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I am submitting herewith a dissertation written by Nancy M. Alley entitled "Predictors of Mothers' Expectations for their Newborns' Growth and Development." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

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PREDICTORS OF MOTHERS' EXPECTATIONS FOR THEIR NEWBORNS' GROWTH AND DEVELOPMENT

A Dissertation

Presented for the

Doctor of Philosophy

Degree

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Nancy M. Alley

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ABSTRACT

The purpose of this study was to determine whether age, educational attainment, career status, and childbearing delay would function as predictors of maternal expectations for newborn growth and development. The research design was a survey design using the mother's expectations as a dependent variable and age, educational attainment, career status, and delay of childbearing as independent variables.

The sample consisted of 86 first-time mothers who were interviewed in the hospital within three days of childbirth. Two questionnaires were used to gather data on the mothers' perceptions and expectations regarding their newborns: form one of the Neonatal Perception Inventory (NPI) and the Maternal Expectations Report, a fixed response questionnaire based on the Denver Developmental Screening Test.

Multiple regression analysis was used to examine the relationships between expectations and the mother's age, educational attainment, career status, and delay of childbirth after marriage. None of the proposed positive relationships were supported by the statistical analysis. Thus, no easily obtained demographic variables were found to be predictors of maternal expectations for growth and development. Future research should focus on social psychological variables as predictors of maternal expectations.

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CHAPTER I

INTRODUCTION

For the child, especially the very young child, socialization is primarily an adult-initiated process. Although infants are active partners in the socialization process, limitations in cognitive and motoric skills prevent their contributions from being equal to those of parents. Parents can control the stimuli that impinge upon children, define objectives for their children, and, to a great extent, structure actions according to those objectives (Baumrind, 1980).

The expectations that parents have for parenting and for their children are used by parents to predict events, guide their behaviors, and assess events that have occurred (McGillicuddy-DeLisi, 1980, 1982). However, few studies have been conducted on parents' expectations for children and the relationship of these expectations to such variables as age, career status, and educational attainment. Research on parents' expectations and their predictors can provide useful information for early screening and intervention programs that provide both preventive and remedial services for families (Barnard & Gortner, 1977).

Statement of the Problem

The purpose of this investigation was to determine if there is a relationship between the mother's expectations for her newborn's growth and development and the following variables: the mother's age, her educational attainment, her career status, and her delay of childbearing after marriage.

Rationale

The assumption can be made that "having aspirations and expectations for one's own children is natural and universal" (Levin, Carey, Crocker, & Gross, 1983, p. 59). The importance of these expectations lies in their relationship to parental practices that affect the child's growth and development.

Thomas's (1978) concept of the definition of the situation helps to explain how the child's development is influenced by parental expectations. The child is born into a group of people among whom the general types of possible situations often have been defined and rules of conduct agreed upon. Thus, it is unlikely that infants and young children will make their own definitions and follow their own wishes without interference. Although parents may be unaware of the role they play in influencing the young child's behavior, they often define the situation for the child through speech and nonverbal behavior.

Parents' interpretations of events relating to their children are influenced by their expectations and beliefs about development (McGillicuddy-Delisi, 1980). The results of some studies, for example, indicate that mothers' knowledge and expectations about growth and development predict the actual growth and development of infants and children (Broussard & Harner, 1970; Snyder, Eyres, and Barnard, 1979).

There is a need to study "normal" families as a means of providing baseline data about family life and for identifying components of behavior that are most predictive of positive outcomes for the family system and its members. With the identification of predictor variables, educational and counseling programs for parents can focus on prevention (Fleetham, 1984). If information were available on the knowledge and expectations of mothers and the variables that affect them, services could then be tailored appropriately and delivered effectively (Jarrett, 1982).

In addition, there is also a need for more data about the earliest beginnings of dysfunctions and the characteristics that put infants at high risk for future developmental problems. Such data, if applied during early screening, could be used in interdisciplinary intervention programs to provide preventive and remedial services for families (Barnard & Gortner, 1977). It has been found that information can be gathered at birth that will predict later

IQ and language development. For the healthy infant, this information is not the standard data about the child's physical status, but data on the extent of social support and the mother's developmental expectations (Bee, Barnard, Eyres, Gray, Hammond, Spietz, Snyder, & Clark, 1982).

Theoretical Framework

The general theoretical orientation selected for this study was symbolic interaction, a framework that relies extensively on a person's perception of the social world. "Interactionists argue that the mentalistic definitions people make in their unique situations are the most useful explanatory variables in understanding human and social behavior" (Burr, Leigh, Day, & Constantine, 1979, p. 49). According to this perspective, the best way to understand humans is to deal with the mentalistic meanings and values in the minds of people because these are the most direct causes of their behavior. The emphasis, therefore, is on the definitional process or the meaning of events, persons, or phenomena to the individual.

Although mental variables are intervening processes between external stimuli and behavior, the mind is not the only explanation of human behavior. The interactionist framework also deals with variables that are antecedents of mentalistic phenomena, such as perceptions of social situations and social reference relationships (i.e.,

significant others and generalized others). In addition, the unique, unpredictable "I" or the spontaneous part of the self influences what goes on in the mind.

Figure 1 illustrates important concepts from the interactionist approach that provide the basis for the study. The unique combination of explanatory variables that are characteristic of symbolic interaction theory are shown. According to this perspective, mentalistic definitions that people make (i.e., mental variables) are the most useful explanatory variables for understanding human and social behavior (i.e., interaction and behavioral variables). Also included are antecedents of the mentalistic variables (i.e., societal structural variables) that help to explain what goes on in the minds of individuals (Burr, et al., 1979, p. 50).

A group of societal structural variables (i.e., antecedents of mentalistic phenomena) consisting of age, educational levels, career status and delayed childbirth is the specific focus of this study. Specifically, these variables were examined as predictors of the mother's expectations for growth and development--a mentalistic variable that influences the parent's interaction with the child and the child's development. To more clearly demonstrate the framework that will be used for this study, therefore, Figure 1 may be modified as shown in Figure 2 to illustrate the specific variables that are the focus of this research.

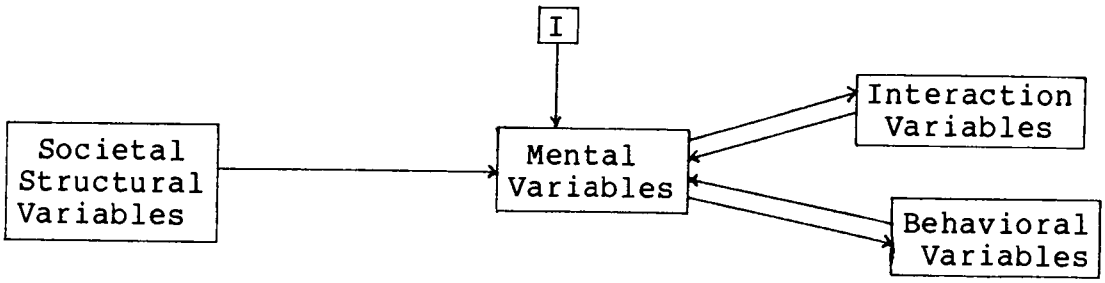


Figure 1

Relationship Between Societal Structural Variables, Mental Variables, and Behavior (Burr, et al., 1979, p. 50).

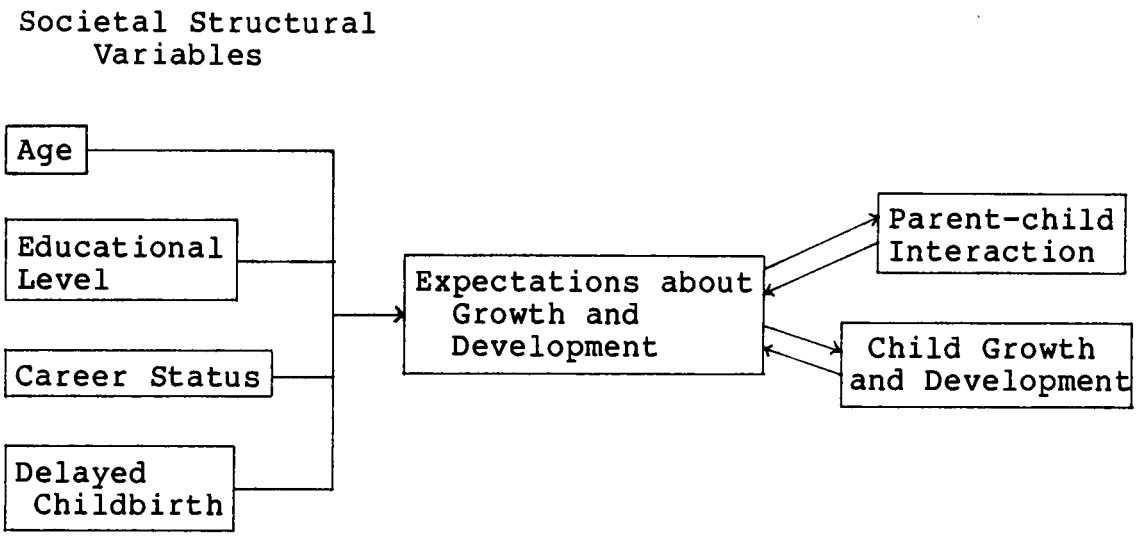


Figure 2

Relationship Between Sociodemographic Structural Variables, Expectations about Growth and Development, Parent-Child Interaction, and Child Growth and Development

Role Theory

Role theory is often thought to be an important emphasis within the larger framework of symbolic interaction. Roles, or integrated sets of social norms, consist of shared social expectations that specify how people either ought or ought not to behave in various situations. These expectations about interactional processes are in people's minds and are determined in part by personal and situational differences. For example, the mother's actions and responses are influenced by her perceptions of her experiences within the child care and child socialization roles, her infant's and others' responses to enactment of these roles, the situational context, and the mother's definition of the situation acquired through socialization (Mercer, 1981).

Roles consist of interpersonally shared expectations about interactional processes (Burr, et al., 1979). To explain human associations, Mead described a process wherein each acting individual ascertains the intention of the acts of others and makes his own response on the basis of that perceived intention. Thus, human behavior involves responding to the "future, intended behavior of others--not merely to their present actions" (Meltzer, 1967, p. 7).

Each member of a role relationship has an impact on other members. The behavior and abilities of children have potential impact on mothers' beliefs and expectations because information resulting from children's behavior is accounted

for within the situation (McGillicuddy-DeLisi, 1980). Thus, the infant is considered to be an active partner, even in the very early maternal role-taking process. This view of the infant may not fully agree with the interactionist assumption that infants are asocial and "their nature is determined by what they encounter and their reactions to what they encounter" (Burr, et al., p. 48). However, it is recognized that the infant's cognitive and motoric skills are limited and its contribution to the interactive process cannot be viewed as similar or equal to those of the parents (Parke, 1976).

Because socialization is an adult-initiated process for the young child, parents can alter the stimuli that impinge upon children, define objectives, and structure actions according to those objectives. To a great extent, children are presented with stimuli and exhorted to accomplish goals formulated for them by adults (Baumrind, 1980). The focus of this study, therefore, will be the adult, specifically, the mother's expectations for the infant's behaviors. Research on the mother's expectations and the previously discussed socio-structural variables can broaden current knowledge on the predictors of developmental outcomes and can provide information on precursor dimensions that need to be assessed for preventive care (Barnard & Gortner, 1977).

Nominal Definitions

Expectation is defined as a concept held about a behavior that is likely to be exhibited by a person. This concept includes both the anticipation and standards held for a person's behavior (Biddle & Thomas, 1966). The focus in this investigation will be on expectations as ideas "concerning what ought to occur" (Biddle & Thomas, 1966, p. 10). High Expectations for children's growth and development are defined as beliefs that children should achieve a particular developmental milestone at an age in which 25% or less of normal children perform the specific task (Rojas, 1980). Low Expectations for growth and development are defined as beliefs that children should achieve a particular developmental milestone at an age in which 90% or more of normal children perform the task (Rojas, 1980). Average Expectations for growth and development are defined as beliefs that children should achieve a particular milestone at an age in which 50% of normal children perform the task (Rojas, 1980).

