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thesis entitled

A STUDY OF THE RELATIONSHIP BETWEEN INFANT TEMPERAMENT VARIABLES IN BIOLOGICAL RISK AND AVERAGE POPULATIONS AND THE SELF-CONCEPT OF THE MOTHER

presented by

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has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Educational Psychology

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Date 6-19-78

O-7639

A STUDY OF THE RELATIONSHIP BETWEEN INFANT TEMPERAMENT VARIABLES IN BIOLOGICAL RISK AND AVERAGE POPULATIONS AND THE SELF-CONCEPT OF THE MOTHER

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Counseling, Personnel Services
and Educational Psychology

1978

ABSTRACT

A STUDY OF THE RELATIONSHIP BETWEEN INFANT TEMPERAMENT VARIABLES IN BIOLOGICAL RISK AND AVERAGE POPULATIONS AND THE SELF-CONCEPT OF THE MOTHER

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Increasing attention has recently been devoted to the study of infants, their competencies, differences, and interactions with their caretakers. The present study was concerned, in particular, with infant temperament, and the variations in infants' styles of behavior in relation to several factors that were believed to merit specific consideration.

Today, many infants are surviving pre-, peri-, or postnatal trauma who would not have done so in earlier years. As a result, more babies are ending up in "high risk" populations, which means that they are more vulnerable for developing problems capable of interfering with normal growth and development. A question explored at this time was whether infants in this "biological risk" group develop more difficult temperament styles than those infants born without complicating circumstances.

Also examined was the reciprocal and mutually reinforcing interaction between mothers and their infants. Specifically,

relationships between infant temperament and the self-concept of the mother were explored, as were the mother's observations and perceptions of her child's temperament. Finally, temperament was studied in relationship to 1) the sex of the child, 2) the child's ordinal position in the family, and 3) the developmental level of the infants in the two populations in this project.

The sample in this study consisted of 150 mother/infant dyads. Seventy-five of theses pairs came from a "high risk" population of infants seen at a developmental assessment clinic. The remaining seventy-five pairs were contacted through "well baby" clinics, and for the purposes of this study were considered the "average" population.

Mothers were requested to complete both the Carey/McDevitt Infant Temperament Questionnaire, which was used as a relatively objective and detailed description of their infant's temperament, and the Tennessee Self-Concept Scale. In addition, mothers and psychologists each completed a form on which they recorded their general impressions of the infant's temperament. Infants in both populations were administered the Denver Developmental Screening Test.

In analyzing the data in this study, the chi square statistic was used to examine the relationship between temperament, biological risk status of the child, and the above stated variables. The effect of both the temperament of the infant and the infant's biological risk status on the self-concept of the mother was examined using a two-way analysis

of variance.

Several major findings emerged. One, there was no significant relationship found between temperament and the risk status, the sex, and the ordinal position of the child in the family. Two, statistical significance was found in the relationship between scores on the Denver Developmental Screening Test and the child's temperament. Infants with developmental problems were found more often in the difficult temperament clusters. Three, the self-concept of mothers of infants in the difficult temperament categories was noted to be significantly lower than that of mothers of average babies. Four, mothers of infants at "biological risk" also had lower self-concepts than mothers of "average" babies. Five, discrepancies were found between mothers' perceptions, psychologists' perceptions, and ratings on the more objective and detailed Infant Temperament Questionnaire. And six, it was observed that mothers of "difficult" temperament infants were more likely to perceive their child as "easier" than both the psychologist and the questionnaire would indicate.

Rather than cause and effect, this study has been restricted to demonstrating associations between the stated variables. Nonetheless, these associations may be of importance for the prevention of future behavioral disorders in the child and emotional problems in the mother. In particular, the lower self-concept of mothers of difficult and high risk infants was felt to be especially significant.

This, along with the discrepancy between mother's perceptions and the psychologist's and questionnaire evaluations of the infant's temperament, was believed to be suggestive of potentially stressful mother-infant relationships. Keeping track of those mother-infant dyads where there is a difficult infant and providing supportive services at various intervals when disharmony is apparently evident were suggested as possible measures for preventing more serious problems from developing.

The importance of recognizing individual temperament differences in infants and the nature of the infant's relationships with his parents was emphasized, as was the importance of parents sharing the responsibility of child rearing.

Dedicated to Mindy....Who helped me to realize that

"When you dream, dream big!"

ACKNOWLEDGMENTS

It has taken me a considerable amount of time to write this brief section simply because it is so difficult to put down in words the gratitude and appreciation I feel towards all those individuals who have actively helped me in completing this project.

Attempting this study has been quite an adventure for me. Not only did I learn about the topics that I explored, but I also learned much about myself. With each further step in the journey towards completing this work, I feel as though I have grown a little. I guess this expresses my overall sentiment towards the time I have spent as a doctoral student here at Michigan State. Many people have contributed to this growth, and in fact have helped me to realize educational and professional objectives that only a few short years ago were simply dreams.

Much of the success of this dissertation and for that matter, my own personal and professional growth, has come out of the knowledge, guidance, and support of various people who I have been indeed fortunate to work with at various stages in this project and in my educational career at M.S.U.

Foremost among these individuals is the Chairman of my Doctoral Committee, Dr. Don Hamachek. From the very beginning

of my studies at Michigan State, when he served as my advisor, right through to the completion of my dissertation, he has consistently been there when needed and has always been willing to share his knowledge and experience. The interest he has shown in my educational and professional endeavors and the support he has provided have made a great impression on me and are deeply appreciated.

I see myself as having been very fortunate in having as supportive and as knowledgeable a guidance and dissertation committee as I did. Drs. Harvey Clarizio, William Mehrens, Louise Sause, and Robert Zucker have all been extremely helpful not only in regard to their input in this study, but also in their overall influence on my professional competencies. This influence has occurred through the courses they taught and then later through the wise and thoughtful comments and suggestions they provided while I planned my program of study. Each of these people has been generous enough to share with me his/her areas of expertise and has demonstrated competence worthy of respect and emulation.

In addition to these faculty members at Michigan State University, the staff at the Developmental Assessment Clinic at Sparrow General Hospital was instrumental in helping to get this project "off the ground". The task of data collection was made considerably easier by these individuals who provided unlimited time and assistance. Dr. Eugene Dolanski, Dr. Padamani Karna, John Wallen, Nels Bullock, and Joyce Van Voorhis were all vital parts of this process. In addition,

Dr. Jerrold Veldman and his associates were especially helpful at crucial points in the data collection process and their good natured assistance and cooperation were heartily appreciated.

I owe much to Al Hammer of the M.S.U. Office of Research Consultation who spent a considerable amount of time working with me in analyzing the data and making efficient use of the computers. His skills and suggestions proved to be highly valuable.

I would also like to thank Donna Hobart for the excellent job she did in keypunching the data, and Susie Breck for her expert typing of this manuscript in its final stages.

I would be remiss indeed if I failed to acknowledge the good natured cooperation of the mothers who took part in this study. Their participation meant sacrificing much extra time, and this clearly is a luxury new mothers have little of!

Finally, I want to thank my friends and "families" whose love, support, and assistance have contributed directly and indirectly to all that I have accomplished over these past years at M.S.U. In particular, I want to thank Mindy, whose love, understanding, and sense of humor brightened up the grayest Michigan days and who constantly supported me even though she knew "it wasn't going to be easy".

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INTRODUCTION

Need for the Study

Over recent years increased attention has been devoted to the reciprocal and mutually reinforcing interaction between infants and their mothers. Not only has much research been concerned with assessing parental attitudes and their influence on the child's personality development (Medinnus and Curtis, 1963), but there has been increased investigation of the child's contribution to the parent-child interaction in terms of "stimulating as well as being stimulated" (Bell, 1971).

