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I am submitting herewith a dissertation written by Florence Bright Roberts entitled "Infant Behavior and the Transition to Parenthood." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Home Economics.

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INFANT BEHAVIOR AND THE TRANSITION TO PARENTHOOD

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Florence Bright Roberts

December 1979

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No work of this nature is done alone. Appreciation is expressed to my family, who supported and encouraged my efforts, and to the professors who guided me through the educational process.

ABSTRACT

The primary purposes of this study were to consider the effects of infant behavior as a central independent variable on the transition to parenthood and to test a mini-theory describing how those infant behavior effects occurred. Sixty-four expectant couples were recruited on a voluntary basis from prenatal classes in Nashville, Tennessee, to participate in the study. Data were collected once in the last trimester of pregnancy and once when the infant was one month of age.

The mini-theory describing the infant behavior effects was comprised of two paths: (1) one path indicated that infant behavior affected role activity change, which in turn affected ease of role transition; and (2) the second path suggested that infant behavior affected parental perceptions of role competence, which in turn affected postnatal self-esteem, which in turn affected ease of role transition. Because of clinical interests of the investigator, a second dependent variable, parents' perception of the infant, was included in the mini-theory along side ease of transition to parenthood. It was proposed that parents' perceptions of the infant and ease of transition to parenthood would be positively related. Also, it was proposed that the parents' prenatal self-esteem would be positively related to their postnatal self-esteem.

It was found that infant behavior was negatively related both to ease of role transition and to parents' perceptions of their infant for both mothers and fathers. The mini-theory was supported, with the

exception that parental perceptions of role competence were not related to postnatal self-esteem. Parental perceptions of role competence were found to be directly related to ease of transition to parenthood and to parents' perception of the infant, however, and postnatal self-esteem was found to be related to the ease of transition to parenthood and to the parents' perception of the infant. It was concluded that postnatal self-esteem was an important variable to be considered in relation to the transition to parenthood, but that it should be studied further in the context of some variables other than those assessed in this study.

The study also found that fathers had an easier transition to parenthood than did mothers and that mothers experienced greater perceptions of role competence and greater role activity change. When parents were divided into occupational groups, there were significant differences in the ease of transition and in the effectiveness of the mini-theory for explaining the infant behavior effects for mothers, but not for fathers. It was concluded that differences in the transition to parenthood for mothers and fathers should receive more attention and that mothers' occupational characteristics should be investigated further. Finally, expectations of infant behavior in relation to actual infant behavior were explored. It was determined that expected/actual infant behavior discrepancies may be important in influencing ease of transition to parenthood for mothers, but probably not for fathers.

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CHAPTER I

INTRODUCTION

A. STATEMENT OF THE PROBLEM

Role transition, the movement into or out of social roles, has been studied most extensively with reference to occupational roles. Role transitions within the family have received little attention, generally, but the transition to parenthood has been the subject of a modest number of research efforts for slightly more than two decades.

The first transition to parenthood studies developed directly from studies of families in crisis and were influenced in their orientation by the crisis studies. The transition was conceptualized as a crisis, and early studies attempted to define the degree of crisis experienced. The earliest findings suggested that the majority of couples experienced "extensive or severe" crisis as they became parents. Methodological and measurement issues dominated later research, and findings were contradictory. Gradually, over time, the crisis orientation has been dropped, and the transition to parenthood is now conceptualized as a major family role transition during which various levels of stress are experienced.

In attempting to identify relevant independent variables, investigators have used a broad survey methodology. Attention has been focused on demographic and marital variables, on preparation for parenthood, and on parental reactions to behavioral changes required by the new role. Pregnancy and childbirth variables have received some

attention, and some attention has been given to the age of the child in relation to the degree of difficulty reported in role transition. Some data on infant characteristics such as health and "quietness" have been collected in the most recent studies, but no one to date has examined the behavior of the infant as a major variable related to the ease of transition to parenthood.

B. RATIONALE

The purpose of this study was to consider the effects of infant behavior, as a central independent variable, on the transition to parenthood. Dyer suggested in 1963 that characteristics of the infant may be important in determining the ease of transition. Hobbs and his associates (Hobbs, 1965; Hobbs & Cole, 1976; Hobbs & Wimbish, 1977) collected data on the maturity and health of the baby at birth, the method of feeding, and the number of hours the baby slept each day. Russell (1974) collected data relevant to the general activity level of the infant. The findings of these investigators, although somewhat inconsistent, are generally supportive of the notion that infant behavior may affect the transition to parenthood.

In addition to sociological transition to parenthood literature, there is evidence to suggest that innate and drug-related behavioral differences exist among neonates (Aleksandrowicz, 1974; Bell & Costello, 1964; Bell & Darling, 1965; Birns, 1965; Bridger & Birns, 1963; Brazelton, 1961a; Carey, 1973; Korner, 1971; Korner & Grobstein, 1966, 1967; Korner & Kramer, 1972; Korner & Thoman, 1970; Thomas & Chess, 1977).

Thus investigation of the effects of infant behavior on the transition to parenthood would appear to be a fruitful line of inquiry.

In this study, an attempt was made to move beyond the correlation of variables and to propose a theoretical framework for explaining infant behavior effects on the transition to parenthood. The task was undertaken with the hope of taking a modest first step in the direction of theory development; the mini-theory developed here is incomplete, but perhaps it will stimulate further efforts in the same direction. In line with the most recent research efforts, the "crisis" of the transition to parenthood has been reconceptualized as the relative "ease" of transition to parenthood. This change in perspective was recommended especially by Hobbs (1968) and Jacoby (1969). Because of the special clinical interests of this investigator, a clinically relevant dependent variable, the parents' perception of the infant as compared to the "average" infant, was considered along with the ease of transition to parenthood, the major dependent variable. Finally, a brief exploration of the effects of the discrepancy between expected and actual infant behavior was done because of implications for possible future research.

C. CONCEPTUAL FRAMEWORK

The transition to parenthood was conceptualized as a specific application of general role transition theory. One concept from role transition theory which was thought to be particularly relevant to explaining the effects of infant behavior defined a major variable in the study. Because role transition theory alone did not seem sufficient

to explain the impact of infant behavior, other concepts were "borrowed" from social psychology, especially from the conceptual framework of symbolic interactionism. The two frames of reference, role transition theory and symbolic interactionism, formed the basis for this study. They were synthesized to produce a mini-theory that was tested in this research.

Role Transition Theory

Wesley Burr (1973) has theorized about the ease of role transition, taking his propositions primarily from empirical research. Some role transitions have a greater impact on individuals than others. Transition to parenthood is thought to be a role transition with great impact on the individual (Burr, 1973; Rossi, 1968). Burr has identified several variables which appear to affect the ease of role transitions in general, and one of these variables, normative change, was thought to have particular importance to this study.

Normative change is defined as the alteration in prescribed and proscribed behaviors that results from role transition (Burr, 1973). In effect, normative change is change in lifestyle. Burr proposed that the greater the normative change which occurs with role transition, the less the ease in making that transition. He suggested that there is a kind of cumulative effect, with the influence being greatest as the number and social significance of normative changes increases.

Symbolic Interactionism

Symbolic interactionism adds a dimension to this study that is not explicit in role transition theory: the concepts of "symbolic meaning"

and of the "social self." According to Blumer (1969), symbolic interactionism can be summarized in three premises:

> . . . that human beings act toward things [objects] on the basis of the meanings that the things have for them.
>
> . . . that the meaning of such things is derived from, or arises out of, the social interaction that one has with one's fellows.
>
> . . . that these things are handled in, and modified through, an interpretive process used by the person in dealing with the things he encounters. (p. 2)

Blumer goes on to describe the mechanism through which a person is able to relate to the world in symbolic terms. A person develops a sense of "self" as separate from "other" through social interaction. One is able, finally, to describe his or her self, to value it and to treat it as an object with symbolic meaning just as he or she relates to objects in the external world. ("Objects" is defined broadly to include people and behavior.) The concept of self is developed by viewing oneself through the eyes of others, resulting in a composite of the perceived views of "significant others" which is a "social self." The value placed on one's self is largely dependent upon the value that others are perceived to have placed on one's self.

The assertion in this study was that infant behavior has symbolic meaning for parents. Infant crying may be interpreted in a variety of ways: as signaling a need for care, as rejection of the parent, or as willful demand, for instance. The importance of the meaning of infant behavior for transition to parenthood lies in its impact on the self concept of the parent as "parent." Just as the concept of self, in general, is a reflection of the views of self perceived to be held by

others, the concept of self in a particular role is also socially influenced. The infant was suggested here to be an important "significant other" in influencing a new parent's concept of self as parent. The parent's sense of role competence and self esteem were expected to be influenced to a great extent by the behavior of the infant because of the meaning attached to that behavior by the parent.

Mini-Theory: Infant Behavior Effects on the Transition to Parenthood

The mini-theory which formed the basis for this study was summarized in Figure I.1. A narrative summary of the relationships depicted diagramatically in the figure is presented here. A discussion of the evidence to support the theory will be presented in the survey of the literature in Chapter II.

Obligatory infant behavior and ease of transition to parenthood.

The major independent variable in the model was the amount of obligatory infant behavior as perceived by the parents. It was defined as any behavior on the part of the infant that was perceived by the parents to require their direct of indirect response. Crying is an example of behavior requiring direct parental intervention. Some behaviors require both direct and indirect parental responses. Elimination behavior, for instance, requires the parent to attend directly to the infant in changing the diaper. It also requires the parent to carry out diaper care procedures, which are indirect parental role activities. The amount of obligatory infant behavior was expected to be negatively related to ease of transition to parenthood.

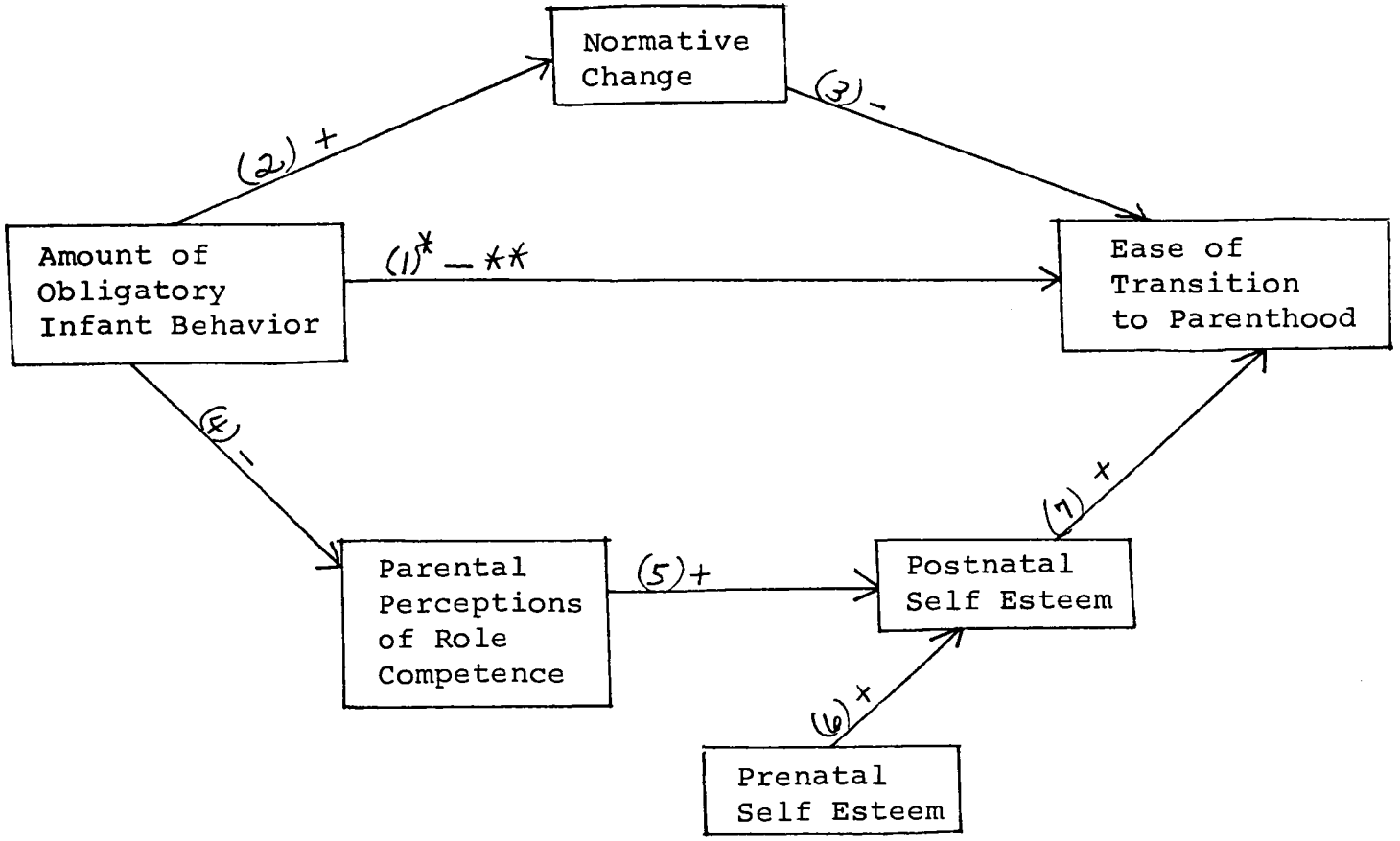


Figure I.1

Proposed Model (Initial)

*Relationships are numbered for convenience in discussion.

**Signs refer to the quality of the relationship (negative, positive).

Obligatory infant behavior and normative change. The addition of an infant to a family brings about change in the family lifestyle. Part of that change is an increase in activity related to the care of the infant. The activity, termed "parental role activity" includes both direct and indirect care, as described above. Previous patterns of behavior are altered, also. For instance, social activities typically decrease. Change in previous behavior patterns were termed here "role activity change." Normative change, the change in lifestyle, was conceptualized to include both new parental activity and role activity change. The relationship between obligatory infant behavior and normative change was expected to be a positive one.

Normative change and ease of role transition. Role transition theory suggested that the greater the normative change during a role transition, the more difficult the transition. Ease of transition to parenthood was expected to be negatively related to normative change.

Obligatory infant behavior and parental perception of role competence. Perception of role competence is one's evaluation of one's ability to fulfill a particular role. It was expected that the amount of obligatory infant behavior would be negatively related to the new parents' perception of role competence.

Perception of role competence and postnatal self-esteem. One's evaluation of his or her role competence is likely to affect overall self-esteem. It was proposed here that the new parents' perceptions of

parental role competence would be positively related to his or her level of postnatal self-esteem.

Prenatal self-esteem and postnatal self-esteem. Self-esteem is a characteristic that describes a person's feelings of self worth. It was expected that prenatal self-esteem would be positively related to postnatal self-esteem.

Postnatal self-esteem and ease of role transition. It would appear to be logical that the better one feels about oneself the more easily one can adapt to change. Therefore, it was expected that postnatal self-esteem would be positively related to ease of role transition.

Parental Perception of the Infant

Because of the clinical interests of this investigator, the parents' perception of their infant as compared to the average infant was included as a dependent variable. Previous studies of parental perceptions of their infants at one month after birth have shown relationships to diagnosable psychopathology in the child at 4-1/2 and 10 to 11 years of age (Broussard, 1976; Broussard & Hartner, 1970). It was expected that ease of transition would be positively related to parents' perception of their infants. Parental perception of the infant was added to the model as shown in Figure I.2.

Expectations of Infant Behavior

Expectant parents have ideas about infant behavior before they actually become parents. The babies, however, may not behave as the

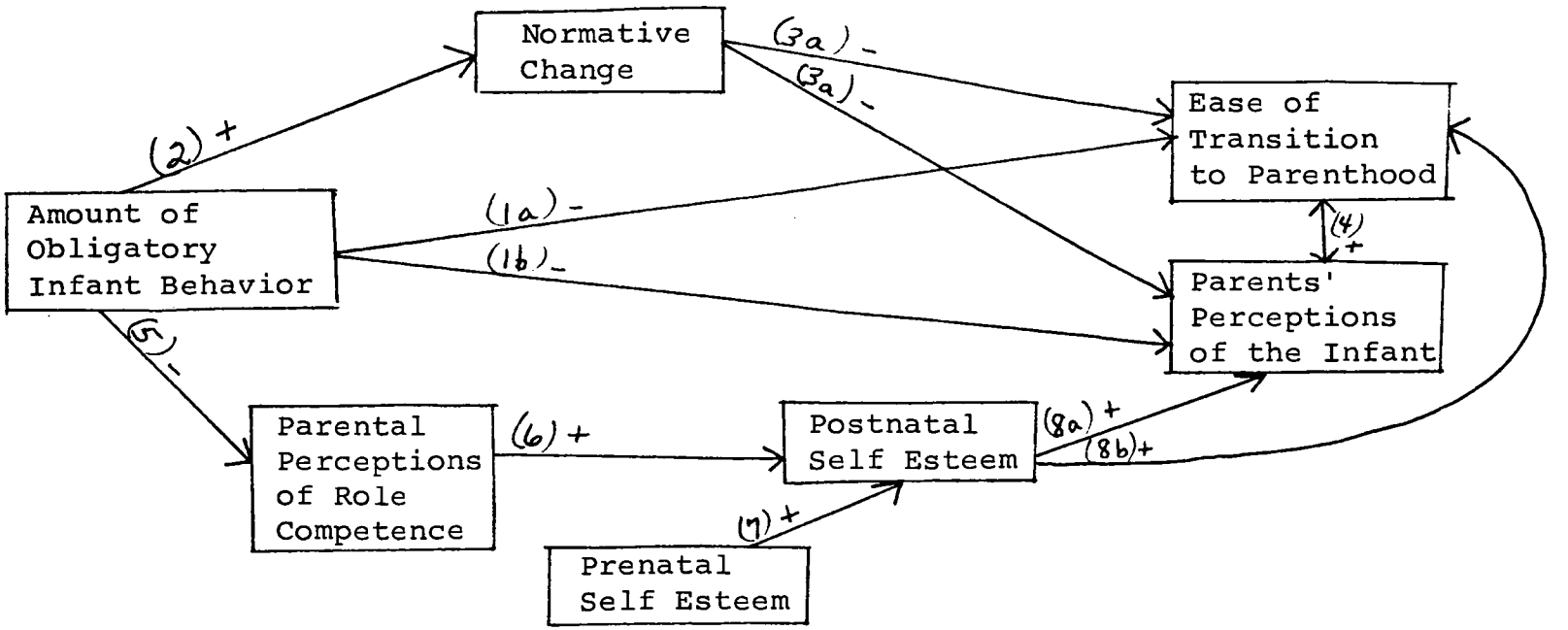


Figure I.2

Proposed Model (Complete)

parents expected they would. It was of interest to this investigator to explore the relationship of the dependent variables with the discrepancy between expected and actual infant behavior. This part of the research was considered to be exploratory in nature rather than hypothesis-testing.

D. ASSUMPTIONS

It was assumed that variations in infant behavior do occur from the time of birth and that parental reports of infant behavior would reflect those variations. It was assumed, also, that parents have expectations of infant behavior and that those expectations would be reported by parents. It was assumed that normative change, perceptions of role competence, prenatal and postnatal self-esteem, ease of role transition, and parental perceptions of the infant vary and that they could be measured.

E. OBJECTIVES

The objectives of this study were as follows:

1. To study the effects of infant behavior on the ease of transition to parenthood and parental perceptions of their infants.

2. To analyze the relationships of paired variables in the proposed model in order to begin the process of theory construction.

3. To explore the relative importance of expectations of infant behavior relative to actual infant behavior on the ease of transition to parenthood and the parents' perceptions of their infants.

CHAPTER II

REVIEW OF THE LITERATURE

Special attention in this review of the literature is given to the small body of transition to parenthood literature which stimulated this research. Following that, findings from studies of individual differences in neonates are noted. Then, the evidence available to support the mini-theory proposed in this study is presented. Finally, a brief presentation of literature relevant to the exploratory research on expectations of infant behavior is made.

A. THE TRANSITION TO PARENTHOOD

Summary and Critique of Major Retrospective Studies

LeMasters. The first study of the transition to parenthood was published in 1957 by E. E. LeMasters. This study grew out of his interest in the effects of crisis on the family, especially the work of Ruben Hill (Hill, 1949). In his study, LeMasters considered transition to parenthood to be a crisis of accession; that is, a crisis because of the addition of a member to the family. Previous crisis studies had focused on the crisis of loss of a family member. Over a period of three years LeMasters interviewed 46 couples who had had their first child within five years of the study. The degree of crisis they experienced in making the transition was measured on a 5 point scale: "(1) no crisis; (2) slight crisis; (3) moderate crisis; (4) extensive

crisis; (5) severe crisis" (p. 353). The degree of crisis experienced was determined by a joint decision of the couple with LeMasters. He found that 83% of the couples perceived their transition to parenthood to have been an extensive or severe crisis. A number of factors found to be related to the experience of crisis were enumerated. One finding of particular interest here was that the women in his sample who had professional training and extensive work experience prior to having their children (n = 8) consistently had severe levels of crisis during the transition to parenthood.

Subsequent work has not, for the most part, supported the findings of the LeMasters study, and researchers are now moving away from viewing the transition to parenthood as a crisis, but the LeMasters study initiated the topic as a subject for research. The LeMasters study has been criticized for its methodology. LeMasters obtained his subjects by asking persons in the community for names of new parents. That approach results inevitably in a skewed sample. In addition, his criteria for inclusion of couples in the sample were strongly biased toward traditional middle-class families. A more problematic part of his methodology was that the degree of crisis experienced by the couples was "arrived at jointly by the interviewer [LeMasters] and the parents" (p. 353). Since he conceptualized the experience to be a crisis experience prior to beginning the project, it would seem to be highly likely for him to have obtained high crisis scores because of unconscious bias, regardless of the care with which he conducted the interviews.

Dyer. In 1963, E. D. Dyer published a study which, while not an exact replication of LeMasters' study, was similar. The sample was chosen in the same manner, but a more objective way of measuring the degree of crisis was used. Dyer constructed a Likert-type scale for measuring the degree of crisis. In his study, the couples all had their infants within two years of the study, rather than within five years as with the LeMasters couples. Approximately half of Dyer's couples fell into the extensive and severe crisis groups. He found no relationship between the wife's previous employment and crisis scores. He did not specify, however, the type of work done by the wives, nor did he investigate their relative job satisfaction.

The same criticisms discussed in regard to LeMasters' sample selection would apply to the Dyer study. Of course, since Dyer was more or less replicating LeMasters' work, one would expect him to use similar sample selection. The use of a more objective measure of crisis was a step toward better measurement, although no reports of further development or use of the tool were found.