Growth and development is defined as changes in both size and function of the individual (Thomas, 1979). These changes include physical development as well as social and behavioral changes that affect children's interaction with parents.

Maternal age is defined as the mother's reported age, in years, at the time of the birth of her child.

Educational attainment is a concept representing the level of formal education achieved by the mother.

Career status is a concept referring to the relative prestige of the mother's current job. In this study, career status is determined primarily by the relative education and income levels of persons in each occupation (Nam & Powers, 1983).

Delay of childbearing is a concept representing the period of time that the mother postponed childbirth after marriage.

Objectives

The major purpose of this study was to examine the relationship between the mother's expectations for her infant's growth and development and the following variables: mother's age, educational attainment, career status, and delay of childbearing. The specific objectives were as follows:

a. To determine if the mother's age predicted her expectations regarding the growth and development of her newborn.

b. To determine if the mother's educational attainment predicted her expectations regarding the growth and development of her newborn.

c. To determine if the mother's career status predicted her expectations regarding the growth and development of her newborn.

d. To determine if delay of childbearing after marriage predicted the mother's expectations regarding the growth and development of her newborn.

CHAPTER II

LITERATURE REVIEW

Parental expectations related to children's growth and development have received little attention in the literature. In addition, there is almost no literature on the relationship of parents' expectations to the variables maternal age, educational attainment, career status, and delayed childbirth.

Because of the limited literature on the specific issues of this study, this review will begin with a discussion of the concept "expectations" and the possible relationships between parental expectations and parental practices. Subsequently, the review will focus on the limited literature dealing with relationships between parental expectations and the sociodemographic variables of interest in this study. The review of literature will conclude with a discussion of the current support and logic for the following research hypotheses:

1. There will be a positive relationship between the mother's age and the degree to which expectations are high for her newborn's growth and development.

2. There will be a positive relationship between the mother's educational attainment and the degree to which her

expectations are high for her newborn's growth and development.

3. There will be a positive relationship between the mother's career status and the degree to which her expectations are high for her newborn's growth and development.

4. There will be a positive relationship between the mother's delay of childbearing after marriage and the degree to which her expectations are high for her newborn's growth and development.

Expectations

Darley and Fazio (1980) describe a general social interaction sequence in which the first step is the perceiver's formation of an expectancy regarding the behavior of another. These initial expectancies for behavior are derived not only from direct observations of the behaviors of others--observations that may not be representative--but also from evidence about the class of individuals to which the target individual is assumed to belong. In the case of prospective parents, this class of individuals might be labeled "newborns".

There are few studies, however, that focus on parents' expectations regarding the newborn's growth and development. McGillicuddy-DeLisi (1982), for example, found that parents' beliefs about child development ranged from well-articulated

theoretical statements to intuitive comments. Yet, parents nearly always presented these varying beliefs as truth statements or obvious facts about children and development.

Parents' expectations for infants, plus more general expectations about parenthood, have been shown to influence the adjustments of parents in their new role. LeMasters (1957, 1977), for example, focused on the unrealistic expectations about parenthood and suggested that parenthood has been romanticized in our society. He argued that parents who are anticipating the birth of their first child often are poorly prepared for the reality of parenthood and have unrealistic expectations about what parenthood will be like. In addition, negative expectations, as well as unrealistic expectations, have been associated with problems during the transition to parenthood (Kach & McGhee, 1982; Wylie, 1979).

Snyder, Eyres, and Barnard (1979) asked mothers about their expectations for their babies' development. Although infants can see, hear, and are aware of their surroundings from birth, many mothers did not anticipate these abilities in newborns. For example, only thirteen percent of these mothers thought their babies would start to be aware of their surroundings from birth. The mean age expected for this awareness was 7.8 weeks. Some mothers did not expect to begin teaching their babies until one year of age. Women with later developmental expectations for their infants tended to be those with fewer years of formal education,

lower family incomes, and lower levels of physical and emotional support from others. Rojas (1980), in a small sample, found no significant difference between the expectations of white and Puerto Rican mothers for language and gross motor development. However, white mothers did tend to have higher expectations in the areas of personal-social and fine motor-adaptive development.

Parents' general expectations for parenting and child development are derived from their own experiences as children and subsequent experiences in adult and parental roles (McGillicuddy-DeLisi, 1982). These expectations and beliefs are used to predict events and to guide the parent's behavior with others. In addition, these expectations and beliefs are continually reassessed for congruence with reality as events unfold. Thus, experiences with the infant or child can test the accuracy of expectations by supporting or negating them. An unresponsive or unreadable infant, therefore, can generate parental feelings of failure or helplessness (Goldberg, 1977). It is possible that parental feelings of failure may result if parents perceive their infants as unresponsive or unpredictable because of unrealistically high expectations for the infant's behaviors.

In a study of disabled persons, Wright (1966) refers to expectation discrepancies. When such a discrepancy is disturbing to the subject, the expectations and the apparent facts need to be reconciled. This reconciliation may occur

by: a) expectation revision, b) altering the apparent reality or c) considering the person atypical. When a child's behavior is dissonant with expectations, the parent may alter beliefs concerning all children or view their own child as different from the normal child within their belief system (McGillicuddy-DeLisi, 1980).

Parents' expectations of children are of interest also in reference to their possible effects on the treatment of children and on the subsequent development of the young. It seems reasonable to expect that what parents think about children's abilities will influence various aspects of their behavior toward children, including the kinds of demands made on children and the things that parents attempt to teach their offspring (Miller, White, & Delgado, 1980). Anderson (1981) found that informing mothers about the behavioral characteristics of their infants is an effective means of enhancing interaction between mother and infant.

Compared to other cultures, parents in Western nations tend to initiate child-training practices at an earlier developmental stage and to be harsher in their expectations of compliance from young children. Kempe and Helfer (1980) believe that these Western child-rearing practices (and unrealistic expectations) may make parents in these cultures an at-risk population for child abuse and neglect.

Children who are born into this world of unrealistic expectations have parents who make demands far in excess of

their offsprings' capabilities. Thus, these children are constantly striving to meet the extreme demands of their parents--and are constantly hurt and disappointed because they are not able to live up to the parent's expectations. Trust and basic interpersonal skills are not learned, making these children poorer candidates for parenthood in the future. Kempe and Helfer (1980, p. 39) refer to this never-ending cycle as the "World of Abnormal Rearing" or "W.A.R.". They also state that not knowing the basic stages of development and expecting too much of children are typical characteristics of abusive parents (Helfer & Kempe, 1976).

In a review of the literature on child abuse, Spinetta and Rigler (1972) concluded that "abusing parents have a high expectation and demand for the infant's or child's performance and a corresponding disregard for the infant's or child's own needs, limited abilities, and helplessness" (p. 299). These parents implemented culturally accepted norms for raising children with an exaggerated intensity and at an inappropriately early age. In a longitudinal study, Steele and Pollock (1974) also found that abusive parents have high expectations and performance demands for their infants and small children. These expectations were beyond the ability of the infants to respond and involved parental disregard for the infant's abilities and needs.

Mothers who attempted to teach their infants a difficult task that was appropriate for older children used positive

feedback and praise less frequently and physical guidance more frequently than when teaching their children age appropriate tasks (Barnard & Gortner, 1977). In a small sample of mothers in Greece, Hunt and Paraskevopoulas (1980) found that mothers' overestimation of their children's abilities interfered more with providing experiences that fostered development than did underestimation.

In contrast to expecting too much of children, Snyder, Eyres, and Barnard (1979) found that many mothers expected too little of their infants. Although significant differences were not found in the babies' gestational ages and neurological statuses at birth, at one and two years of age, the children of mothers with expectations for later development produced lower Bayley mental and psychomotor scores. Part of the reason for these lower scores was attributed to the significantly less stimulating home environments provided by mothers who expected later development. This occurred even when the analysis was controlled for maternal educational levels.

Broussard and Hartner (1970) also studied the relationship between mothers' perceptions of their one-month old babies and the children's subsequent development. Members of a sample of 318 primiparous mothers were asked to rate their own babies in comparison to the average baby in terms of crying, spitting, feeding, elimination, sleeping, and predictability. The mother's perceptions of these

infants at one month was associated with their children's development and emotional deviations and the need for intervention at the age of 4 1/2. Mothers' perceptions that their infants were not better than average infants predicted that babies were at risk for needed therapeutic intervention. Mothers' expectations may have influenced the children's behaviors by becoming a self-fulfilling prophecy.

Follow-up evaluations of 104 of the same children at ages 10/11 were done to determine the extent to which mothers' perceptions continued to be predictors of children's emotional development (Broussard, 1976). Diagnostic and psychiatric profiles revealed that the mothers' perceptions of their infants at one month were significantly associated with psychiatric ratings at 10/11 years.

The possibility of a self-fulfilling prophecy of maternal perception also was suggested by McCormick, Shapiro, and Starfield (1982). Of the 589 infants considered slow in development by their mothers, 72 percent were observed to be performing appropriately for age. Because of such maternal perceptions, these infants were considered to be at risk of developmental disability. Consequently, the authors suggested that developmental assessments of infants include routine measurement of the mothers' perceptions of development.

Inaccurate perceptions by mothers of infants' behavior (as compared to raters' evaluations) have been related to the

ways mothers interact with their babies (Nover, Shore, Timberlake, & Greenspan, 1984). Mothers who seemed to have distorted perceptions of their infants' behaviors were rated as less socially interactive with their babies, less physically affectionate, and more interfering with their infants' exploratory play.

Expectations and Age

Very few studies have related the parent's age to expectations about the growth and development of children. Although a few researchers have dealt with the relationship between parental age and the transition to parenthood, the results are both inconsistent and inconclusive. Several investigators, for example, have found no relationship between the wife's age and the extent of stress during the transition to parenthood (Hobbs, 1965; Hobbs & Cole, 1976; Russell, 1974). Other researchers, however, have found parental age to be both positively related (Frankel & Wise, 1982; Silvestro & Fossom, 1982; Wylie, 1979) and negatively related to the ease of becoming a parent (DeVore, 1983; Kach & McGhee, 1982).

Wylie (1979) studied the relationship between the prenatal expectations of first-time parents and the ease of transition into parenthood. The age range of this sample of 32 females and 29 males was from 19 to 32 years. A positive relationship was found between age and ease of transition

into the role, due perhaps to the readiness of older parents to assume the responsibilities of parenthood.

Kach and McGhee (1982) administered prebirth and postbirth questionnaires to 33 couples with the intent of determining the relationship between the accuracy of preparenthood expectations and the incidence of transition problems. Mothers whose expectations about parenthood did not match their postbirth perceptions of parenthood tended to experience more problems adjusting to parenthood. The investigators found less accurate expectations about parenthood among mothers who were older or who had been married longer, perhaps due to the difficulty in changing long-established lifestyle patterns.

Another possibility is that parental age might be related to expectations because the passage of time can represent cohort differences due to shifts in popular views about child development. McGillicuddy-DeLisi (1982), for example, found that mothers' beliefs about cognitive developmental processes were affected more by such personal factors as age and cohort experiences than by experiences with one versus three children.

Few studies have focused specifically on the level of expectations as related to the mother's age. Jarrett (1982) demonstrated that, in general, young mothers (ages 15-21) expected too much of their children too soon. For example, ninety-six percent of the mothers who were interviewed

thought their infants would take their first unassisted step before 12 months of age although the norm for the first step is between 12 and 15 months. Also unrealistic were the expectations for the children's achievement of bladder and bowel control. Although these children were developmentally unprepared to achieve these tasks, some were physically punished for "noncompliance" in bowel and bladder training because the mothers considered them capable of mastering the achievements. Many of these young mothers also expected reciprocal exchanges of love and affection in a manner more typical of older children.

In a related study, DeLissovoy (1973) found that teenage parents had unrealistically early expectations for the development of infants. For example, the parents in this study expected infants to pull to a standing position by 20-24 weeks and to achieve bladder control at 24 weeks. However, Becker (1985) found that adolescent mothers tended to underestimate the rate of infant development. Epstein (cited in Elster, McAnarney, & Lamb, 1983) also found that teenage mothers underestimated the rate of mental development. These mothers were consistently inaccurate in their knowledge of cognitive, social, and language development of infants leading to the conclusion that young mothers tend to assume that their infants have only physical needs and limited mental capacities. In addition, young mothers who underestimated child development were less

observant of their infants' skills and did not improve in their knowledge between prenatal and postnatal assessments.