Furthermore, there has been much study of the way infants differ from each other. In addition to obvious ways such as size, rate of growth, and eye color, an extremely important factor which is less obvious has also been studied. "Temperament", as this factor is called, basically refers to the usual manner in which infants react to other people and things around them. There is no concrete evidence as to whether temperament characteristics are inherited, whether they are formed when the baby is growing during pregnancy, or whether they develop in the first weeks of life. Berger (1973) notes that there is likely an interaction of several factors including: genetic sources, differences in brain growth, sex linked determinants, and prenatal and perinatal

factors, all of which determine individual differences. Scholom (1975), after reviewing the research in this area, observed that temperamental attributes had been shown to be present at birth, remaining constant to varying degrees over time, and have a genetic component. In any case, temperamental qualities have been found in the first months of life and there is a growing belief that understanding of the effect of these on the child and his interactions is quite important. As such, there has been much interest in how the temperament of the infant interacts with the environment in molding the personality of the child (Thomas, Chess and Birch, 1963). These researchers, in particular, have shown that how a mother interacts with her child depends on her personality, her maternal feelings, and her infant's unique temperament.

The attention to the concept of self over the past years has made it an important means of studying and understanding human behavior. The individual's concept of himself has been demonstrated to be highly influential in much of his behavior, and directly related to his general personality and state of mental health (Fitts, 1969). The research of a number of personality theorists has suggested that the attitudes held toward the self are quite important and are reflected in the attitudes toward others. Fromm (1939), for example, has observed that self love and the love of others go hand in hand. It has also been noted that an individual develops his self-definition from others, and it is generally agreed that the child's self-concept is foremost an outgrowth of his home and

the people who live with him. Parents are extremely important in shaping the self-concept of their children (Coopersmith, 1967). Gordon (1959) suggests that the child's original self-concepts are the result of his interactions with his parents and the particular meanings he assigns to these experiences. Research indicates that low self-esteem in the mother is associated with low self-esteem in the child (Tocco and Bridges, 1973). Turner (1968) notes that "each person's self-conception is a selective working compromise between his ideals and the images forced upon him by his imperfect behavior in actual situations" (p. 94). It would seem that the self-concept of the mother could thus be influenced by her "imperfect behavior in actual situations" with her child.

In addition to these areas just mentioned, a recent development has been the increased impetus to locate and then to provide for children with special education needs. "Child Find" - as programs with these goals have been called - is both a state and a national commitment to locate and to assess persons who have special needs from birth through seven years of age. The provision of programs and services to assist parents in the development and training of infants, youth, and children, has been a common practice throughout our country within our educational delivery system. The concept of making such services available to parents of individuals who are impaired or who appear to have difficulty in developing in either the cognitive, affective, or psychomotor domains, is part of this increased commitment. Educators

today are increasingly concerned with early intervention with children who are suspected of being delayed in one or more of the three previously mentioned domains, this especially in terms of providing educational resources to assist their parents. These resources would include: inservice training, supportive technical services and counseling, that would occur both in the home and in a central location. There is the belief that in considering the provision of services to the "high risk" 0 - 7 year old population, it is essential that the total individual be considered.

It is the opinion of this writer that the initial areas that have just been discussed, namely the mother/child interaction, infant temperament, and the issue of self-concept--specifically related to the mother, are all important points to consider with regard to the last subject discussed, which was the topic of "high risk" screening. More information about the interaction of infant temperament and the self-concept of the primary mothering adult in the child's life - especially in this population of infants singled out for possible developmental difficulties - would seem to be quite important.

Purpose of the Study

After one year of encountering parents and infants in a Developmental Assessment Clinic - which had as its purpose assessing the development of babies who have received intensive care during the first days or weeks of life - it appeared that there were an overrepresentative number of "difficult

infants" among those with whom I had contact. Reports of irregular, intense, active babies abounded, as did reports of mothers who saw themselves as "failures as mothers". While this pattern was not completely dominant, it did appear that a considerable number of such cases did exist, evidencing this trend.

There were five basic purposes for conducting this research project, which in part grew out of the above observations. The first was to examine infant temperament variables in both "average" and "high risk" populations. A "high risk" infant for the purposes of this study was one who has, or is likely to develop, a handicap capable of interfering with his normal growth and development and/or his capacity to learn. In this study, in order to focus this broad, widely used term of "high risk", I have equated the term with Tjossem's categories of "Biological/Established Risk". Tjossem has divided the concept of risk status into three categories of vulnerability in infants which include: "biological", "established", and "environmental" risk. He states that these three categories are not mutually exclusive; however, cases can fit predominantly into one of the categories as opposed to the others. "Environmental risk" is a term used to discuss infants who are biologically sound but for whom early life experiences, such as maternal care and physical and social stimulation, are so limited that without corrective intervention there is a high probability for delayed development. This category includes infants who are living in poverty and

babies who are unwanted. "Established risk" is a term Tjossem uses to described infants whose early, atypical development is related to diagnosed medical disorders of known etiology with well known expectancies for developmental outcome "within specified ranges of developmental delay". An example of this is an infant with Down's Syndrome. The final category is termed "biological risk" and it specifies infants who present a history of prenatal, perinatal, neonatal and early development events suggestive of biological insults to the developing infant. These events increase the probability of later appearing problems in development. Thus, the last two categories, "Established/Biological", will herein be referred to when the term "high risk" is used, with particular emphasis on the biological component involvement.

"Average" infants in this study are those babies for whom the likelihood of developing handicaps capable of interfering with normal growth, development, and/or capacity to learn do not exist. Questions to be explored regarding this first purpose include the whole idea of whether pre-, peri-, or postnatal difficulties found in "high risk" infants are related to differences in temperament. This relates to the questions discussed in the introduction of this work, dealing with the concern of whether the evaluation of the temperament of the "high risk" infant whould be made an integral part of the high risk screening procedures currently underway in Child Find Projects in Michigan and other states.

A second purpose was to examine the relation between infant temperament and maternal self-concept. An effort was

made to determine whether mothers of "difficult children" have lower self-concepts and greater feelings of inadequacy, specifically in their role as mothers. In this project, I have restricted myself to demonstrating an association between maternal self-concept and temperament variables, rather than cause and effect.

A third purpose was to determine whether there is a relationship between the self-concept of mothers and their infants' "biological/established" risk problems. That is to say, "high risk" status was examined in relation to the self-concept of the mother. For example, does a mother whose infant has a "high risk" of developing a handicap capable of interfering with his normal growth and development necessarily feel less adequate and have a poor self-concept?

A fourth purpose was to examine the relationship between the mother's self-concept and the way she perceives her infant. That is, did mothers with low self-concepts tend to see their infants as having more difficult temperament styles than was indicated by more objective measurements? Did mothers with high self-concepts tend to see their infants as having less difficult temperament styles than was indicated by these measures?

The fifth purpose was to attempt to examine temperament variables in both "average" and "high risk" populations in regard to performance on a developmental screening measure, sex of the child, and ordinal position in the family. This investigation sought to determine whether or not there was a relationship between these variables and infant temperament styles.

THEORY AND RESEARCH

Review of Theory and Research

Differences among individual children were recognized as early in history as the early Greek and Roman periods. Thereafter through the centuries that followed these differences were intermittently acknowledged and repudiated, with varying degrees of importance applied to individual variations (Bell, 1977). In the twentieth century the impetus for studying individual differences has come from various sources. Predominant among these has been the work of Arnold Gesell, who along with recognizing the importance of individual variation also conducted much empirical work supporting a picture of "considerable latent power residing in the child" (Bell, 1977). In addition, work by such theorists as Piaget provided for increased recognition of the considerable capability and organizing power of the infant. Korner (1970), in reviewing the literature, noted that a large part of the study of individual differences in infants, and the infant's contribution to the "reciprocal exchange" with the mother, came from the field of psychoanalysis. Citing Freud as an example, she noted his firm conviction that "each individual ego is endowed from the beginning with its own peculiar dispositions and tendencies" (Freud, 1937). Korner reports that early psychoanalytic studies stressing the importance of predispositions in the development of neuroses were the precursors to studies of systematic observations of innate differences among infants (Korner, 1970).