Hobbs. The investigator who has contributed the most research to the field is Daniel F. Hobbs. He was the first person to use a probability sample in studying the transition to parenthood, and he developed a crisis check list which he has made available to others (Hobbs, 1965). He mailed questionnaires to a 50% random sample from birth records in Greensboro, North Carolina. His return rate was 65%. Since he used birth records, he had a cross-section of education and socioeconomic levels. The infants in the study were much younger than those in the

earlier studies, with an average age of 9.8 weeks. The check list measured such items as feeling "edgy" or emotionally upset, decreased contacts with persons at work, and interruption of routine habits of sleeping, going places. Hobbs divided the possible scores into five categories to correspond with those used by LeMasters. His findings differed greatly, however, from those of LeMasters and Dyer. Hobbs found that none of the couples fell into the extensive or severe categories and that 86.8% reported only slight crisis, with 13.2% reporting moderate crisis. One particularly interesting and yet puzzling finding was that couples who had help at home after the baby came home from the hospital had higher crisis scores than those who did not have help.

In 1968, Hobbs reported a replication of his North Carolina study. In that study, done in Florida, he used 27 couples who were also chosen randomly and whose infants were less than 14 months old. He used both a check list and an interview with all subjects. He found that the interview yielded higher crisis scores than did the check list, but the scores in this study were still much lower than those obtained by LeMasters and Dyer. Data were collected on the question of help in the home and he found that those "helpers"—such as mothers, mothers-in-law, and nurses—who took over the running of the house without interfering with the care of the infant were greatly appreciated, but that those who tried to give too much advice about the care of the infant created increased stress. In that study, Hobbs concluded: "On the basis of the present investigation it would seem more accurate to view the addition

of the first child to the marriage as a period of transition which is somewhat stressful than to conceptualize beginning parenthood as a crisis experience for the majority of new parents" (p. 417).

In 1976, Hobbs and Cole reported a tenth-year replication of Hobbs' original study. They found that over 97% of the subjects scored in the mild to moderate crisis categories, a finding which is highly supportive of Hobbs' earlier work. Finally, Hobbs and Wimbish have replicated the earlier studies using all black couples (1977). In that study, the check list was administered orally in person rather than mailed. The subjects were selected from family planning and/or prenatal clinics in Atlanta because access to birth records was difficult to obtain. Approximately 73% of the couples contacted agreed to participate for a total sample of 38 couples. Four of the couples were not married but were included in the sample since they apparently were functioning as a family unit. Essentially the same percentages of couples in the moderate and slight categories were obtained as were found in the earlier Hobbs' studies. There was a statistically significant difference in mothers' and fathers' mean crisis scores, with mothers scoring higher than fathers. Hobbs and Wimbish reviewed other research with regard to differences between mothers' and fathers' experiences and concluded:

> Considering the consistency of these cited researches, it was concluded that women experienced more overall difficulty than men in adjusting to the first child. Such findings and the conclusion are not surprising since it is highly probable that women usually provide much more of a child's care, especially during infancy than do men, and this greater involvement in child care apparently makes for greater difficulty for women than men. (p. 15)

Hobbs and Wimbish went on to note, however, that recent studies of fathers have raised questions about this assumption of greater involvement of mothers in the care of their infants.

Hobbs has contributed significantly to the study of transition to parenthood through his use of a random sample and the development of a check list that has been used for several studies, making the results comparable. The greatest criticism of his studies is his assumption that the scores on the check list could be divided into categories according to possible scores and then compared with the categories used by LeMasters. Perhaps his "moderate" score really corresponded with LeMasters' "severe" score, for instance. Also, he used a mailed questionnaire without followup of nonrespondents, biasing the sample to some extent.

Jacoby. In 1969, Jacoby reviewed the transition to parenthood research and discussed conceptual problems related to that research. He argued against the crisis orientation and suggested that study be made of the parents' attitudes as a factor affecting the ease of transition. He also discussed methodological issues, especially the practice of reporting ease of transition for the couple rather than for mothers and fathers separately. He also argued for larger and more representative samples. He suggested that the socioeconomic status of the couple may be an important variable in influencing the degree of difficulty encountered in becoming parents for the first time. He argued that differences in the socioeconomic status of the samples used by LeMasters and Dyer and those used by Hobbs and his associates may account for some

of the differences in the "degree of crisis" experienced. Among the reasons he gave for these differences were that working class mothers may value having children more than the middle-class parent, that having a child interferes with career goals of middle-class mothers, and that the middle class couples have a closer relationship with each other that is interrupted by the advent of the birth of the infant.

Beauchamp. Jacoby also reported on an unpublished study by Beauchamp (1968) in which 37 married student couples were studied. Beauchamp used both an interview (18 couples) and a questionnaire (19 couples) to study the effects of the transition to parenthood. He found that essentially the same results were obtained by both methods and that the degree of crisis experienced was less than that found by LeMasters and Dyer but greater than that found by Hobbs.

Russell. In 1974, C. S. Russell did a replication and extension of Hobbs' work, using his check list as the measure of crisis in addition to using a gratification check list developed along the same lines as a measure of the satisfactions of parenthood. It was her suggestion that along with difficulty in making the transition, there are certain gratifications which previously had not been measured. She used a large random sample with mailed questionnaires for which she obtained a return rate of approximately 56% for a study sample of 286 couples. Her overall crisis scores were similar to those obtained by Hobbs in his studies. Among the respondents, she found that education level was negatively correlated with gratification scores. For the first time,

data were gathered on the activity level of the infant, and infant activity level was found to be positively correlated with crisis scores. She followed up on nonrespondents and found them to be generally younger, less well educated, and more likely to be premaritally pregnant, factors all of which have been shown in various studies to be associated with higher crisis scores.

The most significant contribution to the field by the Russell study is the inclusion of the dimension of gratification. Also, for the first time, data were collected on the activity level of the infant, which would appear to be a potentially significant factor in determining the ease or difficulty of the transition. Also, her follow-up of non-respondents may explain some of the differences in scores obtained by other investigators.

Comparative Survey of Studies

Definition of the family. The definition of the family as a small social system was used in all of these studies because of the dependence of this research on earlier family crisis research, using this definition (LeMasters, 1957). There is an interesting progression in the operational definition of the family used. LeMasters and Dyer had specific criteria for inclusion of couples in their studies:

> (1) unbroken marriage; (2) urban or suburban residence; (3) between twenty-five and thirty-five years of age; (4) husband college graduate; (5) husband's occupation middle class; (6) wife not employed after birth of first child; (7) must have had their first child within five years of the date interviewed. (LeMasters, p. 352)

Dyer's criteria were essentially the same except for the age of the infant. These samples were essentially traditional middle class couples. A significant departure from this operational definition of the family occurred with the work of Hobbs when he used a random sample (Hobbs, 1965). He excluded only those couples with multiple births and out of wedlock births, although 34% of the infants were conceived prior to the marriage of the couples. In Hobbs' latest study (Hobbs & Wimbish, 1977), four of the 38 couples were not married but were included in the study because "they apparently functioned together as a familial triad" (p. 9). Thus a much more liberal operational definition of the family has evolved.

Type of data collected. All of the studies reviewed here collected retrospective data on the state of satisfaction with the marriage prior to the birth of the infant. LeMasters also collected data on the general personality adjustment of the parents, using personal histories and ratings by friends. All of the studies considered the family's socio-economic standing, educational attainment of the parents, and other sociometric data. In addition, all the studies considered "problems" encountered in the adjustment period, such as fatigue, social isolation, work load, and so forth. These data were considered in terms of the individual parent, however, rather than in terms of the interaction of the couple. Early researchers tended to treat the infant as a "given," although Dyer (1963) and Hobbs (1965) did collect data on the health of the infant, and Hobbs (1965) collected data on feeding methods and how much time the infant slept. It was not until Russell's work (1974),

however, that the infant's activity level and its affect on the parents was considered.

Explanations for findings. LeMasters used lack of effective preparation for parenthood, romanticised views of parenthood, conflict of parental roles with other roles, previous experience and resources, and the change from a dyad to a triad as explanations for his findings. Dyer used essentially the same explanations for his findings. Hobbs, in his first study, was concerned primarily with the discrepancy between his findings and those of LeMasters and Dyer. His explanations, therefore, centered around such issues as measurement problems and the phenomenon of the "honeymoon effect," which suggests that the stress of adjusting to the infant is not recognized until sometime after the fact. In his 1968 study, he was again more concerned with methodological issues than conceptual ones. He did characterize the transition to parenthood as a period of transition that is somewhat stressful.

Only Russell mentions a conceptual framework as such in her discussion of findings. She concluded that the dyadic-triadic issue was not significant in explaining the findings. She mentioned specifically the developmental approach and developmental tasks in explaining her findings. Also, in discussing the length of marriage in relation to gratification scores, she talked about the need for time for the couple to "adjust to their marriage or to 'mature' as persons before becoming parents" (p. 300). She mentioned communication patterns as a possible common factor in recurrent findings (i.e., prenuptial conception, marital satisfaction), but she did not collect data on communication

patterns, as such. In discussing the infant's behavior, she used a symbolic-interactionist explanation: "It is likely that there is a reinforcing interchange between a parent's ideal image of a baby and the infant's objective behavior" (p. 300). However, she did not collect data to determine the parents' "ideal image" of a baby nor their responses to his/her behavior.

Summary. The transition to parenthood literature has tended to move from a crisis orientation to one of viewing the transition to be somewhat stressful for new parents, and from a strongly middle-class bias to a more general population for study. Increasingly more attention has been paid to the possible effects of infant behavior on the transition. Measurement issues, while they have not been resolved completely, appear to be less prominent in the research in the last decade. Recently, the transition to parenthood has been defined more broadly to include a perspective of gratification as well as difficulties.

Longitudinal Studies

Longitudinal studies of the transition to parenthood have focused their attention on the effects of the transition on marriage satisfaction. Meyerowitz and Feldman (1966) did the first longitudinal study. Four hundred couples were studied over a 10-month period along with 100 matching control couples (50 nuliparous and 50 multiparous). The couples were interviewed once during pregnancy and twice after delivery, at one month and five months. The major focus of the study was the relationship between the husband and wife and their general marital

satisfaction. They found a general increase in marriage satisfaction from the first through the last data collection. The Meyerowitz and Feldman study was psychoanalytically oriented, and they paid attention to intrapsychic variables. Of interest here, they speculated that husbands experience an increase in self-esteem at the time of confirmation of the pregnancy, but that wives do not because for them pregnancy signifies a threat. On the other hand, wives may experience an increase in self-esteem after delivery, having accomplished motherhood, whereas husbands do not, perhaps because they do not experience the same "rites of passage" (the labor and delivery experience). Although the findings of Meyerowitz and Feldman were not directly comparable to those of the other studies cited here, their conclusion was that the transition to parenthood should be viewed as a "significant transitional point in the maturation of the marital relationship—transition from the dyadic state to a more mature and rewarding triadic system" (p. 84).

Ryder (1973) reported on a later longitudinal study. Data were analyzed for 112 couples from a larger study (n = 2,000). The couples completed questionnaires related to marriage satisfaction and the extent of love and attention received from the spouse at four to five months after marriage. The same questionnaires were repeated one to two years later. The couples were divided into two groups according to their status on the first data collection (pregnant, nonpregnant) and into three groups according to their status on the second data collection (childless, pregnant, having a child). The t-test was used to determine significant differences between groups. The only significant difference

found was that wives with children reported that their husbands did not pay enough attention to them.

The longitudinal studies focused on the transition to parenthood as an independent rather than a dependent variable. They found that the transition to parenthood resulted in some changes in marriage satisfaction, but that "crisis" did not result.

B. INDIVIDUAL DIFFERENCES IN NEONATES

A selected, rather than extensive, review of literature concerned with individual differences is presented here. Several investigators have reported individual differences in the general behavior of neonates. Korner (1971) summarized her findings from several previous studies (Korner, 1969, 1970; Korner & Grobstein, 1966, 1967; Korner & Thoman, 1970). She and her associates have found significant differences among neonates with reference to both the frequency of crying and with its duration. The neonates differed also with regard to how readily they were soothed and how long they remained quiet after soothing. The babies differed in how much spontaneous oral activity they exhibited, the extent to which they attempted self-comforting through hand-mouth contact, and the extent to which they succeeded in this effort. Korner and her associates have demonstrated, also, that it is possible to classify infants according to their thresholds for auditory and visual stimuli. Birns (1965) and Bridger and Birns (1963) have reported work that supports many of these specific behavioral findings of Korner and her associates.

Korner (1971) also reported correlations among characteristics of infants that result in distinguishable styles of behavior responses to overstimulation. For instance, babies who tend to inhibit motor responses to stimuli are more likely to attend visually to stimuli and to respond with slight movement. Other infants, more prone to motor responses, are likely to use the visual modality much less frequently and to respond to stimuli with gross motor activity. The existence of identifiable patterns of responses has been validated by the work of Thomas and Chess (1977) and by Carey (1973).

In addition to general differences indicated above, some differences have been reported between male and female infants. Bell and Costello (1964) reported greater responsiveness among girls to tactile stimulation. Males have been observed by Korner (1969) to exhibit significantly more startles than females; females were observed to exhibit more reflex smiling and mouthing. Korner and Kraemer (1972) reported no gender-related differences in skill or level of hand-to-mouth activity, but they did find gender-related differences in style of hand-to-mouth activity. Girls were more mouth-dominated (the mouth opened before the hand reached it, and the infant's head strained forward to meet the hand) than boys. Findings from Korner (1969) and Bell and Darling (1965) suggest that male infants may have greater physical strength or muscular vigor at birth. Tanner (1974) stated that on the basis of electroencephalogram findings in his study, girls are probably more mature neurologically at birth than boys. Along the same lines, Wolff (1966) found boys to have a higher rate of spontaneous startle responses, and Moss (1967) found that male

infants were significantly more irritable at three weeks of age than female infants. Several studies cited by Moss indicated that, in general, boys' physiological reactions are less well organized than those of girls in the newborn period.

In addition to innate differences among neonates, several investigators have demonstrated behavioral differences related to drug usage by mothers during labor and delivery. Aleksandrowicz (1974) reported findings of an earlier study (Aleksandrowicz, 1973) in which he used the Brazelton Assessment Scale for Infants to evaluate infant behavior through the first month of life. He concluded:

> All drugs, that is, general anesthetics, narcotics, tranquilizers, barbiturates, and muscle relaxants affected the different behaviors—decreased "Alertness," decreased "Habituation," decreased "Orientation Responsiveness" to visual and auditory stimuli. Pain-relieving drugs, particularly narcotics and narcotic potentiators and general anesthetics, lowered the "consolability" scores (i.e., the infant required more intervention in order to quiet him down) and increased their "Irritability." (Aleksandrowicz, 1974, p. 136)

In addition, the Aleksandrowicz (1974) review of the literature cited medication effects found by other investigators: (a) delays in the establishment of effective sucking (Brazelton, 1961a; Kron, Stein, & Goddard, 1966); (b) decreased reflex smiling (Emde & Koening, 1969a, 1969b); (c) decreased attentiveness to visual stimuli (Stechler, 1964).

Evidence has been presented to suggest that individual differences do exist among neonates, and that the differences are present from the time of birth. Lamb (1977) reviewed literature that suggested that differences in neonate behavior affect the responses of the parents and the early parent-child relationship. Such behaviors as gaze patterns,

gross movements, and changes in facial expression indicate different stages of attentiveness to the parent. When the infant's attentiveness is low, parents typically either try to capture the infant's attention or they divert their attention to something or someone else. There is a definite reciprocity to the interaction of infants and their parents. Lamb reported findings also that indicated that infants attempt to elicit attention from adults by verbalizing and crying. He also reported studies that found that fathers as well as mothers were significant social interactors with infants.

C. PARENTS' PERCEPTIONS OF THEIR INFANTS

Broussard and Hartner (1970) reported a longitudinal study using the Neonatal Perception Inventory (NPI) as a predictive instrument. The NPI is a brief index that asks the parent to rate the infant on six behavioral items as compared to the "average" baby. The NPI was administered to 328 mothers at two to three days after delivery and again at one month after delivery. On the basis of scores on the NPI, mothers were assigned to high and low risk groups. (Mothers who failed to see their infants as better than average were considered to be high risk.) When the children were 4-1/2 years of age, psychiatric evaluations of the children were done by the principal investigator and the co-investigator, who were blind to the risk status of the mothers. Of the original study group, 155 were located. Of these, 148 agreed to participate in the follow-up study. On the basis of the psychiatric evaluation, the children were divided into four groups. Group I ($n = 34$)

was children who had a degree of psychopathology that warranted intervention. Group II (n = 51) was healthy children. Group III (n = 28) was children in need of further clinical study in order to establish a diagnosis. Group IV (n = 7) was children with diagnoses related to physical disabilities or some known crisis event that could have influenced their evaluations. A Chi Square test was done to determine if there was an association between the risk rating at one month and the need for intervention ($\chi^2 = 16.43$, $p < .001$). Of the 34 children in Group I (in need of intervention), 70.6% had been rated high risk at one month. Of the children in Group II (healthy), 76.5% had been rated low risk at one month. Analyzed from a different perspective, two-thirds of the children rated at high risk at one month were considered in need of intervention at 4-1/2 years of age, whereas only 20% of the children rated as low risk were considered to be in need of intervention. There was no association between either the risk ratings or the classification according to the need for intervention with the type of delivery, religion of the parents, age of the mother, occupation of the father, prenatal or postnatal complications, or the sex of the infant. The above findings were still true of a sample of the children reevaluated at the ages of 10 or 11 years (Broussard, 1976).

D. MINI-THEORY: INFANT BEHAVIOR EFFECTS ON THE TRANSITION TO PARENTHOOD, PARENTS' PERCEPTIONS OF THE INFANT

The following review of literature will consider evidence to support each of the paired relationships presented in the model shown in Figure 1.2, page 10. Following that, there will be presented a summary

of evidence supporting the model as a whole. For convenience in discussing the model, the relationship between the two dependent variables is addressed first, even though it is not the most important relationship.

Relationship 4: Ease of Transition to Parenthood and Parental Perception of the Infant

According to Bullmer (1975), "perceptual distortion may result when a perceiver feels threatened and feels the need to defend his perceptual organization" (p. 28). The perceptions of others are responded to both cognitively and affectively, and it has been found that the degree of emotional involvement with the perceived person influences the way he or she is perceived (Warr & Knapper, 1968). Shereshefsky and Yarrow (1973) reported that reactions of mothers after childbirth varied from easy adaptation to difficult adjustment and that this adjustment was related to the presence of hostility toward the infant. One would expect that hostility toward an infant would decrease the degree of positive perception of the infant, and that ease of role transition would be associated with increased positive perception of the infant. It is not possible to determine the direction of the relationship between ease of transition and perception of the infant, therefore the direction was not predicted.

Proposition 4: Ease of role transition is related to parental perceptions of the infant, and this is a positive relationship.

Relationship 1: Obligatory Infant Behavior and the Ease of Transition to Parenthood, Parental Perceptions of the Infant

Obligatory infant behavior has been defined as infant behavior that is perceived by the parents to require intervention. Such behaviors as

crying and elimination of wastes are examples. The intervention may be direct, such as picking up the infant or singing to him or her, or indirect, such as washing diapers or preparing formula. Russell (1974) found that the activity level of the infant was positively correlated with crisis scores. No studies of factors affecting the NPI scores has been done. Because parental perception of the infant is thought to be positively related to the ease of role transition, however, it seems logical to expect that the amount of obligatory infant behavior will be negatively related to NPI scores.

Proposition 1: The amount of obligatory infant behavior influences the ease of the transition to parenthood and parental perceptions of the infant, and this is a negative relationship.

Relationship 2: Obligatory Infant Behavior and Normative Change

Normative change is change in lifestyle imposed by new roles (Burr, 1973). Several investigators have found increased workloads at home to be associated with the birth of the first infant (Dyer, 1963; Hobbs, 1965; LeMasters, 1957; Rossi, 1968). Other investigators have demonstrated differences among neonates in irritability and soothability (Bridger & Birns, 1963; Korner & Grobstein, 1966, 1967; Korner & Thoman, 1970). Rhinegold (1969) has suggested that parents find crying to be a noxious stimulus and that they spend a large proportion of their time trying to quiet a crying infant.

Besides the addition of activities directly or indirectly related to the care of the infant, other changes in lifestyle occur when a baby

is added to the family. The mother typically stops working outside the home, at least for a while, and social activities tend to decrease. LeMasters (1957), Dyer (1963), and Hobbs (1965) all reported that the transition to parenthood resulted in decreased social contacts. All of the mothers in the LeMasters and Dyer studies who had worked prior to having their babies stopped working for at least a year after the infant arrived.

Proposition 2: The amount of obligatory infant behavior influences the amount of normative change, and this is a positive relationship.

Relationship 3: Normative Change and Ease of Transition to Parenthood

According to Burr (1973), there is an inverse relationship between the amount of normative change required by taking on a new role and the ease of transition into that role. According to Askham (1976), one condition which is necessary for a person to have a sense of stability is "habitualization," a condition in which frequent decision-making and readjustments are not necessary. The findings of the major researchers in the transition to parenthood clearly indicate that such a condition does not exist when an infant is first introduced into a family. They further indicate that the lack of habitualization is a result of changes that occurred with the introduction of the infant, not a persistence of a foregoing state of affairs. These findings tend to lend support to Burr's proposition. In addition, LeMasters found that all of the mothers in his study who had been active in professional careers before

becoming mothers (n = 8) experienced "extensive" or "severe" crisis. (None of these mothers returned to work after the birth of the infant.) Jacoby (1969) suggested that middle-class couples experienced a greater degree of difficulty in parenthood role transition than working-class couples because they are expected by group norms to adapt more completely to the needs of the infant (as opposed to expecting the infant to adapt to them). It would seem likely that greater adaptation to the infant's needs would result in more normative change. As stated earlier, the parents' perception of the infant is thought to be positively related to the ease of role transition.

Proposition 3: The amount of normative change influences the ease of transition to parenthood, and parental perceptions of the infant, and this is a negative relationship.

Relationship 5: Obligatory Infant Behavior and Parental Perceptions of Role Competence

Parents' perceptions of their own competence in fulfilling the parental role are based on their subjective evaluations of how well they are performing the tasks and duties they think parents ought to perform. Adams (1963) found:

> . . . quite early mothers see the behavior of their infants as evidence of their skill (or lack of skill) in infant care. . . . A prime assumption on the part of many mothers seemed to be that if their babies cried there had to be a good reason, and part of being a good mother was knowing the reason and providing what was needed. (pp. 76-77)

Hansen and Arandine (1974) have indicated that a theme underlying new mothers' questions about care of their babies and the mothers' expectations of health personnel is a concern about their own adequacy

as mothers. According to Simpkins (1972, as reported in Gibaud-Wallston, 1977), inability to resolve uncertainty about one's performance in a new role increases the stress experienced.

The findings of individual differences reported earlier in this literature review may have particular relevance for this proposition. Reflex smiling, for instance, is often interpreted by mothers as indicating infant approval or satisfaction with care (Korner, 1967; Robson & Moss, 1970). Thus the individual differences reported earlier with regard to smiling would be expected to affect the parents' perception of role competence. High levels of irritability and low soothability, on the other hand, are likely to be interpreted by parents as indication of poor parenting. Brazelton (1961b) and Prechtl (1963) both cited clinical examples of mothers who were unable to soothe their infants. The mothers concluded that it was their own incompetence in the mothering role, rather than the innate characteristics of the infants that was responsible for their inability to quiet the infants. However, all of the irritable infants were observed by others to be unusually difficult to care for, and some had organic impairments, suggesting that the mothering difficulties were related to characteristics of the infants more than the caretaking skills of the mothers. According to Fein (1976) and Shereshefsky and Yarrow (1973), caring for an irritable infant makes especially difficult the development of a sense of parental competence.

