1	2	3	4 5
5. Stop feeding when baby gags			1	2	3	4 5
6. Place baby on shoulder and pat on back to burp			1	2	3	4 5
7. Support baby's head and back when burping			1	2	3	4 5
8. Burp baby during and at end of feeding			1	2	3	4 5
9. Start or stop feeding when baby cries			1	2	3	4 5
10. Change baby's position			1	2	3	4 5
11. Kiss, caress, hug baby			1	2	3	4 5

cont'd

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree	
	<u>STATEMENT</u>		<u>CIRCLE CHOICE</u>			
12.	Soothe baby when baby cries		1	2	3	4 5
13.	Talk to baby		1	2	3	4 5
14.	Quiet baby		1	2	3	4 5
15.	Rock baby		1	2	3	4 5

Using the following scale, please circle the number which comes closest to the extent you agree with each statement describing how you expect your baby to respond to you during feeding. Each item is followed by five (5) choices.

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree
<u>STATEMENT</u>	<u>CIRCLE CHOICE</u>				
1. Baby will accept changes in position	1	2	3	4	5
2. Baby will look into my eyes	1	2	3	4	5
3. Baby will be fussy	1	2	3	4	5
4. Baby will want and will take feeding	1	2	3	4	5
5. Baby will continue to cry in spite of several minutes of soothing	1	2	3	4	5
6. Baby will take feeding quietly	1	2	3	4	5
7. Baby will turn head, spit out nipple	1	2	3	4	5
8. Baby will accept feeding right away, swallowing promptly	1	2	3	4	5
9. Baby will be calmed by being picked up	1	2	3	4	5
10. Baby will ignore my voice	1	2	3	4	5
11. Baby will be content	1	2	3	4	5

cont'd

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree	
	<u>STATEMENT</u>		<u>CIRCLE CHOICE</u>			
12.	When baby is crying, baby will settle down when being held		1	2	3	4 5
13.	Baby will be sleepy		1	2	3	4 5
14.	Baby will respond to gentle touch		1	2	3	4 5
15.	Baby will fuss in spite of efforts to comfort baby		1	2	3	4 5
16.	Baby will move (squirm, kick)		1	2	3	4 5
17.	Baby will touch me		1	2	3	4 5

cont'd

Please respond to the following questions by placing a check (✓) in the designated blank.

- | | | | |
|----|--|---|--------------------------------------|
| 1. | Do you have someone to help you at home after delivery? | Yes
No |
_____ |
| 2. | Did you attend any classes to learn how to take care of your baby before delivery? | Yes
No |
_____ |
| 3. | Was your pregnancy planned? | Yes
No |
_____ |
| 4. | Do you think your baby's behavior is affected by the baby's illness or treatments? If so, please explain. | Yes
No |
_____ |
| 5. | Do you have special worries about your baby's health or feel the need for extra cautiousness? If so, please explain. | Yes
No |
_____ |
| 6. | Do you expect your baby to be discharged from the hospital with you? | Yes
No |
_____ |
| 7. | When did you first see your baby after delivery? | First hour
1 - 2 hours
3 - 8 hours
Longer than 8 hours |

_____ |
| 8. | When did you first hold your baby after delivery? | First hour
1 - 2 hours
3 - 8 hours
Longer than 8 hours |

_____ |

cont'd

9. When did you first feed your baby after delivery?
- | | |
|---------------------|-------|
| First hour | _____ |
| 1 - 2 hours | _____ |
| 3 - 8 hours | _____ |
| Longer than 8 hours | _____ |
10. Using the following scale, please circle the number which comes closest to your satisfaction with your baby's sex.
- | | | | | |
|--------------|--------------|-----------|-----------|-----------|
| (1) | (2) | (3) | (4) | (5) |
| Very | Fairly | | Fairly | Very |
| Dissatisfied | Dissatisfied | Satisfied | Satisfied | Satisfied |

Code _____

Maternal Confidence Questionnaire

FORM 2

Using the following scale, please circle the number which comes closest to how you agree to each statement describing your ability to care for your baby during feeding. Each item is followed by five (5) choices.

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree	
						<u>CIRCLE CHOICE</u>
<u>STATEMENT</u>						
1. Touch baby			1	2	3	4 5
2. Look into baby's eyes			1	2	3	4 5
3. Hold baby in a comfortable position			1	2	3	4 5
4. Put nipple in baby's mouth			1	2	3	4 5
5. Stop feeding when baby gags			1	2	3	4 5
6. Place baby on shoulder and pat on back to burp			1	2	3	4 5
7. Support baby's head and back when burping			1	2	3	4 5
8. Burp baby during and at end of feeding			1	2	3	4 5
9. Start or stop feeding when baby cries			1	2	3	4 5
10. Change baby's position			1	2	3	4 5
11. Kiss, caress, hug baby			1	2	3	4 5
12. Soothe baby when baby cries			1	2	3	4 5

cont'd

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree	
	<u>STATEMENT</u>		<u>CIRCLE CHOICE</u>			
13.	Talk to baby		1	2	3	4 5
14.	Quiet baby		1	2	3	4 5
15.	Rock baby		1	2	3	4 5

Using the following scale, please circle the number which comes closest to the extent you agree with each statement describing how you expect your baby to respond to you during feeding. Each item is followed by five (5) choices.