Hunt and Paraskevopoulos (1980), on the other hand, found no relationship between mother's age and correct predictions of child performance on intelligence tests. Likewise, Mercer (1985) failed to find significant age differences in either maternal role strain or self-image during the first year of parenthood. Although competency in the maternal role increased over time, feelings of gratification with the role did not improve over time. Mercer interpreted these results as indicating that a mother's perceived experience of parenthood may be different from the mother's social competence skills.

Education and Expectations

Few studies were found that related the parents' educational level to their expectations for children's growth and development. However, research on the relationship between education and the difficulty of making the transition to parenthood demonstrates inconsistent results. Steffensmeier (1982), for example, found that the higher the education of males, the easier the transition into parenthood. For females, on the other hand, greater difficulty in the transition was associated with higher levels of education. In a supporting study, Wylie (1979) reported a negative relationship between parents' education

and the ease of transition, due perhaps to their desires for greater individual fulfillment and negative reactions to the physical constraints and time demands of infant care.

In contrast, several researchers have found no relationship between the educational level of parents and the ease of transition into parenthood (Dyer, 1963; Hobbs, 1965; Hobbs & Cole, 1976; Hobbs & Wimbish, 1977). In addition, Russell (1974) found that educational level was not related to the amount of stress involved in becoming a parent. However, because educational level was inversely related to the amount of gratification experienced, Russell suggested that more educated parents may admit to the enjoyment of parenthood less often than parents of lower educational attainments. Steffensmeier (1982) also found that the higher the educational level of parents, the lower the reported gratifications.

Parents with and without college educations varied considerably in their thoughts about children's development (McGillicuddy-DeLisi, 1982). In Jarrett's (1982) sample, young mothers who were currently enrolled in school knew more about the stages of child development and had more realistic expectations than their older counterparts. Likewise, Hunt and Paraskevopoulos (1980) found that mothers with more education were more accurate in predicting their children's performance on intelligence tests and made fewer errors of overestimation.

More highly educated mothers have reported earlier developmental expectations for their babies during prenatal interviews (Barnard & Gortner, 1977). After delivery, better educated mothers also have reported earlier (higher) expectations for their infants' development (Bee et al., 1982; Snyder et al., 1979).

Career and Expectations

No studies were found that linked the career statuses of mothers with their expectations for the growth and development of newborns. In a related study, however, Hunt and Paraskevopoulos (1980) found that mothers with more outside work experience were less likely to overestimate their children's performance on intelligence tests.

Although the findings are inconsistent, the occupational status of women has been linked to the ease of transition into parenthood. The longer a woman maintains a particular lifestyle, such as having an occupation, the more difficult it may be to change her way of life. LeMasters (1957), for example, concluded that mothers with professional careers suffer the most severe forms of crisis associated with the transition into parenthood. In a study by Malmaud (1984), professional couples who delayed childbearing stated that the hardships of being with and caring for a child surpassed their expectations. Dyer (1963), on the other hand, found no significant relationship between the wife's employment and

the extent of crisis. Furthermore, Frankel and Wise (1982) found that older women with established careers were generally more accepting and less conflicted in the role of parents than were younger professional women. Women who were more committed to their work have reported satisfactory experiences in early motherhood (Jimenex & Newton, 1982).

Problems of balancing motherhood and a career often occur. The mother who interrupts her career may feel tied down and experience intellectual and social voids (Miller & Sollie, 1980). The mother who continues to work may experience overload as she copes with the demands of her career and her family. In addition, if traditional values from early socialization experiences are strongly acknowledged, a mother may experience tension, anxiety, and guilt stemming from her continued career work (Skinner, 1980). Although for most roles, including career roles, feelings of competence increase with greater experience, Mercer (1985) did not find this pattern during the first year of motherhood. Thus, women may not be prepared for the different challenges provided by the developing child.

Delayed Childbearing

Although most women still follow the traditional pattern of marriage during their twenties and a first birth 2 to 3 years later, it is apparent that greater numbers of women are assuming the parental role at later points in their lives

(Wilkie, 1981). This trend toward delayed parenthood is a recent event and little research has been focused on the issue.

No studies were found that directly related the mother's expectations about growth and development to the number of years that childbearing is delayed after marriage. Yet, older women are accounting for an increasing share of both the total and first births (Ventura, 1982).

The majority of American women are mothers by the end of their childbearing years, but there have been significant changes in the timing of births. There were trends in the 1960s from having children before age 25 to having them between 25 and 30. By the 1970s, a significant group of women were delaying childbearing until after age 30 (Bianchi & Spain, 1984). In 1979, more than 150,000 births were to women in their thirties having their first child (Ventura, 1982). This number reflects an increase of 66 percent in the rate of first births to women ages 30-34 since 1970 and also an increase in first birth rates for women ages 35-39. These increases have occurred at a time when birth rates for women ages 15-19 and 20-24 have generally fallen.

Voluntary and Involuntary Delay of Childbearing

On the average, both men and women are now marrying almost two years later than they did after World War II and the proportion of women 20 to 24 years of age who had never been married has risen from approximately one-third to 50

percent. However, the 2.5 years gap in median age of brides and grooms showed no change so that women continue to have fewer years than men to complete higher education and establish themselves in the labor market prior to marriage (Bianchi & Spain, 1984).

Decisions to postpone or relinquish childbearing are, for the most part, voluntary. The increase in the numbers of women who make these decisions is based on many factors. Birth control pills were introduced in the early 1960's and abortion was legalized in the 1970's, making prevention or termination of pregnancy available. In addition, the advent of amniocentesis and other improvements in prenatal and obstetrical care have made childbearing safer. Decisions to postpone pregnancy also have been affected by the impact of the women's movement, the changing roles of women, improved opportunities for schooling, increased employment of women, and economic pressures that have necessitated two incomes per family (Frankel & Wise, 1982).

Childlessness or delay of parenthood may result from a decision by the couple or a lack of ability or opportunity for parenthood. A decreased capacity to conceive, or infertility, may result from such factors as hormone imbalance, blockage of the Fallopian tubes, infection, and sperm abnormalities.

Voluntary childlessness may result from two different paths (Veevers, 1973). A couple may make a definite decision

to remain childless before marriage or repeatedly defer childbearing until it is no longer considered desirable. In contrast to those women who decide at an early point not to have children, women who were childless through postponement were less committed to childlessness. However, they were just as strongly concerned about the marital and lifestyle costs of children as early deciders (Callan, 1986). Family background and level of marital satisfaction have been shown to be very similar for couples who have willingly elected to have or not to have children. Childless couples, however, tend to have less traditional attitudes toward women and to interact more with each other than do parents (Feldman, 1981).

Delayed Childbearing and Expectations

It is not clear if delayed childbearing has a direct influence on the mother's expectations about growth and development. Delayed childbearing may relate more indirectly to expectations because of its relationship to the level of education and career status of the mother. Educational attainment and the delay of first birth appear to be highly related (Rindfuss & St. John, 1983; Waite & Moore, 1978; Ventura, 1982).

Another related idea involves the fact that women who are highly educated are also more likely to be employed. In 1979, 67 percent of college-educated women participated in the labor force, compared to 57 percent of women with a high

school education. Delayed childbearing also is related to this labor-force participation. Both fertility and birth expectations vary inversely with educational attainment and occupational prestige (Bianchi & Spain, 1984; Stolzenberg & Waite, 1977). This might occur because older women and professional women are more aware of the extent to which childbearing and childrearing will interrupt labor force participation. Late bearers may want and plan for children but delay motherhood as a means of a) gaining economic security, b) having a period of time for personal development, and c) being assured of a stable marriage (Wilkie, 1981).

Delayed Childbearing and Infant Outcomes

The postponement of childbearing can affect the outcome of pregnancy and thus the actual growth and development of infants. The status of infants, in turn, can affect the mother's expectations for future growth and development.

Studies of older primigravidae have demonstrated the increased risk of spontaneous abortion (DeVore, 1983), hypertension and uterine tumors (Keesler, Lancet, Borenstein & Steinmetz, 1980), cesearean delivery, pre-term labor, and prolonged labor (Morrison, 1975), and placental disorders (Naeye, 1983). All of these medical complications can adversely affect the status of the fetus and/or infant.

The infant problem most clearly associated with increased parental age is that of birth defects. The birth

of an infant with Down's Syndrome (Trisomy 21) is most frequent among women 35 and older. In the United States, the decrease in the number of births to older women between 1960 and 1975 resulted in a 26 percent decrease in the incidence of Down's Syndrome (Adams, Oakley & Marks, 1982). Minor neurodevelopmental disorders also may be more prevalent in children born to older mothers (Gilberg, Rasmussen & Wahlstrom, 1982). Questionnaires completed by the mothers and physical examinations of their five and six-year old children revealed higher rates of minor neurological dysfunction, especially fine motor dysfunction, in the children whose mothers were older (ages 37 and up) at the time of the children's births. This study of 120 children did attempt to control for maternal personality factors, social climate, and parental education, none of which distinguished children with dysfunction from those without.

Childbearing Delay and Parenthood

Kach and McGhee (1982) suggest that transition into parenthood may be more difficult for mothers who delay having children until later in marriage. These older women who delay motherhood may have diverse goals. Dyer (1963) and Hobbs (1965), however, found no relationship between the number of years between marriage and children and the severity of the crisis. In Russell's study (1974), women under 23 reported more gratification the longer they had been married; however, women 23 or over reported less

gratification the longer they had been married before childbearing. Russell suggests that, while older women may be more mature, they may enjoy their infants more if they do not postpone parenthood too long after marriage for reasons of stamina and patience. It is also possible that older women delayed having children because of ambivalence about parenthood. Also, a couple may develop and perpetuate dysfunctional patterns during the time between marriage and delayed childbirth "resulting in a system that is firmly entrenched in ineffective rituals by the time the child is born" (Briggs, 1979, p. 71).

Couples who repeatedly defer parenthood and then make the decision to have a child have maintained a particular lifestyle for a prolonged period. The egalitarian ideas of many of these couples may be severely tested because the birth of an infant may lead to more traditional sex-role patterns (Entwisle & Doering, 1981; Miller & Myers-Walls, 1983). Even for couples who stated egalitarian ideas before birth, most infant care was assumed by the mothers (Entwisle & Doering, 1981).

Support for Hypotheses

The first hypothesis proposed that there would be a positive relationship between mothers' age and higher expectations for their newborns' growth and development. This hypothesis was not supported by two studies indicating

that young mothers had unrealistic early expectations for the growth and development of infants (DeLissovoy, 1973; Jarrett, 1982). In contrast, Becker (1985) and Epstein (cited in Elster, et al., 1983) found that adolescent mothers tended to underestimate the rate of infant development.

None of the previous research, however, has correlated expectations with the full range of ages at which mothers begin childbearing. Furthermore, none of the existing studies have considered the expectations for the large group of women who are delaying childbirth and thus are older mothers. Many of these women are highly educated in contrast to the very young mothers studied in previous research. Consequently, the first hypothesis proposed that a positive relationship would exist between age at childbirth and the degree to which expectations for growth and development will be high. This hypothesis takes into account the older mothers' career and educational achievements and the possible influence of these achievements on her expectations for her newborn's achievement of developmental milestones.

The second hypothesis proposed that there would be a positive relationship between the mothers' educational attainment and the extent to which expectations for their newborns are high. Again, literature in the area is limited and often inconsistent, especially in relation to expectations about the transition into parenthood. Russell (1974) and Steffensmeier (1982) found that higher parental

educational levels predicted lower levels of gratification with the parental role. These reports of less gratification could be due, in part, to the infant's failure to meet their parent's unrealistically high expectations.

More highly educated mothers have reported early developmental expectations for their babies during the prenatal period (Barnard & Gortner, 1977). Snyder, Eyres, and Barnard (1979) showed that mothers with less education had later (lower) developmental expectations. These studies, plus the positive relationship between educational attainment and lower gratification scores, lend support to the hypothesized positive relationship between mothers' educational attainment and the extent to which expectations for newborns are high.