There is some evidence that fathers react to their infants similarly to the ways mothers react (Greenberg & Morris, 1974; Parke &

Sawin, 1976), particularly in response to reflexes and in levels of involvement in care. There is also some evidence, however, that fathers are affected to a lesser degree by the infant's responses to child care than the mothers (Hobbs & Wimbish, 1977; Gibaud-Wallston, 1977). The quality and direction of the effects would be expected to be the same for both mothers and fathers, however.

Proposition 5: The amount of obligatory infant behavior influences parental perception of role competence, and this is a negative relationship.

Relationship 6: Perceptions of Role Competence and Postnatal Self-Esteem

Self-esteem is defined as the subjective value one places on oneself. According to Coleman and Broen (1972), one's self-esteem ". . . receives continual nourishment from the development of new competencies and from achievement in areas deemed important. . . . [and from] the esteem of significant others" (p. 108). Gibaud-Wallston (1977) suggested:

> New parents are commonly beset by many factors shown to constitute threats to self-esteem: real or imagined inadequacies in knowledge and skill levels, loss of ability to perform at previous levels, unrealistic standards of performance derived from inappropriate reference groups, ambiguity of performance feedback on novel tasks, perception of negative task performance feedback, and inadequate emotional support or negative personal feedback from significant others (Gibaud-Wallston, 1976). To the extent that these threats are experienced, the couple may be expected to experience low self-esteem, especially in their parent roles. (p. 4)

Brazelton (1961b) cited an example of an infant whose inability to respond to the mother's care demoralized and depressed the mother.

Robson and Moss (1970) and Prechtl (1963) cited examples of the demoralizing effects on mothers of the irritable behavior of brain-damaged infants. Clark and Affonso (1976) stressed the importance of the infant's reactions to the mother's care in affecting the mother's feelings of competence and self-esteem. Thus it seems likely that a parent's sense of competence is indeed related to his or her self-esteem.

Proposition 6: Parental perceptions of their parental role competence influences their postnatal self-esteem, and this is a positive relationship.

Relationship 7: Prenatal Self-Esteem and Postnatal Self-Esteem

According to Coleman and Broen (1972), self-esteem is closely associated with self-identity which is quite stable over time. Thus, one would expect self-esteem in one situation to be positively related to self-esteem generally.

Proposition 7: Prenatal self-esteem influences postnatal self-esteem, and this is a positive relationship.

Relationship 8: Postnatal Self-Esteem and Ease of Transition to Parenthood, Parents' Perception of the Infant

According to Gibaud-Wallston (1977):

> The person's appraisal of a situation and of his or her ability to meet its demands—which determines whether the person will experience a state of crisis (Lazarus, 1967)—is equivalent to the process of self-evaluation, a process resulting in the person's level of situational self-esteem (Gibaud-Wallston, 1976). Thus a low level of situational self-esteem may well be a determinant of the crisis state, rather than one of its effects. . . . (p. 1)

None of the major sociological investigators of the transition to parenthood has collected data on self-esteem. Taking the general concept of stress from a different line of research, there are some data that may be supportive of Gibaud-Wallston's assertion quoted above. The particular measure of stress used in one study (Nuckolls, Cassell, & Kaplan, 1972) is physical illness, specifically complications of pregnancy. The study related life-change scores (Holmes & Rahe, 1967) and psychosocial assets of 170 white married primiparas to the development of complications of pregnancy. A part of the psychosocial assets measured was ". . . the subject's feelings or perceptions of herself . . ." (p. 433), an indicator that would seem comparable to self-esteem. It was found that among women with the highest life-change scores, 90.9% of the women with low psychosocial asset scores had some complication of pregnancy, whereas in the same group of women with the highest life-change scores, only 33.3% of the women with high psychosocial asset scores experienced complications of pregnancy. Although the Nuckolls et al. study deals with prepregnancy-related life-change and pregnancy outcomes rather than with transition to parenthood life-change and transition outcomes, one could logically expect the same general effects to hold for the transition to parenthood.

Proposition 8: Postpartum self-esteem is related to ease of transition to parenthood and parental perceptions of the infant, and this is a positive relationship.

E. DATA SUPPORTING THIS RESEARCH APPROACH

The data supporting this particular approach to the problem of the transition to parenthood are scattered and sparse. LeMasters' (1957)

finding that all the women who had professional careers and had "given them up" to stay home and care for their infants experienced high levels of crisis is supportive of the idea that normative change is related to difficulty in making the transition. Russell's (1974) finding that educational level was inversely related to gratification scores might be seen as slight evidence for that idea also. Russell's finding that couples with quieter babies experienced less difficulty in the transition is evidence for both the overall study of infant behavior as a major variable and for normative change as an important intervening variable. Russell's comment about the ideal image of the infant which the parents hold, quoted earlier, is support for the symbolic interactionism approach used here. Gibaud-Wallston's (1977) findings in regard to parent role competence is fairly strong evidence that the second path of the model suggested here is appropriate. The strongest evidence for the appropriateness of the double path in the proposed model comes from the Nuckolls et al. (1972) study which suggests that stress is related to the interaction of life-change (a variable comparable to normative change) and psychosocial assets (one of which was comparable to self-esteem). They found, in fact, that neither life stress nor psychosocial assets alone correlated significantly with stress but that when the two were taken together, apparently significant findings resulted (no probability values were reported). Thus one would expect the combination of pathways of the proposed model leading to normative change and self-esteem as intervening variables between infant behavior and ease of transition to parenthood to be more relevant than either alone.

Obviously, many combinations of variables might be studied in relation to the transition to parenthood, but evidence suggests that infant behavior in relation to normative change and self-esteem may be especially important.

F. EXPECTATIONS OF INFANT BEHAVIOR

It is possible that the influence of infant behavior on perceptions of role competence is a direct one; however, it seems more likely that the effects are modified by the parent's prenatal expectations of infant behavior. That is, it is anticipated that those parents who expect high levels of obligatory infant behavior would experience a less negative reaction to high levels of such behavior than parents who expect low levels of obligatory infant behavior. That parents are generally naive about infant behavior has been demonstrated in several studies. LeMasters (1957) concluded that the parents in his study "almost completely romanticized parenthood" (p. 353). He quoted one of the mothers, "We knew where babies came from, but we didn't know what they were like" (p. 353; emphasis in the original). Adams (1963), in her study of primiparous mothers, concluded, "On the whole respondents had little information about infant care" (p. 73). Several early intervention programs have been initiated because professionals have observed a general lack of parent information about infants and their care (Johnson, Kayne, & Mittleider, 1977; Stranik & Hogberg, 1979; Zinner & Hertzman, 1978).

According to symbolic interactionism (Blumer, 1969), "in most situations in which people act toward one another they have in advance a

firm understanding of how to act and how other people will act" (p. 17). It was anticipated that new parents do form expectations about infant behavior and that failure of infants to meet their expectations would result in varying degrees of discomfort. Cognitive dissonance theory suggests that discrepancies between expectations and reality result in a condition of discomfort (Festinger, 1957). According to cognitive dissonance theory, the discomfort experienced is related to the strength of the expectations (Aronson, 1973) and perception of personal responsibility for the discrepancy (Wicklund & Brehm, 1976). Thus, a parent of a fussy baby who expects an infant to sleep a large portion of the day and not to cry very much and who perceives him/herself to be responsible for the irritability would be expected to experience a great deal of discomfort. On the other hand, a parent of the same baby who believes that all babies cry a lot and sleep relatively little and who does not perceive himself or herself to be responsible for the infant's irritability would be expected to be more comfortable in the situation. According to Gibaud-Wallston (1977), "the disillusionment occasioned when the baby is not as fantasized may accentuate the crisis . . ." (p. 13).

Gibaud-Wallston (1977) studied the relationship between parents' perceptions of their babies and their perceptions of competence in their roles as parents. She reached the following conclusions:

> The results of this study indicate that parents do differ in the degree to which they feel competent as parents . . . that new parents perceiving their baby as relatively easy to take care of experience more overall sense of competence as parents and more satisfaction in the role than those perceiving their baby as more difficult to manage. (p. 66)

It was anticipated that the discrepancy between expected and actual infant behavior would be related to the ease of role transition, the parents' perception of the infant, and the parents' perception of role competence. In addition, it was anticipated that parents who experienced less disruptive behavior than they expected would have an easier role transition, a more positive perception of their infant, and more positive perceptions of role competence than parents who experienced more disruptive behavior than they expected.

CHAPTER III

METHODS

A. HYPOTHESES

The hypotheses for this study were as follows:

1. The amount of obligatory infant behavior will be negatively related to ease of role transition and to the parents' perception of the infant.

2. The amount of obligatory infant behavior will be positively related to the amount of normative change.

3. The amount of normative change will be negatively related to ease of role transition and to the parents' perception of the infant.

4. The ease of role transition will be positively related to the parents' perception of the infant.

5. The amount of obligatory infant behavior will be negatively related to parental perception of role competence.

6. Parental perceptions of role competence will be positively related to postnatal self-esteem.

7. Prenatal self-esteem will be positively related to postnatal self-esteem.

8. Postnatal self-esteem will be positively related to ease of transition and to parents' perception of the infant.

B. DESIGN

Some expectant parents were contacted personally by the investigator through hospital-based expectant parents' classes. Other parents were contacted through Lamaze instructors, who invited couples in their classes to participate in the study. A group of persons interested in promoting home deliveries was also contacted for subjects.

Data packets were distributed to the couples prenatally to be returned to the investigator by mail. The subjects were also provided with a postcard to be mailed to the investigator soon after birth of the infant to notify the investigator of the date of birth. Postnatal questionnaire data were mailed to the couples late in the third week after delivery to be completed when the infant was four weeks old. These data were collected by one of two research assistants who made home visits for that purpose and to conduct a brief structured interview with the new mothers about their labor and delivery experiences.

C. SAMPLE

A total of 120 data packets were distributed to interested couples from hospital-based and Lamaze classes, with the instruction that if they wished to participate in the study, they were to sign the consent forms, complete the packet and return it to the investigator by mail. If they decided not to participate in the study, they were asked to return the data packet so that it could be used by someone else. (Stamped, self-addressed envelopes were included with each packet.) Seventy-nine couples completed and returned the first set of data. Of the 79 couples who

completed the first set of data, 73 returned postcards indicating the birth dates of their infants. No follow-up was done for the six couples who did not return their postcards. Further losses from the sample occurred because of the following reasons: (1) one card was received in the sixth week after delivery (too late for the home visit to be made), (2) four couples could not be contacted for the home visit, (3) six couples who were hard to contact or who lived outside Davidson County received the entire second data collection by mail and two failed to return the mailed data, (4) one baby was born too late to be included in the sample, and (5) one couple had twins and was eliminated from the group for data analysis. The remaining 64 couples comprised the sample. Of this group, 16 were from Lamaze classes, one was obtained through the home delivery group, and 47 were obtained through the general hospital prenatal classes. The sample was a totally voluntary sample. The criteria for inclusion were that the baby be the first for both parents, that the parents be living together, and that both parents participate in the study.

D. MEASUREMENT

The independent variables in the study were (1) the amount of obligatory infant behavior expected, (2) prenatal self-esteem, (3) the amount of obligatory infant behavior experienced, (4) the amount of normative change, (5) parental perceptions of role competence, and (6) postnatal self-esteem. The two dependent variables were (1) ease of transition to parenthood and (2) the parents' perception of their infant as compared with their perception of the "average" infant.

The amount of obligatory infant behavior expected was measured by the Expected Infant Behavior Check List which was a 14-item index measuring infant behaviors on a 4-point scale. It was scored so that the most disruptive and least satisfying behaviors received the highest scores (see Appendix A). Reliability coefficients for all of the indexes were computed in the data analysis. Prenatal self-esteem was measured by the Self-Esteem Scale (Rosenberg, 1965), as published in Robinson and Shaver (1972). It is a brief general self-esteem scale developed originally for use with adolescents but recommended for use with adults also (Robinson & Shaver, 1972). Test-retest reliability was reported to be .85 (Robinson & Shaver). The scale was scored on a 6-point basis, as described in Robinson and Shaver. Items 1, 2 and 3 were combined to form Stem I. Items 4 and 5 were combined to form Stem II. Item 6 was Stem III, item 7 was Stem IV, item 8 was Stem V, and items 9 and 10 were combined to form Stem VI. Each Stem was scored either 0 or 1, depending on whether it was considered to be positive or negative for self-esteem. The six Stem items were totaled for the self-esteem score. (See Appendix B for the scale.)

The amount of obligatory infant behavior experienced was measured by an index identical to the Expected Infant Behavior Check List except for the instructions (see Appendix C). Normative change was measured by a composite of two indexes describing parental role activities and role activity change. The items were scored so that the most demanding parental role activities and the greatest change in routines received the highest scores (see Appendix D). Parental perceptions of role competence were measured on an index consisting of six items describing the parents'

perceptions of their ability to perform common parenting tasks and their ability to comfort their child when crying. The index was scored so that perceptions of excellent ability received the highest score (see Appendix E). Postnatal self-esteem was measured on the same scale as the prenatal self-esteem.

East of transition to parenthood was measured on a 23-item index, slightly modified from Hobbs' Crisis Check List (Hobbs, 1965). The scoring descriptors were changed to ease or difficulty of transition rather than "degree of bother." Items were scored from 1 to 5 with the highest scores indicating the greatest ease. Items could also be answered "not applicable," which received a 0 score. The total score for the index was determined by adding all of the answered items and dividing by the number of answered items, so that all scores ranged from 1 to 5. The parents' perception of the infant was measured by the Neonatal Perception Inventory (NPI) developed by Broussard (Broussard & Hartner, 1970). The instrument consisted of two 5 × 8 cards on which six items of infant behavior were presented (see Appendix G). The items were scored from 1 to 5 on the basis of difficulty the baby has with the behaviors, a score of 5 being given to the greatest level of difficulty. One card was titled the "Average Baby"; the other one was "Your Baby." The parents were asked to rate the average baby, based on their conception of the average baby, and then to rate their own infant on the same set of behaviors. The NPI score was obtained by subtracting the "Your Baby" scores from the "Average Baby" scores.

E. PROCEDURES

Contact was made with instructors of prenatal classes offered at two local hospitals and permission was obtained for the investigator to visit the classes to explain the study and to invite couples to participate. The study was explained orally and the rights of the subjects were explained. Packets of materials, including an explanatory letter (see Appendix H), a consent form (Appendix I), a questionnaire to obtain demographic data (Appendix J), the Expected Infant Behavior Check List, and the prenatal self-esteem scale were given to all couples who requested them. Subjects were recruited from October, 1978 through May, 1979. The data collection process ran through the month of June, 1979.

As completed data packets were received by the investigator, the consent forms were separated from the data and the data were given identification numbers. The names of the subjects were recorded in a data notebook for purposes of tracking them through the study. Certificates suitable for use in baby books were sent to all parents who returned first data, as an expression of appreciation and as a means of encouraging their continued participation in the study (see Appendix K). Included in the prenatal data packet was a stamped, self-addressed postcard for the couples to return to notify the investigator of the birth of the infant. When the postcards were received, the date was noted and a schedule was established for mailing the second questionnaire and for making the home visit. The home visit was made for the purpose of collecting the questionnaire data and to conduct a brief interview with the mother about the labor and delivery experience and the condition

of the infant at birth (see Appendix L). It was thought that the interview about labor and delivery experiences might yield some important variables not measured by the indexes.

The materials mailed to the couples for completion included the NPI for fathers, and for both mother and father, the Role Transition Check List, the Actual Infant Behavior Check List, the Normative Change Indexes, the Parental Perceptions of Role Competence Index, and the Self-Esteem Scale. The NPI and the interview were administered to the mothers at the time of the home visit. (Dr. Broussard's protocol called for the NPI to be administered in person to the mothers, but she had approved mailing it to fathers. Later she agreed that it could be mailed to mothers, also (Broussard, 1979)).

Home visits were made during the fifth or sixth week after delivery by the investigator or by one of two research assistants who were trained by the investigator to administer the NPI and the interview. The mothers were contacted by telephone before the home visit so that the visit could be made at the mother's convenience. In all but one case, the mailed data were ready to be picked up at the time of the home visit. In that one instance, a stamped, self-addressed envelope was left with the mother and the data were returned to the investigator by mail within a few days.

The procedures were the same for couples enrolled in Lamaze classes and the couples associated with the home delivery group, except that the study was explained to the teachers of the classes and leaders of the home delivery group and they contacted the couples. The couples' names

and addresses were given to the investigator who mailed the prenatal data to them.

F. DATA REDUCTION AND TRANSFORMATION

Each item was scored according to prearranged criteria as described above, and a code sheet was prepared for punching onto computer cards. Reliability coefficients were calculated for each of the indexes. Summation scores were obtained from the items in the indexes as described above.

G. ANALYSIS PROCEDURES

Frequencies, means, and standard deviations were computed for all of the items, including demographic and labor and delivery data. Pearson's correlation coefficients were computed for each of the paired relationships in the mini-theory. Difference of the means tests (t-tests) were computed to compare the mothers and fathers as separate groups. Hierarchical multiple regression analysis with a limited number of variables was used to evaluate the relative importance of the independent variables for accounting for the variance in the dependent variables. (See Appendix M for the rationale for this approach.) Mothers and fathers were divided into groups according to several variables: occupational classification, actual infant behavior, high and low self-esteem, labor and delivery variables, and the discrepancy between expected and actual infant behavior in order to explore further the impact of these variables on the model. Pearson correlations and t-tests were used to analyze the subgroup data.

CHAPTER IV

RESULTS AND DISCUSSION

A. RELIABILITY OF INDEXES

Alpha reliability coefficients indicating item-total correlation were computed for all of the indexes used in the study. The results are summarized in Tables IV.1 to IV.11. One index, Parental Role Activity, had a poor reliability coefficient. Scrutiny of the index resulted in the judgment that the Parental Role Activity index was poorly constructed and could not be changed to improve its reliability. Therefore it was eliminated from the study.

B. PRIMARY FINDINGS

Sample Characteristics

The mothers' average age was 25.598 with a range from 18 to 34 years. The mothers and fathers were classified according to occupation (professional-technical, nonprofessional-technical, and nonworking) according to the Robinson, Athanasiou, and Head (1969) index. Twenty-two of the mothers were employed in professional, technical and managerial occupations, designated here as "professional"; 21 were employed in nonprofessional-technical-managerial occupations, designated here as "nonprofessional"—clerical and sales occupations (n = 17), service occupations (n = 3), miscellaneous occupations (n = 1); and 21 of the mothers classified themselves as housewives. All of the mothers except

TABLE IV.1

ALPHA RELIABILITY COEFFICIENTS FOR INDEXES

Index	Reliability Coefficients	
	Mothers	Fathers
Expected Infant Behavior	.70312	.72040
Prenatal Self-Esteem	.78140	.71146
Role Transition Check List	.75533	.78480
Actual Infant Check List	.68504	.59513
Parental Role Activity	.21257	.42776
Perceptions of Role Competence	.85959	.77511
Role Activity Change	.70157	.73748
Postnatal Self-Esteem	.67806	.65227

TABLE IV.2

RELIABILITY: EXPECTED INFANT BEHAVIOR

	Item	Item/Total Correlation Mothers	Fathers
1.	Sleep (predictability)	.434	.428
2.	Eat	.383	.639
3.	Length of Feedings (consistency)	.296	.394
4.	Cry	.216	.432
5.	Quieted from Crying	.397	.408
6.	Predictability about Quieting	.479	.453
7.	Wet Diapers	.391	.328
8.	Dirty Diapers	.341	.337
9.	Spit Up	.303	.380
10.	Smile	.309	.232
11.	Eye Contact	.238	.255
12.	Sleep (how long)	.176	-.049
13.	Awaken at Night	.413	.479
14.	Feedings (how long)	.095	.074
	Overall Alpha	.7031	.7204

TABLE IV.3

RELIABILITY: PRENATAL SELF-ESTEEM

	Item	Item/Total Correlation Mothers	Fathers
1.	Person of Worth	***	.254
2.	Good Qualities	.477	.254
3.	Failure	.477	.254
4.	Do as Well as Others	.641	.254
5.	Proud of Self	.152	***
6.	Positive Attitude	.689	.470
7.	Satisfied with Self	.554	.485
8.	Wish More Respect	.548	.407
9.	Feel Useless	.499	.590
10.	Think I'm No Good	.564	.632
	Overall Alpha	.781	.711

***Item has 0 variance.

TABLE IV.4

RELIABILITY: ROLE TRANSITION CHECK LIST

	Item	Item/Total Correlation Mothers	Fathers
1.	Attention to Baby	.396	.311
2.	Inlaws	.455	.203
3.	Wife's Appearance	.296	.340
4.	Less Time with Friends	.309	.187
5.	Changes in Routines	.168	.111
6.	Little Affection	.314	.491
7.	Increased Work Load	.135	.013
8.	Negative Feelings	.367	.350
9.	Housekeeping Standards	.137	.479
10.	Sexual Responses (self)	.404	.402
11.	Feelings of Distance	.422	.511
12.	Sleep Difficulties	.387	.448
13.	Changes in Career	.219	.482
14.	Sexual Responses (partner)	.508	.430
15.	Irregularity of Meals	.301	.419
16.	Sharing Spouse with Baby	.383	.224
17.	Increased Costs	.194	.176
18.	Decreased Time for Self	.152	.302
19.	Wife's Figure	.317	.259
20.	Uncertainty about Self	.130	.307
21.	Fatigue	.143	.264
22.	Employment of Wife	.269	.156
23.	Irritability (self)	.319	.485
	Overall Alpha	.755	.785

TABLE IV.5

RELIABILITY: ACTUAL INFANT BEHAVIOR

Item	Item/Total Correlation	
	Mothers	Fathers
1. Sleep (predictability)	.593	.476
2. Eat	.468	.367
3. Length of Feedings (consistency)	.422	.468
4. Cry	.123	.291
5. Quiet from Crying	.357	.143
6. Predictability about Quieting	.410	.318
7. Wet Diapers	.083	.075
8. Dirty Diapers	.195	.009
9. Spit Up	.161	.208
10. Smile	.193	.190
11. Eye Contact	.361	.107
12. Sleep (how long)	.191	.142
13. Awaken at Night	.452	.320
14. Feedings (how long)	.149	.289
Overall Alpha	.685	.595

TABLE IV.6

RELIABILITY: PARENTAL ROLE ACTIVITY

Item	Item/Total Correlation Mothers	Fathers
1. Times Up at Night	.117	.413
2. Hours Sleep in 24	.146	.176
3. Times per Week Wash	.089	.209
4. Hours Feeding and Preparing to Feed	.104	.356
Overall Alpha	.213	.428

TABLE IV.7

RELIABILITY: ROLE COMPETENCE

Item	Item/Total Correlation Mothers	Fathers
1. Diapering	.698	.553
2. Dressing	.790	.635
3. Feeding	.616	.441
4. Bathing	.676	.523
5. Identifying Needs	.591	.540
6. Comforting	.568	.459
Overall Alpha	.860	.775

TABLE IV.8

RELIABILITY: ROLE ACTIVITY CHANGE

Item	Item/Total Correlation	
	Mothers	Fathers
1. Going to Friend's Homes	.480	.548
2. Parties	.304	.343
3. Having Friends Over	.377	.490
4. Talking with Friends on Phone	.362	.326
5. Going Out with Spouse	.559	.340
6. Talking with Spouse	.142	.453
7. Time for Self	.436	.431
8. Time to Do Things for Fun	.260	.422
9. Amount of Work	.465	.417
Overall Alpha	.702	.737

TABLE IV.9

RELIABILITY: POSTNATAL SELF-ESTEEM

	Item	Item/Total Correlation Mothers	Fathers
1.	Person of Worth	***	***
2.	Good Qualities	***	-.094
3.	Failure	.371	.554
4.	Do as Well as Others	.336	.554
5.	Proud of Self	-.091	.107
6.	Positive Attitude	.579	.407
7.	Satisfied with Self	.543	.315
8.	Wish More Respect	.464	.467
9.	Feel Useless	.415	.476
10.	Think I'm No Good	.395	.350
	Overall Alpha	.678	.652

***Item has 0 variance.

TABLE IV.10

RELIABILITY: AVERAGE BABY*

Item	Item/Total Correlation	
	Mothers	Fathers
1. Crying	.214	.335
2. Feeding	.404	.534
3. Spitting Up	.112	.356
4. Sleeping	.504	.378
5. Elimination	.291	.174
6. Predictability	.185	.484
Overall Alpha	.538	.645

*Part of NPI

TABLE IV.11

RELIABILITY: YOUR BABY*

Item	Item/Total Correlation	
	Mothers	Fathers
1. Crying	.463	.333
2. Feeding	.172	.292
3. Spitting Up	.079	.051
4. Sleeping	.521	.566
5. Elimination	.111	.122
6. Predictability	.337	.398
Overall Alpha	.514	.540

*Part of NPI

one had completed high school, 22 had baccalaureate degrees and five had completed graduate studies. In addition, 17 of the mothers had some college work but no degree, and seven had completed some graduate study. The annual incomes for the mothers and fathers were classified by $3,000 increments. Annual incomes for mothers ranged from class 1 (0 to $3,000) to class 12 (more than $33,000). Discrepancies in answers to questions regarding employment status and income made further analyses of mothers' incomes not likely to be accurate. The couples had been married at the time of the first data collection (the last trimester of pregnancy) from five to 124 months with an average of 44.14 months.