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree
<u>STATEMENT</u>	<u>CIRCLE CHOICE</u>				
1. Baby will accept changes in position	1	2	3	4	5
2. Baby will look into my eyes	1	2	3	4	5
3. Baby will be fussy	1	2	3	4	5
4. Baby will want and will take feeding	1	2	3	4	5
5. Baby will continue to cry in spite of several minutes of soothing	1	2	3	4	5
6. Baby will take feeding quietly	1	2	3	4	5
7. Baby will turn head, spit out nipple	1	2	3	4	5
8. Baby will accept feeding right away, swallowing promptly	1	2	3	4	5
9. Baby will be calmed by being picked up	1	2	3	4	5
10. Baby will ignore my voice	1	2	3	4	5
11. Baby will be content	1	2	3	4	5

cont'd

	(1) Strongly Disagree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree	
	<u>STATEMENT</u>		<u>CIRCLE CHOICE</u>			
12.	When baby is crying, baby will settle down when being held		1	2	3	4 5
13.	Baby will be sleepy		1	2	3	4 5
14.	Baby will respond to gentle touch		1	2	3	4 5
15.	Baby will fuss in spite of efforts to comfort baby		1	2	3	4 5
16.	Baby will move (squirm, kick)		1	2	3	4 5
17.	Baby will touch me		1	2	3	4 5

Appendix E
Neonatal Perception Inventory

Code _____

Neonatal Perception Inventory

YOUR BABY

While it is not possible to know for certain what your baby will be like, you probably have some ideas of what your baby will be like. Please check the blank that you think best describes what your baby will be like.

How much crying do you think your baby will do?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much trouble do you think your baby will have feeding?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much spitting up or vomiting do you think your baby will do?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much difficulty do you think your baby will have in sleeping?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much difficulty do you expect your baby to have with bowel movements?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much trouble do you think that your baby will have settling down to a predictable pattern of eating and sleeping?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

Code _____

Neonatal Perception Inventory

AVERAGE BABY

You probably have some ideas of what most little babies are like.
Please check the blank that you think best describes the AVERAGE baby.

How much crying do you think the average baby does?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much trouble do you think the average baby has in feeding?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much spitting up or vomiting do you think the average baby does?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much difficulty do you think the average baby has in sleeping?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much difficulty does the average baby have with bowel movements?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

How much trouble do you think the average baby has in settling down to a predictable pattern of eating and sleeping?

<u>a great deal</u>	<u>a good bit</u>	<u>moderate</u>	<u>very little</u>	<u>none</u>
		amount		

Appendix F

Instructions for Administering the Neonatal
Perception Inventory

Instructions for Administering the Neonatal
Perception Inventory

The Neonatal Perception Inventory is easily and quickly administered by telling the mother:

"We are interested in learning more about the experiences of mothers and their babies during the first few weeks after delivery. The more we can learn about mothers and their babies, the better we will be able to help other mothers with their babies. We would appreciate it if you would help us to help other mothers by answering a few questions."

The procedures are identical for administering the Average Baby form of the NPI on the first or second postpartum day and the NPI at one month of age. The mother is handed the Average Baby form while the individual administering the inventory says:

"Although this is your first baby, you probably have some ideas of what most little babies are like. Will you please check the blank you think best describes what most little babies are like."

The tester waits until the mother has completed the Average Baby form and takes it from the mother and then hands the mother the Your Baby form.*

The procedure for administering the Your Baby forms of the NPI is the same at Time I and Time II. However, the instructions given to the mother vary slightly to take into account the time factor. At Time I the tester tells the mother:

"While it is not possible to know for certain what your baby will be like, you probably have some ideas of what your baby will be like. Please check the blank that you think best describes what your baby will be like."

At Time II, she says:

"You have had a chance to live with your baby for a month now. Please check the blank you think best describes your baby."

*The tester remains with the mother during the entire administration procedure. Courtesy of Elsie Broussard M.D.

Appendix G

Parenting Sense of Competence Questionnaire

Code _____

Parenting Sense of Competence Questionnaire

Using the following scale, please indicate your agreement or disagreement with each statement by circling a number. Each statement is followed by five (5) choices.