Bell (1977), noting the extensive research attention to infancy in the 1960's and the facts on early perceptual and cognitive capabilities that have been provided, has observed that "approaches to socialization that ignored these (capabilities) had been barren of results". It has become more and more apparent that infants have certain built-in emergent structures with which they react to and affect the things and people around them. There is evidence to suggest that the human infant at birth "possesses well organized behaviors, the ability to discriminate among stimuli, and to show a preference for some of these stimuli" (Rheingold, 1967). In addition, there is evidence to indicate that the infant can actively organize, integrate, and adapt to experience (Rheingold, 1969). Furthermore, research is showing that children are born with certain personality predispositions which very likely affect the behavior and attitudes of their parents (Thomas et al., 1963; Moss et al., 1968; Bell, 1974). From the earliest weeks of life, it is the infant who effectively promotes many interactions between himself and his caretaker. For example, Moss and Robson (1968) note that at one month of age it is the infant who initiates roughly four out of five interactions. It has been shown that the infant, through his discriminative crying, looking, and smiling, facilitates and maintains interaction (Bell, 1974). His influence shows not only immediate effects but long term ones as well. Bell and Harper (1977) have observed that "We expect parents to influence their children. People who live together usually

affect each other, but what is often overlooked is the extent to which children influence their parents and other adults" (pg. ix). French (1977) notes that even "a moment's reflection will tell any adult who has had more than casual contact with a small child, that the infant can exert definite and sometimes very strong influences on the adult's behavior". Rheingold (1969) goes so far as to suggest that "the infant more powerfully socializes the adult into parenthood than the parent socializes the infant". Bell (1977) has observed that especially in the case with firstborns, the parents seemed not only overwhelmed with their new responsibility but also somewhat helpless and confused. "In many respects, they appear to be much less powerful than the infant whose behaviors are remarkably well organized to produce a given result." Research by Clarke-Stewart (1973), among others, supports Rheingold's observation, specifically insofar as attachment behavior is concerned. Yarrow (1965) noted that maternal behaviors were influenced by the mother's preference for infant behaviors, which again is indicative of the interactional relationship existing between mother and child.

Among the early empirical studies of individual differences in the behavior of infants and children, a monumental work upon which much of this current research is based is the New York Longitudinal Study which was begun by Thomas, Chess, Birch, Hertzig, and Korn (1963). Data on the behavioral characteristics of a large sample of children were gathered from infancy through adulthood. The study has determined

that the aspect of initial differences in infants that was most likely to have pertinence for later development was what they termed "temperament". Chess and Thomas (1972) noted that they had used the term temperament as it had been employed by such theorists as Guilford and Cattell. The term basically refers to the behavioral style of the child and contains no inferences as to etiology. It is a "phenomenological term" which is used to describe the characteristic tempo, energy expenditure, focus mood, and rhythmicity that typify the behaviors of an individual child (Chess and Thomas, 1973). "Temperament refers only to the how, not the why of behavior and implies neither immutability nor permanence" (p. 9).

As in other studies (see, for example, Kagan and Moss, 1962), evidence was found in the New York Longitudinal Study (N.Y.L.S.) suggesting the stability of certain temperamental variables over time. Temperament identification in the infants in this project was quite consistent for the first two years of life. In follow up years, however, modification of temperament scores occurred as interactions with the environment progressed. Kohlberg et al. (1972) note that there appears to be continuity in a child's temperament although not necessarily in his or her motivation. Temperament refers to the manner in which a child moves, talks or thinks. Motivation, on the other hand, refers to what the child actually does or thinks. One example of consistent temperament would be a child's activity level which does remain fairly stable -

a passive infant is likely to become a dependent adolescent and adult (Kagan, 1977).

Outcomes for any individual child were determined not only by parental functioning, or environmental influences, or by temperament characteristics of the child alone, but also by an interaction between temperament and environment. These researchers identified a high risk temperament factor which resulted in a significantly greater proportion of children developing behavior disorders. Not all infants with this pattern, however, did develop problems. Thus, there was felt to be an interaction between biological and socialization influence. The N.Y.L.S. findings suggest that the behavior disorders that were observed did not develop as a direct result of the persistence of an unusual temperament attribute but rather that, "disorder resulted from some train of events set in motion by the attribute or something associated with it" (p. 114) (Rutter, 1976). It appears that this issue is related to Sameroff and Chandler's (1975) concept of the "continuum of caretaker casualty", which focuses on the fact that the environment has a major role in minimizing or maximizing early developmental difficulties in infants. These theorists describe a wide range of possible outcomes that can result from environmental variation, and note that most infants who suffer perinatal problems have proven to have "normal outcomes". This point should be kept in mind when examining the N.Y.L.S.'s findings regarding temperament. It was found that twenty-three percent of the group who developed

behavior problems were "difficult" in temperament while only four percent of the group without behavior problems were "difficult". These "difficult" youngsters would appear to be more vulnerable to the development of behavior disturbances and seemed to present more severe symptoms when they became disturbed. Thus, while a large number of "difficult" children did not become disturbed, a significantly greater proportion did as compared with those with "easier temperament styles". Thomas and Chess (1977) note that it was possible to trace the ontogenesis of the behavioral disturbances in terms of the interaction between difficult temperament and the child's environment.

Other studies have been carried out which lend further credence to this aforementioned idea of interaction. One of these was undertaken by Rutter (1964), who noted that "difficult children" who in general show a high percentage of behavior problems typically exhibited disturbed reactions if the demands for socialization were presented inconsistently and by an impatient adult. Graham et al. (1973) also found that "adverse temperament characteristics" rendered the child more vulnerable to the harmful effects of family discord and other stress factors. In another study, Scholom (1975) found evidence to suggest that parent temperament was quite important as predictive of child adjustment. The mother's role in particular stood out in this research project. Thus again, while such factors as temperament might not lead directly to behavior disorders, they do apparently render the child more

vulnerable to the effects of such things as stress factors, parental discord, and parent temperament. Perhaps low self-esteem in the mother might also be another one of these factors?

In the New York Longitudinal Study, Thomas et al. (1963) conducted content analysis of infant behavioral records and found it possible to characterize the individual behavior of each infant in terms of nine categories. These nine categories included: activity level, rhythmicity, approach-withdrawal, adaptability, intensity of reaction, threshhold of responsiveness, quality of mood, distractibility, and attention span/persistence. Clusters of these temperament attributes were found to be especially important when considering the reactivity style of individual children. Three groupings were found to occur with high frequency and to quote Thomas and Chess (1973), "it seemed sensible to call them by everyday terms" (p. 88). These were the "easy child", the "slow to warm-up child", and the "difficult child". It is this last cluster that will be of special concern in this research endeavor. The child who fits into this category is irregular in biological functioning, negative in responding to new stimuli, slow in adapting to change, negative in mood, and responds frequently with high intensity in his reaction. As such, this child will be difficult to feed, a chore to put to sleep, hard to dress, and difficult to bathe -- to mention a few aspects of his behavior. Thomas et al. (1963) noted that these infants "were variously characterized by their mothers, the interviewers, and other members of the research

team (i.e., the N.Y.L.S. team) in terms of a series of pejorative labels ranging from the expression "difficult children" by the more sedate and formal of our colleagues to "mother killers" by the more graphic and less inhibited" (p. 75). This child makes extra demands for handling that are likely to stimulate reactions of resentment, guilt or helplessness in the mother. It would not seem unusual to expect to find these feelings when a child shows behavior patterns - such as those just mentioned - which quite clearly deviate from the dominant cultural definition of what a "good" infant is. Such children do not fit the stereotype of what is "optimal behavior" for an infant. Justice and Justice (1976) speak of this when they discuss "cultural scripts", which are the culturally sanctioned messages and myths about how mothers and infants "should" behave and feel. Infants are expected to fit into the "bundle of joy" or "Gerber baby scripts". These are myths that give rise to expectations that a baby is a constant joy, "a clear cuddly creature who smiles lovingly at his mother and sleeps peacefully in her arms". This myth is promoted by television commercials and advertisements in women's magazines. These babies perpetuated through these myths, clearly are not the "difficult infants"! It seems that these "difficult infants" and the relationships they have with their mothers are what Brazelton (1974) is speaking of when he states that mothers may often have difficulty "reaching their child". He notes that the "caring mother" often feels something she has done has made her relationship