The fathers' average age was 27.98 years with a range from 21 to 43 years. Thirty-six of the fathers were employed in professional-technical-managerial ("professional") occupations; 23 were employes in nonprofessional-technical-managerial("nonprofessional") occupations—clerical and sales occupations—(n = 15), service occupations (n = 1), farming, fishery, forestry and related occupations (n = 1), processing occupations (n = 1), machines trades occupations (n = 1), bench work occupations (n = 1), structural work occupations (n = 1), and miscellaneous occupations (n = 2); five were fulltime students and not employed. All of the fathers had completed high school, 24 had baccalaureate degrees, and five had graduate degrees. In addition, 17 had some college work but no degree, and 10 had completed some graduate study. The fathers' incomes ranged from class 1 (0 to $3,000) to class 10 ($27,001 to $30,000). The average classification was 5.667, putting the average income in the $12,001 to $15,000 range.

Parents from the two types of prenatal classes (Hospital prenatal, Lamaze) were compared for differences in study variables proposed in the model and according to age, education, income, and length of marriage (Table IV.12). Mothers in the Lamaze classes had significantly higher prenatal self-esteem scores ($p < .030$), and fathers in the Lamaze classes had significantly greater educational attainment ($p < .001$). No other significant differences between the two groups were found.

Revised Model

The proposed model was revised, removing the variable "Parental Role Activity." The revised model is shown in Figure IV.1. The model hypotheses were revised to correspond to the revised model.

Hypothesized Findings

Hypothesis 1: The amount of obligatory infant behavior will be negatively related to ease of role transition and to the parents' perceptions of the infant.

Subgroup: mothers. The amount of obligatory infant behavior was measured by the Actual Infant Behavior Check List (AIB). Ease of role transition was measured by the Role Transition Check List (EASE). The parents' perception of the infant was measured by the Neonatal Perception Inventory (NPI). The AIB scores for the mothers ranged from 18 to 42 with a mean of 29.25. Scores on the EASE ranged from 2.50 to 4.84 with a mean of 3.62. Scores on the NPI ranged from -4 to +9 with a mean of 2.34. The Pearson correlation coefficient for AIB scores with EASE scores was -.32 ($p < .004$). The Pearson correlation coefficient for

TABLE IV.12

LAMAZE, NONLAMAZE CLASSES COMPARED USING t-TEST

Variable	Groups	Means	t-Value	DF	2-Tailed Probability
MOTHERS					
Education	NonLamaze	13.42	-1.92	62	.060
	Lamaze	14.06			
Prenatal Self-Esteem	NonLamaze	5.29	-2.22	61	.030
	Lamaze	5.75			
FATHERS					
Education	NonLamaze	13.60	-3.56	62	.001
	Lamaze	14.69			
Prenatal Self-Esteem	NonLamaze	5.33	.07	62	.945
	Lamaze	5.31			

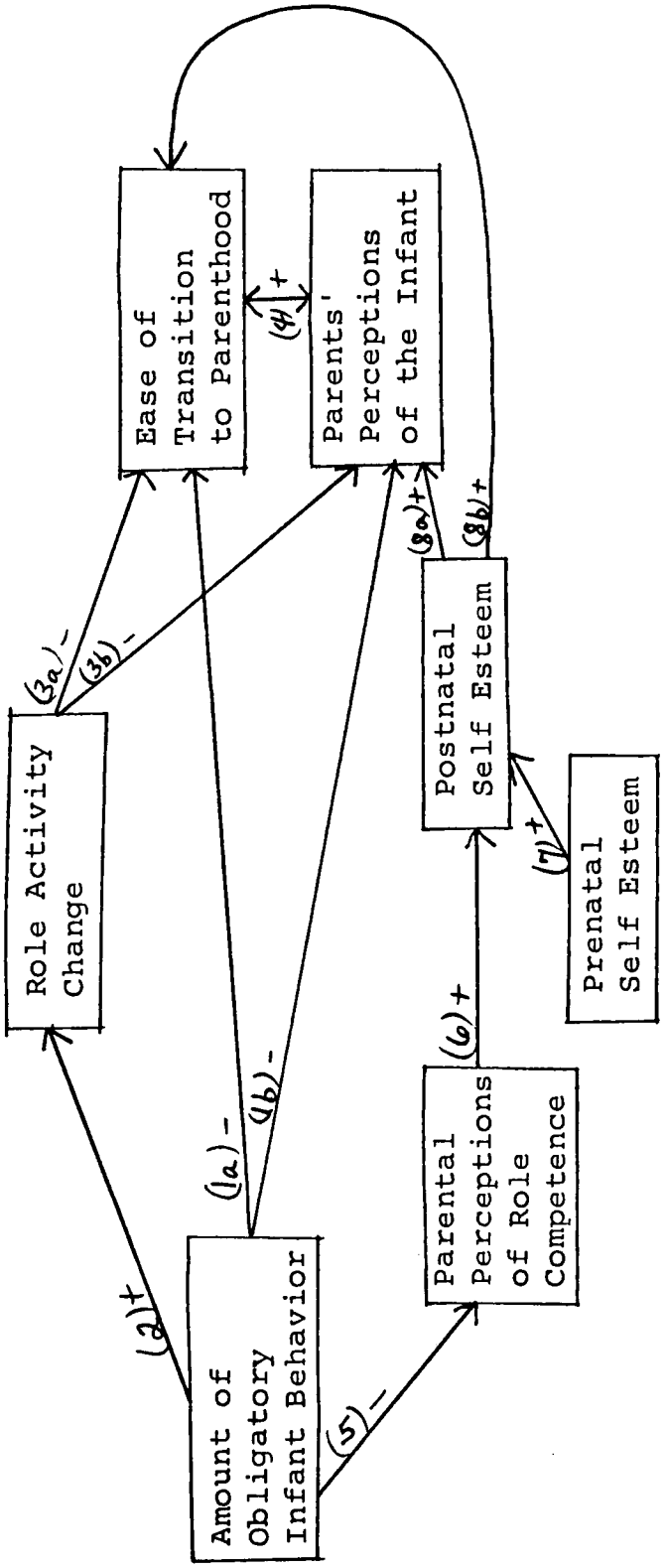


Figure IV.1

Proposed Model (Revised)

AIB scores with NPI scores was -.30 ($p < .007$). The hypothesis was accepted for ease of role transition and for the mother's perception of the infant. The greater the obligatory infant behavior, the lower the ease of transition to parenthood and the less positive the mother's perception of the infant.

Subgroup: fathers. The AIB scores for the fathers ranged from 18 to 40 with a mean of 31.17. Scores on the EASE ranged from 2.44 to 5.0 with a mean of 4.13. The NPI scores ranged from -5 to +12 with a mean of 2.45. The Pearson correlation coefficient for AIB scores with EASE scores was -.39 ($p < .001$). The Pearson correlation coefficient for AIB scores with NPI scores was -.27 ($p < .015$). The hypothesis was accepted for ease of role transition and for the father's perception of the infant. The greater the obligatory infant behavior, the lower the ease of transition to parenthood and the less positive the father's perception of the infant.

Hypothesis 2: The amount of obligatory infant behavior will be positively related to the amount of role activity change.

Subgroup: mothers. The amount of role activity change was measured by the Role Activity Change index (RAC). Scores on the RAC index ranged from 10 to 27 with a mean of 18.25. The Pearson correlation coefficient for AIB scores with RAC scores was +.35 ($p < .002$). The hypothesis was accepted for mothers. The greater the obligatory infant behavior, the higher the role activity change.

Subgroup: fathers. Scores on the RAC ranged from 10 to 24 with a mean of 15.79. The Pearson correlation coefficient for AIB scores with RAC scores was +.54 ($p < .001$). The hypothesis was accepted for fathers, also. The greater the obligatory infant behavior, the greater the role activity change.

Hypothesis 3: The amount of role activity change will be negatively related to ease of role transition and to the parents' perception of the infant.

Subgroup: mothers. The Pearson correlation for RAC scores with EASE scores was -.49 ($p < .001$). The Pearson correlation coefficient for RAC scores with NPI scores was -.22 ($p < .035$). The hypothesis was accepted for ease of role transition and for the mother's perception of the infant. The greater the role activity change, the less the ease of role transition and the less positive the mother's perception of the infant.

Subgroup: fathers. The Pearson correlation for RAC scores with EASE scores was -.45 ($p < .001$). The Pearson correlation coefficient for RAC scores with NPI scores was +.08, which was not significant. Therefore, the hypothesis was accepted for ease of role transition, but rejected for perception of the infant. The greater the role activity change, the less the ease of role transition. Role activity change, however, did not appear to influence the father's perception of the infant.

Hypothesis 4: The ease of role transition will be positively related to the parents' perceptions of the infant.

Subgroup: mothers. The Pearson correlation coefficient for EASE scores with NPI scores was .34 ($p < .002$). The hypothesis was accepted for mothers. The greater the ease of role transition, the more positive the mother's perception of the infant.

Subgroup: fathers. The Pearson correlation coefficient for EASE scores with NPI scores was .12, which was not significant. The hypothesis was rejected for fathers. The ease of role transition was not related to the father's perception of the infant.

Hypothesis 5: The amount of obligatory infant behavior will be negatively related to parental perceptions of role competence.

Subgroup: mothers. Parental perception of role competence was measured on the Role Competence index (RLCMP). Scores on the RLCMP ranged from 13 to 30 with a mean of 22.95. The Pearson correlation coefficient for AIB scores with RLCMP scores was -.27 ($p < .014$). The hypothesis was accepted for mothers. The greater the obligatory infant behavior, the lower the mother's perceptions of role competence.

Subgroup: fathers. Scores on the RLCMP ranged from 7 to 30 with a mean of 20.22. The Pearson correlation coefficient for AIB scores with RLCMP scores was -.38 ($p < .001$). The hypothesis was accepted for fathers, also. The greater the obligatory infant behavior, the lower the father's perceptions of role competence.

Hypothesis 6: Parental perceptions of role competence will be positively related to postnatal self-esteem.

Subgroup: mothers. Postnatal self-esteem scores (POSE) ranged from 3 to 6 with an average of 5.42. The Pearson correlation coefficient for RLCMP scores with POSE scores was .14, which was not significant. The hypothesis was rejected. There was no relationship between perceptions of role competence and postnatal self-esteem for mothers.

Subgroup: fathers. Postnatal self-esteem scores (POSE) ranged from 3 to 6 with an average of 5.40. The Pearson correlation coefficient for RLCMP scores with POSE scores was .15, which was not significant. The hypothesis was rejected. There was no relationship between perceptions of role competence and postnatal self-esteem for fathers, either.

Hypothesis 7: Prenatal self-esteem will be positively related to postnatal self-esteem.

Subgroup: mothers. Prenatal self-esteem (PESE) scores ranged from 1 to 6 with an average of 5.40. The Pearson correlation coefficient for prenatal and postnatal self-esteem was .90 ($p < .001$). The hypothesis was accepted for mothers. The higher the prenatal self-esteem, the higher the postnatal self-esteem.

Subgroup: fathers. Prenatal self-esteem (PESE) scores ranged from 2 to 6 with an average of 5.32. The Pearson correlation coefficient for prenatal and postnatal self-esteem was .92 ($p < .001$). The hypothesis was accepted for fathers. The higher the prenatal self-esteem, the higher the postnatal self-esteem.

Hypothesis 8: Postnatal self-esteem will be positively related to ease of role transition and to parents' perception of the infant.

Subgroup: mothers. The Pearson correlation coefficient for POSC scores with EASE scores was +.36 ($p < .001$). The Pearson correlation coefficient for postnatal self-esteem (POSE) scores with NPI scores was .25 ($p < .021$). The hypothesis was accepted in both parts for mothers. The higher the postnatal self-esteem, the greater the ease of transition to parenthood, and the more positive the mother's perception of the infant.

Subgroup: fathers. The Pearson correlation coefficient for POSC scores with EASE scores was .53 ($p < .001$). The Pearson correlation coefficient for POSC scores with NPI scores was -.10, which was not significant. The hypothesis was accepted for ease of role transition but rejected for perception of the infant. The higher the postnatal self-esteem, the greater the ease of role transition for fathers. The father's perception of the infant was not affected by postnatal self-esteem.

C. SECONDARY FINDINGS

Differences of the Means

In addition to analyzing the data to test the proposed hypotheses, difference of the means tests for all of the variables in the model were computed using the Student t-test to compare mothers and fathers (see Table IV.13). It was found that fathers had significantly higher ease

TABLE IV.13

COMPARISON OF MOTHERS WITH FATHERS USING t-TEST

Variable		Mean	t-Value	DF	2-Tailed Probability
EASE	Mothers	3.63	-6.03	63	.000
	Fathers	4.14			
NPI	Mothers	2.34	- .32	63	.751
	Fathers	2.45			
EIB	Mothers	31.34	-2.50	63	.015
	Fathers	33.33			
RAC	Mothers	18.26	4.82	63	.000
	Fathers	15.80			
RLCMP	Mothers	22.95	4.05	63	.000
	Fathers	20.22			
PESE	Mothers	5.41	.44	63	.661
	Fathers	5.33			
POSE	Mothers	5.42	.10	63	.921
	Fathers	5.41			
AIB	Mothers	29.25	-3.14	63	.003
	Fathers	31.17			

of transition scores ($p < .000$). They also had higher Expected Infant Behavior scores ($p < .015$) and higher Actual Infant Behavior scores ($p < .003$). Mothers experienced higher perceptions of role competence ($p < .001$) and higher role activity change ($p < .000$). Prenatal and postnatal self-esteem scores were not significantly different from each other for either mothers or fathers.

Regression Analyses

A series of regression analyses using three independent variables for each analysis and a hierarchical approach with temporal ordering of the independent variables was run (see Appendix M for the rationale for this approach). The purpose of the analyses was to determine which of the independent variables in the model accounted for the greatest variation in the dependent variables. Occupational classification, length of marriage, and education were included as independent variables in some of the analyses to determine their role in explaining the variation in the dependent variables. Thirteen different combinations of variables were used in order to test as many productive combinations as possible. For a summary of the variables included in the analyses and the most important variable in each analysis, see Table IV.14. The model variables consistently accounted for greater variance in EASE scores than in NPI scores for both mothers and fathers. The greatest amount of variance in EASE scores explained for mothers was 42.9% explained by actual infant behavior, postnatal self-esteem, and role activity change. The greatest amount of variance in EASE scores explained for fathers was 45.0% explained by the same three variables.

TABLE IV.14

REGRESSION ANALYSES SHOWING THE MOST IMPORTANT VARIABLE IN EACH OF A SERIES OF VARIABLE SETS

	Most Important Variable			
	Mom		Dad	
Variables Included	EASE	NPI	EASE	NPI
Occ, AIB, RLCMP	AIB	AIB	AIB	AIB
Occ, AIB, RAC	RAC	AIB	AIB	AIB
EIB, AIB, RAC	RAC	AIB	EIB	AIB
EIB, AIB, RLCMP	AIB	AIB	EIB	AIB
PESE, AIB, RLCMP	AIB	AIB	PESE	RLCMP
PESE, AIB, RAC	RAC	AIB	PESE	AIB
PESE, AIB, POSE	AIB	AIB	PESE	AIB
Length Marriage, AIB, RLCMP	AIB	AIB	AIB	AIB
Length Marriage, AIB, RAC	RAC	AIB	AIB	AIB
AIB, POSE RLCMP	POSE	AIB	POSE	AIB
Occ, Ed, AIB	AIB	AIB	AIB	AIB
AIB, POSE, RAC	RAC	AIB	POSE	AIB
AIB, RLCMP, RAC	RAC	AIB	AIB	AIB

AIB = Actual Infant Behavior

Ed = Education

EIB = Expectations of Infant Behavior

Occ = Occupation

PESE = Prenatal Self-Esteem

POSE = Postnatal Self-Esteem

RAC = Role Activity Change

RLCMP = Perceptions of Role Competence

EASE = Ease of Transition to Parenthood

NPI = Parental Perceptions of the Infant

The greatest amount of variance in NPI scores explained for mothers was 17.8% explained by actual infant behavior, postnatal self-esteem, and perceptions of role competence. The greatest amount of variance in NPI scores explained for fathers was 20.2% explained by prenatal self-esteem, actual infant behavior, and perceptions of role competence.

The model variables were consistently the most important in explaining variance in EASE scores for both mothers and fathers. For mothers, role activity change (with prenatal self-esteem and actual infant behavior controlled) explained the greatest amount of variance (20.4%). Postnatal self-esteem (with actual infant behavior controlled) was second in importance (12.0%), and actual infant behavior (with prenatal self-esteem controlled) was third in importance (10.6%). For fathers, prenatal self-esteem (with no other variables controlled) explained the most variance (26.6%). Postnatal self-esteem (with actual infant behavior controlled) was second in importance (25.1%), and actual infant behavior (with length of marriage controlled) was third (17.0%).

The model variables also were consistently the most important variables for explaining variance in NPI scores for both mothers and fathers. Actual infant behavior (with length of marriage controlled) explained 9.4% of the variation in NPI scores for mothers and (with prenatal self-esteem controlled) explained 7.8% of the variance in NPI scores for fathers. The second most important variable for mothers was postnatal self-esteem with actual infant behavior controlled (5.5%). Third was prenatal self-esteem with no other variables controlled (5.1%). For fathers, perceptions of role competence (with prenatal self-esteem

and actual infant behavior controlled) explained 8.5% of the variance in NPI scores. For fathers, the third most important variable in explaining NPI scores was role activity change with length of marriage and actual infant behavior controlled (7.1%).

Empirical Models

As a means of summarizing the findings with regard to the hypotheses, empirical models were constructed for the mothers and fathers separately, depicting the variables in the proposed model but connecting them only when the relationships were statistically significant.

Subgroup: mothers. Of the proposed relationships, the only direct relationship that was not significant for mothers was the relationship between perceptions of role competence and postnatal self-esteem. All significant relationships were in the direction hypothesized.

There was one nonhypothesized correlation that was significant for both mothers and fathers. Perceptions of role competence were positively related to ease of role transition and to NPI scores. This finding would allow for closure of the lower path of the proposed model, and it would be defensible on conceptual and theoretical grounds. See Figure IV.2 for the empirical model.

Subgroup: fathers. For fathers, NPI scores were not significantly related to role activity change, postnatal self-esteem, or to ease of role transition, and postnatal self-esteem was not significantly related to perceptions of role competence. All other proposed relationships were significant, however, and in the direction hypothesized.

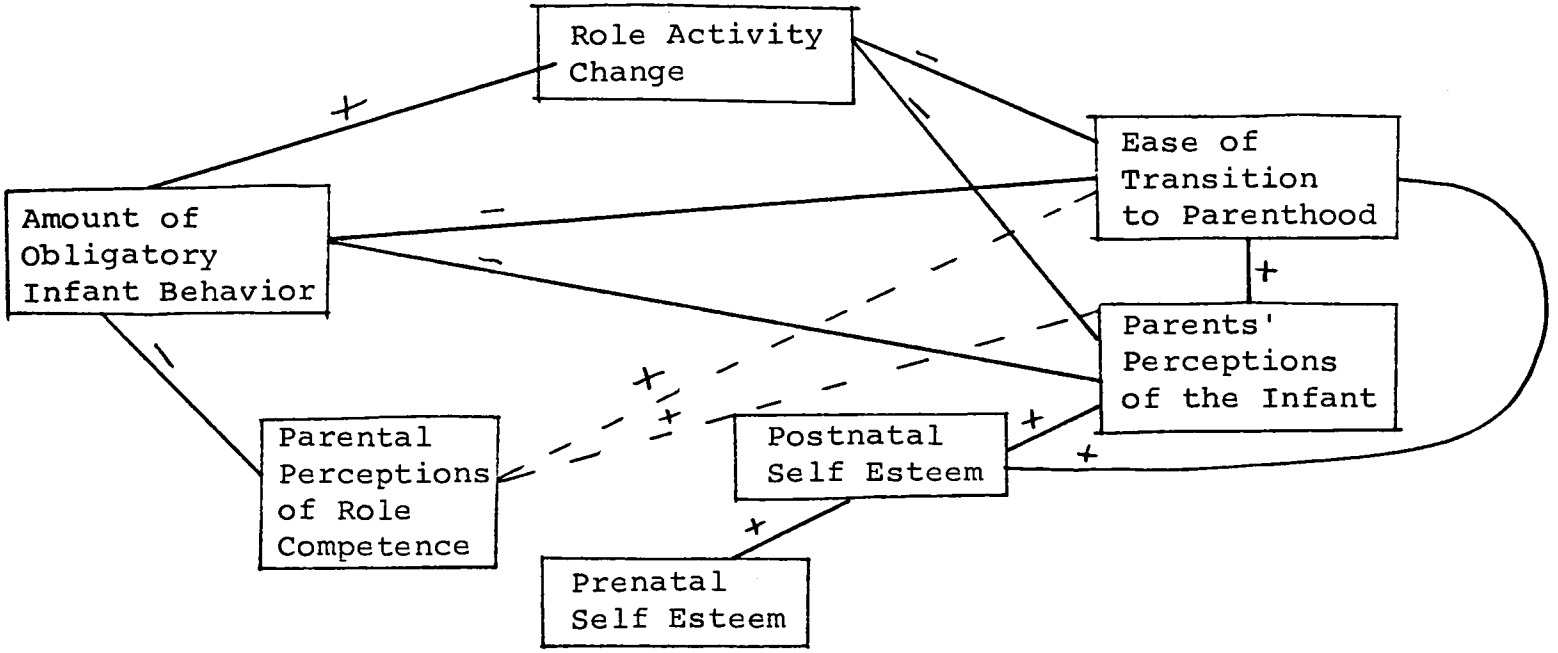


Figure IV.2

Empirical Model: Mothers, Total Group (n = 64)

----- = Nonhypothesized significant relationship.