The third hypothesis proposed that there would be a positive relationship between mothers' career status and high expectations for their newborns' growth and development. Although no studies were found that related career status to expectations for the growth and development of infants, Malmaud (1974) reported a positive relationship between professional career status and unrealistic expectations for parenthood. This may be true because professional women have often achieved such high levels of competence that similar degrees of competence are expected within the parental role. However, Mercer (1985) failed to find positive linear

improvement in performance of the maternal role during the first year of parenthood.

The fourth hypothesis stated that there would be a positive relationship between delay of childbirth and high expectations for growth and development. No studies were found that examined the expectations for growth and development of women who delayed childbirth. Although parenthood has been delayed, it is not necessarily true that mothers who delay are better prepared for parenthood. In fact, women married longer before having children may have less accurate expectations about parenthood (Kach & McGhee, 1982) and experience less gratification in parental roles (Russell, 1974). Women who postponed childbearing also reported that the hardships of being with and caring for children always surpassed their expectations (Malmaud, 1984). Many mothers continued to feel ambivalent about the decision to have a child even after the child was born, stating fears of having to give up too much (Frankel & Wise, 1982).

During the years of delay, mothers do not necessarily learn more about parenthood and children. There is a paucity of preparation for the abrupt transition to parenthood due to lack of experience with children, lack of educational courses, and a "romantic complex" about children (LeMasters, 1977). There is little formalized socialization of parents for their new role and preparation classes taken before birth have not been reported as very helpful in fostering role

integration (Entwisle & Doering, 1981). Prenatal classes focus almost exclusively on the processes of pregnancy, labor and delivery (Joy, Davidson, Williams, & Painter, 1980).

The mother's expectations for the child also will be affected by cultural norms. Parents in Western nations tend to be harsher in their expectations for compliance from young children and institute child training practices at earlier developmental ages (Kempe & Helfer, 1980). In addition, the women who have intentionally delayed childbearing may have higher expectations for their newborns based on their personal achievements and diversified interests. Thus, during the years of childlessness, these mothers may have formed high expectations for young children. High expectations, in turn, could lead these women to expect more gratifications from parenthood--feelings that might be maintained during pregnancy and make the anticipated transition into parenthood less stressful. Children are considered to be a reflection on parents leading to pride in their growth and accomplishments.

In summary, parenthood is an area of poorly defined expectations even when there are several years of deferment. Parents who delay childbearing have not had opportunities to prepare for the role or to test the accuracy of their expectations. Thus, it is hypothesized that there will be a positive relationship between the delay of childbearing after marriage and high expectations for the newborn.

CHAPTER III

METHODS

The focus of this research project was on the relationship between mothers' expectations for their infants' growth and development and mothers' educational attainment, age, career status, and delay of childbearing. The research design was a survey design using the mother's expectations as a dependent variable and the educational attainment, age, career status, and delay of childbearing as independent variables.

The conceptual framework of this study, symbolic interactionism, suggests that the best means of acquiring information is to assume the perspective of the subjects involved in a particular investigation (Stryker, 1959). Thus, the methods used to gather information relied on parental reports as sources of information about parental knowledge, attitudes, and perceptions. Although not viewed as objective measures of parental behavior, such measures can provide important information about the ways that parents perceive, organize, and understand their infants and their parenting roles. "The assumption is made that these cognitive sets serve as filters through which the objective behaviors of the infant are processed" (Parke, 1976, p. 76).

Sample

The sample for this study was obtained on the Postpartum Unit of the Johnson City Medical Center Hospital. During the months of March through September, 1986, the investigator or an assistant visited the unit on Mondays, Wednesdays, and Fridays and administered the survey instruments to all primiparous mothers who agreed to take part in the study. The selected hospital had an average of 160 deliveries per month, of which 50 percent, on the average, were mothers who were having their first child. The hospital selected for the study served a wide region of East Tennessee and was a referral site for obstetrical care. A wide range of patients were seen, thus providing a range of age, educational level, career status, and years between marriage and childbirth in the sample.

Eighty-six primiparous mothers participated in the surveys during the period of study. The participants ranged in age from 15 to 36 with an average age of 25.5 years. The average number of years of formal education was 14. Thirty-three percent of the mothers had completed four or more years of college; thirteen percent of the sample had less than a high school education.

These study participants reported an average of 42 months delay between marriage and childbearing. Months of delay after marriage ranged from 3 to 222 months. All but 11 of the participants indicated either an occupation outside

the home or one associated with farming. Two of the participants who indicated no occupation were students and nine were homemakers. Eighty-three of the 86 study participants were white; one was black; two were Mexican-American. Table 1 provides further descriptive data on the sample.

Procedure

Permission was acquired from the director of nursing and the medical staff to conduct the study. The researcher or assistant went to the hospital unit at a time that was previously arranged with the nursing staff and checked for the admission of primiparous mothers. With the aid of the registered nurse on the unit, the researcher determined which mothers should not be asked to participate because of the physical condition of the mother or infant. Each mother eligible for inclusion in the study was visited in order to explain the study and consent form. Mothers were told that a study was being conducted to learn more about the experiences of new mothers and their babies so that other mothers could be helped better in the future. Subsequently, the mothers who agreed to participate in the study were given the questionnaires. Demographic information was obtained through an interview with each participant.

Table 1

Descriptive Statistics

Variable	Mean	Standard Deviation
Age	25.45	4.76
Education	13.99	2.47
Career Status	54.60	33.23
Delay of Childbirth	42.11	41.06

Measurement

Two questionnaires were used to collect data from the mothers. These questionnaires were designed to gather data on the mother's perceptions of her newborn.

Neonatal Perception Inventory

The Neonatal Perception Inventory (NPI) is designed to be used as an index of mothers' perceptions of their newborn as compared to their concepts of the average infant. This instrument is used also as a clinical screening instrument for infants at high risk of psychosocial disorders in the mother-infant relationship. On the NPI, the mother's perceptions of her own baby are compared with her perceptions of a hypothetical "average baby" by asking the mother to rate how much difficulty infants have in six behavioral areas: crying, spitting, sleeping, feeding, elimination, and predictibility (Humenick, 1982). The items were selected based on the author's past clinical experience with the concerns mothers expressed about their babies (Broussard, 1976).

Mothers complete form I of the NPI one to two days after birth and form II four weeks later. The items on both forms are similar (See Appendix A). Mothers rate the difficulty they perceive in the six behavioral areas from "none" (scored as 1) to "a great deal" (scored as 5). Subsequently, scores are summed for the "average baby" and "your baby" categories

with the "your baby" score being subtracted from the "average baby" score. A score of zero or a negative number indicates that the mother does not rate her own baby as better than average and is considered a high risk score. An infant with a positive score has been rated by the mother as better than the average baby and is a considered low risk. Mothers who rate their infants as average or less than average have negative perceptions based on American cultural emphases and are at high risk of subsequent emotional difficulty (Broussard, 1978).

The NPI was developed on the premise that for a short period of time after birth, the development of optimal mother-infant interaction is vulnerable because of the influence of the mother's initial perception on her subsequent parenting (Powell, 1981). Although the test-retest reliability of the NPI was judged inadequate by Freese and Thomas (cited in Humenick, 1982) except for primiparas on NPI II, the small number of their sample must be considered when calculating the scale. Furthermore, Humenick (1982) states that test-retest reliability may not be the most suitable method of establishing reliability in this case because of the "fluid" state of maternal perceptions shortly after birth.

Bates, Freeland, and Lounsburg (1979) found a relationship between the one month NPI and their own Infant Characteristics Questionnaire (ICQ) administered at 4-6

months of age. The less favorable a mother rated her baby at one month on the NPI, the more she described her baby as fussy-difficult on the ICQ at 4-6 months. Such a correlation supports the construct validity of the instrument and indicates some continuity in a mother's perception of her infant. Johnson (1976) concluded that the test had shown both construct and criterion validity.

To test predictive validity, Broussard and Hartner (1970) assessed children whose mothers had completed the NPI four and one-half years earlier. They provided evidence that the NPI II was predictive of later child development. Further study of the children at age 10/11 years also supported the predictive validity of the instrument (Broussard, 1976).

The NPI should not be used as the only mode of assessing the adaptation of the mother and infant. Lee (1982) also raises questions about using only one screening tool as an assessment of risk for parent-infant relationships. The NPI can be a helpful adjunct to other methods of assessing mothers and infants (Humenick, 1982).

Palisin (1981) also points out that mothers with high positive scores may experience more future discord because expectations are not realistic. Other related evidence indicates that overestimation of children's abilities interfered more with the provision of development-fostering

experiences than did the underestimation of abilities (Hunt & Paraskevopoulos, 1980).

The NPI has been found to be negatively related to later IQ. In this unexpected finding, mothers who thought their newborns were better than average had children who later had lower IQ scores (Bee, et al., 1982). The only explanation provided for this finding was that unrealistically high expectations for newborns might lead to later disillusionment on the part of mothers and, thus, affect the development of infants.

High positive scores on the NPI which indicate high (and possibly unrealistic) expectations have not been addressed in previous studies. Because of the need to study the implications of high positive scores and the questions about the validity of the instrument, the NPI will be used in this study in conjunction with another tool.

The Maternal Expectations Report

The Maternal Expectations Report (Appendix A) was developed by Rojas (1980) to assess the age a mother expects her child to perform various developmental milestones. Choices in this fixed response questionnaire include (1) the age at which 25% or less of normal children perform the task (high expectations), (2) the age 50% of normal children perform the task (average expectations), and (3) the age at which 90% or more of normal children perform the task (low expectations).

The questionnaire is based on the Denver Developmental Screening Test (DDST) which was developed to meet the need for evaluating growth and development and detecting developmental delays. The age ranges on the Maternal Expectations Report were modified slightly by the investigator so that they correlate more closely to the DDST. High (early) expectations for development are designated so that they occur approximately one month before the 25th percentile on the DDST. Average expectations include the 50th percentile of the DDST. Low (late) expectations are designated so that they would occur at least one month after the 90th percentile on the DDST.

The DDST was originally standardized with a sample of 1,036 normal children two weeks to six years of age. In a review of the literature related to the DDST, Fleming (1981) states that reliability and validity of the tool for screening development has been well established. Multiple regression coefficients ranged from .86 to .97 between the DDST scores and the Stanford-Binet Intelligence Scale, Revised Yale Developmental Schedule, Cattell Infant Intelligence Scale, and Bayley Scale of Infant Tests (Frankenburg, Camp, & Van Natta, 1971).

Thus, the reliability and validity of the DDST (on which the Maternal Expectations Report is based) has been widely accepted. However, data were not available on the reliability of the Maternal Expectations Report. Cronbach's

alpha coefficient for internal consistency was conducted on the 15 items composing this scale. The overall reliability coefficient was .77 (see Table 4, Appendix B). Individual alpha scores for each questionnaire item indicated that the reliability would not be improved by deletion of any items from the scale.

The DDST is viewed as a screening method that is efficient and simple to conduct, inexpensive, and acceptably reliable (Humenick, 1982). Test items were based on other developmental tests in common usage and were selected for ease of administration and the potential for detecting developmental delays. The DDST evaluates four areas of developmental skills: gross motor, fine motor-adaptive, language, and personal-social. (See Appendix A).

In summary, it is important to examine both the mother's perception of the newborn and the mother's expectations for the newborn in relationship to growth and development. Both traditional concepts of what an infant is like (expectations) and initial perceptions can influence the way a mother interacts with her infant.

Operational Definitions

Expectations for Growth and Development

Expectations for growth and development were measured by two separate scores obtained for the NPI and the Maternal Expectations Report. The NPI scores were calculated by

summing the mother's ratings on the "average baby" and "your baby" forms and subtracting the "your baby" score from the "average baby" score. A zero or a negative score was used to represent low expectations. A positive score indicated higher expectations.

Expectations as measured by the Maternal Expectations Report were indicated by a sum of the scores for the 15 items (Rojas, 1980). The age at which 90% or more of normal children perform the task (developmental milestone) or low expectation was scored 1; the age at which 50% of normal children perform the task was scored 2 (average expectations); and the age at which 25% or less of normal children perform the task (high expectations) was scored 3. Lower summed scores on the Maternal Expectations Report were used to represent lower (later) expectations for infant growth and development.