with her child "go wrong". This feeling of inadequacy, it would seem, would be easily reinforced by a child having those characteristics of the "difficult child". It doesn't seem too hard to imagine how easily such an infant could augment self-doubt in the primary caretaker. Commenting on this, Thomas and Chess (1977) note that some children "have characteristics which make it extremely difficult, or in some cases virtually impossible for parents, no matter how good, to function in such a way so as to guarantee an easy, smooth developmental course" (p. 192). This is quite important to keep in mind when noting a study carried out by Diggony, Klein and Cohen (1964). They found that estimates of one's capacities are highly dependent on the moment to moment feedback provided by the environment. Furthermore, these researchers, as well as Kiesler and Baral (1970), noted that actual performance of work is, in fact, affected by these estimates. When it appears that they will fail, subjects diminish their efforts. Not to believe that you are capable of success may actually guarantee your failure. Perhaps this might be the case with mothers of "difficult children". If they see themselves as failures, will their efforts and behavior indeed be hindered? This possibility is made more plausible if one examines studies such as that carried out by Robson and Moss (1970). These researchers discovered that in some mothers "attachment decreased after the first month if crying, fussing and other demands for caregiving did not ebb". They note one report of a mother in just such a

situation who felt "strange and unloved, and wanted nothing to do with her child" even though during pregnancy she was "positive in orientation". Korner and Grabstein (1966) and Dunn (1977) also focus on this issue of maternal confidence. They observed that early in an infant's life most common interactions with the mother revolve around comforting and soothing the infant. Infants were found to vary in their need for comforting and in how soothable they were. The impact of these differences on a mother - especially an "inexperienced mother" - was thought to be "considerable". Korner et al. (1966) state that the mother's feelings of self-confidence as a caretaker and her feelings of relatedness to her infant must be tied up very much with her effectiveness in comforting her baby. Brazelton (1961) and Prechtl (1963) also found that extreme irritability and inconsolability on the infant's part can have "detrimental" effects on the early mother-infant relationship. Bell and Ainsworth (1972) note that some mothers and their infants get into vicious cycles where the more the infant cried the more the mother withdrew from efforts to soothe the child, particularly in the last part of the first year of life. Once again in these cases the stress is placed on the individual child's make-up - not simply the skill and devotion of the mother - as a strong contributing factor to the mother's effectiveness. Thomas and Chess (1965) observe that what looks like "bad mothering" often shows up after careful investigation to be "the mother's confused reaction to a difficult child, rather than a primary

cause of the child's problem". It seems to this writer that negative effects such as this could relate particularly to the mother's self-confidence.

Dodson (1970) addresses himself to the importance of the self-concept of the mother in our society. He notes that mothers are afraid to admit feelings of inadequacy regarding their maternal role to anyone. "After all", he notes, "she reasons she is a mother now and this is the crown and fulfillment of her life as a woman. She mentally pictures other mothers quite adequately taking care of their young babies. She thinks that she is the only one feeling this way so she'd die before she would admit these feelings to anybody else" (p. 32). Laing (1967) recognizes the awesome responsibility mothers must feel, "They are always the first to get the blame for everything". McBride (1973) notes that "since women are supposed to be fulfilled by motherhood and in charge of the family happiness, it seems to be entirely their fault if they feel inadequate or if their children don't act right". Considering our society's expectations, and keeping the above points in mind, it seems understandable that the problems that might arise with child rearing could significantly influence mothers. Dodson observes that new mothers receive all kinds of messages from our culture, "some implicit and some explicit", telling them that somehow mothers are equipped with, as he puts it, "mother love and a mother instinct" which automatically enables them to care for their babies. This very often conflicts with mothers' actual feelings of

inadequacy in taking care of their infants. I would expect this discrepancy to be even more extreme when the baby fits into that category described as the "difficult child", and the worrying and inadequacy feelings that result to be even more extreme. No doubt the mother's feelings of helplessness and self-doubt would clearly strain the mother/child relationship. Church (1976), too, emphasizes quite vehemently the essential aspect of parental confidence in child rearing. He notes that early in his life, the infant is able to sense his parent's anxiety in dealing with him and is frightened by this. Church notes that these feelings of inadequacy in the mother and father are generally overcome "once the parents have grasped that it is they who are in charge" (p. 20). Bell and Harper (1977) attend to the fact that during the neonatal period the mother learns that she can distract her infant and thus begin to bring behavior under her control. "She feels effective because the infant is doing what she wants it to do, even though she may not understand that it is ceasing the fussing for reasons other than her actions" (p. 134). Mothers learn that not only are they under control but that they have reinforcement value. One must wonder, however, if this feeling of "being in charge" and "being effective" could actually occur with a "difficult child". Is this lack of confidence in the mother that Church speaks of, in fact, overcome?

As has been indicated, Dodson recognizes the fact that mothers who don't feel as though they have "a natural mother

instinct", think that all others do. Thus it seems, these mothers are comparing themselves to other mothers. If a mother "staked her all" - to paraphrase James - on being a mother, and as such saw this as being a major role in her life, it would naturally be quite important for her to do a good job at it. To quote Hamachek (1971), "...it would be difficult to maintain, not to mention enhance self-esteem if one saw himself consistently finishing somewhere behind the group with which he was comparing himself" (p. 9). A mother rearing a "difficult infant" - and having a hard time at doing it - might very likely see herself as a failure, especially considering the fact that the maternal motive is usually held up as our cultural ideal.

A special situation to examine when considering this issue of maternal self-concept concerns "biological high risk infants". Previously the effect on a parent of having a "high risk" infant (specifically a premature baby) has been examined in several studies (Caplan, 1960; Kaplan et al., 1960; Caplan et al., 1965; Klaus et al., 1970). Bertrand Cramer (1976) has observed that the most frequently found feeling in mothers of premature infants was a sense of failure. He further puts forth the idea that the birth of a premature child is a severe blow to the mother's "self-esteem, her mothering capabilities, and her feminine role". It is conceived of as a loss of a body part, an insult to her body, and a sign of inferiority. Cramer also noted that these mothers expressed considerable feelings of guilt. They accused

themselves from the start of being bad mothers since they had exposed their child to great stress "while forcing him out of the protective womb". These feelings were especially found to interfere with the establishment of relationships with their children. The mothers felt as though they were dangerous and incapable of protecting the child. The fact that the premature infant is quickly taken away from the mother following birth further serves to reinforce the belief that the nurses can offer better maternal care than she can and thus she is inadequate (Cramer, 1976). Klaus and Leiderman (1977) found evidence to suggest that mothers of small, premature babies who were separated from them in the first few weeks of life (because the infants were in incubators or in intensive care nurseries) tended to be less confident and less attentive to their babies. They note that this might be due in part "to the rather unresponsive nature of the very premature infant" and in part to the lack of contact with their infant during that early period "when mothering skills should be developing". From this statement it can be seen that the infant's behavior is also believed to influence the situation. Drugs given to the premature infant, or anoxia (which premature infants are often predisposed to), are two causes frequently focused upon as explanations for variations in the behavior of premature babies. Justice and Justice (1976) note that anoxia frequently causes increased irritability and fussiness and that drugs often influence alertness and thus responsiveness. It would seem that the premature

birth, the unfinished pregnancy, the early separation between mother and infant, and the infant's behavior could all influence the mother-child relationship.