Perceptions of role competence were positively related to the dependent variables (see Figure IV.3).

C. DISCUSSION OF PRIMARY AND SECONDARY FINDINGS

For the most part, the proposed mini-theory was supported. The only direct relationship proposed in relation to the dependent variables that was not supported for either mothers or fathers was the relationship between perceptions of role competence and postnatal self-esteem. All other proposed relationships were supported for either mothers or fathers, and most were supported for both. Note should be made that fathers both expected more obligatory infant behavior than mothers and had greater ease of role transition. It may be that finding the babies easier to care for than they expected them to be made the role transition easier for the fathers. The finding that fathers had greater ease of role transition was not surprising. Hobbs and Wimbish (1977) reported similar findings. They also concluded that mothers were probably still the primary caretakers for the infants. That mothers in this study experienced significantly greater role activity change and increased perceptions of role competence is probably related to their greater involvement in the care of the infants.

That there was no significant difference between mothers' and fathers' NPI scores suggests that the NPI may be useful for evaluating fathers' perceptions of their infants, as well as those of mothers. Whether the scores would have the same meaning in terms of prediction cannot be determined from these data. The findings confirmed that the

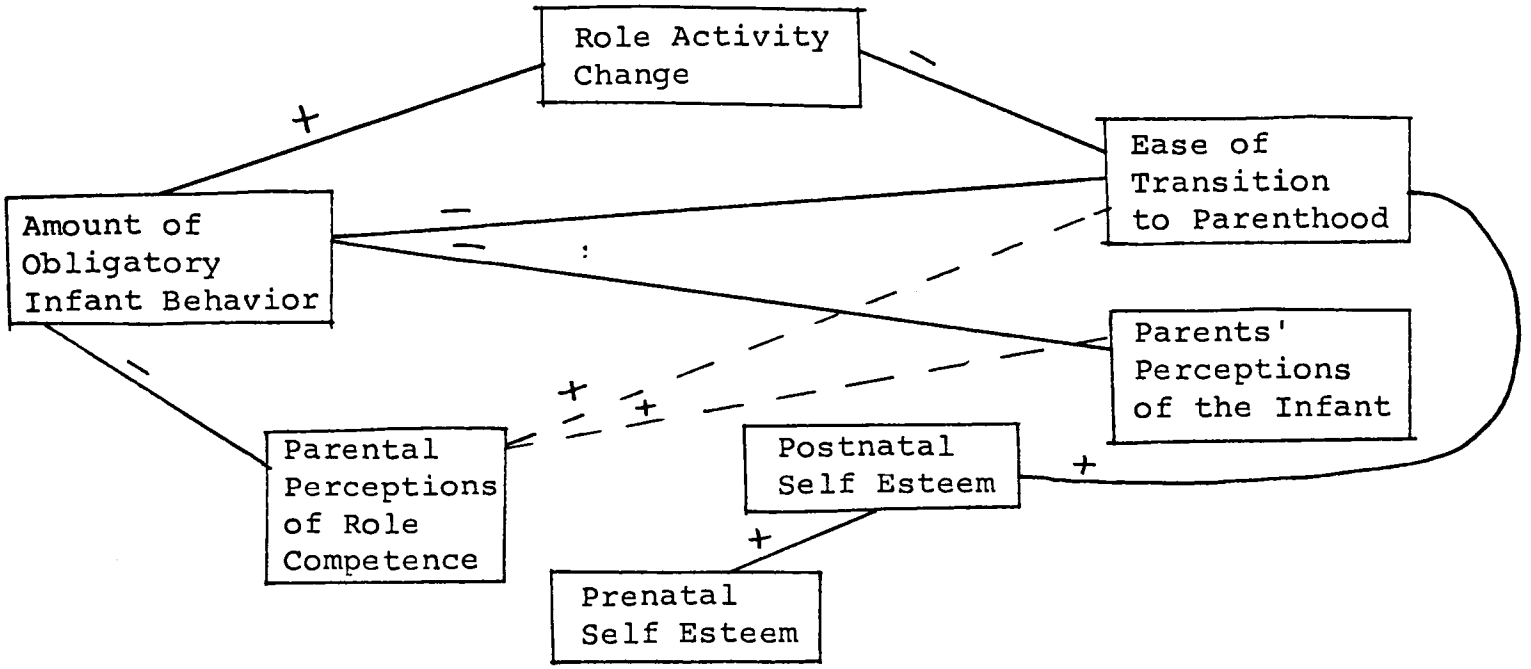


Figure IV.3

Empirical Model: Fathers, Total Group (n = 64)

----- = Nonhypothesized significant relationship.

NPI is an instrument that measures parents' perceptions of actual infant behavior. The data also suggested that the NPI is responsive to the mother's perceptions of herself (role competence and self-esteem) and to role activity change for the mother after the birth of the infant. That NPI scores were not correlated with role activity change for the fathers may reflect the significantly lower role activity change that the fathers experienced.

E. FINDINGS FOR OCCUPATIONAL SUBGROUPS

Because of the intriguing conflicting findings of LeMasters and Dyer regarding the employment of mothers in their studies, the parents were divided into occupational subgroups for analysis. Two hypotheses based on the work of LeMasters and Dyer were proposed for the mothers:

Hypothesis 1: Mothers from professional occupations will have lower EASE and NPI scores than mothers from nonprofessional occupations or those who did not work prior to having their babies.

Hypothesis 2: The length of time before the mother planned to return to work after having her baby will be negatively related to EASE and NPI scores for mothers who worked prior to having their children.

The empirical literature did not suggest any hypotheses for fathers related to employment prior to fatherhood. In the study sample, there were five fathers who were fulltime students and not employed. It was this investigator's belief that they would be more involved with their

infants than employed fathers because of a greater number of hours at home. Two hypotheses were proposed for fathers:

Hypothesis 1: The correlation of actual infant behavior scores (AIB) with EASE and NPI scores will be stronger for nonworking fathers than for working fathers.

Hypothesis 2: The ease of transition scores and NPI scores will be lower for nonworking fathers than for working fathers.

Findings

Subgroup: mothers. Mothers were evenly divided among the three occupational groups: professional (n = 22), nonprofessional (n = 21), and nonemployed (n = 21). The Student t-test was used to test the first hypothesis that mothers from nonprofessional occupations would have lower EASE and NPI scores than mothers from nonprofessional occupations or those who did not work prior to having their babies. Professionally-employed mothers' EASE scores ranged from 2.50 to 4.26 with a mean of 3.42. Nonprofessionally-employed mothers' EASE scores ranged from 2.81 to 4.85 with a mean of 3.63. Nonemployed mothers' EASE scores ranged from 2.75 to 4.63 with a mean of 3.81. The Student t-test revealed no significant differences between professional and nonprofessional groups, but professionally-employed mothers had significantly lower EASE scores than nonemployed mothers ($p < .026$). The hypothesis was partially supported (see Table IV.15).

Professionally-employed mothers' NPI scores ranged from -4 to +6 with a mean of 1.90. The nonprofessionally-employed mothers' NPI scores

TABLE IV.15

MOTHERS' OCCUPATIONAL GROUPS COMPARED USING *t*-TEST

Variable	Groups	Means	t-Value	DF	2-Tailed Probability
EASE	professional	3.43	-1.26	41	.215
	nonprofessional	3.64			
NPI	professional	1.91	- .69	41	.492
	nonprofessional	2.47			
AIB	professional	29.55	.13	41	.90
	nonprofessional	29.38			
EIB	professional	32.23	.40	41	.691
	nonprofessional	31.60			
RAC	professional	18.82	.28	41	.777
	nonprofessional	18.46			
RLCMP	professional	21.86	- .64	41	.526
	nonprofessional	22.67			
PESE	professional	5.36	.08	41	.935
	nonprofessional	5.33			
POSE	professional	5.50	.86	41	.397
	nonprofessional	5.24			
EASE	professional	3.43	-2.31	41	.026
	nonworking	3.82			
NPI	professional	1.91	- .88	41	.385
	nonworking	2.67			
AIB	professional	29.55	.43	41	.666
	nonworking	28.81			
EIB	professional	32.23	1.52	41	.135
	nonworking	30.16			

TABLE IV.15 (continued)

Variable	Groups	Means	t-Value	DF	2-Tailed Probability
RAC	professional	18.82	1.06	41	.295
	nonworking	17.48			
RLCMP	professional	21.86	-2.34	41	.024
	nonworking	24.38			
PESE	professional	5.36	- .49	41	.624
	nonworking	5.53			
POSE	professional	5.50	- .09	41	.931
	nonworking	5.53			
EASE	nonprofessional	3.64	-1.03	40	.309
	nonworking	3.82			
NPI	nonprofessional	2.48	- .23	40	.822
	nonworking	2.67			
AIB	nonprofessional	29.38	.33	40	.743
	nonworking	28.81			
EIB	nonprofessional	31.59	.95	40	.349
	nonworking	30.16			
RAC	nonprofessional	18.46	.75	40	.460
	nonworking	17.48			
RLCMP	nonprofessional	22.67	-1.43	40	.161
	nonworking	24.38			
PESE	nonprofessional	5.33	- .62	40	.540
	nonworking	5.52			
POSE	nonprofessional	5.24	- .94	40	.354
	nonworking	5.52			

ranged from -5 to +5 with a mean of 2.47. The nonemployed mothers' scores ranged from -5 to +8 with a mean of 2.66. The Student t-test revealed no significant NPI differences among the groups. The hypothesis was rejected for parental perceptions of the infant.

Taken as a whole, the mothers who were employed prior to the births of their infants did not differ from nonemployed mothers with regard to EASE or NPI scores. Nonemployed mothers, however, did have higher perceptions of role competence than employed mothers ($p < .041$) (see Table IV.16).

Hypothesis 2: The length of time before the mother planned to return to work after having her baby will be negatively related to EASE and NPI scores for mothers who worked prior to having their babies.

The item indicating the length of time before the mother was planning to return to work was scored so that the longer she planned to stay home before returning to work, the higher her score. For professionally-employed women, the Pearson correlation coefficient for length of time before returning to work and EASE scores was -.05, which was not statistically significant. The correlation of that item with NPI scores was -.33, which was also not significant. For nonprofessionally-employed women, the correlation coefficient for length of time before returning to work and EASE scores was .04, also not significant. For NPI scores, the correlation with that item was -.01, which was not significant. The hypothesis was rejected.

To analyze the impact of occupational classification upon the proposed model, each of the direct relationships in the model was tested

TABLE IV.16

EMPLOYED AND NONEMPLOYED MOTHERS COMPARED USING t-TEST

Variable	Groups	Means	t-Value	DF	2-Tailed Probability
EASE	employed	3.53	-1.94	62	.057
	nonemployed	3.82			
NPI	employed	2.59	- .66	62	.511
	nonemployed	2.67			
AIB	employed	29.46	.48	62	.635
	nonemployed	28.81			
EIB	employed	31.92	1.37	62	.176
	nonemployed	30.16			
PESE	employed	5.35	- .61	62	.547
	nonemployed	5.24			
POSE	employed	5.37	- .59	62	.555
	nonemployed	5.53			
RAC	employed	18.64	1.05	62	.296
	nonemployed	17.47			
RLCMP	employed	22.26	-2.08	62	.041
	nonemployed	24.39			

separately for each subgroup. Significant relationships are presented visually in Figures IV.4 through IV.6. For professionally-employed mothers, three of the proposed relationships were statistically significant. Prenatal self-esteem was positively related to postnatal self-esteem ($r = .95$, $p < .001$), postnatal self-esteem was significantly related to EASE ($r = .36$, $p < .047$), and role activity change was significantly related to EASE ($r = -.42$, $p < .025$) (see Figure IV.4). For nonprofessionally-employed mothers (Figure IV.5), the same relationships were significant. Prenatal self-esteem was positively related to postnatal self-esteem ($r = .92$, $p < .001$), postnatal self-esteem was positively related to ease of role transition ($r = .53$, $p < .006$), role activity change was negatively related to EASE ($r = -.37$, $p < .046$), and, in addition, actual infant behavior was negatively related to NPI ($r = -.44$, $p < .022$). For nonemployed mothers (Figure IV.6), nine of the proposed relationships were significant. Prenatal self-esteem was positively related to postnatal self-esteem ($r = .86$, $p < .001$), postnatal self-esteem was positively related to NPI ($r = .49$, $p < .012$), actual infant behavior was negatively related to NPI ($r = -.43$, $p < .024$), actual infant behavior was negatively related to perceptions of role competence ($r = -.37$, $p < .049$), role activity change was negatively related to NPI ($r = -.44$, $p < .023$), actual infant behavior was positively related to role activity change ($r = .72$, $p < .001$), actual infant behavior was negatively related to EASE ($r = -.58$, $p < .003$), role activity change was negatively related to EASE ($r = -.63$, $p < .001$), and NPI scores were positively related to EASE scores ($r = .53$, $p < .007$).

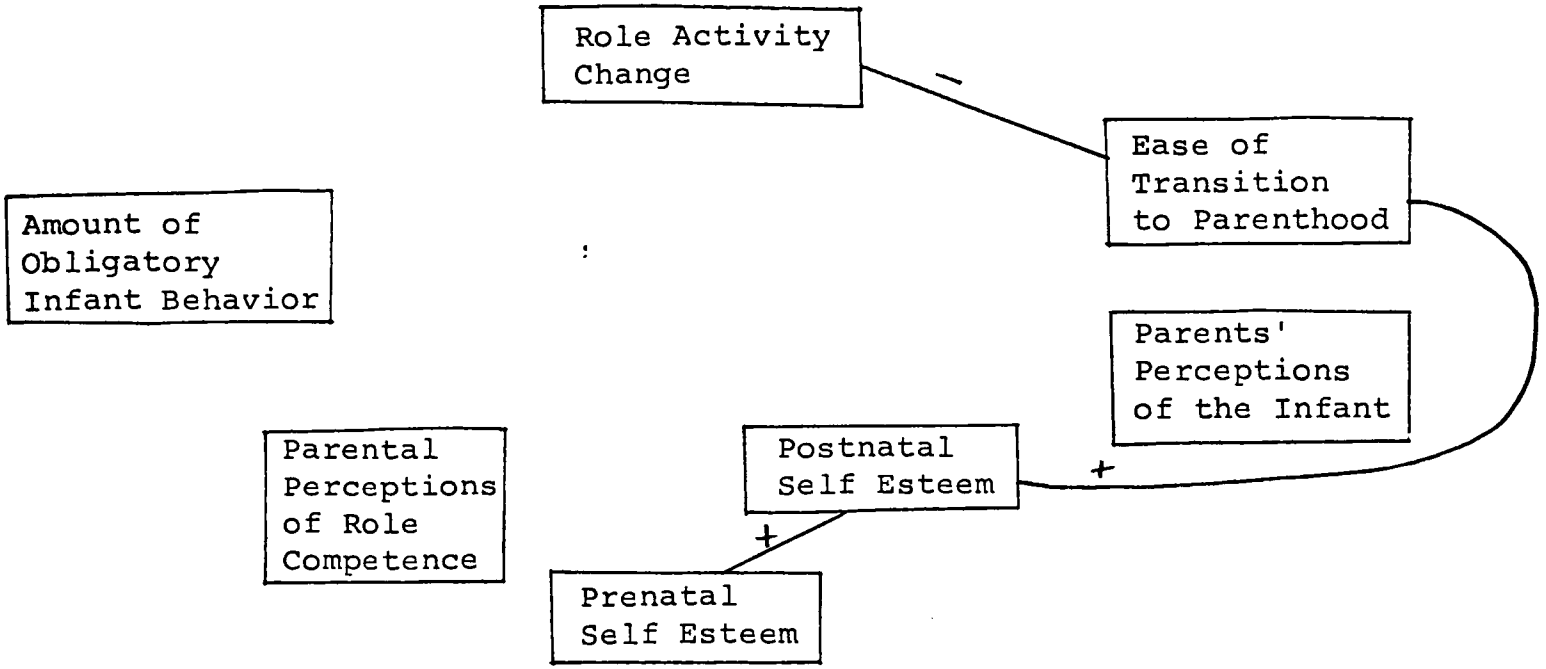


Figure IV.4

Empirical Model: Professionally-Employed Mothers (n = 22)

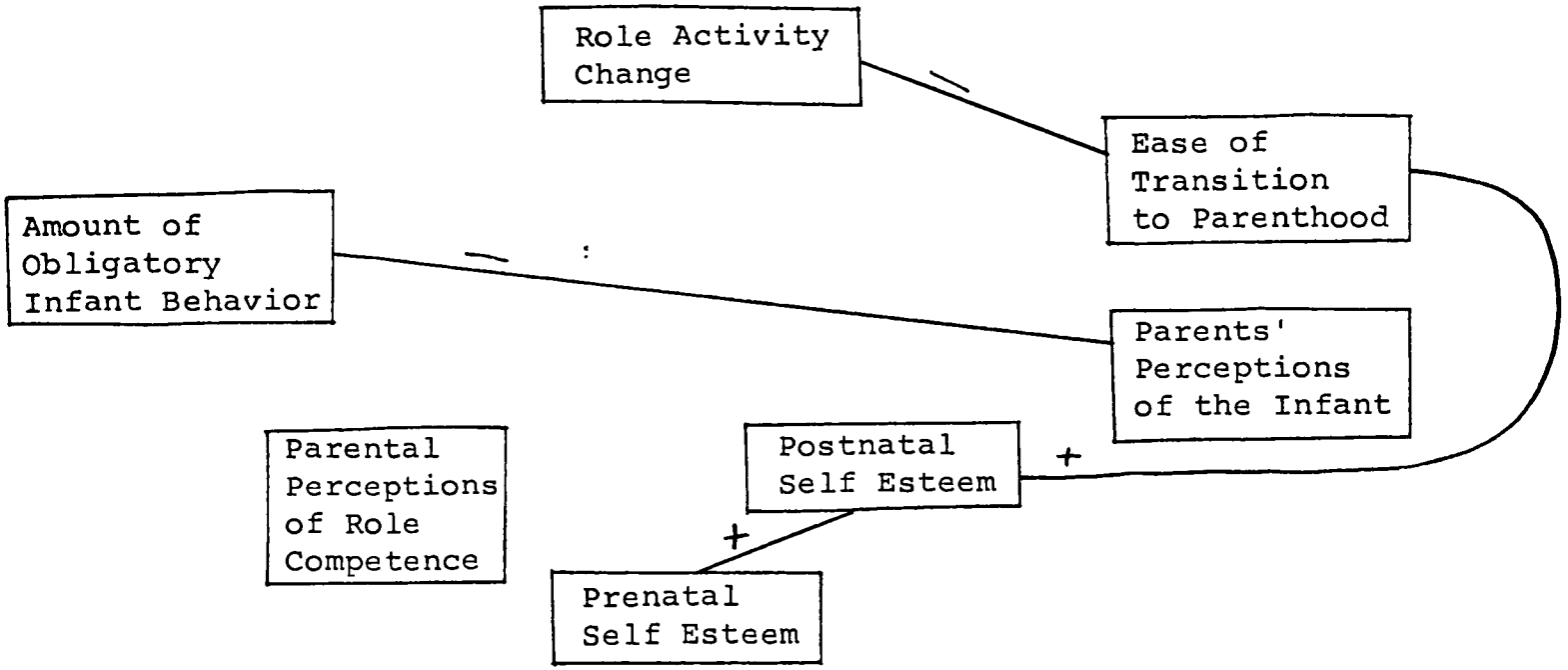


Figure IV.5

Empirical Model: Nonprofessionally-Employed Mothers (n = 21)

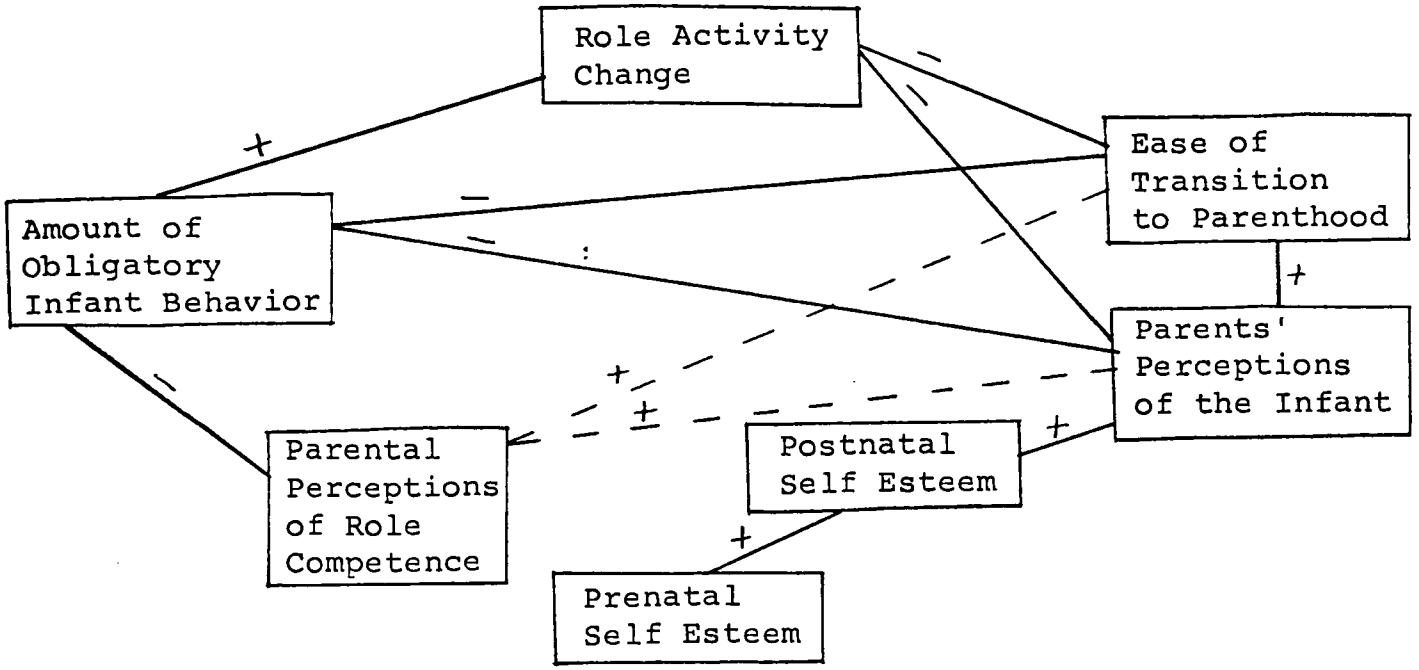


Figure IV.6

Empirical Model: Nonemployed Mothers (n = 21)

----- = Nonhypothesized significant relationship.