Educational Attainment

Data related to the participants' educational attainment were obtained through the mothers' self-reports. Attainment was classified according to the number of years of formal education completed at the time of the birth of the child. The forms used for obtaining and recording this data, as well as specific definitions for the data, are found in Appendix A.

Age

The mother's age, in years, was determined from self-report and hospital records and was reported as the age at the time of the birth of the child (Appendix A).

Career Status

The mother's career status was measured based on data gathered through self-report. The status score was assigned based on the Nam-Powers Occupational Status Scores developed by Nam and associates, professional staff of the Census Bureau (Nam & Powers, 1983). For an example of the Nam Powers scoring method for occupational status, see Appendix A. In this scheme, occupational status is determined primarily by the relative education and income levels of the persons in each occupation. Although occupation is not the sole criterion of status, it is the best single indicator of a person's socioeconomic status (Nam & Terrie, 1982). The Nam-Powers scoring scheme also has scores derived independently for women, a characteristic not found in other scoring guides.

Delay of Childbearing

Delayed childbearing was determined by data gathered through self-report and indicated by the number of months between marriage and the birth of the first chld (Appendix A).

Data Reduction and Transformation

The data collected on the questionnaires were transformed to coding sheets and subsequently key punched on cards. Analysis was carried out by use of the program, Statistical Package for the Social Sciences (User's Guide SPSSX 1986).

Plan of Analysis

This study focused on the relationship between four independent variables and parents' expectations as measured by two questionnaires. Multiple regression, the principle analytic procedure used, was determined to be an appropriate method for this study. Although an observed correlation between variables does not demonstrate causality, it does permit the investigator to specify the nature of the relationships between predictor and criterion variables (Neter & Wasserman, 1974; Nachimas & Nachimas, 1981).

Means, frequencies, and standard deviations were calculated for all the variables. Scatter diagrams of the data and the residuals were done to examine the appropriateness of a linear regression model. Finally, forward regression analysis was used to test the model. This procedure is designed to examine which independent variables should be added into the model in order to find the best set of predictive variables (Neter & Wasserman, 1974).

In addition to multiple regression analysis, several additional tests were performed as tests for regression assumptions. Correlations were done to ascertain the strength of the linear relationships between the independent variables and the dependent variables. Scattergrams and histograms were analyzed as a means of judging the presence of outliers, heteroscedasticity, assumptions of normality, and appropriateness of the linear model (Neter & Wasserman, 1974; Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975; Norušis, 1982).

Tolerance tests for multicollinearity were conducted by checking for large intercorrelations among the independent variables. Because data were not available on the reliability of the Maternal Expectations Report, a reliability analysis of the 15 items was performed.

A secondary analysis of data was also conducted to determine if any important independent variables had been omitted from the model. Each mother who participated in the study had reported whether the time between marriage and childbearing represented a voluntary or involuntary delay. Answers were coded as follows: if the delay was intentional, a score of 1 was assigned; if the delay was involuntary (due to infertility), a score of 2 was assigned; if there was no delay, a score of 3 was assigned. The variables were dummy coded for regression analysis. The variable D1 received a score of 1 if delay was voluntary and a score of zero if

delay was not voluntary. Variable D2 received a score of 1 if delay was involuntary and a score of zero if delay was not involuntary.

Each study participant also reported her perception of the ease of her pregnancy by answering the following question: How easy do you think your pregnancy was compared to the average pregnancy? A score of one to five was assigned with one indicating the mother perceived her pregnancy as "much easier than average" and five indicating a perception of pregnancy as "much more difficult than average". This variable was then analyzed by multiple regression to see if there was a relationship between the perception of the ease of pregnancy and expectations for newborn development.

CHAPTER IV

RESULTS

The purpose of this investigation was to determine whether maternal age, educational attainment, career status, and childbirth delay would predict mothers' expectations for growth and development.

Principle Data Analysis

Foward regression analysis was conducted to determine the relationship of maternal age, career status, educational attainment, and childbirth delay to expectations for infant growth and development.

Hypothesis One

The first hypothesis proposed that there would be a positive relationship between maternal age and the degree to which expectations were high for newborn growth and development. Analysis of the data did not substantiate this prediction (see Table 2) because the relationships between mothers' ages and expectations were not significant ($p < .05$).

Hypothesis Two

The second hypothesis proposed that a positive relationship would exist between mothers' educational

TABLE 2

Multiple Regression Results for Predictor Variables with Expectations

Predictor Variables	r	Beta	r^2	sig	tol
Expectations as Measured by NPI1					
Age	-.12	-.05	.01	.30	.51
Educational Attainment	-.02	-.03	.00	.92	.50
Career Status	-.18	-.01	.03	.10	.62
Delay of Childbearing	-.14	-.01	.02	.20	.68
Multiple R_2	.26	F Value			1.43
Multiple R^2	.07	Significance of F			.23
Expectations as Measured by Maternal Expectations Report					
Age	.18	.18	.03	.10	.54
Educational Attainment	-.13	-.25	.02	.25	.50
Career Status	.04	.01	.00	.71	.62
Delay of Childbearing	.15	.02	.02	.18	.68
Multiple R_2	.33	F Value			2.38
Multiple R^2	.11	Significance of F			.06

r = bivariate correlation
sig = significance of F Value
tol = tolerance

attainment and the degree to which expectations were high for newborn growth and development. The analysis did not support this prediction because the beta coefficients were not significant ($p < .05$) (See Table 2).

Hypothesis Three

The third hypothesis proposed a positive relationship between maternal career status and the degree to which expectations were high for newborn growth and development. Analysis of the data did not substantiate this prediction. The beta coefficients were not significant ($p < .05$) (See Table 2).

Hypothesis Four

The fourth hypothesis proposed a positive relationship between the mothers' delay of childbearing after marriage and the degree to which expectations were high for newborn growth and development. Analysis of the data did not support this prediction because the beta coefficients were not significant (See Table 2).

Analysis by Regression

Analysis of the data by foward regression did not confirm the proposed hypotheses. No independent variables met the criteria for significance.

Secondary Data Analysis

A secondary analysis of data was carried out to explore additional issues because the original data base for this study included information related to the delay of childbearing. Each study participant indicated if the time between marriage and the birth of the first child was a voluntary or involuntary postponement of childbearing. Each mother also reported her perception regarding the ease of her pregnancy compared to the average pregnancy. Neither of these variables met the significance criteria necessary for entry into the foward regression model. (See Table 3).

Tests for Appropriateness of Multiple Regression

To determine the appropriateness of the regression model for the present data, additional tests were performed to test for the presence of outliers and for multicollinearity. In addition, residual analysis, normal probability plots, and frequency histograms were used to determine if the assumptions of normality, linearity, and homoschedascity were met.

Residual Analysis

An examination of the scattergrams of residuals versus the predicted value for expectations was done to determine if there were any major violations of the assumptions of normality and linearity. When these assumptions are met, the

Table 3

Regression Results for Secondary Analysis

Predictor Variables	r	r^2	F	Signif F
Expectations as Measured by NPI1				
Voluntary/Involuntary Delay	.16	.03	1.08	.34
Ease of Pregnancy	.07	.01	.43	.51
Expectations as Measured by Maternal Expectations Report				
Voluntary/Involuntary Delay	.19	.04	1.62	.20
Ease of Pregnancy	.15	.02	1.85	.18

scattergrams should be rectangular in shape with the residuals tending to fall in a horizontal band centered around zero. There should be no systematic tendency to be positive or negative (Neter & Wasserman, 1974). (See Figures 3 and 4, Appendix C.) The scattergrams of residuals versus predicted values from the data for this study appear to support the assumptions of normality and linearity.

Assumptions of Normality

In the regression model, errors are assumed to be independent normal random values. Hence, the residual scattergram should have a centralization of residual scores near zero with no increase or decrease in the spread of residuals with values of the independent variable (Neter & Wasserman, 1974; Norušis, 1982). The scattergrams showing the distribution of the residual scores for this study appear to meet the criteria for normality (see Figures 3 and 4, Appendix C).

Another test for normality was to plot the standardized residuals on normal probability paper (see Figures 5 and 6, Appendix C). A normal distribution should plot as a straight line with substantial departures from the straight line leading to suspicions of nonnormality of the distribution (Neter & Wasserman, 1974). The normal probability plots created for this study supported the assumption of normality.

Further support for the assumption of normality was provided by the examination of the residual frequency

histograms (see Figures 7 and 8, Appendix C). Although some deviation in observed and expected frequencies occurred, this is expected because of sampling variation. The residual frequency histogram produced from the data for this study showed the bell-shaped curve associated with a normal distribution.

Assumptions of Linearity

A scattergram of the residuals also can be used to determine whether or not a linear regression function is appropriate for the data. The residuals should depart from zero in a randomized fashion and fall within a horizontal band centered around zero (Neter & Wasserman, 1974). Such a scattergram is evident for the data in this study (see Figure 3 and 4, Appendix C).

Assumptions of Homoschedasticity

Homoschedascity is the assumption that error variance is constant over all levels of observation (Neter & Wasserman, 1974). Consistent with this assumption, examination of the scattergrams for residual scores versus the predicted scores for expectations shows a restangular band across all levels of the predicted dependent variable with no obvious systematic patterns in the errors of prediction (see Figures 3 and 4, Appendix C).

Outliers

Outliers are extreme observations that, in a residual plot, lie far beyond the scatter of the remaining residuals (Neter & Wasserman, 1974). Examination of the residual scattergram (see Figures 3 and 4, Appendix C) and the casewise plot of standardized residuals (see Table 4, Appendix C) reveal only two cases that are more than three units from zero. Neither of these outliers were discarded because there was no evidence of errors in recording or calculations.

Multicollinearity

Multicollinearity refers to the intercorrelation among some or all of the independent variables. Specifically, the greater the intercorrelation among independent variables, the less will be the reliability of an analysis in determining the relative importance of partial regression coefficients (Nie, et al., 1975).

To examine for the possibility of multicollinearity, the correlation matrix was examined for high bivariate correlations among the independent variables (see Table 5, Appendix D). Although the correlation between two of the independent variables (educational attainment and career status = .62) was quite high, it was unlikely that multicollinearity was a problem because such a small percentage of the variance was explained by the total model (see Table 2, p. 54).

As an additional precaution, each model also was evaluated for multicollinearity by testing the tolerance of each independent variable in the equation. The tolerance of a variable is the proportion of variability not explained by the other independent variables. A higher tolerance, therefore, indicates that a variable explains a greater proportion of unique variance (Norusis, 1985). The variables in this model had tolerances ranging from .51 to .68 (See Table 2, p. 54). Because of these high values, therefore, multicollinearity does not appear to have been a significant issue in the regression analyses conducted for this study.

CHAPTER V

CONCLUSIONS AND DISCUSSION

The purpose of this study was to determine whether age, educational attainment, career status, and childbearing delay would function as predictors of maternal expectations for newborn growth and development.

Discussion of the Results

The hypotheses proposed that maternal age, educational attainment, career status, and childbirth delay after marriage would relate positively to the mothers' expectations for newborn growth and development. These relationships were not supported by the statistical analysis.

The lack of significant relationships might be explained, in part, by the nature of the variables that were studied. One of the applied objectives of this study was to identify predictor variables that could be easily obtained in clinical settings. Consequently, such demographic variables as age and education were selected as possible predictors of maternal expectations for growth and development. Instead of the expected results, however, demographic variables of this kind do not appear to be effective predictors of such social psychological variables as mothers' expectations for infant growth and development. These results are similar to those

from a study by Walker, Crain, and Thompson (1986) in which few of the demographic variables function as predictors of the social psychological variables, maternal identity and role attainment.

In addition, variables such as age and educational attainment are simply "marker variables" of time and, thus, only indirect measures of fundamental processes, such as developmental changes and life experiences that occurred during the period of time indicated by the mothers' ages or educational attainment. Very young mothers, for example, may have more limited knowledge of child development because of fewer informal childrearing experiences. Maternal educational attainment might only be an indicator of a wide range of differences in the childrearing environment provided by these families (Bee et al., 1982). Thus, such marker variables as age and education should be viewed with caution and focus should be shifted to specific situational, developmental, interactional, and life experiences when attempting to predict social psychological outcomes.