Prugh (1953) put forward the idea that the stress of prematurity itself could very well "color the behavior and attitudes of the infant through many years of childhood". Caplan looked at the situation of having a premature infant as a crisis situation and explored "healthy resolutions" to the "crisis". Kaplan and Mason (1960) have isolated four major psychological tasks which they felt were related to the mother's experience of the prematurity crisis. They state that the successful resolution of these tasks is essential for the development of a healthy mother-child relationship. One of the tasks that is paramount to accomplishing other goals, is the need they place on the mother to acknowledge her "feelings of failure" due to having not delivered a "normal, full term baby". It would seem that the accomplishment of this goal - and others - would be made especially difficult when the child had those temperament characteristics which were previously noted when discussing the "difficult child". To have added to the prematurity crisis an infant who makes child rearing "extremely difficult" would, it seems, very likely compound the feelings of failure, lower self-esteem, and make the resolution of the crisis very difficult and all the more painful for the mother. Caplan et al. (1960) assert that mothers who deliver before term have frequently been observed to urge their infants to eat

and grow as if to reassure themselves about their abilities as mothers. They state that if this emphasis on the satisfaction of the mother's own needs outweighs her concern for the needs of the infant "a mother-child relationship may be established which will interfere with the healthy personality development of the child". Such a relationship is likely to exist in a situation where a mother's self-concept is sufficiently poor enough to hinder her full effectiveness as a parent. Furthermore, as will be discussed shortly, if such parents are in specific need of nurturing themselves, they may be especially vulnerable to abusing their children, if the children are not meeting these needs (Justice and Justice, 1976).

While this discussion of "high risk" has focused specifically on prematurity, Cramer (1976) also notes that the blow to the mother's self-esteem is likely to be even more dramatic when her child is afflicted with a congenital defect or a chronic disease. If parents of children born with multiple congenital defects do not receive help, Cramer notes that they "can have such a lowered self-esteem that they totally withdraw interest in, and concern for, the child whom they perceive as a sign of their own badness". Cummings et al. (1966) state that variations in the physical, intellectual and psychological characteristics of children likely influence the parents' own perceptions of worth. They have found evidence suggesting that having a child who is in some way "deficient" is a highly stressful experience for the mother. Cramer feels that the results in these situations can be very

"dramatic" with total maternal deprivation or "battered child syndrome" as the outcome. As Cramer puts it "the establishment of mothering behavior is a fragile process" (p. 164).

If there is a relationship between "difficult temperament" in infants and low maternal self-esteem, a logical question to ask would appear to be, "What is important about the self-esteem of the mother?" There have been many studies in the past that have examined the relationship between the mother's self-concept and issues related to her child's development and her relationship to him. Sears, Macoby and Levin (1957) found evidence to suggest that the mother's self-esteem is an important correlate of her ability to express warmth towards him. High aggressiveness in the child was noted to be related to factors in the mother including: anxiety about whether she was going a good job, low self-esteem, and low value for the maternal role (i.e., she didn't feel her primary responsibility should be towards her children). Low self-esteem was also found in mothers who were inconsistent in their relations with their children. Coopersmith (1967) notes that mothers who had high self-esteem had a greater likelihood of accepting their roles as mothers and carrying them out in a realistic and effective manner. Samuels (1977) states that maternal childrearing attitudes are related to how a mother feels about herself. "A mother who feels inadequate in the mothering role will communicate these feelings to her child by her verbal and nonverbal

behavior" (p. 88). An important point that has been reported in the literature on child development is that mothers' self-concepts are related to the self-concepts of their children (Malone, 1967; Tocco and Bridges, 1973). Tocco et al. (1973) note that self-concept measures have been found to relate to many facets of life and the importance of parents in shaping the self-concepts of their children has been found to be quite significant. Studies by Combs and Snygg (1959) and Bayley and Schaefer (1967) also address themselves to this very issue. There is, in turn, much research existing which links the child's self-concept to various areas in his life including school achievement (Purkey, 1967) and numerous personal and social variables (Fitts and Hammer, 1969). A child who sees himself with confidence is likely to succeed just because of the effect of this attitude on the way he sets about the task. After considering the ideas and studies that have just been noted as well as other related research studies, it seems possible to reason that perhaps infants and their mothers mutually influence each others' self-concepts. Since it has been noted that parent-child interaction occurs in a reciprocal social system, it appears plausible to assume that each contributes to the way the other feels about himself. This is an idea that would seem to warrant further exploration.

In addition to maternal self-concept, there are other areas that merit further investigation in relation to infant temperament variables. Other variables that have previously been examined in research studies have concentrated on the

sex of the infant, the I.Q. level, the ordinal position of the infant in the family, and the temperament of infants "at biological risk". With regard to this last point, high risk status, minimal research has been carried out in the past, insofar as its relation to temperament. In one study examining psychiatric disorders in children with congenital rubella, Chess, Korn and Fernandez (1971) noted that "damaged youngsters" (i.e., youngsters with physical defects) were more frequently found in the "difficult child" category and "undamaged youngsters" more frequently found to be "easier" in temperament than random distribution of these characteristics would lead one to expect. Clearly, there is a need to examine relationships such as these in greater detail, something this current study has sought to do.

Regarding temperament and I.Q., Sameroff (1974), using the Carey Infant Temperament Questionnaire and the Bayley Infant Scales found that "if one wants to predict an infant's I.Q. score at thirty months of age from a child's behavior at four months of age, a much more reliable prediction can be made based on his temperament than on his intellectual functioning" (p. 142). Thomas and Chess (1977) note that their own data from the New York Longitudinal Study have not been analyzed to determine correlations between performance on these types of tests and temperamental variables. Sameroff and Kelly (in an unpublished manuscript noted by Thomas and Chess, 1977) examined infant temperament using the Carey Questionnaire and related scores on this instrument to the

sex of the child, birth order, and several other variables. No sex differences were found with regard to temperament in their sample; however, firstborn children were rated as more active and more adaptable than later-borns. It would appear that these variables and their relationships are far from conclusive and warrant further study, this particularly insofar as they occur in the populations under study in this current project.

The issue of temperament differences in children has been increasingly noted in the literature in relation to child rearing practices. Specifically focused upon has been the need to increase mothers' sensitivities to their children. Carey (1970), in fact, had hoped in developing his Infant Temperament Questionnaire, that through its use mothers might be directed to make specific observations of their children and ultimately be better parents. This could occur by helping parents to respond appropriately to specific infant behaviors. Ainsworth (1964), too, has observed that there is a need for focusing on the individual infant and his particular way of behaving. She speaks of the need for "a new kind of child development counselor". Rather than giving general advice or instruction - which she notes are likely to be ineffectual - the counselor must tailor any guidance to the particular "mother-child dyad". Ainsworth states that perhaps the best advice that can be given as a guide to mothers is for them to gear their interventions to their infants' signals. Korner (1971), in noting that infants differ

significantly from each other at birth, suggests that there is no one best way for providing good child care for all infants. She states that, "the only way to do so is to respond flexibly to the individual requirements of each and every child" (p. 51). Korner thus warns against seeing the mother and the care and stimulation she provides as solely responsible for the normality or deviation of her child's development. "This stance feeds into the illusion that with the 'correct methods' and the 'right attitudes', we are in control of our children's destiny" (p. 60). She also notes that it produces much unwarranted guilt in the mother. "Mothers must be encouraged to be committed to the absorbing task of figuring out the optimal dose and type of stimulation that is most beneficial for their particular babies at any given point in their development" (p. 60). It is the task of the parents, according to Ainsworth (1964), to neither seek to make the infant conform to a preconceived mold, nor employ rigid practices without regard for the rhythms, sensitivities, and patterns of the particular infant. Thomas and Chess (1977) contend that most parents of "difficult children" with behavior disorders were able to respond positively to their child once they learned that their child's temperament existed independently of their own abilities and functioning, and that specific management approaches were required. Basically, this resulted from the reassurance that their patient efforts would finally be rewarded by a change in adaptation by their child, who would eventually function on a level "congenial

to their own value system". In studying their clinic sample, Thomas and Chess observed that parent guidance in the cases of difficult children with behavior problems was as successful as in the cases of easy children. Margret Mahler (1963) among others has noted that "child raising is not easily achieved by the average mother in our culture". It was asserted by Thomas and Chess (1977), however, that the recognition of a child's specific qualities of individuality and the adoption of those child care practices most appropriate to him can significantly lighten the difficulties of child rearing.