It should be noted also that although it was not a proposed relationship, perceptions of role competence were positively related to NPI scores ($r = .43$, $p < .025$) and to EASE ($r = .37$, $p < .046$) for nonemployed mothers, but not for other groups.

Subgroup: fathers. The fathers' occupational groups were less evenly divided than the mothers' groups. There were 36 fathers employed in professional occupations, 23 employed in nonprofessional occupations, and five fathers who were fulltime students and not employed.

Hypothesis 1: The correlation of actual infant behavior with ease of role transition and perceptions of the infant will be stronger for nonworking fathers than for working fathers.

The Pearson correlation coefficient was used for the group of employed fathers ($n = 59$), but because of the small size of the group of unemployed fathers, the nonparametric Spearman correlation coefficient was used for this analysis. According to Nie, Hull, Jenkins, Steinbrenner, and Bent (1975), the Spearman produces a coefficient that is closer to the Pearson than the Kendall's Tau when there are not a large number of ties in the data (p. 289). For the employed fathers, the Pearson correlation for AIB with EASE was -.37 ($p < .002$). For AIB with NPI, the Pearson correlation coefficient was -.23 ($p < .034$). For the nonemployed fathers, the Spearman correlation coefficient for AIB with EASE was -.80 ($p < .052$) and for AIB with NPI it was -.87 ($p < .027$). To determine the probability that the coefficients for the two groups were from two different populations (i.e., that they were significantly different), a Z transformation was done using a table in

Cohen and Cohen (1975) and the Z statistic was calculated using the following formula:

$$Z = \frac{Z_1' - Z_2'}{\sqrt{\frac{1}{n_1 - 3} + \frac{1}{n_2 - 3}}}$$ (Cohen & Cohen, p. 51)

where Z_1' is the transformed correlation coefficient for group 1 and Z_2' is the transformed correlation coefficient for group 2, and n_1 and n_2 are the sample sizes for each group. For the AIB/EASE correlation, $Z = .988$ ($p < .339$). For the AIB/NPI correlation, $Z = 1.572$ ($p < .058$). The hypothesis was rejected.

Hypothesis 2: The ease of role transition and perceptions of the infant scores will be lower for nonworking than for working fathers.

The Student t-test was used to compare the mean scores on EASE and NPI for the two groups. The nonworking fathers had an EASE mean score of 4.15. The working fathers had a mean of 4.13 on ease of role transition. The difference was not statistically significant. For NPI scores, nonworking fathers had a mean of 1.99 and working fathers had a mean of 2.49. The difference was not statistically significant. The hypothesis was rejected.

Empirical models were constructed for each of the fathers' occupational groups, also. See Figures IV.7 through IV.9. For professionally-employed fathers (Figure IV.7), five of the predicted relationships were significant. Prenatal self-esteem was positively related to postnatal self-esteem ($r = .94$, $p < .001$), postnatal

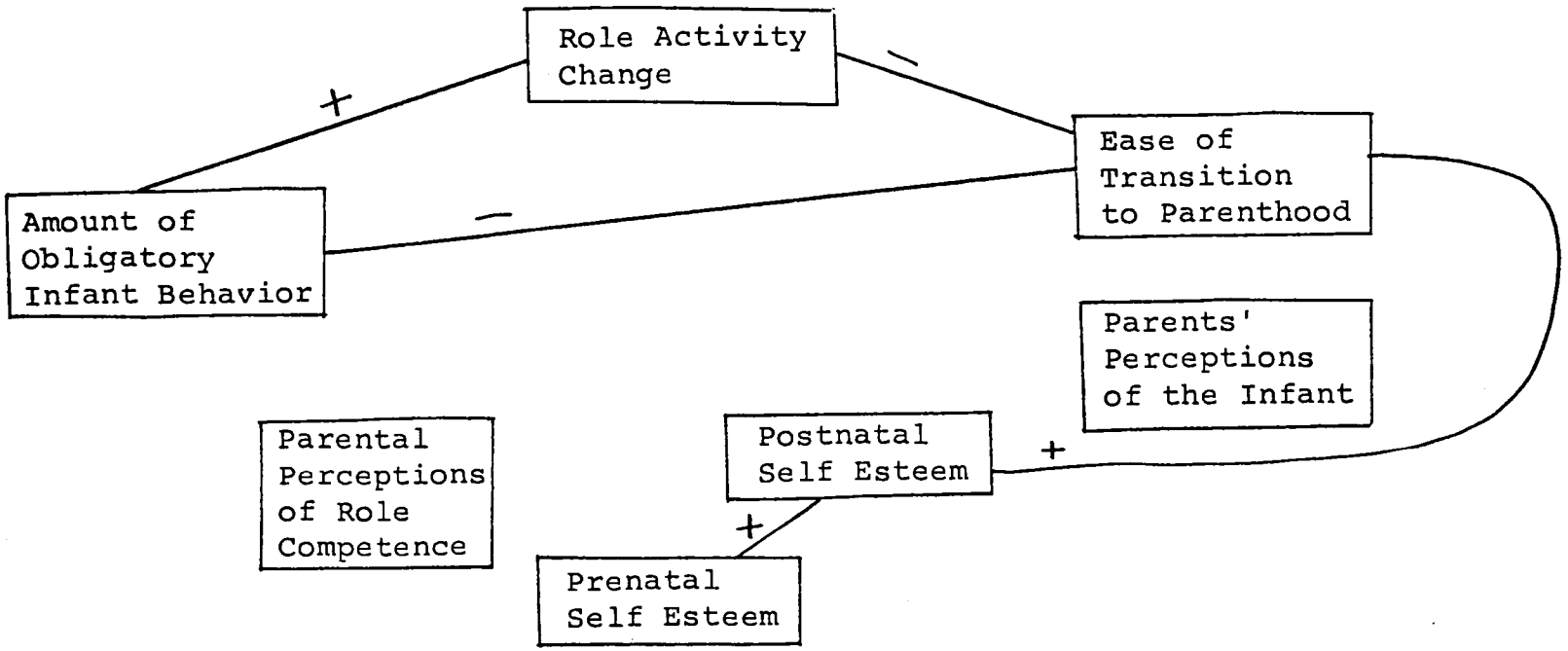


Figure IV.7

Empirical Model: Professionally-Employed Fathers (n = 36)

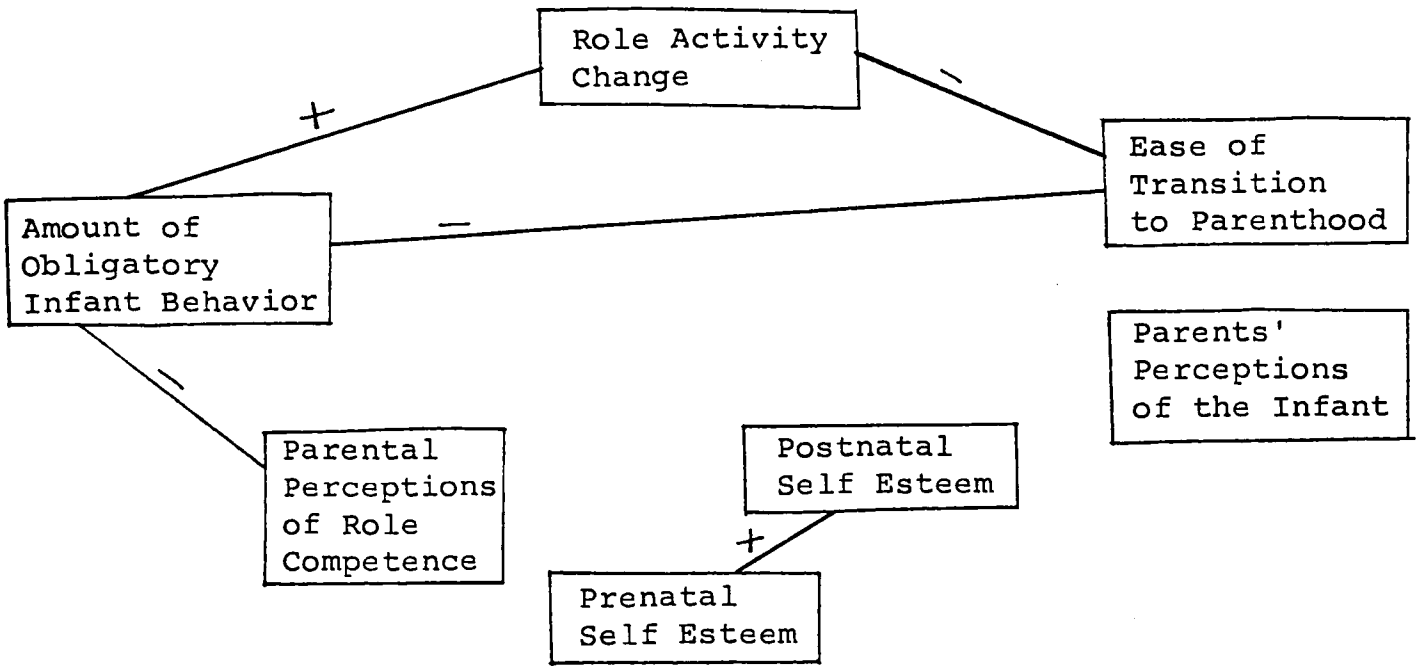


Figure IV.8

Empirical Model: Nonprofessionally-Employed Fathers (n = 23)

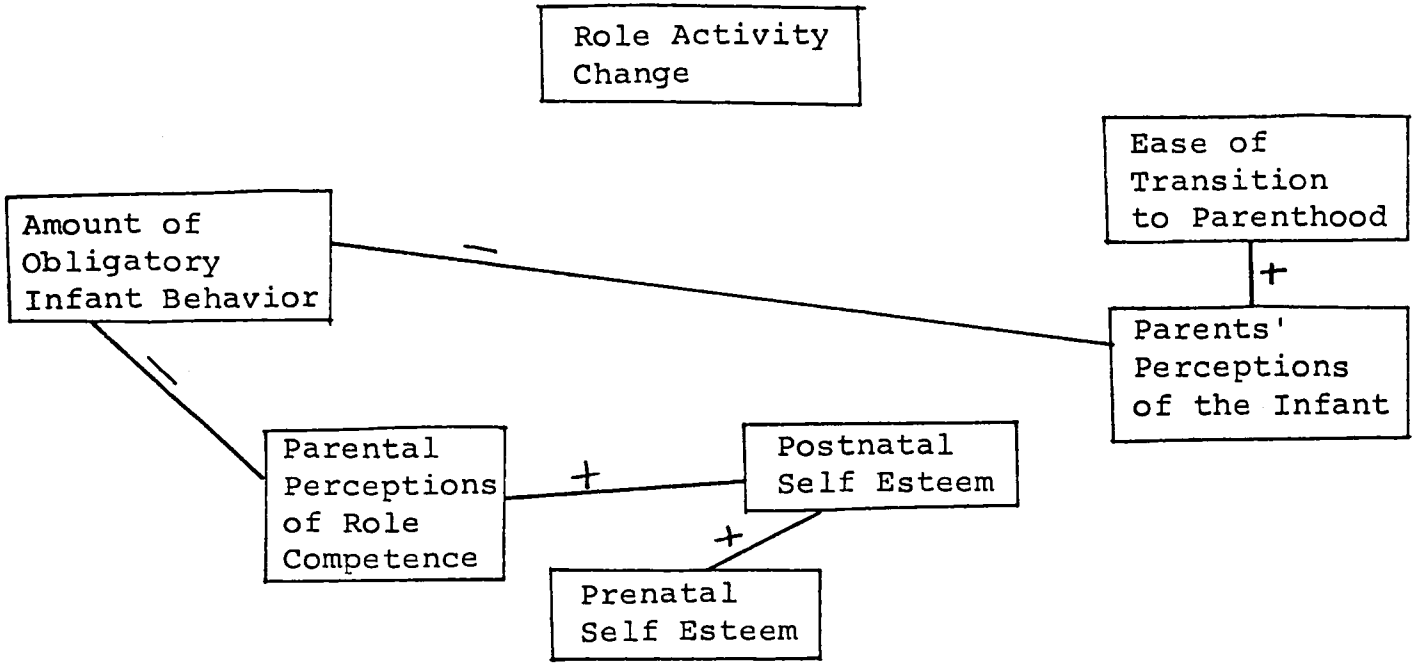


Figure IV.9

Empirical Model: Nonemployed Fathers (n = 5)

self-esteem was positively related to ease of role transition ($r = .63$, $p < .001$), and actual infant behavior was positively related to role activity change ($r = .45$, $p < .003$), actual infant behavior was negatively related to EASE ($r = -.39$, $p < .008$), and role activity change was negatively related to EASE ($r = -.45$, $p < .003$). For nonprofessionally-employed fathers (Figure IV.8), five predicted relationships were also significant. Prenatal self-esteem was positively related to postnatal self-esteem ($r = .86$, $p < .001$), actual infant behavior was negatively related to perceptions of role competence ($r = -.42$, $p < .023$), actual infant behavior was positively related to role activity change ($r = .68$, $p < .001$), actual infant behavior was negatively related to EASE ($r = -.38$, $p < .033$), and role activity change was negatively related to EASE ($r = -.50$, $p < .001$). For nonemployed fathers (Figure IV.9), Kendall's Tau was used to compute the correlations for the model because there were some tied scores and according to Nie et al. (1975), Kendall's Tau provides more meaningful correlation coefficients when ties are present in the data. Six of the predicted relationships were significant. Ease of role transition was positively related to NPI scores ($\pi = .94$, $p < .001$), NPI scores were negatively related to actual infant behavior ($\pi = -.73$, $p < .038$), perception of the infant was negatively related to actual infant behavior ($\pi = -.73$, $p < .038$), actual infant behavior was negatively related to perceptions of role competence ($\pi = -.80$, $p < .025$), perceptions of role competence were positively related to postnatal self-esteem ($\pi = .89$, $p < .018$), and prenatal self-esteem was positively related to postnatal self-esteem ($\pi = .87$, $p < .026$).

F. DISCUSSION OF OCCUPATIONAL FINDINGS

Subgroup: Mothers

The hypotheses for the occupational groups for mothers were not generally supported. However, it was found that mothers who had been professionally employed prior to childbirth had lower EASE scores than mothers who had not worked before becoming mothers. That finding is supportive of LeMasters' finding that the mothers with professional careers in his sample all had high crisis scores. That EASE scores were not significantly different when working mothers as a whole were compared with nonworking mothers is supportive of Dyer's findings. It appears that the type of employment for mothers (and probably related factors such as job satisfaction and career aspirations) is more important in influencing ease of role transition than the mere fact of employment. This conclusion would be consistent with a part of Burr's (1973) theory of ease of role transition not included in the rationale for the study, namely that ease of role transition is positively related to the degree to which the role facilitates attainment of valued goals. It is likely that the transition to motherhood for professional women is at least temporarily a hindrance to the attainment of career goals. The patterns of significant model variables for both professionally-employed and nonprofessionally-employed mothers suggests that ease of role transition for them is not related to infant behavior, but rather to role activity change and self-esteem. For mothers who had not been employed prior to the births of their infants, on the other hand, actual infant behavior, role activity change, and NPI scores were all related

to EASE scores. For professionally-employed mothers, NPI scores were not related to any of the model variables. For nonprofessionally-employed mothers, NPI scores were related to actual infant behavior, but not to role activity change nor to postnatal self-esteem. For the nonemployed mothers, the NPI scores were significantly related to actual infant behavior, role activity change, postnatal self-esteem, and to ease of role transition. Thus, one must conclude that the proposed model was quite relevant for nonemployed mothers, but that variables other than those in the model were more important for employed mothers.

Subgroup: Fathers

The hypotheses were not supported for fathers in relation to their occupational classifications. For employed fathers, actual infant behavior and role activity change were significantly related to ease of role transition. For nonemployed fathers, neither was a significant relationship. For nonemployed fathers, ease of role transition was significantly related to perceptions of the infant, which in turn was related to actual infant behavior. The nonemployed fathers were such a small group, however, that conclusions may be drawn only with the greatest caution.

G. INCIDENTAL FINDINGS OF INTEREST

Actual Infant Behavior

It was anticipated that infant behavior would have its most significant effects when it was relatively high. To test this idea, the

mothers and fathers were divided into three groups according to actual infant behavior scores, and the highest and lowest groups were compared. Tied scores made the division somewhat uneven but so far as possible each of the groups represented one-third of subjects.

Subgroup: mothers. The actual infant behavior scores for mothers in the lowest group (n = 21) ranged from 18 to 26 with a mean of 23.71. The actual infant behavior scores for mothers in the highest group (n = 22) ranged from 32 to 42 with a mean of 34.73. Ease of role transition scores were significantly higher for mothers who experienced lowest AIB scores ($p < .049$). NPI scores were also significantly higher for mothers who experienced the lowest AIB ($p < .031$). No other variable means were significantly different (see Table IV.17).

Subgroup: fathers. Actual infant behavior scores for fathers in the lowest group (n = 24) ranged from 18 to 29 with a mean of 26.13. Actual infant behavior scores for fathers in the highest group (n = 23) ranged from 34 to 40 with a mean of 35.74. Ease of role transition scores were significantly higher for fathers who experienced lowest AIB ($p < .001$). Fathers who experienced the lowest actual infant behavior also had higher perceptions of role competence ($p < .009$) and their role activity change scores were significantly lower ($p < .000$). NPI scores were not significantly different (see Table IV.18).

Prenatal Self-Esteem

Because of the importance of postnatal self-esteem for explaining ease of role transition and because of the strong correlation between

TABLE IV.17

COMPARISON OF HIGH AND LOW ACTUAL INFANT BEHAVIOR GROUPS USING *t*-TEST

Variable	Groups	Means	t-Value	DF	2-Tailed Probability
MOTHERS					
EASE	low	3.83	2.05	33.12	.049
	high	3.49			
NPI	low	3.24	2.23	41	.031
	high	1.45			
EIB	low	30.95	-1.71	41	.095
	high	33.25			
RAC	low	16.67	-1.90	41	.065
	high	18.94			
RLCMP	low	23.86	1.67	41	.103
	high	21.95			
PESE	low	5.19	.02	41	.982
	high	5.18			
POSE	low	5.33	.59	41	.559
	high	5.14			
FATHERS					
EASE	low	4.39	3.43	38.75	.001
	high	3.90			
NPI	low	3.13	1.79	45	.080
	high	1.50			
EIB	low	31.64	-2.20	45	.033
	high	34.85			
RAC	low	13.48	-5.46	45	.000
	high	18.13			

TABLE IV.17 (continued)

Variable	Groups	Means	t-Value	DF	2-Tailed Probability
FATHERS (continued)					
RLCMP	low	21.87	2.73	45	.009
	high	18.75			
PESE	low	5.43	.75	45	.454
	high	5.21			
POSE	low	5.52	1.01	45	.318
	high	5.25			

TABLE IV.18

COMPARISON OF HIGH AND LOW PRENATAL SELF-ESTEEM GROUPS USING *t*-TEST

Variable	Groups	Means	*t*-Value	DF	2-Tailed Probability
MOTHERS					
EASE	low	3.50	-1.19	62	.239
	high	3.68			
NPI	low	1.90	- .90	62	.371
	high	2.56			
EIB	low	30.67	- .78	62	.441
	high	31.67			
RAC	low	17.03	- 1.68	62	.099
	high	18.86			
RLCMP	low	22.53	- .61	62	.546
	high	23.16			
AIB	low	29.00	- .27	62	.788
	high	29.37			
Education	low	13.14	-2.09	62	.040
	high	13.79			
FATHERS					
EASE	low	3.83	-3.64	62	.001
	high	4.32			
NPI	low	2.79	.66	62	.510
	high	2.25			
EIB	low	35.13	2.14	62	.037
	high	32.25			
RAC	low	16.85	1.82	62	.074
	high	15.16			

TABLE IV.18 (continued)

Variable	Groups	Means	t-Value	DF	2-Tailed Probability
FATHERS (continued)					
RLCMP	low	18.92	-2.07	62	.042
	high	21.00			
AIB	low	31.71	.71	62	.482
	high	30.85			
Education	low	14.13	1.36	62	.179
	high	13.73			

prenatal and postnatal self-esteem, the subjects were divided into two groups according to prenatal self-esteem scores. Because 43 of the mothers and 40 of the fathers attained the highest possible scores on the self-esteem index, the groups were divided into those scoring the highest score (6) and those scoring less than 6. Postnatal self-esteem was significantly higher for both mothers and fathers in the high prenatal self-esteem group ($p < .000$). Mothers with prenatal self-esteem of 6 had significantly higher levels of education ($p < .040$). Fathers with prenatal self-esteem scores of 6 had significantly lower scores on the Expectations of Infant Behavior scale ($p < .037$), significantly higher scores on perceptions of role competence ($p < .042$), and significantly higher EASE scores ($p < .001$) (see Table IV.18).

Labor and Delivery Variables

Several labor and delivery variables were explored using the Student *t*-test to determine differences in the means for the dependent variables (see Table IV.19). The ease of role transition score was significantly higher for mothers ($p < .013$) but not significantly different for fathers when the father was present for the delivery of the baby ($n = 52$). Regression analysis revealed that the presence of the father for the delivery of the infant (with no other variables controlled) accounted for 9.6% of the variation in EASE scores for mothers and 3.6% of the variance in NPI scores for fathers. It explained less than 1% of the variance in NPI scores for mothers or EASE scores for fathers. Ease of transition scores were significantly decreased for fathers when their infants experienced complications after delivery

TABLE IV.19

GROUPS COMPARED ON THE BASIS OF LABOR AND DELIVERY VARIABLES

Variable	Groups	Means	t-Test	DF	2-Tailed Probability
MOTHERS					
EASE	Husband not present for delivery	4.02	2.55	61	.013
	Husband present for delivery	3.56			
NPI	Husband not present for delivery	2.73	.48	61	.633
	Husband present for delivery	2.29			
EASE	No infant complications	3.63	.10	62	.923
	Infant complications	3.61			
NPI	No infant complications	2.33	-.10	62	.919
	Infant complications	2.42			
EASE	Female infant	3.64	.19	62	.847
	Male infant	3.61			
NPI	Female infant	3.03	2.07	62	.042
	Male infant	1.66			
FATHERS					
EASE	Husband not present for delivery	4.02	-.81	61	.421
	Husband present for delivery	4.17			

TABLE IV.19 (continued)

Variable	Groups	Means	t-Test	DF	2-Tailed Probability
FATHERS (continued)					
NPI	Husband not present for delivery	3.81	1.54	61	.128
	Husband present for delivery	2.21			
EASE	No infant complications	4.21	2.39	62	.020
	Infant complications	3.80			
NPI	No infant complications	2.54	.45	62	.654
	Infant complications	2.08			
EASE	Female infant	4.04	-1.36	62	.178
	Male infant	4.23			
NPI	Female infant	3.34	2.33	62	.023
	Male infant	1.56			

($p < .020$). NPI scores for both mothers and fathers were significantly higher when the infant was female ($p < .023$ for fathers and $p < .042$ for mothers.