	(1) Strongly Agree	(2) Disagree	(3) Mildly Agree	(4) Agree	(5) Strongly Agree
<u>STATEMENT</u>				<u>CIRCLE CHOICE</u>	
1. I would make a fine model for a new mother to follow in order to learn what she would need to know to be a good parent.	1	2	3	4	5
2. The problems of taking care of a baby are easy to solve once you know how your actions affect your baby, an understanding I have acquired.	1	2	3	4	5
3. Being a parent is manageable, and any problems are easily solved.	1	2	3	4	5
4. I meet my own personal expectations for expertise in caring for my baby.	1	2	3	4	5
5. If anyone can find the answer to what is troubling my baby, I am the one.	1	2	3	4	5
6. Considering how long I've been a mother, I feel thoroughly familiar with the role.	1	2	3	4	5
7. I honestly believe I have all the skills necessary to be a good mother to my baby.	1	2	3	4	5

Appendix H
Social Provisions Questionnaire

Code _____

Social Provisions Questionnaire

Think about your current relationships with friends, family members, coworkers, community members, and so on. Please indicate to what extent you agree that each statement describes your current relationships with other people. For example, if you feel a statement is very true of your current relationships, you would place the number 4 in the blank next to the statement indicating that you strongly agree with the statement. If you feel a statement clearly does not describe your relationships, you would respond "strongly disagree."

(1)	(2)	(3)	(4)
Strongly Disagree	Disagree	Agree	Strongly Agree

STATEMENTCHOICE

- | | | |
|-----|---|-------|
| 1. | There are people I can depend on to help me if I really need it. | _____ |
| 2. | I feel that I do not have any close personal relationships with other people. | _____ |
| 3. | There is no one I can turn to for guidance in times of stress. | _____ |
| 4. | There are people who depend on me for help. | _____ |
| 5. | There are people who enjoy the same social activities I do. | _____ |
| 6. | Other people do not view me as competent. | _____ |
| 7. | I feel personally responsible for the well-being of another person. | _____ |
| 8. | I feel part of a group of people who share my attitudes and beliefs. | _____ |
| 9. | I do not think other people respect my skills and abilities. | _____ |
| 10. | If something went wrong, no one would come to my assistance. | _____ |

cont'd _____














































(1) (2) (3) (4)
Strongly Disagree Disagree Agree Strongly Agree

<u>STATEMENT</u>	<u>CHOICE</u>
11. I have close relationships that provide me with a sense of emotional security and well-being.	<hr/>
12. There is someone I could talk to about important decisions in my life.	<hr/>
13. I have relationships where my competence and skill are recognized.	<hr/>
14. There is no one who shares my interests and concerns.	<hr/>
15. There is no one who really relies on me for their well-being.	<hr/>
16. There is a trustworthy person I could turn to for advice if I were having problems.	<hr/>
17. I feel a strong emotional bond with at least one other person.	<hr/>
18. There is no one I can depend on for aid if I really need it.	<hr/>
19. There is no one I feel comfortable talking about problems with.	<hr/>
20. There are people who admire my talents and abilities.	<hr/>
21. I lack a feeling of intimacy with another person.	<hr/>
22. There is no one who likes to do the things I do.	<hr/>
23. There are people I can count on in an emergency.	<hr/>
24. No one needs me to care for them anymore.	<hr/>

Appendix I

Clinical Assessment of Gestational Age in the Newborn

Clinical Assessment of Gestational Age in the Newborn
Neurological Criteria

NEURO- LOGICAL SIGN	SCORE					
	0	1	2	3	4	5
POSTURE						
SQUARE WINDOW	 90°	 60°	 45°	 30°	 0°	
ANKLE DORSI-FLEXION	 90°	 75°	 45°	 20°	 0°	
ARM RECOIL	 180°	 90-180°	 <90°			
LEG RECOIL	 180°	 90-180°	 <90°			
POPLITEAL ANGLE	 180°	 160°	 130°	 110°	 90°	 <90°
HEEL TO EAR						
SCARF SIGN						
HEAD LAG						
VENTRAL SUSPENSION						

Dubowitz, L. M. S., Dubowitz, V., & Goldberg, C. (1977). Gestational age of the newborn. Menlo Park, CA: Addison-Wesley.