It is a tenet of this study that mothers will find it easier to understand, take care of, teach, and enjoy their children if they pay attention to their individual temperament styles.

Summary and Implications

From those studies and theories that have just been examined, it can be seen that there has been much attention in the past devoted to the study of individual differences in infants. Recently, there has been an increased focus on the individual differences in infant temperament variables, as well as on the reciprocal relationship between mothers and their infants. Bell (1977) summarized this last point when he stated that "parent-child interaction occurs in a reciprocal social system in which much of the progress toward cultural norms involves mutual adjustment and accommodation". Much of the findings are inconclusive at this time and the

need for further research clearly exists. In addition, the issue of infant temperament and it's relationship to maternal self-concept appears to be a topic that has not been explored thus far. This would seem to be a subject that could generate many future questions and much future research in itself.

After considering the studies discussed in this section, the question again arises as to whether the evaluation of infant temperament should be made an integral part of the screening procedures used in such programs as Child Find. An area that is particularly relevant to this issue is the problem of child abuse which is currently receiving much attention. Harrington (1972) reports that children contribute to their abuse. "There is evidence that children who are battered show disturbances of sleep and feeding, cry excessively and respond poorly to attempts to comfort them" (p. 68). This sounds very much like the "difficult child" spoken of in this project. Harrington goes on to note that how far they contribute to abuse is impossible to say. "There is, however, a strong presumption that irritable babies, hypersensitive babies, colicky and unresponsive babies are especially vulnerable" (p. 68). According to a study by Morse et al. (1970), fifteen out of twenty-five battered children studied were considered "difficult" by their abusing parents. Justice and Duncan (1975) note that the literature implies that even "normal" parents may abuse a particularly irritating or difficult child. A question that would seem important to keep in mind is whether some

children, perhaps, are so difficult temperamentally that the average parent may be moved to excessive measures of management. This, too, seems to be an area in need of future research. Steele and Pollack (1968), in studying the children of abusing parents, note that from a very early point in infancy, the child is expected to show "exemplary behavior and a respectful, submissive, thoughtful attitude toward the adult". Such standards are implemented at an inappropriately early age and are hardly what one could expect from the average infant, let alone from one who has a "difficult temperament style". Having an infant who doesn't respond "the way the book says" and in accordance with the needs of a parent with a poor self-concept might, it seems, provoke a parent to violence. Thus, it appears that consideration of the "difficult child" and recognition of a situation where extreme disharmony exists between mother and child, would be very important in preventing situations from reaching that stage where abuse could occur. This would clearly be a concern for screening clinics.

As has been noted, parents of "difficult children" might understandably feel threatened and anxious, quite possibly because they believe the turmoil and difficulties of caring for their child expose their inadequacies as parents. In our society, considering the emphasis placed on the mother's role and the emphasis on her responsibility for the infant's healthy development, it would likely be the mother who is most affected. She may believe that she is incompetent as a caretaker or as Thomas and Chess note, she may blame the

infant and resent any extra demands he places on her. In any case, the necessary patience and guidance needed on the mother's part, especially in dealing with such a child, will have a greater likelihood of being missing. Thomas and Chess (1977) believe that these mothers will be more likely to "pressure, appease, punish, or vacillate, all the time communicating a host of negative feelings to the infant, such as hostility, impatience, or bewilderment" (p. 71). It would seem plausible that this would lead to intensification of the infant's negative moods and increased difficulties in adaptation. Thus, a vicious cycle is established which researchers such as Thomas et al. believe leads to the development of behavior disorders.

It has been suggested that guilt feelings and feelings of inadequacy are possible results of interactions between mothers and their difficult infants. This remains to be examined in this study. Should it in fact be the case, it might point the need for intervention with similar populations in the future. It is important to note that the idea should not be to label parents and infants who fall into a high risk category, but rather to offer them support and guide them to helpful services. These services could, in part, help mothers gain more positive feelings about themselves as mothers, and gain a greater understanding of their relationships with their infants. This brings up the issue of primary prevention, which consists of heading off a problem before it occurs. Unlike secondary prevention, it reduces not only the prevalence

of the problem but also the incidence--the number of new cases. It would seem that keeping track of "difficult infants" and checking on their development and well being (as well as the well being of their parents) might be a wise strategy for preventing serious problems at crucial times in the future.

METHOD

Subjects

The subjects in this study included seventy-five "biological high risk" infants and a control group of seventy-five "average" infants. Once again, a "high risk" infant, for the purposes of this study, is one who has, or is likely to develop, a handicap capable of interfering with his normal growth and development or capacity to learn. The disability may have its origin in the prenatal, perinatal, or postnatal period of the infant's life (Department of Health, Education and Welfare, 1963). Among the conditions or complications constituting "high risk" in infants are the following (Waterman, 1969):

a. Infant born to a mother who carries genetic factors such as translocation chromosomes producing Downs Syndrome, hemophilia and others.
b. Infant whose mother has had an acute virus infection during pregnancy (especially within the first 2-3 months) such as German Measles, certain strains of flu, toxoplasma, and others.
c. Premature or low birth weight infant (short gestational period or under 5 and 1/2 pounds).
d. Infant injured at birth resulting from difficult labor or delivery.
e. Infant with a congenital anomaly.
f. Infant with RH or ABO incompatibility or marked jaundice from other causes.
g. Infant with respiratory distress syndrome.
h. Post-mature infant (carried in utero beyond 42 weeks gestation or an infant with a placenta which demonstrates insufficiency).

The high risk infants frequently had more than one of the conditions listed above. It was noted that eighty percent of these babies were premature and seventy-six percent had respiratory distress syndrome. Nine of the seventy-five

infants seen were post-mature. From four to eight infants were found to have the other complications listed above in various combinations. These high risk infants came from the population of babies seen at a developmental assessment clinic which is operated in coordination with the Child Find Project in Michigan. These infants have been brought to the attention of the clinic either by the pediatrician, or by the hospital where the infant was delivered. All of these babies had received intensive care during the first days - and very often weeks - of life.

The control group was made up of "average" infants contacted through private physicians and "well-baby clinics". This group, then, included infants for whom the development of handicapping conditions capable of interfering with normal growth and development or capacity to learn is not suspected.

For the purposes of this study the final subjects used in both the average and high risk samples consisted of boys and girls between four and twelve months of age (corrections were made for prematurity).

The mean age in months for infants in the average group was 7.89 (S.D. 2.13) and 7.21 (S.D. 2.17) for infants in the high risk group. A two-tailed t-test revealed no significant differences between the mean ages of infants in the two populations ($F = 1.03$, $p > .80$). It should be noted that the gestational age was used as the age of infants born prematurely in an effort to get as accurate an age comparison as possible with full term babies.

The mother-infant dyads that were part of this final group all had the following common demographic characteristics: intact family status, all the mothers were the natural parents of the child, and middle socioeconomic status. Socioeconomic status was roughly determined by several factors and this examiner sought basically to eliminate extremes. Included in these factors was the chief source of family income - which had to be from the father's employment. This could be as the operator of a family-owned business or farm, a public service worker, an independent professional, or a white or upper level blue collar worker making approximately over twelve thousand dollars per year. The education level of the spouses was also considered, with both mothers and fathers minimally having high school diplomas. Fifty-six percent of the mothers and sixty-two percent of the fathers were, in fact, college graduates. Subjective judgment was used on the part of this investigator in considering the above factors in combination with the "status of the job", the number of members in the family, and the area where the family lived, in an effort to get a relatively "middle class" sample. This was done informally using ideas discussed by Warner (1960) so as to roughly estimate socioeconomic status. It should also be noted that all of the mothers included in the final population were not employed outside of the home at the time this study took place.