H. DISCUSSION OF INCIDENTAL FINDINGS

AIB Groups

The findings of the AIB groups provided further support for the importance of infant behavior in influencing ease of role transition and parental perception of the infant. That fathers had different role activity change scores related to the actual infant behavior suggests that the infant with higher obligatory behavior intruded more on the father's lifestyle than the quieter infant. That the difference was not significant for mothers probably reflects the fact that the mothers experienced great change in lifestyle simply because of the addition of an infant and not differentially due to specific behavior of the infant. That fathers with quieter babies had higher perceptions of role competence, suggests that those babies may have been more responsive to the care their fathers provided than the more active (and fussy?) infants.

Self-Esteem Groups

Mothers' prenatal self-esteem apparently did not influence their ease of transition, but fathers with higher self-esteem had significantly higher EASE scores. That they also expected lower levels of obligatory infant behavior suggests that there might be a relationship between self-esteem and perceptions of infant behavior for fathers. Fathers with higher self-esteem also had higher perceptions of role competence.

According to Gibaud-Wallston (1977), one of the factors influencing persons' appraisal of their role competence is their own personal characteristics. Thus, it may be that prenatal self-esteem was influential in determining the father's perceptions of role competence.

Labor and Delivery Variables

That ease of transition scores were significantly higher for mothers when their husbands were present for the delivery is supportive of the current movement for joint participation of the couple in labor and delivery. That it was more important for EASE than NPI is probably due to a greater dependence of NPI scores on actual infant behavior. That the fathers experienced less ease of role transition when their infants had postnatal complications is supportive of a similar finding by Hobbs (1965). That the NPI scores were significantly higher when the infant was female was not consistent with the findings of Broussard and Hartner (1970) that probability of risk (i.e., having a zero or negative discrepancy score) was not related to the sex of the infant. However, such a finding would be consistent with the work of Tanner (1974), Wolff (1966) and Moss (1967) that girls are more mature neurologically at birth and that their physiological reactions are generally better organized. It should be noted that virtually all of the mothers in the study had epidural anesthesia for delivery and that there were no appreciable differences among subjects with regard to reported drug use during labor and delivery.

I. FINDINGS RELATED TO EXPECTATIONS OF INFANT BEHAVIOR

Expectations of infant behavior were thought to be relevant to this study as they were related to infant behavior actually experienced. To explore this concept, discrepancy scores were computed by subtracting Actual Infant Behavior scores from Expected Infant Behavior scores. Thus, those parents who experienced more obligatory infant behavior than they expected had negative discrepancy scores, those who experienced exactly the same obligatory infant behavior as they expected had zero discrepancy scores, and those parents who experienced less obligatory infant behavior than they expected had positive discrepancy scores. It was anticipated that discrepancy scores would be related to ease of role transition, to parental perceptions of the infant, and to parental perceptions of role competence. Pearson correlations were computed to test those relationships. In addition, parents were divided into groups on the basis of the discrepancy scores (negative, zero, positive). Differences between negative and positive groups were computed using the t-test.

Findings

Subgroup: mothers. Discrepancy scores for the mothers were found to be positively related to ease of role transition ($r = .26$, $p < .019$) and to perceptions of role competence ($r = .25$, $p < .021$). The relationship between the discrepancy scores and perceptions of the infant were positive, also, but failed to reach significance ($r = .24$, $p < .052$). Mothers in the positive group had significantly greater ease of role transition ($t = 3.36$, $p < .001$) and higher perceptions of role

competence ($t = 2.31$, $p < .036$). Differences in perceptions of the infant were not significant ($t = 1.64$, $p < .106$).

Subgroup: fathers. Fathers' discrepancy scores were not found to be significantly related to any of the three variables tested. It should be noted that there was a positive relationship between expectations of infant behavior and actual infant behavior for fathers ($r = .26$, $p < .021$), but not for mothers ($r = .14$, $p < .128$). There were no significant differences between fathers' negative and positive discrepancy groups for ease of role transition, perceptions of the infant, or for perceptions of role competence.

Discussion of Findings

That mothers' discrepancy scores were positively related to two of the variables explored and that significant differences between positive and negative discrepancy score groups for those two variables were found suggests that the relationship between expected and actual infant behavior may be important for mothers. This conclusion is supportive of LeMasters' suggestion that highly romanticized expectations of infant behavior contributed to the crisis scores of the couples he studied. The same conclusion is supportive of case studies of mothers cited earlier, who were demoralized by unresponsive, irritable babies.

That none of the above findings held for fathers may be related to the significantly higher expectations of infant behavior they held (reflecting less romanticized views) and by the positive correlation between expected and actual infant behavior. It may be that mothers had a greater "reality shock" with which to cope. It may be also that

fathers tended to see their infants as they had expected to see them, and they did not have enough actual day-to-day contact with the infants to challenge their expectations.

CHAPTER V

CONCLUSIONS

A. SUMMARY AND CONCLUSIONS

Primary Findings

Sixty-four couples participated in a short-term longitudinal study of the transition to parenthood. Data were collected once in the last trimester of pregnancy and again one month after the birth of the infant. The study supported the hypothesis that the ease of transition to parenthood and parents' perception of the infant are negatively influenced by the amount of obligatory behavior of the infant. The study also tested a mini-theory which suggested mechanisms through which the infant's behavior affected ease of role transition and perception of the infant. The theory suggested role activity change as one intervening variable between infant behavior and the dependent variables. A second proposed path through which the effects of infant behavior are mediated was that the infant behavior affects parental perceptions of role competence, which affects postnatal self-esteem, which in turn affects the dependent variables. All of the linkages in the path were supported except the relationship between role competence and self-esteem. A nonhypothesized positive relationship between perceptions of role competence and the dependent variables was found for both mothers and fathers, however. It is likely that postnatal self-esteem should be

reconceptualized as an external variable influencing the dependent variables, but not affected by infant behavior.

The study found that fathers had significantly higher ease of transition scores than mothers, but that mothers experienced greater perception of role competence and role activity change. These findings are consistent with those of Hobbs and Wimbish (1977), who suggested that mothers have a more difficult transition to parenthood, probably because they are the primary caretakers of the infant.

Occupational Subgroups

The findings related to occupational subgroups were inconclusive for fathers. For mothers, however, the findings were more definitive. The early findings of LeMasters and Dyer regarding the effects of previous employment of mothers on the transition to parenthood, which were apparently contradictory, may have been findings from two different populations, rather than contradictory findings. This study found that mothers who had been professionally employed before having children had significantly lower ease of transition scores than those who had not been employed, but that there were no significant differences between mothers employed in nonprofessional occupations and nonemployed mothers. Thus, it may be that the mothers studied by Dyer were employed, but not professionally employed, whereas LeMasters identified the professionally-employed mothers as those who had the greatest difficulty in making the role transition. Thus, it appears that the type of employment (and perhaps its meaning for the mother) are more important in influencing the ease of transition to parenthood than the mere fact of employment.

The study also found that the model was most explanatory for the experience of nonemployed mothers, the traditional housewife. It may be that mothers who have been employed have other factors (perhaps values) that overshadow the behavior of the infant in influencing ease of transition to parenthood.

Incidental Findings

The findings of the actual infant behavior subgroups were very supportive of the primary hypothesis (that actual infant behavior is negatively related to the dependent variables) and of the model, especially for mothers. The findings of the self-esteem subgroups suggested that prenatal self-esteem may be related to expectations of infant behavior and to perceptions of role competence for fathers. The study found that mothers experienced greater ease of transition when their husbands were present for the delivery of the infant. The mechanisms through which the presence of the husband operates were not suggested in the findings, but may be related to an enhancement of the bond between the couple. That fathers experienced lower ease of transition scores when postnatal complications in the infant occur is probably related to an increase in worry and overall strain. That this result was not found for mothers may indicate that it is spurious, or it may be that the mother's greater involvement in caretaking of the infant somehow modifies the strain. That NPI scores were more positive for female infants for both mothers and fathers was a surprising finding, in view of Broussard's work, but the research on basic infant behavior suggests that the behavior of female infants may be less troublesome for new parents than

the behavior of male infants. One would expect the parents' perceptions of female infants, then, to be more positive than their perceptions of male infants.

Findings Related to Discrepancy Scores

The findings suggested that the discrepancy between expected and actual infant behavior may have been an important factor in influencing the ease of transition and perceptions of role competence for mothers. Discrepancy scores apparently were not influential for fathers. It appeared that fathers perceived their infants' actual behavior to be as they had expected it to be.

B. LIMITATIONS OF THE STUDY

The greatest limitation of the study was the means by which subjects were recruited. Because of local policies related to the use of human subjects for research, no expectant couples' names could be obtained except through visiting publically-announced prenatal classes. Then, only voluntary participation could be solicited. This restriction skewed the sample toward middle class subjects and a select group of the middle class population. The findings, therefore, should not be generalized beyond populations similar to the one studied here.

C. IMPLICATIONS FOR RESEARCH AND THEORY

That the infant's behavior influences the ease of transition to parenthood and perceptions of the infant was well supported in this study. The pathways through which that influence acts were also

supported. On the basis of the empirical models, it seems likely that self-esteem should be removed from the proposed model and considered as a separate, though important variable. New models which would study the influence of self-esteem in relation to variables other than those proposed here need to be developed.

The findings with regard to occupational subgroups suggested that employed women, particularly professionally-employed women, do not react to the transition to parenthood in the same way as the nonemployed housewife. Little is actually known about professional women as they become mothers for the first time because their numbers have been small until recently. It appears that factors other than those studies here may be important in explaining the ease of transition to parenthood and perceptions of the infants for these women. More investigation of this group is needed.

The findings related to labor and delivery variables suggested that further exploration of those variables should be undertaken. The importance of the type of delivery experience chosen (husband present or not) may be a productive line of inquiry. In addition, further delineation of the infant's condition at birth and other events of the hospital experience may be important. The relationship between the gender of the infant and ease of transition to parenthood should be explored further, also.

Finally, the findings related to the discrepancy scores suggested that expectations of infant behavior in relation to actual infant behavior may yield some useful information. It might be especially

important to explore why the discrepancy score seemed to be important for mothers but not for fathers.

D. CLINICAL IMPLICATIONS OF THE STUDY

If the ease of transition to parenthood and parental perceptions of the infant are both related to the amount of obligatory infant behavior, then it should be possible soon after birth to identify babies who are likely to affect their parents negatively. Perhaps extra supports could be provided for the parents of those infants. Similarly, if postnatal self-esteem is significantly related to ease of role transition and prenatal self-esteem is strongly correlated with postnatal self-esteem, then it may be possible to establish a prenatal self-esteem level below which parents are at risk for having a difficult time making the transition to parenthood. Perhaps there is a combination of low self-esteem parents and high obligatory behavior infants that could be identified to constitute a high risk group.

The model also suggested mechanisms for intervention. For instance, role activity change might be moderated by providing supplemental care for the infant that would allow the mother to pursue other satisfying activities. Perhaps the mothers' perceptions of their role competence and self-esteem could be increased through a supportive educational process, perhaps by the use of home visitors in the first few days or weeks after delivery.

The labor and delivery findings would appear to have implications for obstetric care, particularly around the issue of the father's presence

in the delivery room. Before conclusions are drawn from these findings, however, it should be remembered that all of the couples in the study had decided prior to entering the prenatal classes that they wanted to participate together in labor and delivery. There is no evidence to suggest that fathers should be coerced into participating in their wives' labors and deliveries if they do not want to. For those who choose to do so, however, there appears to be a benefit for the wife in terms of ease of transition to parenthood. Further study of the factors that influence that choice is needed. It is quite likely that there are basic differences in the husband-wife relationship between couples who choose to work together in childbirth and couples who choose not to do so.

The findings with regard to the relationship between the NPI scores and the gender of the infant indicate that further study of the perceptions of infants is needed. Discrepancy score findings suggested that further exploration of expectations of infant behavior might be a fruitful line of inquiry, especially with an eye toward intervention in the form of parent education.

LIST OF REFERENCES

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Adams, M. Early concerns of primigravida mothers regarding infant care activities. Nursing Research, 1963, 12, 72-77.

Aleksandrowicz, M. K. Neonatal behavioral patterns and their relation to obstetrical medication (Doctoral dissertation, University of Kansas, Lawrence, 1973).

Aleksandrowicz, M. K. The effect of pain relieving drugs administered during labor and delivery on the behavior of the newborn. The Merrill-Palmer Quarterly, 1974, 20, 121-141.

Aaronson, E. The process of dissonance. In N. Warren and M. Jahoda (Eds.), Attitudes (2nd ed.). Middlesex, England: Penguin Books, Ltd., 1973.

Askham, J. Identity and stability within the marriage relationship. Journal of Marriage and the Family, 1976, 38, 535-547.

Bell, R. Q., and Costello, N. Three tests for sex differences in tactile sensitivity in the newborn. Biologia Neonatorum, 1964, 7, 335-347.

Bell, R. Q., and Darling, J. F. The prone head reaction in the human neonate: Relation with sex and tactile sensitivity. Child Development, 1965, 36, 943-949.

Beauchamp, D. Parenthood as crisis: An additional study. Unpublished manuscript, University of North Dakota, Grand Forks, 1968.

Birns, B. Individual differences in human neonates' responses to stimulation. Child Development, 1965, 36, 249-256.

Blumer, H. Symbolic interactionism: Perspective and method. Englewood Cliffs, N. J.: Prentice Hall, 1969.

Brazelton, T. B. Psychophysiologic reactions in the neonate. I. The value of observation of the neonate. Journal of Pediatrics. 1961a, 58, 508-512.

Brazelton, T. B. Psychophysiologic reaction in the neonate. II. The effects of maternal medication on the neonate and his behavior. Journal of Pediatrics, 1961b, 58, 513-518.

Bridger, W. H., and Birns, B. Neonates' behavioral and autonomic responses to stress during soothing. In J. Wortis (Ed.), Recent advances in biological psychiatry. New York: Plenum Press, 1963.

Broussard, E. R. Evaluation of televised anticipatory guidance to primiparae. Community Mental Health Journal, 1976, 12, 203-210.

Broussard, E. R., Project Administrator, Pittsburgh First-Born Project, University of Pittsburgh Graduate School of Public Health, Pittsburgh. Personal communication, March 1979.

Broussard, E. R., and Hartner, M. S. S. Maternal perceptions of the neonate as related to development. Child Psychiatry and Human Development, 1970, 1, 432-449.

Bullmer, K. The art of empathy. New York: Human Sciences Press, 1975.

Burr, W. R. The ease of role transitions. Theory construction and the sociology of the family. New York: John Wiley & Sons, 1973.

Carey, W. B. Measurement of infant temperament in pediatric practice. In J. C. Westman (Ed.), Individual differences in children. New York: John Wiley & Sons, 1973.

Clark, A. L., and Affonso, D. D. Mother-child relationships. American Journal of Maternal-Child Nursing, 1976, 1, 617-620.

Cohen, J., and Cohen, P. Applied multiple regression/correlation analysis for the behavioral sciences. New York: John Wiley & Sons, 1975.

Coleman, J. C., and Broen, W. E. Abnormal psychology and modern life. Glenview, Ill.: Scott Foresman & Co., 1972.

Dyer, E. D. Parenthood as crisis: A restudy. Marriage and Family Living, 1963, 25, 196-201.

Emde, E. N., and Koening, K. L. Neonatal smiling and rapid eye movement states. Journal of American Academy of Psychiatry, 1969a, 8, 57-67.

Emde, E. N., and Koening, K. L. Neonatal smiling, frowning, and rapid eye movement states. Journal of American Academy of Psychiatry, 1969b, 8, 637-656.

Fein, R. A. Men's entrance to parenthood. The Family Coordinator, 1976, 25, 341-348.

Festinger, L. A theory of cognitive dissonance. Evanston: Row Peterson & Co., 1957.

Gibaud-Wallston, J. Situational determinants of self-esteem in adults. Unpublished manuscript, Peabody College, Nashville, 1976.

Gibaud, Wallston, J. Self-esteem and situational stress: Factors related to sense of competence in new parents (Doctoral dissertation, Peabody College, Nashville, 1977).

Greenberg, N., and Morris, N. Engrossment: Newborn's impact on the father. American Journal of Orthopsychiatry, 1974, 44, 520-531.

Hansen, M. F., and Arandine, C. R. The changing face of primary pediatrics. The Pediatric Clinics of North America, 1974, 21, 245-256.

Hill, R. Families under stress. New York: Harper and Brothers, 1949.

Hobbs, D. F. Parenthood as crisis: A third study. Journal of Marriage and the Family, 1965, 27, 367-372.

Hobbs, D. F. Transition to parenthood: A replication and an extension. Journal of Marriage and the Family, 1968, 30, 413-417.

Hobbs, D. F., and Cole, S. P. Transition to parenthood: A decade replication. Journal of Marriage and the Family, 1976, 38, 723-731.

Hobbs, D. F., and Wimbish, J. M. Transition to parenthood: A decade replication. Journal of Marriage and the Family, 1977, 39, 667-689.

Holmes, T., and Rahe, R. The social readjustment rating scale. Journal of Psychosomatic Research, 1967, 11, 213-218.

Jacoby, A. P. Transition to parenthood: A reassessment. Journal of Marriage and the Family, 1969, 31, 720-727.

Johnson, M., Kayne, M., and Mittleider, K. Putting more PEP in parenting. American Journal of Nursing, 1977, 77, 994-995.

Korner, A. F. Neonatal startles, smiles, erections, and reflex sucks as related to state, sex, and individuality. Child Development, 1969, 40, 1039-1053.

Korner, A. F. Visual alertness in neonates: Individual differences and their correlates. Perceptual and Motor Skills, 1970, 31, 499-509.

Korner, A. F. Individual differences at birth: Implications for early experience and later development. American Journal of Orthopsychiatry, 1971, 41, 608-619.

Korner, A. F. Sex differences in newborns with special reference to differences in the organization of oral behavior. Journal of Child Psychology and Psychiatry, 1973, 14, 19-29.

Korner, A. F., and Grobstein, R. Visual alertness as related to soothing in neonates: Implications for maternal stimulation and early deprivation. Child Development, 1966, 37, 867-876.

Korner, A. F., and Grobstein, R. Individual differences at birth. Implications for mother-infant relationship and later development. Journal of American Academy of Child Psychiatry, 1967, 6, 676-690.

Korner, A. F., and Kramer, H. C. Individual differences in spontaneous oral behavior. In J. F. Bosma (Ed.), Third symposium on oral sensation and perception: The mouth of the infant. Springfield: Charles C. Thomas, 1972.

Korner, A. F., and Thoman, E. Visual alertness in neonates as evoked by maternal care. Journal of Experimental Child Psychology, 1970, 10, 67-78.

Kron, R. E., Stein, M., and Goddard, K. E. Newborn sucking behavior affected by obstetric sedation. Pediatrics, 1966, 37, 1012-1016.

Lamb, M. E. A Re-Examination of the infant social world. Human Development, 1977, 20, 65-85.

Lazarus, R. S. Cognitive and personality factors underlying threat and coping. In M. H. Appley and R. Trumbell (Eds.), Psychological Stress. New York: Appleton-Century-Crofts, 1967.

LeMasters, E. E. Parenthood as crisis. Marriage and Family Living, 1957, 19, 352-355.

Meyerowitz, J. H., and Feldman, H. Transition to parenthood. Psychiatric Research Reports, 1966, 20, 78-84.

Moss, H. A. Sex, age, and state as determinants of mother-infant interaction. Merrill-Palmer Quarterly, 1967, 13, 19-36.

Nie, N. H., Hull, C. H, Jenkins, J. G., Steinbrenner, K., and Bent, D. H. Statistical package for the social sciences. New York: McGraw-Hill, 1975.

Nuckolls, C. B., Cassel, J., and Kaplan, B. H. Psychosocial assets, life crises and the prognosis of pregnancy. American Journal of Epidemiology, 1972, 95, 431-441.

Parke, R. D., and Sawin, D. B. The father's role in infancy: A re-evaluation. Family Coordinator, 1976, 25, 365-371.

Prechtl, H. F. R. The mother-child interaction in babies with minimal brain damage. In B. M. Foss (Ed.), Determinants of infant behavior (Vol. 2). London: Methuen, 1963.

Rhinegold, H. L. The social and socializing infant. In D. Goslin (Ed.), Handbook of socialization theory and research. Chicago: Rand McNally, 1969.

Robinson, J. P., Athanasiou, R., and Kendra, B. H. Measures of occupational attitudes and occupational characteristics, Survey Research Center, Institute for Social Research, University of Michigan, Ann Arbor, 1969.

Robinson, J. P., and Shaver, P. R. Measures of social psychological attitudes. Ann Arbor: Publications Division, Institute for Social Research, 1972.

Robson, K. S., and Moss, H. A. Patterns and determinants of maternal attachment. Journal of Pediatrics, 1970, 77, 976-985.

Rosenberg, M. Society and the adolescent self-image. Princeton, New Jersey: Princeton University Press, 1975.

Rossi, A. S. Transition to parenthood. Journal of Marriage and the Family, 1968, 30, 26-39.

Russell, C. S. Transition to parenthood: Problems and gratifications. Journal of Marriage and the Family, 1974, 36, 294-301.

Ryder, R. G. Longitudinal data relating marriage satisfaction and having a child. Journal of Marriage and the Family, 1973, 35, 604-607.

Shereshefsky, P. M., and Yarrow, L. J. Psychological aspects of a first pregnancy and early postnatal adaptation. New York: Raven Press, 1973.

Simpkins, C. Lifecycle and stress (Working paper #22, Center for Community Studies of the John F. Kennedy Center for Research on Education and Human Development. George Peabody College, Nashville, 1972).

Stechler, G. Newborn attention as affected by medication during labor. Science, 1964, 144, 315-317.

Stranik, M. K., and Hogberg, B. L. L. Transition into parenthood. American Journal of Nursing, 1979, 79, 90-93.

Tanner, J. M. Variability of growth and maturity in newborn infants. In M. Lewis and L. A. Rosenblum (Eds.), The effect of the infant on its caregiver. New York: John Wiley & Sons, 1974.