External Characteristics

EXTERNAL SIGN	SCORE				
	0	1	2	3	4
Edema	Obvious edema of hands and feet; pitting over tibia	No obvious edema of hands and feet; pitting over tibia	No edema		
Skin texture	Very thin, gelatinous	Thin and smooth	Smooth; medium thickness; rash or superficial peeling	Slight thickening; superficial cracking and peeling, especially on hands and feet	Thick and parchmentlike; superficial or deep cracking
Skin color (infant not crying)	Dark red	Uniformly pink	Pale pink; variable over body	Pale; only pink over ears, lips, palms, or soles	
Skin opacity (trunk)	Numerous veins and venules clearly seen, especially over abdomen	Veins and tributaries seen	A few large vessels clearly seen over abdomen	A few large vessels seen indistinctly over abdomen	No blood vessels seen
Lanugo (over back)	No lanugo	Abundant; long and thick over whole back	Hair thinning, especially over lower back	Small amount of lanugo and bald areas	At least half of back devoid of lanugo
Plantar creases	No skin creases	Faint red marks over anterior half of sole	Definite red marks over more than anterior half; indentations over less than anterior third	Indentations over more than anterior third	Definite deep indentations over more than anterior third
Nipple formation	Nipple barely visible; no areola	Nipple well defined; areola smooth and flat; diameter <0.75 cm	Areola stippled, edge not raised; diameter <0.75 cm	Areola stippled, edge raised; diameter >0.75 cm	
Breast size	No breast tissue palpable	Breast tissue on one or both sides <0.5 cm diameter	Breast tissue both sides; one or both 0.5 to 1.0 cm	Breast tissue both sides; one or both >1 cm	
Ear form	Pinna flat and shapeless, little or no incurving of edge	Incurving of part of edge of pinna	Partial incurving whole of upper pinna	Well-defined incurving whole of upper pinna	
Ear firmness	Pinna soft, easily folded, no recoil	Pinna soft, easily folded, slow recoil	Cartilage to edge of pinna, but soft in places, ready recoil	Pinna firm, cartilage to edge; instant recoil	
Genitalia					
Male	Neither testis in scrotum	At least one testis high in scrotum	At least one testis down in scrotum		
Female (with hips half abducted)	Labia majora widely separated; labia minora protruding	Labia majora almost cover labia minora	Labia majora completely cover labia minora		

Appendix J
Apgar Scale

Apgar Scale

Sign	0	1	2
Heart Rate	Absent	Slow (below 100)	Over 100
Respiratory Effort	Absent	Weak cry, hypo-ventilation	Good strong cry
Muscle tone	Limp	Some flexion of extremities	Well flexed
Reflex Response			
1. Response to catheter in nostril (tested after oro-pharynx is clear)	No Response	Grimace	Cough or sneeze
2. Tangetial foot slap	No Response	Grimace	Cry and withdrawal of foot
Color	Blue, pale	Body pink Extremities blue	Completely pink

Apgar, V., & James, L. S. (1962). Further observation of the newborn scoring system. American Journal of Diseases in Children, 104, 419-428.

Appendix K
Maternal Demographic Form

Code _____

Maternal Demographic Form

- | | | |
|--|---|-------|
| 1. Age | Actual age | _____ |
| 2. Highest grade in school | Actual number (grade
1 to 12 plus 1 for
each year of
college | _____ |
| 3. Ethnicity | Black | _____ |
| | Caucasian | _____ |
| | Mexican American | _____ |
| | Oriental | _____ |
| | American Indian | _____ |
| | Mixed-specify | _____ |
| | Other-specify | _____ |
| 4. Marital status | Married | _____ |
| | Divorced | _____ |
| | Separated | _____ |
| | Never married | _____ |
| | Living with signifi-
cant partner | _____ |
| | Widowed | _____ |
| 5. Income classification | | _____ |
| 6. Occupation prior to pregnancy
or maternity leave | | _____ |
| 7. Occupation of head of household | | _____ |
| 8. Number of living children | Actual number | _____ |
| 9. Previous cesarean section | Yes | _____ |
| | No | _____ |
| 10. Length of labor | Actual number
in hours | _____ |
| 11. Length of ruptured membranes | Actual number
in hours | _____ |

cont'd

12.	Type of delivery	Vaginal	_____
		Planned CS	_____
		Emergency CS	_____
13.	Awake for delivery	Yes	_____
		No	_____
14.	Held infant at delivery	Yes	_____
		No	_____
15.	Type of analgesic/anesthesia during labor	Yes	_____
		No	_____
	Specify _____		
16.	Complications intrapartum/postpartum	Yes	_____
		No	_____
	Specify _____		
17.	Presence of intrapartal infection	Yes	_____
		No	_____
	Specify _____		
18.	Intrapartum obstetrical interventions	Yes	_____
		No	_____
	Specify _____		
19.	Date of admission		_____
20.	Date of delivery		_____
21.	Date of discharge		_____
22.	Time of discharge		_____

Appendix L
Infant Demographic Form

Code _____

Infant Demographic Form

1.	Gender	Male _____ Female _____
2.	Birth weight	Actual weight in grams _____
3.	Gestational age	Dubowitz score _____
4.	Physical status at 1 minute of age	Apgar score _____
5.	Physical status at 5 minutes of age	Apgar score _____
6.	Intravenous infusion	Actual number of hours _____
7.	Presence of neonatal infection	Yes _____ No _____
	Specify _____	
8.	Number of days on antibiotic therapy	Actual number of days _____
9.	Number of hours before first feeding	Actual number of hours _____
10.	Discharge from hospital	With mother _____ After mother's discharge _____
11.	If not discharged with mother, Date of discharge	_____
	Time of discharge	_____