A point that seems important to note concerns the use of mothers in this study as opposed to any primary parenting

adult. A recurring "complaint" that was voiced on the part of the fathers of infants in this study was, "Why aren't I being asked these questions?" It was encouraging to note the enthusiasm generally seen on the part of fathers with regard to the caring of their infants. With current trends the way they are, situations are such that mothers are not necessarily the primary caretakers. Due to complications that result in the research - with regard to whom the findings could be generalized, and so forth - this study was limited to those mother-infant dyads where the mother was the primary caretaker. Observations regarding those situations where the mother is not the primary caretaker might be important for future research, especially with regard to those particular questions examined in this research study.

It was interesting to observe that no mother refused to take part in the study. At its conclusion, however, twenty-one mothers of "high risk" infants and thirteen mothers of "average" infants had failed to mail back their questionnaires. In addition to this, six mother-infant dyads from the "high risk" population and nine dyads from the "average" population were dropped from the study because they did not meet one or more of the above mentioned criteria. Collection of the data was terminated when the necessary forms were received from seventy-five mother-infant dyads in each population who met all of the stated conditions.

Instruments

Two standardized questionnaires, a standardized screening instrument, and two informal rating forms were used as part of this project. All the mothers in the study completed the Carey Infant Temperament Scale-Revised 1977 Form (Carey and McDevitt, 1977) (see item F in appendix). The Infant Temperament Questionnaire, a forced choice instrument, is composed of 95 statements to which the mother responds on a seven point scale (ranging from "almost never" to "almost always") to descriptions of her child's behavior. The scale, originally developed in 1968, was used to determine infant temperament by yielding scores on the nine temperament dimensions found in the New York Longitudinal Study (Thomas et al., 1968) (see item A in appendix). The validity criteria for this instrument included the degree to which test scores compared with the following: 1) an interview with the mothers based on techniques used in the New York Longitudinal Study and scored by the N.Y.L.S. raters, 2) the N.Y.L.S. sample scores of temperament, and 3) the mother's general impression of the infant. Carey (1970) reported that in general the validity of the questionnaire was supported by all three criteria. The main purpose of the 1977 revision was to improve psychometric characteristics of the original form. Test-retest reliability for this new form was reported to range from .66 - .81 for the nine temperament categories with a median of .75, while internal consistency for the total instrument was found to be .83.

Thomas and Chess (1977) note that on a practical level the Infant Temperament Questionnaire has already demonstrated its usefulness through the various research studies that have been carried out using it. They acknowledge that further research with the instrument is needed, and that later study "should contribute to a future definition of the value of this instrument".

From comments written at the end of the questionnaire in this project, it seemed that several mothers found the process involved to be long and tedious. "Too many of the questions say the same thing", was a complaint voiced by one mother. The instrument was reported by Carey to take approximately twenty-five minutes to complete. This appeared to be a conservative estimate judging from the comments made by several mothers, who noted that it took them about an hour to complete. One was led to believe that this was more a reflection of the conscientiousness of the mothers taking part in this study than an indication of problems understanding the questions. In any case, it seemed that the general consensus was that the process of completing the instrument was an "informative experience".

The mothers were also given the Tennessee Self-Concept Scale, which was developed by Fitts in 1955. This is a thoroughly researched self report scale which was created from a clinical perspective. It measures self-concept across many sub-areas, providing both an overall self-esteem score and a complex self-concept profile (Robinson and Shaver,

1973). The items on the scale fall into one of five general categories: physical self, moral-ethical self, personal self, family self, and social self. Each of these areas is then broken up into statements of self identity, self acceptance, and behavior. Specific attention was paid to the total P score (which reflects the overall level of self-esteem), row 1P score - Identity (which reflects the individual's basic identity, "what he is as he sees himself"), Column D - Family Self (which reflects feelings of adequacy, worth, and value as a family member), and Column A - Physical Self (reflecting one's view of his body, health, or physical appearance). These scores were focused upon because of the expected belief that they would be related to variables being examined in this study.

The T.S.C.S. consists of 100 self-descriptive statements which the subject rates as being like or unlike herself. There are five response categories for each question, ranging from completely true to completely false. The norms in the manual are based on 626 people aged 12 through 68 years old, and subsequent research has used a wide variety of sample populations. Test-retest reliability was reported to be quite high and correlations were noted with major self-esteem inventories. The Tennessee Self-Concept Scale was computer scored and cards keypunched by Counselor Recordings and Tests at Vanderbilt University.

Fitts (1965) has indicated in the manual of the T.S.C.S. that the scale generally takes from ten to twenty minutes to

complete. It appeared that the mothers, on the average, took about thirty minutes to finish this scale. There were a handful of complaints about the questionnaire being "irrelevant" but this too, like the Infant Questionnaire, was generally well received.

In addition to these two questionnaires, the mother was also asked to comment on her infant's temperament in general, and specifically on the nine temperamental categories. This form put together by Carey and McDevitt (1977) allowed the mother to make broad, unspecific statements about her infant's temperament, and any additional comments she chose.

The psychologist involved in the screening also filled out a form, prepared by this writer, to determine his rating of the infant's temperament. This was modeled after the Carey and McDevitt form and like that form provided the psychologist with the opportunity to make general statements about the temperament of the infant (see item E in appendix). Unlike the mother's form, however, the psychologist was asked to comment on only eight variables and the total temperament estimate, instead of nine variables and the total. This was due to the fact that rhythmicity was excluded from the psychologist's form because of the limited time that he spent with the infant.

The infants in both populations were administered the Denver Developmental Screening Test to examine the developmental progress they had made. This scale was developed in 1967 by Frankenburg and Dodds and has been used extensively

in clinical and research situations. Meier (1976) notes that it has been subjected to extensive and intensive reliability and validity studies. It has been demonstrated that the ratings on the D.D.S.T. agree highly with the Bayley Infant Scales and the Stanford Binet (Frankenburg et al., 1975). It should be noted that the Denver is not an I.Q. test nor is it a definite measure of future intellectual ability. It is, on the contrary, a screening device used to "aid the health provider in detecting potential problems" (Frankenburg et al., 1975). The D.D.S.T. form is made up of 105 tasks written in the range of accomplishments of children in the age span from birth to six years old. The items are presented to the child to see if he could pass tasks at the age "the majority of infants do". The items are arranged in four sections (personal/social, fine motor adaptive, language, and gross motor performance) and developmental progress is evaluated as normal, questionable, or abnormal. Again, it should be noted that if a child does not perform a selected task, the examiner is alerted to the fact that the child may have a problem and further, more comprehensive evaluation is warranted.

Testable Hypotheses

The following is a list of null hypotheses that were formulated and tested in this study:

1. There is no relationship between infant temperament and the biological risk status of the child.

2a. There is no significant interaction effect on self-concept between infant temperament and biological risk status

of the infant.

2b. There is no significant difference between the self-concept of mothers of biological risk infants and the mothers of average infants.

2c. There is no significant difference in self-concept between mothers of infants in different temperament categories.

3a. There is no relationship between the mother's perceptions of the child's temperament and the psychologist's perceptions of temperament.

3b. There is no relationship between the mother's general perceptions of the child's temperament and the temperament scores on the Infant Temperament Questionnaire.

3c. There is no relationship between the psychologist's general perceptions of the child's temperament and the temperament scores on the Infant Temperament Questionnaire.

4a. There is no relationship between infant temperament and scores on a developmental index.

4b. There is no relationship between infant temperament and the sex of the child.

4c. There is no relationship between infant temperament and the child's ordinal position in the family.

Analysis

A number of quantitative comparisons were carried out between the variables in this study using the chi square statistic and Analysis of Variance. The hypotheses were all tested using portions of the Statistical Package for the Social Sciences (SPSS) (Nie et al., 1975). All analyses

were conducted at the Michigan State University Computer Center.