Thomas, A., and Chess, S. Temperament and development. New York: Brunner/Mazel, 1977.

Warr, P. B., and Knapper, C. The perception of people and events. New York: John Wiley & Sons, 1968.

Wicklund, R. A., and Brehm, J. W. Perspectives on cognitive dissonance. Hillsdale, N. J.: Laurence Eilbaun Assoc. Pub., 1976.

Wolff, P. H. The causes, controls, and organization of behavior in the neonate. Psychological Issues, 1966, 5, (1). (Monograph 17)

Zinner, E., and Hertzman, R. P.A.C.E.: A model for parent-infant support groups during the first months of life. Clinical Pediatrics, 1978, 17, 396-400.

APPENDICES

APPENDIX A

EXPECTED INFANT BEHAVIOR CHECK LIST

Check the answer that best fits what you expect of your baby at one month of age.

I expect my baby to:	(1) Most of the time	(2) Very often	(3) Sometimes	(4) Seldom or never
have a sleep schedule that is predictable				
eat on a regular schedule				
be predictable about how long feedings will take				
cry				
be quieted (from crying) by what I do				
be predictable about what will quiet him/her				

I expect my baby to:	0 to 3	4 to 6	7 to 9	More than 9
have (how many?) wet diapers in 24 hours				
have (how many?) dirty diapers in 24 hours				
"spit up" milk (how many times?) in 24 hours				

I expect my baby to:	Very often	Fairly often	Every now and then	Seldom or never
smile at me				
look me in the eye				

Check your answers:

I expect my baby to:	(1)	(2)	(3)	(4)
sleep (in 24 hours)	16 to 20 hours	12 to 16 hours	8 to 12 hours	Less than 8 hours
awaken at night	no times	1 time	2 to 3 times	More than 3 times
need for an average feeding	20 to 30 minutes	30 to 45 minutes	45 to 60 minutes	More than 60 minutes

APPENDIX B

SELF-ESTEEM SCALE

Please check the box that fits your feelings about yourself:

	(1) Strongly disagree	(2) Disagree	(3) Agree	(4) Strongly agree
I feel that I'm a person of worth, at least on an equal plane with others				
I feel that I have a number of good qualities				
All in all, I am inclined to feel that I am a failure				
I am able to do things as well as most other people				
I feel I do not have much to be proud of				
I take a positive attitude toward myself				
On the whole, I am satisfied with myself				
I wish I could have more respect for myself				
I certainly feel useless at times				
At times I think I am no good				

APPENDIX C

ACTUAL INFANT BEHAVIOR CHECK LIST

Check the answer that best fits what your baby is doing now.

My baby:	(1) Most of the time	(2) Very often	(3) Sometimes	(4) Seldom or never
sleeps on a schedule that is predictable				
eats on a regular schedule				
is predictable about how long feedings will take				
cries				
is quieted (from crying) by what I do				
is predictable about what will quiet him/her				

My baby:	0 to 3	4 to 6	7 to 9	More than 9
has (how many?) wet diapers in 24 hours				
has (how many?) dirty diapers in 24 hours				
"spits up" milk (how many times?) in 24 hours				

My baby:	Very often	Fairly often	Every now and then	Seldom or never
smiles at me				
looks me in the eye				

Check your answers:

My baby:	(1)	(2)	(3)	(4)
sleeps (in 24 hours)	16 to 20 hours	12 to 16 hours	8 to 12 hours	Less than 8 hours
awakens at night	no times	1 time	2 to 3	More than 3 times
needs for an average feeding	20 to 30 minutes	30 to 45 minutes	45 to 60 minutes	More than 60 minutes

APPENDIX D

NORMATIVE CHANGE SCALE

Parental Role Activity

Please answer the following questions as they apply to you:

_____ How many times do you get up at night with the baby on the average?

0 1 2 3 4 5 6 7 More than 7

_____ On the average, how many hours sleep do you get in 24 hours?

0 1 2 3 4 5 6 7 8 9 10 11 More than 11

_____ How many times per week do you wash clothes for the baby?

0 1 2 3 4 5 6 7 8 More than 8

_____ On the average, how many hours per day do you spend preparing the baby's food and feeding him/her?

0 1 2 3 4 5 6 7 8 9 0 More than 10

Role Activity Change

How much change has your baby brought to your life?

Activity	Amount of Change (1) Very great change	(2) Great change	(3) Some change	(4) Little or no change
Going to friends' homes				
Going to parties				
Having friends over				
Talking with friends on the telephone				
Going out with husband/wife				
Talking with husband/wife				
Time for yourself				
Time to do things you enjoy at home				
Amount of work to be done at home				

APPENDIX E

PERCEPTIONS OF ROLE COMPETENCE

How would you rate your ability to give physical care to the baby:

		(1) excellent	(2) very good	(3) good	(4) fair	(5) poor
_____	Diapering					
_____	Dressing					
_____	Feeding					
_____	Bathing					

How would you rate your ability to tell what your baby needs when he or she fusses?

(1) __excellent (2) __very good (3) __good (4) __fair (5) __poor

How would you rate your ability to comfort your baby when he/she cries?

(1) __excellent (2) __very good (3) __good (4) __fair (5) __poor

APPENDIX F

ROLE TRANSITION CHECK LIST

Below are some common experiences of new parents. Please indicate how easy or difficult they were for you to cope with.

	(1) Very Difficult	(2) Somewhat Difficult	(3) A little difficult	(4) Fairly easy	(5) Very easy	(6) Does not apply
Husband/wife showing a lot of attention to the baby						
Advice from inlaws						
Changes in wife's overall appearance						
Less time with friends						
Changes in routines (sleeping, eating)						
Husband/wife showing little affection						
Increased work load at home						
Negative feelings toward the baby						
Changes in housekeeping standards						
Changes in sexual responses of self						
Feelings of distance from husband/wife						
Difficulty in falling asleep at bedtime						
Changes in career or life plans because of baby						
Changes in sexual responses of husband/wife						
Irregularity of meals						
Sharing husband's/wife's time and attention with the baby						
Increased costs						
Decreased time for myself						
Changes in wife's figure						
Uncertainty about myself as a parent						
Fatigue						
Changes in employment status of wife						
Irritability of self						

APPENDIX G

NEONATAL PERCEPTION INVENTORY

AVERAGE BABY

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

How much crying do you think the average baby does?

a great deal	a good bit	moderate amount	very little	none

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

a great deal	a good bit	moderate amount	very little	none

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

a great deal	a good bit	moderate amount	very little	none

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

a great deal	a good bit	moderate amount	very little	none

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

a great deal	a good bit	moderate amount	very little	none

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

a great deal	a good bit	moderate amount	very little	none

Form A_2

APPENDIX G (continued)

YOUR BABY

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

How much crying has your baby done?

a great deal	a good bit	moderate amount	very little	none

How much trouble has your baby had feeding?

a great deal	a good bit	moderate amount	very little	none

How much spitting up or vomiting has your baby done?

a great deal	a good bit	moderate amount	very little	none

How much difficulty has your baby had in sleeping?

a great deal	a good bit	moderate amount	very little	none

How much difficulty has your baby had with bowel movements?

a great deal	a good bit	moderate amount	very little	none

How much trouble has your baby had in settling down to a predictable pattern of eating and sleeping?

a great deal	a good bit	moderate amount	very little	none

Form B_2

APPENDIX H

EXPLANATORY LETTER

Dear Expectant Parent:

Through the University of Tennessee in Knoxville, we are conducting a study about new parents and their babies. We hope that you will agree to help us with the study.

If you decide to be a part of this study, you will be asked to fill out some check lists and to answer some questions in writing now. This will take about 30 minutes to do. You may see these materials before you make your decision. About one month after your baby is born, fathers will be sent another packet of check lists and questions to fill out. This packet will be very much like the first one, but it may take about 15 minutes longer to fill out. The new mother will be visited in the home by me or my assistants to have an interview about her hospital experiences that will last about 15 minutes and to fill out the same check lists and questions as those sent to the father. The home visit should not take more than one hour in all. All of the questionnaires will be picked up at the time of the home visit. Mothers and fathers will be asked to write their answers privately without sharing their answers with each other until the study is completed.

The questions you will answer now will deal with what experience you have already had with babies, what you expect your baby to be like, how you feel about yourself and your life now, and some general background information. Later you will be asked to answer some of the same questions again and to tell about some of the changes in your life that happen after your baby is born. The mother will be asked some questions about what happened to her when she was in the hospital to have the baby, also.

Your answers will be kept private and confidential. You will be identified only by a code number except to the person who collects the information and the person in charge of the study. The page that contains your name and address will be separated from the other pages and kept in a separate file. No one other than the person who collects the data or the person in charge of the study will ever see the identifying information.

You have the right to refuse to participate in this study. You also have the right, if you choose to participate, to refuse to answer any question that bothers you, and you may drop out of the study at any time, if you wish. If you have questions, you may ask the person who has given you this letter, or if it was mailed to you, you may contact

the director of the project by calling the phone number or writing the address printed on the card attached to the letter. Please keep the card in case you have questions later. The person who comes to do the interview after your baby is born will carry a card just like the one you now have, so that there will be no doubt about who she is. An appointment will be made with you for the home visit, and the visitor will be a woman or two women who come together.

While there are no guaranteed benefits for you if you participate in this study, I believe that you will find the experience to be an interesting one, and you will have the satisfaction of knowing that you have done something that may be helpful to other new parents. We do not anticipate any risk to you from participating in the study. If you find that being in the study makes you uncomfortable, you may discuss your feelings with me or with the interviewer who visits you, or you may drop out of the study. We do not want to cause you any discomfort or unpleasantness.

If you wish to receive a summary of the findings of the study, please check the box on the consent form, and a summary of the findings will be sent to you after the study is finished. If you want to be a part of this study, please sign the attached Consent Form and return it with the materials. Without that form signed, your answers cannot be used. If you decide not to be in the study, please return the materials, and you will not be contacted again. No one can be in the study unless both the husband and wife participate.

Thank you very much for your time. I hope you will choose to participate and that you will find the experience to be a satisfying one.

Sincerely,

Florence B. Roberts, RN, MN
Project Director

APPENDIX I

CONSENT FORM

The parent and baby study done through The University of Tennessee, Knoxville, has been explained to me in writing, and I have been given a card that tells me how to contact the project director if I have questions.

I understand that those conducting the study will:

1. answer any questions I have
2. not do or say anything that would be thought to be harmful to me
3. protect the privacy of my responses by giving me a code number and never using my name with the answers I give
4. be willing to share the overall results with me if I ask for them

By agreeing to take part in the study I understand that I:

1. will fill out check lists and answer questions in writing once before my baby is born and once after my baby is born
2. will allow a home visit to be made for the purpose of a short interview with me and for me to fill out the same forms my husband has filled out
3. will be answering questions about my experiences in becoming a parent, my feelings about my life and myself, and my baby's behavior
4. have the right to leave any question unanswered
5. have the right to drop out of the study at any time.

Signed_____ Phone number_____

Date_____

Address_____

Doctor's name_____

APPENDIX I (continued)

Hospital to be used for delivery_____

Expected date of delivery_____

/_/ I would like to have a summary of the findings of the study sent to me.

APPENDIX J

DEMOGRAPHIC INFORMATION

BACKGROUND INFORMATION

First we need a little background information:

_____ Age_____ Sex_____

_____ Occupation_____

_____ Current employment status:

(1) ___unemployed (2) ___employed part time (3) ___employed full time

_____ Highest grade completed in school?

1 2 3 4 5 6 7 8 9 10 11 12

(13)___ some college/technical

(14)___ college graduate

(15)___ some graduate study

(16)___ graduate degree

(17)___ other_____

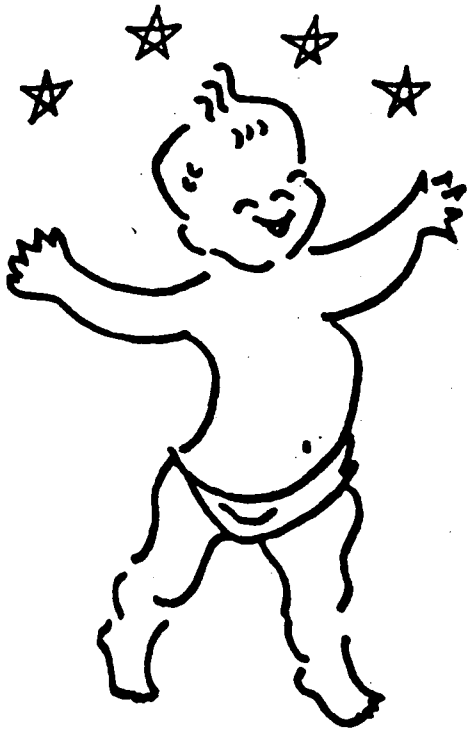
_____ Personal income (annual)—your income, not family income:

(1) __ $ 0 to $ 3,000 (7) __ $18,001 to $21,000
(2) __ $ 3,001 to $ 6,000 (8) __ $21,001 to $24,000
(3) __ $ 6,001 to $ 9,000 (9) __ $24,001 to $27,000
(4) __ $ 9,001 to $12,000 (10) __ $27,001 to $30,000
(5) __ $12,001 to $15,000 (11) __ $30,001 to $33,000
(6) __ $15,001 to $18,000 (12) __ More than $33,000

_____ How long have you been married (years and months)?_____

APPENDIX K

CERTIFICATE



I am a Special Baby!

I helped with the

Parent-Infant Study 1978-1979.

APPENDIX L

POSTNATAL INTERVIEW

POSTNATAL INTERVIEW SCHEDULE

Now, Mrs. _____, I am going to ask you a few questions about what you learned about being a mother before your baby was born and about your experiences in the hospital.

_____ Lots of people tell expectant mothers how to take care of their babies. Did anyone give you especially good advice? Who?

(1) __ no one (2) __ mother (3) __ mother-in-law (4) __ other relative

(5) __ friend (6) __ doctor (7) __ nurse (8) __ other _____

_____ Did you attend classes to learn about being a parent before your baby was born?

(1) __ no (2) __ yes

____ What kind of classes were they?

(1) __ general prenatal

(2) __ natural childbirth

(3) __ Red Cross Mother and Baby Care

(4) __ Other: _____

____ What were the most helpful things you learned?

(1) __ What to expect in labor and delivery

(2) __ Physical care of the baby

(3) __ Emotional needs of the baby

(4) __ What to expect about routines, sleep

(5) __ Your emotional reactions

(6) __ Husband's emotional reactions

(7) __ How to deal with inlaws

(8) __ Other: _____

Is there anything that was not included that you wish had been taught?

_____

(Not to be coded) _____

_____

The next questions are about your labor and delivery experience. Some mothers remember a lot about the experience; others remember very little. Just answer the best you can. If you don't remember something, that is ok.

_____ Approximately how long was it from the time you first realized you were in labor until the baby was born?

(1) __ less than 4 hours

(2) __ 4-8 hours

(3) __ 8-12 hours

(4) __ 12-16 hours

(5) __ more than 16 hours

(6) __ don't know

_____ Was your husband with you when you were in labor at the hospital?

__ No (1) __ Yes (2) __ Don't know (3)

_____ Was your labor experience

(1) __ easier than you expected? (3) __ Don't know

(2) __ harder than you expected?

In what way was it easier or harder?

(Not coded) _____

_____

_____

_____ Did you receive medication during labor?

(1) __ No (2) __ Yes (3) __ Don't know

____ What kind of medication?

(1) __ injection
(2) __ inhalation
(3) __ epidural
(4) __ local
(5) __ other

_____ Was your husband with you in the delivery room?

(1) __ No (2) __ Yes (3)__ Don't know

_____ Would you say the delivery of your baby was

(1) __ hurried (2) __ calm (3) __ don't know

_____ Were you awake for the delivery?

(1) __ No (2) __ Yes

_____ Did you receive an anesthetic for the delivery?

(1) __ No (2) __ Yes (3) __ Don't know

____ What kind of anesthetic?

(1) __ spinal
(2) __ local
(3) __ inhalation
(4) __ other_____

_____ How long after delivery did you first see your baby?

(1) __ immediately after delivery
(2) __ while still in the delivery room
(3) __ while in the recovery room
(4) __ soon after going to postpartum room
(5) __ within 4 hours of reaching postpartum room
(6) __ 4-8 hours after reaching postpartum room
(7) __ more than 8 hours after reaching postpartum room

_____ If subject knows exact times:

(1) __ less than one hour after delivery

(2) __ 1-2 hours after delivery

(3) __ 2-4 hours after delivery

(4) __ 4-8 hours after delivery

(5) __ more than 8 hours after delivery

_____ How long after delivery did you first hold your baby?

(1) __ immediately after delivery

(2) __ while still in the delivery room

(3) __ while in the recovery room

(4) __ soon after going to postpartum room

(5) __ within 4 hours of reaching postpartum room

(6) __ 4-8 hours after reaching postpartum room

(7) __ more than 8 hours after reaching postpartum room

_____ If subject knows exact times:

(1) __ less than one hour after delivery

(2) __ 1-2 hours after delivery (How long after delivery did she hold her baby?)

(3) __ 2-4 hours after delivery

(4) __ 4-8 hours after delivery

(5) __ more than 8 hours after delivery

_____ What was your baby's condition at birth?

(1) __ normal

(2) __ needed help to start breathing

(3) __ poor

(4) __ almost died

(5) __ other_____

(6) __ don't know

_____ Do you happen to know your baby's Apgar score? If so, what was it?

(1) __ 9-10 Baby's Sex_____

(2) __ 7-8 Baby's Wt._____

(3) __ 4-6

(4) __ 0-3

(5) __ don't know

_____ Did your baby have anything wrong with him/her at birth?

(1) __ No (2) __ Yes (3) __ Don't know

What was wrong?

(Not coded) _____

_____

_____ Did any complications with the baby develop while you were in the hospital?

(1) __ No (2) __ Yes (3) Don't know

What were the complications?

(Not coded) _____

_____

_____ Did you have rooming in?

(1) __ No (2) __ Yes

_____ For how long?

(1) __ a few hours

(2) __ 1-2 days

(3) __ 2-4 days

(4) __ more than 4 days

_____ What part of the day was the baby in the room?

(1) __ 24 hours a day

(2) __ 12-24 hours a day

(3) __ 8-12 hours a day

(4) __ less than 8 hours a day

_____ If the baby was not in the room 24 hours/day, was he/she brought to you regularly for feedings during the remainder of the day/night?

(1)__ No (2) __ Yes (3) __ Don't know

_____ Was your baby brought to you regularly for feedings?

(1) __ No
(2) __ Yes
(3) __ Don't know

Breast_____ Solids_____
Bottle_____

_____ Did you have any complications after delivery?

(1) __ No (2) __ Yes (3) __ Don't know

What complications did you have?

(Not coded) _____

_____

_____

_____ How long has it taken you to recover from the complications?

(1) __ less than a week
(2) __ 1-2 weeks
(3) __ 2-4 weeks
(4) __ more than 4 weeks

Thank you, Mrs. _____. This completes the interview and the data collection for our project. I appreciate your help and I hope you will express my thanks to your husband also. Do you have any questions about the project or your part in it?

APPENDIX M

RATIONALE FOR REGRESSION ANALYSIS APPROACH USED

Regression analyses may be done either in a hierarchical or a stepwise fashion. The hierarchical method requires the investigator to establish the order of the independent variables according to some logical progression, based usually on either temporal or conceptual priority. When a stepwise progression is used, the computer first selects the independent variable that is most important in accounting for variation in the dependent variable. Then the independent variable that is next most important when the independent variables already in the equation are considered is selected, and so on, until no other independent variables reach a sufficient significance level to be included. A combination approach may also be used in which independent variables are grouped into sets based on some logical, causal, or temporal ordering, even when the exact order of independent variables within the set is not theoretically determined.

According to Cohen and Cohen (1975), when stepwise regression is used with a large number of independent variables, ". . . there can be very serious capitalization on chance" (p. 103). A related problem is that the results obtained from stepwise regression vary from sample to sample due to trivial differences among competing independent variables, especially when the independent variables are relatively highly correlated with each other. According to Cohen and Cohen, stepwise regression should be used only when the purpose of the research is

predictive as opposed to explanatory and when the N is relatively large in comparison to the number of independent variables. (They recommend a ratio of independent variables to N of 1:40.) Finally, they state: ". . . we feel that more orderly advance in behavioral sciences is likely to occur when researchers armed with theories provide a priori hierarchical ordering which reflects causal hypotheses rather than when computers order IV's post and ad hoc for a given sample" (p. 103).

Based on the above arguments and the small size of the study sample (n = 64), a hierarchical approach to regression analyses was selected. The question of the number of independent variables that could be used with the relatively small sample was answered by considering the power function desired for the analysis. In order to consider power, a null hypothesis was used. In this case, the null hypothesis was that the population r (Pearson correlation coefficient) equals zero. The power is ". . . the probability of failing to reject the null hypothesis when it is false. . ." (p. 54). While there are no established rules for desirable power function levels, Cohen and Cohen recommended .80 as a desirable power function with a range of .70 to .90 as the most practical levels to maintain reasonable balance between confidence in the results and overall cost due to the size n required to reach the power function. Cohen and Cohen provided a formula and tables for determining the power provided for varying n's and independent variables (k) in the regression analysis:

$$n = \frac{L}{f^2} + K + 1$$

where L = a value found in tables based on the desired power function for a given n and k level and where

$$f^2 = \frac{sr^2}{1-R^2} \quad .$$

The best way to choose the f^2 is through knowledge of previous empirical findings. Where typical sr^2's are not available (as is true in transition to parenthood research), then a level for f^2 of .15 was suggested (Cohen & Cohen, p. 151). Using the procedure and formula they recommended, it was determined that a power function of .70 could be obtained with the introduction of three independent variables in each regression analysis with a hierarchical ordering of the independent variables or sets of variables for the sample n of 64. Higher power functions reduced the number of permitted independent variables to one or two.

VITA

Florence Bright Roberts was born in Bryan, Texas, on February 20, 1941. She moved to Port Arthur, Texas, where she lived until she finished high school. She received her Associate of Arts degree from Ion Morris College in Jacksonville, Texas, in 1960, where she received the Founder's Award. She received her Bachelor of Science degree in nursing from the University of Texas in 1963, where she was graduated with highest honors. In 1964, she received her Master of Nursing in Maternal-Child Health Nursing from Emory University, where she received the Alumnae Associate's Award. In 1964, she joined the faculty of The University of Tennessee College of Nursing in Memphis, where she taught pediatric nursing until July 1969.

She was married to the Rev. Paul B. Roberts in November 1968, and their two daughters were born in June 1970 and in July 1973. They lived in Memphis, Gallatin, and Knoxville, Tennessee, before moving to Nashville in November 1977. Mrs. Roberts has written two nursing text books and was employed half-time at the Sumner County Guidance Center before returning to school in Knoxville.

Mrs. Roberts is currently employed as a research associate at the Center for the Study of Families and Children, Vanderbilt Institute for Public Policy Studies in Nashville. Her professional interests are in the transition to parenthood, in parent education, and in preventive mental health.