Appendix M

Frequency Distribution and Percentages of Maternal Confidence
Questionnaire by Groups

Frequency Distribution and Percentages of Maternal Confidence
Questionnaire by Groups

Variables	Experimental Group		Control Group	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Premeasurement Maternal Self-Efficacy</u>				
1. Touch baby				
Strongly disagree			1	3.3
Disagree				
Mildly Agree				
Agree	2	6.7	5	16.7
Strongly Agree	28	93.3	24	80.0
2. Look into baby's eyes				
Strongly disagree				
Disagree				
Mildly Agree			2	6.7
Agree	6	20.0	6	20.0
Strongly Agree	24	80.0	22	73.3
3. Hold baby in a comfortable position				
Strongly disagree				
Disagree				
Mildly Agree			1	3.3
Agree	3	10.0	5	16.7
Strongly Agree	27	90.0	24	80.0
4. Put nipple in baby's mouth				
Strongly disagree	1	3.3		
Disagree			1	3.3
Mildly Agree	2	6.7	3	10.0
Agree	7	23.3	8	26.7
Strongly Agree	20	66.7	18	60.0
5. Stop feeding when baby gags				
Strongly disagree	1	3.3		
Disagree				
Mildly Agree	1	3.3	2	6.7
Agree	3	10.0	3	10.0
Strongly Agree	25	83.3	25	83.3

6. Place baby on shoulder and pat on back to burp					
Strongly disagree					
Disagree					
Mildly Agree	1	3.3	1	3.3	
Agree	6	20.0	7	23.3	
Strongly Agree	23	76.7	22	73.3	
7. Support baby's head and back when burping					
Strongly disagree					
Disagree					
Mildly Agree			1	3.3	
Agree	3	10.0	2	6.7	
Strongly Agree	25	83.3	27	90.0	
8. Burp baby during and at end of feeding					
Strongly disagree					
Disagree					
Mildly Agree	1	3.3	2	6.7	
Agree	4	13.3	7	23.3	
Strongly Agree	23	76.7	20	66.7	
9. Start or stop feeding when baby cries					
Strongly disagree					
Disagree					
Mildly Agree	4	13.3	4	13.3	
Agree	11	36.7	11	36.7	
Strongly Agree	13	43.3	12	40.0	
10. Change baby's position					
Strongly disagree					
Disagree					
Mildly Agree	4	13.3	1	3.3	
Agree	6	20.0	16	53.3	
Strongly Agree	20	66.7	12	40.0	
11. Kiss, caress, hug baby					
Strongly disagree					
Disagree					
Mildly Agree	1	3.3			
Agree	2	6.7	2	6.7	
Strongly Agree	25	83.3	27	90.0	
12. Soothe baby when baby cries					
Strongly disagree					
Disagree					
Mildly Agree	2	6.7	2	6.7	
Agree	6	20.0	3	10.0	
Strongly Agree	22	73.3	25	83.3	

13. Talk to baby				
Strongly disagree				
Disagree				
Mildly Agree				
Agree	3	10.0	4	13.3
Strongly Agree	27	90.0	26	86.7
14. Quiet baby				
Strongly disagree	1	3.3		
Disagree	2	6.7	2	6.7
Mildly Agree	6	20.0	1	3.3
Agree	5	16.7	12	40.0
Strongly Agree	16	53.3	15	50.0
15. Rock baby				
Strongly disagree				
Disagree	4	13.3	2	6.7
Mildly Agree	2	6.7	2	6.7
Agree	4	13.3	7	23.3
Strongly Agree	20	66.7	19	63.3

Premeasurement Maternal Perception of Infant

1. Baby will accept changes in position				
Strongly disagree				
Disagree			2	6.7
Mildly Agree	14	46.7	9	30.0
Agree	9	30.0	14	46.7
Strongly Agree	7	23.3	5	16.7
2. Baby will look into my eyes				
Strongly disagree				
Disagree	2	6.7	3	10.0
Mildly Agree	9	30.0	7	23.3
Agree	12	40.0	9	30.0
Strongly Agree	7	23.3	11	36.7
3. Baby will be fussy				
Strongly disagree	6	20.0	2	6.7
Disagree	8	26.7	10	33.3
Mildly Agree	10	33.3	12	40.0
Agree	5	16.7	3	10.0
Strongly Agree	1	3.3	3	10.0