Another variable of interest, career status, may not have been as relevant to the social psychological domain as other variables concerned with a woman's career. Jimenez and Newton (1982), for example, found that women who scored high in self-reported job commitment also reported more satisfying experiences in early motherhood. Unfortunately, measurements of the mothers' commitment to career or satisfaction with

work were not included in this study. Subjective reports of successful employment may have demonstrated a stronger relationship with maternal expectations than career status scores based on income and education.

Previous Studies

Previous literature pertaining to the predictor variables of interest in this study revealed limited and often inconsistent findings. As a result, the existing literature did not provide strong support for the hypothesized predictions.

Mother's age has been found to be both negatively (De Lissovoy, 1973; Jarrett, 1982) and positively (Becker, 1983; Elster, et al., 1983) related to expectations for growth and development. On the other hand, Hunt and Paraskevopoulos (1980) found no relationship between mothers' ages and correct predictions of child performances on intelligence tests. Furthermore, research findings were not found that correlated expectations with the full range of possible ages at which women begin childbearing.

Literature in the area of expectations and educational level also was limited, but a few reported findings provided some support for the hypothesized relationship between education and expectations. Better educated mothers have reported earlier developmental expectations for their infants during prenatal interviews (Barnard & Gortner, 1977) and after delivery (Bee, et al., 1982; Snyder, et al., 1979).

However, higher levels of education also have been associated with greater difficulty in the transition to parenthood (Steffensmeier, 1982; Wylie, 1979) and lower reported gratifications with parenthood (Russell, 1974; Steffensmeier, 1982).

Studies were not found that related career status to expectations for growth and development. Furthermore, conflicting results were found in studies relating career status to ease of parenthood transition. Mothers with professional careers have been shown to experience a more severe crisis associated with the transition into parenthood (LeMasters, 1957), and less crisis (Frankel & Wise, 1982). In contrast, Dyer (1963) found no relationship between wife's employment and the extent of crisis.

Studies were not found that directly related expectations about growth and development to the delay of childbearing after marriage. However, delayed childbearing has been found to predict: a) less gratifications in parental roles (Russell, 1974), b) more hardships related to child care than expected prenatally (Malmaud, 1984) and c) continuing ambivalence about the decision to have children (Frankel & Wise, 1982).

In summary, an examination of previous literature related to parents' expectations and the variables of interest in this study provided limited and often conflicting information. Such findings, plus the lack of significant

relationships in the current study, point to a need to examine other variables as possible predictors of mothers' expectations for infant growth and development.

Limitations

Several factors may have influenced the findings of this study including sampling procedures, questionnaire format, time of questionnaire administration, the omission of data related to infant characteristics, and the need for measures of social psychological variables.

The first factor, sampling procedure, may have reduced the generalizability of these results. Specifically, the sample for this study was a small, convenience sample with almost all of the subjects being white. Only primiparous mothers were interviewed.

The second factor that may have influenced these findings was the types of questionnaires used. Specifically, the number of questions and the use of only fixed choice questions may have created a barrier for the mothers in sharing their expectations. Forcing the respondent to answer in a way that fits the response categories previously set up may have irritated some respondents who found none of the alternatives suitable (Kerlinger, 1973). Because respondents were not given an opportunity to discuss or explain their answers, no data were obtained on the subjects' frames of reference.

Another problem may have been the tendency for subjects to respond in ways they believed to be more socially desirable. That is, mothers may have been less likely to admit that they expected their babies to have substantial difficulty with feeding or sleeping. Mercer (1981), for example, has proposed that new mothers initially adhere rigidly to rules or directions of others, perhaps leading to a greater tendency for them to give socially desirable responses.

The time of questionnaire administration also may have influenced the findings of this study. Although questionnaires were administered early in the post-birth period, all of the mothers had interacted with their infants for varying periods of time. Thus, each mother had opportunity to gain some knowledge about and to begin to differentiate her infant from the fantasy child of pregnancy. These variations in maternal experiences with infants were not controlled for and could have influenced the mothers' responses to questions about expectations.

Another problem with the present study was that variables related to the infants' characteristics were not included in this analysis. Although the sample for this study was limited to mothers of healthy infants, the effects of characteristics other than health were not studied or controlled for. Male gender and low birth weight, for example, have been correlated with maternal perceptions of

slow development for infants who were actually developing appropriately as measured by standardized tests (McCormick, Shapiro, & Starfield, 1982). Because results of other research have indicated that adults respond differently to children's gender, weight, and various states (Lamb, 1978), mothers' expectations for growth and development may have been influenced by infant characteristics such as these.

Theoretical and Research Implications

Although relationships between the predictor and criterion variables were not found, mothers' knowledge and expectations for newborns remains an important topic for future research. Parents' assumptions about infants' capabilities are important determinants of parent-infant interaction and have influence on the type of behavior in which parents will engage (Parke, 1978).

Alternative Predictors

Future investigators need to develop studies to assess the extent to which social psychological variables predict parents' knowledge and expectations for newborns. Thus, in addition to demographic variables, the focus should include such factors as the following:

1. Factors related to a mother's own growth and development experiences should be included in future studies. For example, a mother's expectations for infant growth and development may be related to her perceptions of her own

mother's behaviors and others' expectations of her during her own childhood. In addition, the types of experiences the mother has had with infants and small children should be included in future study.

2. Educational attainment of parents should take into account information related specifically to infants and children which may have been acquired as a part of educational experiences. Of special significance would be any formal education contributing to knowledge about infant growth and development that might influence a mother's expectations for her infant. Likewise, participation in prenatal classes focusing on infant growth and development might affect her early expectations for newborns.

3. The effect of the mother's career status should be further explored. Additional variables of interest are the mother's satisfaction with and commitment to her career. Measurements of the mother's perception of her career success should be attempted and a determination made of any relationship between her perception of career success and expectations for the child and for parenthood.

4. Infant characteristics need to be considered as influences on parental expectations. Additional data are needed about the influence of infants' gender, weight, and parents' perceptions of infants' physical appearance.

5. The effect of fathers' expectations about growth and development and the congruity of those expectations with

the mothers' should be explored. In addition, examining the joint and combined influence of mothers and fathers might result in a greater understanding of parents' contributions to infant development (Belsky, 1981).

In addition to examining other predictor variables for expectations, further research could examine the relationships of the same predictor variables (age, education, and career status) to other criterion variables. A mother's early interaction behaviors with her infant are affected by multiple factors in addition to her expectations for the infant. Consequently, future investigators should explore the relationships of demographic variables to such variables as the mother's perceptions of the birth experience, her personality traits and self-concept, and her perception of the impact of the newborn on her lifestyle (Mercer, 1981).

Longitudinal Studies

Longitudinal studies are needed to determine the relationships of parents' expectations to the actual growth and development of children. Of special interest are those families in which parents have very high or very low expectations for their children. For example, it would be of interest to examine whether or not parents' unrealistic expectations for growth and development will change after experiences with children that are inconsistent with their predictions. Related to this possibility is the finding that

mothers have been shown to view their infants less positively at four to six weeks than at birth (Walker, Crain, & Thompson, 1986). Such changes in perceptions could influence expectations for and interactions with children. Thus, to make stronger inferences regarding causal relationships, future researchers must move beyond the linking of variables at a single point in time and focus on longitudinal changes (Belsky, 1981).

Practical Implications

Parents' expectations of children are of interest because of their possible effects on the treatment of children and on the subsequent development of young children (Broussard & Harner, 1970; Nover et al., 1984; Snyder et al., 1979). However, this study did not support the existence of easily obtained demographic predictors of parents' expectations for growth and development. Thus, in clinical settings, practitioners may not be able to quickly screen and identify parents and infants at risk for unrealistic expectations and possible future developmental problems.

At the present time, practitioners should continue to assess the age-appropriateness of parental interaction with the child as a possible indicator of the accuracy of the parent's perception of the child's development. For example, mothers who are less socially interactive with their infants, less physically affectionate, and more interfereing with

infant exploratory play may have distorted perceptions of infant behavior (Nover et al., 1984). In addition, practitioners should question parents about their perceptions of their child's growth and development. Intervention may be required if parents do not perceive the child's development as appropriate.

In particular, practitioners should be alert to those parents whose actions and reports indicate unrealistic expectations for children. For example, new parents who expect a nine-month old infant to walk well may be developing a pattern of unrealistically high expectations that their child cannot achieve. In the same sense, practitioners must be alert to identify parents with unrealistically low expectations--a pattern that may lead to providing little stimulation for the optimal growth and development of infants.

Summary

The purpose of this study was to examine the extent to which mothers' expectations for newborn growth and development were predicted by mother's age, educational attainment, career status, and delay of childbearing after marriage. Relationships between these variables were examined by conducting multiple regression analysis. None of the hypothesized predictors were found to demonstrate significant relationships with maternal expectations.

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APPENDIXES

APPENDIX A

RESEARCH INSTRUMENTS

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 ___

[1]Adapted from Broussard and Hartner, 1971.

Your Baby

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

How much crying do you think your baby will do?

a great deal ___ a good bit ___ moderate amount ___ very little ___ none ___

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

a great deal ___ a good bit ___ moderate amount ___ very little ___ none ___

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

a great deal ___ a good bit ___ moderate amount ___ very little ___ none ___

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

a great deal ___ a good bit ___ moderate amount ___ very little ___ none ___

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

a great deal ___ a good bit ___ moderate amount ___ very little ___ none ___

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

a great deal ___ a good bit ___ moderate amount ___ very little ___ none ___

[1]Adapted from Broussard and Hartner, 1971.

DENVER DEVELOPMENTAL SCREENING TEST
STO.=STOMACH
SIT=SITTING
PERCENT OF CHILDREN PASSING
25
50
75
90
Test Item
Date
Name
Birthdate
Hosp. No.
PERSONAL-SOCIAL
FINE MOTOR-ADAPTIVE
LANGUAGE
GROSS MOTOR
MONTHS
YEARS
* 100% pass at birth
R INITIALLY SHY WITH STRANGERS
R PLAYS PAT-A-CAKE
R PLAYS BALL WITH EXAMINER
R INDICATES WANTS (NOT CRY)
R DRINKS FROM CUP
R IMITATES HOUSEWORK
R USES SPOON, SPILLS LITTLE
R HELPS IN HOUSE – SIMPLE TASKS
R PUTS ON CLOTHING
R WASHES & DRIES HANDS
R DRESSES WITH SUPERVISION
R SEPARATES FROM MOTHER EASILY
R PLAYS INTERACTIVE GAMES +/- TAG
R DRESSES WITHOUT SUPERVISION
R REMOVES GARMENT
R SCRIBBLES SPONTANEOUSLY
TOWER OF 2 CUBES
TOWER OF 4 CUBES
TOWER OF 8 CUBES
R IMITATES VERTICAL LINE WITHIN 30°
R IMITATES BRIDGE
R COPIES O
R COPIES +
R IMITATES □ DEMONSTR.
R DRAWS MAN 3 PARTS
R DRAWS MAN 6 PARTS
R PICKS LONGER LINE 3 OF 3
R NEAT PINCER GRASP OF RAISIN
DUMPS RAISIN FROM BOTTLE-DEMONSTR.
DUMPS RAISIN FROM BOTTLE-SPONT.
R BANGS 2 CUBES HELD IN HANDS
R 3 WORDS OTHER THAN MAMA, DADA
R COMBINES 2 DIFFERENT WORDS
R POINTS TO 1 NAMED BODY PART
R NAMES 1 PICTURE
R FOLLOWS DIRECTIONS/2 of 3
R USES PLURALS
R GIVES 1ST & LAST NAME
R RECOGNIZES COLORS/3 of 4
R OPPOSITE ANALOGIES 2 of 3
R DEFINES WORDS/6 of 9
COMPOSITION OF 3 of 3
COMPREHENDS COLD, TIRED, HUNGRY/2 of 3
COMPREHENDS PREPOSITIONS/3 of 4
R KICKS BALL FORWARD
R THROWS BALL OVERHAND
R STANDS MOMENTARILY
R WALKS HOLDING ON FURNITURE
R STANDS ALONE WELL
R WALKS WELL
R WALKS BACKWARDS
R WALKS UP STEPS
R STOOPS & RECOVERS
R PEDALS TRICYCLE
R JUMPS IN PLACE
BROAD JUMP
BALANCE ON 1 FOOT 1 SECOND
BALANCE ON 1 FOOT 5 SECONDS/2 of 3
BALANCE ON 1 FOOT 10 SECONDS/2 of 3
HOPS ON 1 FOOT
CATCHES BOUNCED BALL/2 of 3
HEEL TO TOE WALK/2 of 3
BACKWARD HEEL-TOE/2 of 3
SMILES SPONTANEOUSLY
R SMILES IN RESPONSE
REGARDS FACE
FOLLOWS TO MIDLINE
SOCIAL SMILE
FOLLOWS PAST MIDLINE
VOCALIZES - NOT CRYING
RESPONDS TO BELL
STO LIFTS HEAD
STO HEAD UP
STO HEAD UP 90°
SIT-HEAD STEADY
ROLLS OVER
PEEKS SEL
RESISTS TOY PULL
PLAYS PEEK-A-BOO
WORKS FOR TOY OUT OF REACH
GRASPS BATTLE
SIT, LOOKS FOR YARN
SIT, TAKES 2 CUBES
REGARDS RAISIN
REACHES FOR OBJECT
FOLLOWS 180°
HANDS TOGETHER
RAISES RAISIN ATTEMPT
PASSES CUBE HAND TO HAND
THUMB-FINGER GRASP
LAUGH
SQUEALS
DADA OR MAMA, NONSPECIFIC
TURNS TO VOICE
DADA OR MAMA, SPECIFIC
IMITATES SPEECH SOUNDS
BEAR SOME WEIGHT ON LEGS
PULL TO SIT, NO HEAD LAG
SITS WITHOUT SUPPORT
STO CHEST UP, ARM SUPPORT
STANDS HOLDING ON
PULLS SELF TO STAND
GETS TO SITTING