4. Baby will want and will continue feeding					
Strongly disagree					
Disagree	1	3.3	4	13.3	
Mildly Agree	9	30.0	8	26.7	
Agree	11	36.7	8	26.7	
Strongly Agree	9	30.0	10	33.3	
5. Baby will continue to cry in spite of several minutes of soothing					
Strongly disagree	3	10.0	2	6.7	
Disagree	7	23.3	7	23.3	
Mildly Agree	6	20.0	9	30.0	
Agree	11	36.7	11	36.7	
Strongly Agree	3	10.0	1	3.3	
6. Baby will take feeding quietly					
Strongly disagree			1	3.3	
Disagree	3	10.0	4	13.3	
Mildly Agree	9	30.0	10	33.3	
Agree	14	46.7	10	33.3	
Strongly Agree	4	13.3	5	16.7	
7. Baby will turn head, spit out nipple					
Strongly disagree	3	10.0	1	3.3	
Disagree	8	26.7	10	33.3	
Mildly Agree	11	36.7	9	30.0	
Agree	6	20.0	9	30.0	
Strongly Agree	2	6.7	1	3.3	
8. Baby will accept feeding right away, swallowing promptly					
Strongly disagree	3	10.0	1	3.3	
Disagree	1	3.3	8	26.7	
Mildly Agree	10	33.3	13	43.3	
Agree	12	40.0	6	20.0	
Strongly Agree	4	13.3	2	6.7	
9. Baby will be calmed by being picked up					
Strongly disagree					
Disagree	3	10.0	3	10.0	
Mildly Agree	9	30.0	12	40.0	
Agree	13	43.3	8	26.7	
Strongly Agree	5	16.7	7	23.3	
10. Baby will ignore my voice					
Strongly disagree			1	3.3	
Disagree	2	6.7	2	6.7	
Mildly Agree	4	13.3	1	3.3	
Agree	9	30.0	14	46.7	
Strongly Agree	14	46.7	12	40.0	

11. Baby will be content				
Strongly disagree				
Disagree	2	6.7	5	16.7
Mildly Agree	11	36.7	7	23.3
Agree	8	26.7	11	36.7
Strongly Agree	7	23.3	7	23.3
12. When baby is crying, baby will settle down when being held				
Strongly disagree	1	3.3	2	6.7
Disagree	4	13.3	2	6.7
Mildly Agree	9	30.0	11	36.7
Agree	10	33.3	8	26.7
Strongly Agree	6	20.0	7	23.3
13. Baby will be sleepy				
Strongly disagree	6	20.0	4	13.3
Disagree	10	33.3	11	36.7
Mildly Agree	12	40.0	13	43.3
Agree	2	6.7	2	6.7
Strongly Agree				
14. Baby will respond to gentle touch				
Strongly disagree			1	3.3
Disagree			1	3.3
Mildly Agree	4	13.3	3	10.0
Agree	14	46.7	11	36.7
Strongly Agree	12	40.0	14	46.7
15. Baby will fuss in spite of efforts to comfort baby				
Strongly disagree	4	13.3	3	10.0
Disagree	8	26.7	8	26.7
Mildly Agree	6	20.0	11	36.7
Agree	8	26.7	6	20.0
Strongly Agree	4	13.3	2	6.7
16. Baby will move				
Strongly disagree			1	3.3
Disagree	4	13.3	2	6.7
Mildly Agree	8	26.7	9	30.0
Agree	11	36.7	12	40.0
Strongly Agree	7	23.3	6	20.0
17. Baby will touch me				
Strongly disagree			1	3.3
Disagree			1	3.3
Mildly Agree	12	40.0	4	13.3
Agree	9	30.0	14	46.7
Strongly Agree	9	30.0	10	33.3

Postmeasurement Maternal Self-Efficacy

1. Touch baby					
Strongly disagree					
Disagree					
Mildly Agree					
Agree	1	3.3	3	3.3	
Strongly Agree	29	96.7	26	86.7	
2. Look into baby's eyes					
Strongly disagree					
Disagree					
Mildly Agree					
Agree	6	20.0	6	20.0	
Strongly Agree	24	80.0	24	80.0	
3. Hold baby in a comfortable position					
Strongly disagree					
Disagree					
Mildly Agree			1	3.3	
Agree	3	10.0	7	23.3	
Strongly Agree	27	90.0	22	73.3	
4. Put nipple in baby's mouth					
Strongly disagree	1	3.3			
Disagree					
Mildly Agree	3	10.0	1	3.3	
Agree	6	20.0	11	36.7	
Strongly Agree	20	66.7	18	60.0	
5. Stop feeding when baby gags					
Strongly disagree	1	3.3	1	3.3	
Disagree					
Mildly Agree			2	6.7	
Agree	6	20.0	3	10.0	
Strongly Agree	23	76.7	24	80.0	
6. Place baby on shoulder and pat on back to burp					
Strongly disagree					
Disagree					
Mildly Agree			1	3.3	
Agree	7	23.3	10	33.3	
Strongly Agree	23	76.7	19	63.3	