Maternal Expectations Report

MATERNAL EXPECTATIONS RELATED TO DEVELOPMENTAL MILESTONES

Please check the blank which best fits what you think your child should be able to do.

1. I expect my child to sit by himself when he is
   ___3-4 months ___5-6 months ___9-10 months

2. I expect my child to stand alone well when he is
   ___11-12 months ___7-9 months ___15-17 months

3. I expect my child to walk alone well when he is
   ___15-16 months ___9-10 months ___12-13 months

4. I expect my child to drink from a cup without spilling much when he is
   ___8-9 months ___11-12 months ___18-19 months

5. I expect my child to eat from a spoon spilling little when he is
   ___14-15 months ___11-12 months ___25-26 months

6. I expect my child to wash and dry his hands when he is
   ___16-18 months ___23-24 months ___3½ years

7. I expect my child to help around the house with simple jobs like putting his toys away when he is
   ___19-20 months ___12-13 months ___2½ years

8. I expect my child to dress with supervision when he is
   ___2 years ___$2\frac{3}{4}$ years ___$3\frac{3}{4}$ years

9. I expect my child to say at least 3 words other than Mama and Dada when he is
   ___22-23 months ___9-10 months ___12-13 months

10. I expect my child to name a picture of an animal such as a dog when he is
    ___20-21 months ___14-15 months ___$2\frac{3}{4}$ years

11. I expect my child to follow simple directions such as "Give block to Mommy" when he is
    ___$2\frac{3}{4}$ years ___19-20 months ___13-14 months

12. I expect my child to give his first and last names when he is
    ___21-23 months ___$2\frac{1}{2}$-$2\frac{3}{4}$ years ___4 years

13. I expect my child to recognize at least 3 colors when he is
    ___3 years ___5½ years ___$2\frac{3}{4}$ years

14. I expect my child to scribble without help when he is
    ___2 years ___10-11 months ___13-14 months

15. I expect my child to copy a circle when he is
    ___21-23 months ___3½ years ___2½ years

Please answer the following question about your pregnancy.

How easy do <u>you</u> think your pregnancy was compared to the average pregnancy?

__Much easier than average
__Somewhat easier than average
__About the same as average
__Somewhat harder than average
__Much more difficult than average

INDIVIDUAL DATA SHEET

NUMBER_____ HOSPITAL NUMBER_____

DATE OF DELIVERY_____

MOTHER'S AGE IN YEARS_____

MOTHER'S EDUCATION IN YEARS_____

CAREER_____

DELAY OF CHILDBIRTH IN MONTHS_____

VOLUNTARY OR INVOLUNTARY DELAY_____

RACE_____

DATE NPI1 COMPLETED_____

DATE MATERNAL EXPECTATIONS REPORT COMPLETED_____

DATA DEFINITIONS

The following data is to be gathered for each study participant. Use the Individual Data Sheet to record the data. Feel free to make any additional written comments on that sheet.

SUBJECT NUMBER- number consecutively. Do not put the subject's name and address on the Individual Data Sheet. Put the subject's name and address on the Subject Identification Form only.

HOSPITAL NUMBER- from the mother's Hospital Identification bracelet.

DATE OF BIRTH- day, month, and year of delivery.

AGE- of mother, in years, at the time of delivery; from subject's self-report.

EDUCATIONAL ATTAINMENT- number of years of formal education, from self-report.

CAREER STATUS- Describe the kind of work the subject did during pregnancy (from self-report). If the subject did not work outside the home, list "homemaker". If the job title is not specific or descriptive, ask for further data. For example, if the subject states she worked at a local industry, ask her to describe what she did.

DELAYED CHILDBIRTH- From self-report, determine the number of months and/or years between the current marriage and delivery. If there is any delay in childbirth, find out if the delay was voluntary or involuntary. Following are some examples of interview questions you can use to elicit this data.

1. For a mother who has her first child within a year or two of marriage: ""It seems you haven't waited very long after marriage to start a family. Did you plan to start one this soon?"
2. For a mother having her first child 2-5 years after marriage: "You seem very happy with your son/daughter. Did his/her birth occur at about the time you planned after marriage?"
3. For a mother married more than 5 years: "You seem to have waited awhile before beginning a family. Is this what you had planned to do?"

These are examples of questions only. Most new mothers will volunteer information very freely during the conversation. If the mother is not married, indicate as such on the individual data sheet.

Occupational Status Scores for 589 Occupations*
For Total Labor Force, Men, Women, and Working Women, Full-Time, 1970

Occupation	Status Score: Total	Men	Women	Women Working Full-time
Professional, Technical and Kindred Workers				
Accountants	89	88	87	87
Architects	97	95	99	100
Computer Specialists				
Computer Programmers	89	84	95	97
Computer Systems Analysts	93	91	96	97
Computer Specialists (N.E.C.)**	93	91	94	95
Engineers				
Aeronautical and Astronautical	96	96	96	98
Chemical	97	96	98	97
Civil	95	93	96	98
Electrical and Electronic	95	94	96	97
Industrial	93	91	93	94
Mechanical	95	94	96	98
Metallurgical and Materials	96	95	96	97
Mining	94	92	96	97
Petroleum	96	95	96	97
Sales	94	93	96	97
Engineers (N.E.C.)**	94	93	96	98
Farm Management Advisors	94	90	87	97
Foresters and Conservationists	78	70	37	49
Home Management Advisors	77	58	94	98
Lawyers and Judges				
Judges	99	98	95	100
Lawyers	99	98	100	100
Librarians, Archivists and Curators				
Librarians	75	72	94	98
Archivists and Curators	80	72	91	97
Mathematical Specialists				
Actuaries	94	97	92	92
Mathematicians	96	97	97	98
Statisticians	88	91	94	95
Life and Physical Scientists				
Agricultural	91	87	68	93
Atmospheric and Space	95	95	82	98
Biological	91	91	96	98
Chemists	94	92	97	98
Geologists	97	97	87	98
Marine	96	95	96	98
Physicists and Astronomers	99	98	99	99

APPENDIX B

RELIABILITY ANALYSIS

Table 4

Reliability Analysis for the Maternal Expectations Report

Item	Alpha if item deleted
Question 1	.7693
Question 2	.7560
Question 3	.7613
Question 4	.7571
Question 5	.7587
Question 6	.7562
Question 7	.7519
Question 8	.7517
Question 9	.7581
Question 10	.7540
Question 11	.7565
Question 12	.7413
Question 13	.7648
Question 14	.7659
Question 15	.7597

Reliability Coefficients for All 15 Items

Alpha = .7697 Standardized alpha - .7696

APPENDIX C

PLOTS AND HISTOGRAMS

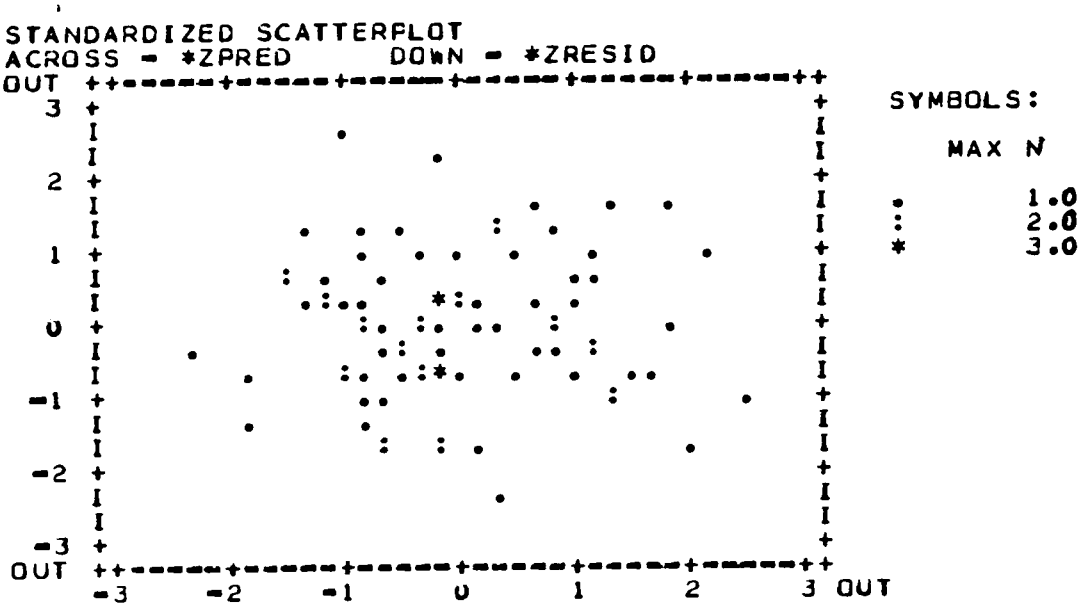


Figure 3

Standardized Scattergram of the Residuals
(Expectations as Measured by Maternal Expectations Report

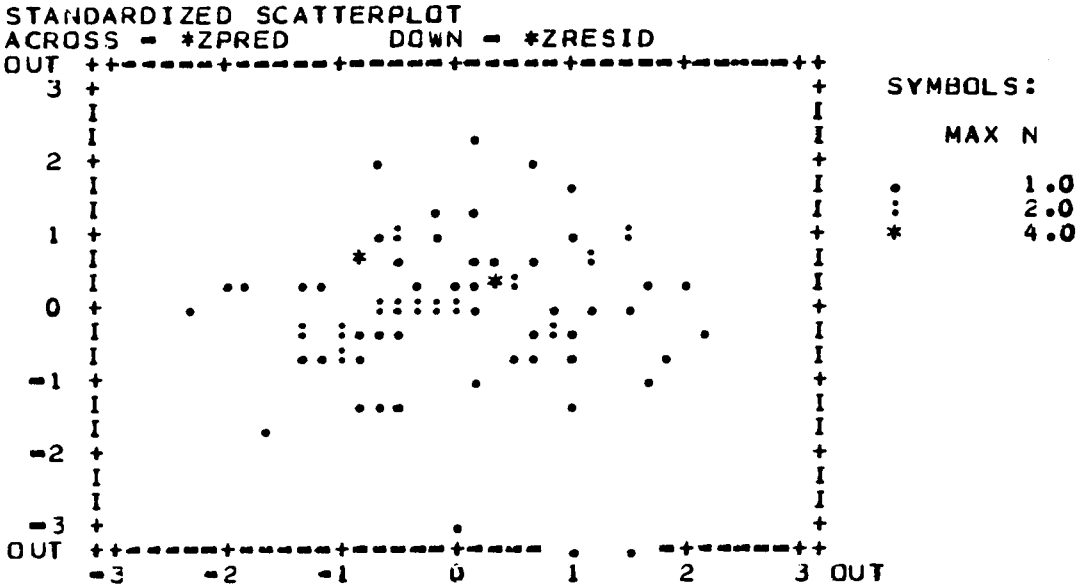


Figure 4

Standardized Scattergram of the Residuals
(Expectations as Measured by NPI1)