7. Support baby's head and back when burping					
Strongly disagree					
Disagree					
Mildly Agree	5	16.7	5	16.7	
Agree	25	83.3	25	83.3	
Strongly Agree					
8. Burp baby during and at end of feeding					
Strongly Disagree					
Disagree					
			1	3.3	
Mildly Agree			7	23.3	
Agree	5	16.7	22	73.3	
Strongly Agree	25	83.3			
9. Start or stop feeding when baby cries					
Strongly disagree					
	1	3.3			
Disagree					
	1	3.3	2	6.7	
Mildly Agree					
	1	3.3	1	3.3	
Agree					
	6	20.0	10	33.3	
Strongly Agree					
	21	70.0	17	56.7	
10. Change baby's position					
Strongly disagree					
Disagree					
Mildly Agree					
			1	3.3	
Agree					
	10	33.3	12	40.0	
Strongly Agree					
	20	66.7	17	56.7	
11. Kiss, caress, hug baby					
Strongly disagree					
	1	3.3			
Disagree					
Mildly Agree					
Agree					
	2	6.7	3	10.0	
Strongly Agree					
	27	90.0	27	90.0	
12. Soothe baby when baby cries					
Strongly disagree					
Disagree					
Mildly Agree					
			1	3.3	
Agree					
	7	23.3	4	13.3	
Strongly Agree					
	23	76.7	25	83.3	
13. Talk to baby					
Strongly disagree					
Disagree					
Mildly Agree					
Agree					
	2	6.7	4	13.3	
Strongly Agree					
	28	93.3	26	86.7	

14. Quiet baby				
Strongly disagree				
Disagree			1	3.3
Mildly Agree	2	6.7	4	13.3
Agree	9	30.0	7	23.3
Strongly Agree	19	63.3	18	60.0

15. Rock baby				
Strongly disagree				
Disagree				
Mildly Agree	2	6.7		
Agree	7	23.3	9	30.0
Strongly Agree	21	70.0	21	70.0

Postmeasurement Maternal Perception of Infant

1. Baby will accept changes in position				
Strongly disagree				
Disagree	1	3.3	3	10.0
Mildly Agree	1	3.3	5	16.7
Agree	15	50.0	12	40.0
Strongly Agree	13	43.3	10	33.3

2. Baby will look into my eyes				
Strongly disagree				
Disagree			2	6.7
Mildly Agree	7	23.3	5	16.7
Agree	9	30.0	9	30.0
Strongly Agree	14	46.7	14	46.7

3. Baby will be fussy				
Strongly disagree	5	16.7	5	16.7
Disagree	10	33.3	14	46.7
Mildly Agree	11	36.7	20	20.0
Agree	4	13.3	3	10.0
Strongly Agree			2	6.7

4. Baby will want and will continue feeding				
Strongly disagree				
Disagree			1	3.3
Mildly Agree	7	23.2	7	23.3
Agree	10	33.3	12	40.0
Strongly Agree	13	43.3	10	33.3

5. Baby will continue to cry in spite of several minutes of soothing
- | | | | | |
|-------------------|----|------|----|------|
| Strongly Disagree | 3 | 10.0 | 2 | 6.7 |
| Disagree | 9 | 30.0 | 12 | 40.0 |
| Mildly Agree | 5 | 16.7 | 7 | 23.3 |
| Agree | 12 | 40.0 | 6 | 20.0 |
| Strongly Agree | 1 | 3.3 | 3 | 10.0 |
6. Baby will take feeding quietly
- | | | | | |
|-------------------|----|------|----|------|
| Strongly disagree | | | | |
| Disagree | 2 | 6.7 | 5 | 16.7 |
| Mildly Agree | 10 | 33.3 | 10 | 33.3 |
| Agree | 11 | 36.7 | 5 | 16.7 |
| Strongly Agree | 6 | 20.0 | 9 | 30.0 |
7. Baby will turn head, spit out nipple
- | | | | | |
|-------------------|----|------|----|------|
| Strongly disagree | 3 | 10.0 | 3 | 10.0 |
| Disagree | 4 | 13.3 | 9 | 31.0 |
| Mildly Agree | 12 | 40.0 | 10 | 34.5 |
| Agree | 7 | 23.3 | 5 | 16.7 |
| Strongly Agree | 2 | 6.7 | 2 | 6.7 |
8. Baby will accept feeding right away, swallowing promptly
- | | | | | |
|-------------------|----|------|----|------|
| Strongly disagree | | | | |
| Disagree | 1 | 3.3 | 5 | 16.7 |
| Mildly Agree | 9 | 30.0 | 10 | 33.3 |
| Agree | 9 | 30.0 | 10 | 33.3 |
| Strongly Agree | 10 | 33.3 | 5 | 16.7 |
9. Baby will be calmed by being picked up
- | | | | | |
|-------------------|----|------|---|------|
| Strongly disagree | | | 1 | 3.3 |
| Disagree | 1 | 3.3 | 4 | 13.3 |
| Mildly Agree | 3 | 10.0 | 8 | 26.7 |
| Agree | 17 | 56.7 | 9 | 30.0 |
| Strongly Agree | 9 | 30.0 | 8 | 26.7 |
10. Baby will ignore my voice
- | | | | | |
|-------------------|----|------|----|------|
| Strongly disagree | 1 | 3.3 | 1 | 6.7 |
| Disagree | 1 | 3.3 | 4 | 13.3 |
| Mildly Agree | 1 | 3.3 | 3 | 10.0 |
| Agree | 10 | 33.3 | 10 | 33.3 |
| Strongly Agree | 16 | 53.3 | 11 | 36.7 |
11. Baby will be content
- | | | | | |
|-------------------|----|------|----|------|
| Strongly disagree | | | | |
| Disagree | 1 | 3.3 | 2 | 6.7 |
| Mildly Agree | 11 | 36.7 | 6 | 20.0 |
| Agree | 10 | 33.3 | 10 | 33.3 |
| Strongly Agree | 7 | 23.3 | 11 | 36.7 |

12. When baby is crying, baby will settle down when being held

Strongly disagree	1	3.3		
Disagree	1	3.3	2	6.7
Mildly Agree	7	23.3	9	30.0
Agree	11	36.7	10	33.3
Strongly Agree	10	33.3	9	30.0

13. Baby will be sleepy

Strongly disagree	7	23.3	6	20.0
Disagree	12	40.0	12	40.0
Mildly Agree	10	33.3	11	36.7
Agree			1	3.3
Strongly Agree				

14. Baby will respond to gentle touch

Strongly disagree				
Disagree				
Mildly Agree	1	3.3	1	3.3
Agree	9	30.0	11	36.7
Strongly Agree	5	66.7	18	60.0

15. Baby will fuss in spite of efforts to comfort baby

Strongly disagree	7	23.3	1	3.3
Disagree	6	20.0	9	30.0
Mildly Agree	7	23.3	11	36.7
Agree	10	33.3	5	16.7
Strongly Agree			4	13.3

16. Baby will move

Strongly disagree			1	3.3
Disagree	1	3.3	1	3.3
Mildly Agree	5	16.7	7	23.3
Agree	12	40.0	12	40.0
Strongly Agree	12	40.0	9	30.0

17. Baby will touch me

Strongly disagree				
Disagree			2	6.7
Mildly Agree	4	13.3	1	3.3
Agree	10	33.3	10	33.3
Strongly Agree	16	53.3	17	56.7

Appendix N
Agency Approval

The University of Texas Medical Branch at Galveston

School of Medicine
Graduate School of Biomedical Sciences
School of Allied Health Sciences
School of Nursing

Marine Biomedical Institute
Institute for the Medical Humanities
UTMB Hospitals



Office of
Sponsored Programs—Academic

September 16, 1991

M E M O R A N D U M

TO: Florence L. Crawford, R.N., M.S.N.
School of Nursing J29
clay stinson

From: E. Ray Stinson, Ph.D.
Director of Sponsored Programs-Academic

SUBJECT: OSP #OSP #89-106 - Final approval of a Revised Consent Form
"Videotaped Modeling and Maternal Influences on Perceived Maternal
Self-Efficacy"

The Institutional Review Board acknowledges receipt of your memo dated 9/5/91 and a revised consent form with clause No. 7 included. Having met the conditions set forth by the Institutional Review Board at its meeting of 8/26/91, your revised consent form is now approved. You may now proceed with your research project.

ERS:NH/lc

Attachment-Revised Consent Form

TEXAS WOMAN'S UNIVERSITY
DENTON DALLAS HOUSTON
HUMAN SUBJECTS REVIEW COMMITTEE - HOUSTON CENTER

HSRC APPROVAL FORM

Name of Investigator(s): Florence I. Crawford, Ph.D., M.S.N.

Social Security Number(s): 417-54-7995

Address: 1809 Driftwood Lane

Galveston, Texas 77531

Dear: Ms. Crawford

Your study entitled: Videotaped Modeling and Maternal Influence on Perceived
Maternal Self-efficacy

(The applicant must complete the top portion of this form)

has been reviewed by the Human Subjects Review Committee - Houston Center and it appears to meet our requirements in regard to protection of the individual's rights.

Please be reminded that both the University and the Department of Health and Human Services regulations typically require that signatures indicating informed consent be obtained from all human subjects in your study. These are to be filed with the Human Subjects Review Committee Chairman. Any exception to this requirement is noted below. Furthermore, according to HHS regulations, another review by the HSRC is required if your project changes or if it extends beyond one year from this date of approval.

Any special provisions pertaining to your study are noted below:

☐ Add to informed consent form: "I understand that the return of my questionnaire constitutes my informed consent to act as a subject in this research".

☐ The filing of signatures of subjects with the Human Subjects Review Committee is not required.

☐ Other: see attached sheet.

☒ No special provisions apply.

Sincerely,

Anne Young
Anne Young, Ed.D.
Chairperson, HSRC - Houston Center

9/6/91
Date