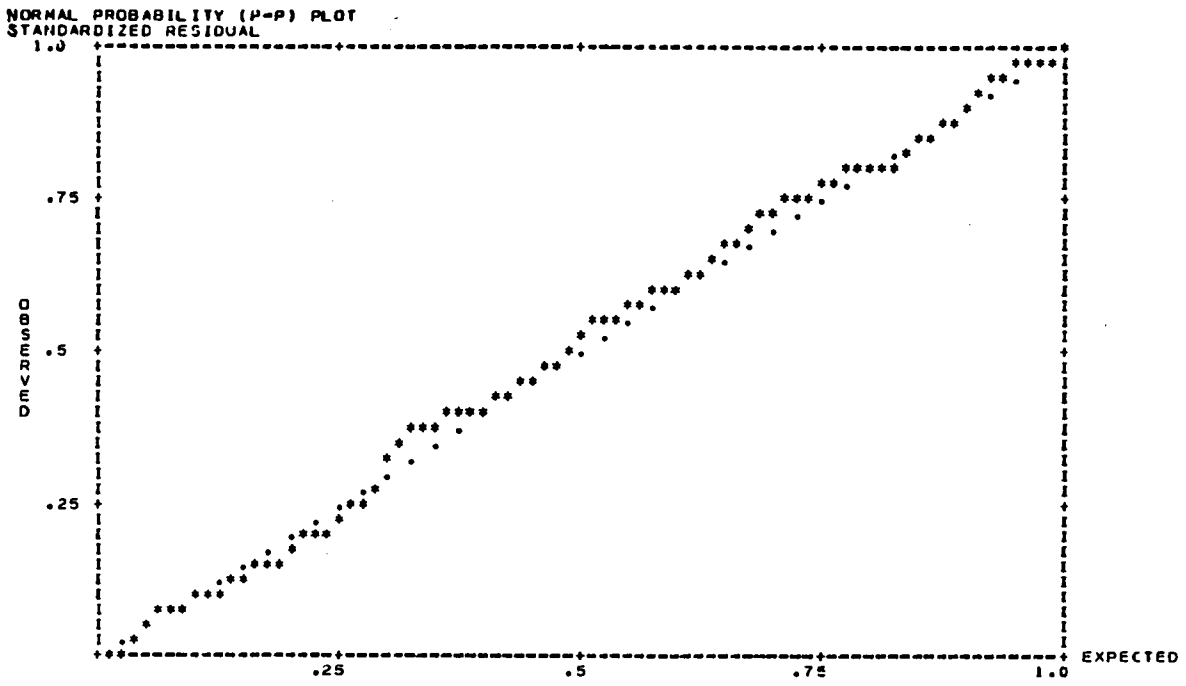


Figure 5

Normal Probability Plot of the Standardized Residuals
(Expectations Measured by the Maternal Expectations Report)

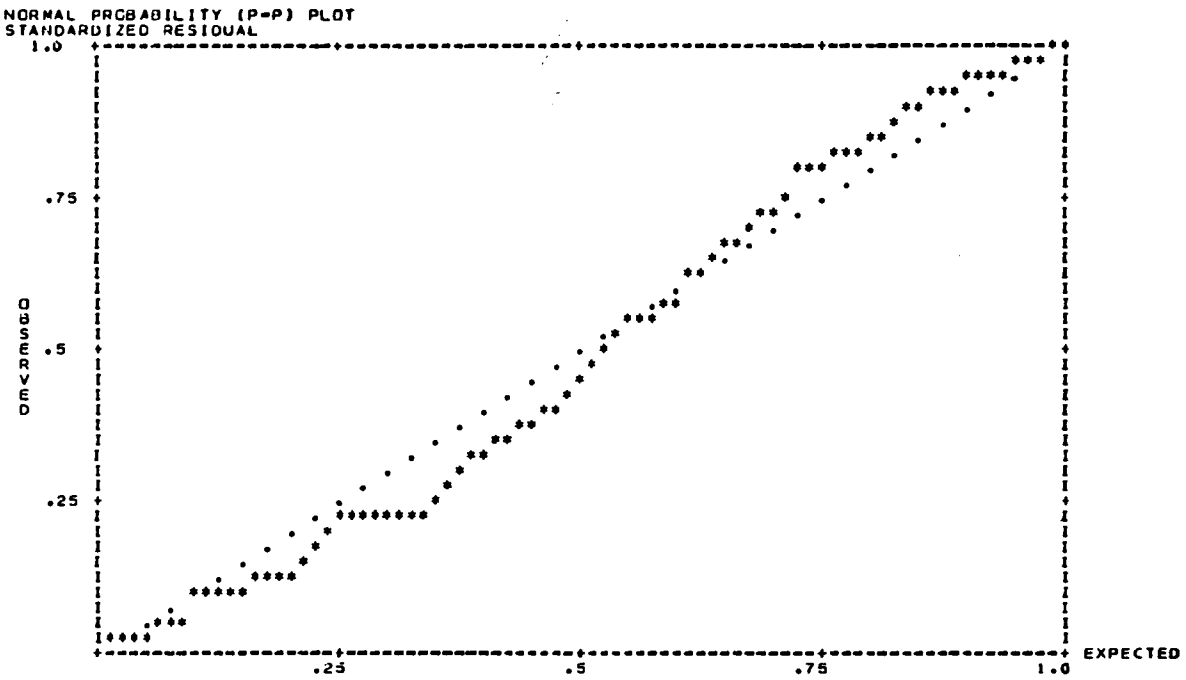


Figure 6

Normal Probability Plot of the Standardized Residuals
(Expectations Measured by NPI1)

```
HISTOGRAM - STANDARDIZED RESIDUAL
NEXP N        (* = 1 CASES,     . : = NORMAL CURVE)
0   .09    OUT
0   .05   3.00
0   .07   2.88
0   .10   2.75
0   .14   2.63
2   .19   2.50 **
0   .25   2.38
0   .34   2.25
0   .44   2.13
0   .57   2.00 .
0   .73   1.88 .
1   .92   1.75 :
0  1.13   1.63 .
2  1.38   1.50 :*
3  1.65   1.38 *:*
3  1.94   1.25 *:*
1  2.25   1.13 *.
4  2.57   1.00 **:*
1  2.89    .88 * .
3  3.20    .75 **:
2  3.49    .63 **.
5  3.74    .50 ***:*
4  3.95    .38 ***:
4  4.11    .25 ***:
4  4.20    .13 ***:
5  4.24    .00 ***:*
4  4.20   -.13 ***:
4  4.11   -.25 ***:
2  3.95   -.38 ** .
8  3.74   -.50 ***:****
5  3.49   -.63 **:**
2  3.20   -.75 **.
4  2.89   -.88 **:*
1  2.57  -1.00 * .
2  2.25  -1.13 *:
2  1.94  -1.25 *:
0  1.65  -1.38  .
1  1.38  -1.50 :
1  1.13  -1.63 :
4   .92  -1.75 :***
0   .73  -1.88 .
0   .57  -2.00 .
0   .44  -2.13
0   .34  -2.25
1   .25  -2.38 *
0   .19  -2.50
0   .14  -2.63
0   .10  -2.75
0   .07  -2.88
0   .05  -3.00
0   .09    OUT
```

Figure 7

Histogram of the Standardized Residuals
(Expectations Measured by the Maternal Expectations Report

```
HISTOGRAM - STANDARDIZED RESIDUAL
NEXP N       (* = 1 CASES,     . : = NORMAL CURVE)
0   .09    OUT
0   .05   3.00
0   .07   2.88
0   .09   2.75
0   .13   2.63
0   .18   2.50
0   .25   2.38
1   .33   2.25 *
1   .43   2.13 *
1   .56   2.00 :
0   .71   1.88 .
0   .90   1.75 .
0  1.11   1.63 .
1  1.34   1.50 :
1  1.61   1.38 *.
1  1.90   1.25 *.
0  2.20   1.13  .
5  2.51   1.00 **:**
2  2.82    .88 **.
2  3.12    .75 **.
5  3.40    .63 **:**
4  3.65    .50 ***:
7  3.86    .38 ***:***
6  4.01    .25 ***:**
5  4.10    .13 ***:*
7  4.14    .00 ***:***
4  4.10   -.13 ***:
6  4.01   -.25 ***:**
5  3.86   -.38 ***:*
1  3.65   -.50 *  .
2  3.40   -.63 **.
5  3.12   -.75 **:**
1  2.82   -.88 * .
1  2.51  -1.00 * .
1  2.20  -1.13 *.
2  1.90  -1.25 *:
2  1.61  -1.38 *:
1  1.34  -1.50 :
0  1.11  -1.63 .
0   .90  -1.75 .
0   .71  -1.88 .
0   .56  -2.00 .
0   .43  -2.13
0   .33  -2.25
0   .25  -2.38
0   .18  -2.50
0   .13  -2.63
0   .09  -2.75
1   .07  -2.88 *
0   .05  -3.00
2   .09    CUT **
```

Figure 8

Histogram of the Standardized Residuals
(Expectations Measured by the NPI1)

Table 5

Casewise Plot of Standardized Residuals

Case Number	ID	*ZRESID
(Expectations as Measured by Maternal Expectations Report)		
84	86	2.5310
1	1	2.4805
31	31	-2.3220
43	44	-1.8090
5	5	1.7866
82	84	-1.7139
61	63	-1.7117
23	23	-1.7008
14	14	-1.5774
32	32	1.5568
(Expectations as Measured by NPI1)		
45	46	-3.3394
8	8	-3.1743
14	14	-2.9311
75	77	2.2240
80	82	2.1002
38	38	1.9717
73	75	1.5485
48	49	-1.5453
33	33	-1.3699
61	63	1.3673

APPENDIX D

CORRELATION TABLE

Table 6

Pearson Correlation Coefficients for the Independent Variables

	Age	Education	Career	Delay
Age	1.0000 p= .	.4748 p=.0001	.3491 p=.001	.4902 p=.0001
Education	.4748 p=.0001	1.0000 p= .	.6239 p=.0001	-.0242 p=.837
Career	.3491 p=.001	.6239 p=.0001	1.0000 p= .	.0275 p=.805
Delay	.4902 p=.0001	-.0242 p=.827	.0275 p=.805	1.0000 p= .

VITA

Nancy M. Alley was born in Sullivan County, Tennessee, and grew up in Southwestern Virginia. She graduated from the Medical College of Virginia in 1968 with a Bachelor of Science in Nursing. From 1968 to 1971, she worked as a staff nurse in Philadelphia and in public health nursing in rural Scott County, Virginia. In 1972, she received a Master of Science in Maternal-Child Nursing from Virginia Commonwealth University. Since receiving this degree, she has taught nursing at East Tennessee State University where she is currently an Associate Professor.

Nancy has been active in several nursing organizations including the National League for Nursing and NAACOG, an organization for obstetric, gynecologic, and neonatal nurses. She was instrumental in formation of the Tri-Cities chapter of NAACOG.

While at The University of Tennessee, Nancy was elected to Phi Kappa Phi honor society. She is also a member of the national nursing honor society, Sigma Theta Tau.

Nancy's current areas of research and practice interests are delayed childbearing, parents' expectations for their children, and parent-infant relationships. She plans to develop further research in these areas as she continues her teaching career at East Tennessee State University.