The chi square statistic was used to examine the relationship between temperament and 1) biological risk status, 2) sex of the child, 3) ordinal position, 4) developmental level, 5) mother's perceptions of temperament, and 6) the psychologist's perceptions of temperament. This statistic was also used to investigate the relationship between the mother's and psychologist's perceptions of the child's temperament. The effect of temperament of the child and "biological risk" status on the self-concept of the mother was analyzed using a two-way ANOVA.

Supplementary analyses of the effect of temperament and risk status on family self-concept and physical self-concept were examined using two-way ANOVA. In addition, the chi square statistic was used in the supplementary analyses examining the relationship between perceptions of how the infant influences his mother and temperament cluster, and the relationship between risk status and developmental level. The t-test was used to examine the difference in total self-concept in mothers who reported that their child had influenced them positively and those who felt that they were negatively influenced.

The phi statistic (in two by two tables) and Cramer's V (in other cases) were reported as measures of the strength of the relationship when chi square was used.

The Multiple Classifications Analysis was used to

determine the magnitude of the effect of factors in the ANOVA designs.

Procedures

The procedures for collecting the data for this study were ostensibly the same for both populations being considered. In the "high risk" and "average" groups the mothers, after arriving for their prescheduled Developmental Assessment Clinic or Well Baby Clinic appointments, were given an explanation of the current study. At this time questions were answered and parents reassured about the confidentiality that would be enforced during and after the study. They were informed that names would not be used at any time and that they would be able to withdraw from the study without penalty whenever they chose to do so. When the psychologist had explained the nature of the study and the processes involved to the satisfaction of the parents, they were given the option of participating and were requested to sign a "consent to participate form" (see item C in appendix). The parents were also offered an explanation of the findings of this study at its conclusion. For this they were requested to provide their addresses on a separate piece of paper.

If the parents agreed to take part in the study, they were given two questionnaires to complete at home. The Infant Temperament Questionnaire and the Tennessee Self-Concept Scale were both briefly explained to the mothers and

then given to them to complete at their leisure.* For this purpose a stamped, self-addressed envelope was provided. This was done since it was felt that the time required to complete both forms - believed to be about forty minutes - was excessive under these circumstances.

The psychologist then completed the data sheet (see item B in appendix) based on file records and the mother's reports. Any discrepancies between the mother's statements and records were examined and verified. The mothers were then asked about their infant's temperament in general and given the opportunity to speak about their relationship to their child. The psychologist also completed a similar form in which he too looked at the infant's temperament in a broad sense, and noted any significant aspects of the mother-child interaction that he observed. (It should be noted that two master's level school psychologists were involved in the evaluation in both populations of infants.) These two forms enabled the comparison of scores derived from the relatively detailed and objective behavioral observations on the Infant Temperament Questionnaire, the mother's general impressions of her infant, and the psychologist's observations of the baby.

Finally, the infant was given the Denver Developmental Screening Test. As has been noted, in this study - as in the Developmental Assessment Clinic - the D.D.S.T. was used for

*Note: This frequently brought chuckles from most of the mothers who readily indicated that "leisure time" was something they "knew little about"!

gross screening purposes. Most importantly, the administration of the scale was used as an opportunity to provide a variety of situations for observing the infant and his style of behavior.

While all of the above procedures were carried out in the hospital outpatient clinic or pediatrician's office, six of the infants in the "average" group were administered the D.S.S.T. in the mother's home for her convenience.

RESULTS

Findings

In this chapter, the findings of the tests of the formally stated hypotheses, as well as supplementary analyses will be examined. Before doing so, however, it would seem important at this time to elaborate on the scoring and interpretation of the Infant Temperament Questionnaire.

Carey's definitions of diagnostic clusters of temperament were used to classify the infant into one of five categories: "Easy, Difficult, Slow-to-Warm-up, Intermediate High, and Intermediate Low". These clusters are based on scores on the nine temperament variables described in the New York Longitudinal Study by Thomas et al. (1963). For determining the child's diagnostic cluster, special attention is given to six of these variables in particular: activity, rhythmicity, approach/withdrawal, adaptability, intensity, and mood. The scores that the infant obtains are compared to Carey's norms (see Table 5.1) and then fit into one of the diagnostic clusters (see Table 5.2). For comparison's sake, the means and standard deviations for the two populations in this study can be found in Table 5.3.

Carey defines the diagnostic clusters used for individual scoring as follows: (From "Infant Temperament Questionnaire Profile Sheet", Carey and McDevitt, 1977.)

Easy - Scores greater than mean in no more than two of difficult/easy categories (rhythmicity, approach, adaptability, intensity and mood) and neither greater than one standard deviation.

Difficult - Four or five scores greater than mean in

difficult/easy categories (rhythmicity, approach, adaptability, intensity, and mood). These must include intensity and two scores must be greater than one standard deviation.

Slow-to-warm-up - As defined above but, if either withdrawal or slow adaptability is greater than one standard deviation, activity may vary up to 4.68 and mood may vary down to 2.47.

Intermediate - all others. Intermediate High - four or five difficult/easy categories above the mean with one greater than one standard deviation, or two or three above the mean with two or three greater than one standard deviation. Intermediate low - all other intermediates.

Hypothesis 1: There is no significant relationship between infant temperament and the "biological risk status" of the child.

Examination of the five diagnostic clusters of temperament in the two infant populations revealed no significant relationship between temperament and biological risk status. This hypothesis was not rejected at the $p < .05$ level (chi square = 3.95) (see Table 5.4). The larger percentage of "difficult" and "intermediate high" temperament clusters in infants in the high risk group and the lower percentage of "easy" and "intermediate low" temperament clusters in this same population were not significant. Here again, for comparison's sake, the percentage of occurrence of the five diagnostic clusters in Carey's standardization sample and the New York Longitudinal Study has been reported (see Table 5.5).

Hypothesis 2a: There is no significant interaction effect on the self-concept of the mother between infant temperament and biological risk status of the child.

This hypothesis was not rejected at the $p < .05$ level ($F = 1.15$, df 4,140), indicating that risk status and temperament taken together did not significantly interact to influence

Table 5.1 Profile Sheet with Carey & McDevitt's Means and Standard Deviations

	Activity	Rhythm.	App/With	Adapt.	Intens.	Mood	Persist.	Distract.	Thresh.
	high	arryth.	withdr.	slowly adapt.	intense	negative	low per.	low dist.	low
+1S.D.	4.96	3.05	3.05	2.61	4.13	3.48	3.85	2.84	4.55
Mean	4.40	2.36	2.27	2.02	3.42	2.81	3.03	2.23	3.79
-1S.D.	3.83	1.68	1.50	1.42	2.71	2.13	2.20	1.63	3.04
1	low	very rhyth.	app.	very adapt.	mild	positive	high per	high distr.	high

Table 5.2 Diagnostic Clusters for Individual Scoring of Infant Temperament Questionnaire

Diagnostic clusters:

Easy		rhyth.	app.	adapt.	mild	positive			
Diff		arryth.	withdr.	slowly adapt.	intense	negative			
STWU	low		withdr.	slowly adapt.	mild	negative			

Table 5.3 Means and Standard Deviations for the Nine Temperament Categories in Average and Biological Risk Populations

	Average Population (N=75)		High Risk Population (N=75)	
Variable	Mean	S.D.	Mean	S.D.
Activity	4.36	.64	4.45	.69
Rhythmicity	2.49	.61	2.53	.59
Approach/ Withdrawal	2.68	.64	2.89	.73
Adaptability	2.38	.50	2.49	.60
Intensity	3.52	.67	3.66	.71
Mood	3.03	.54	3.22	.65
Persistence*	3.28	.64	3.43	.85
Distractability**	2.46	.45	2.65	.70
Threshold	3.95	.60	4.02	.66

Two-tailed t-tests

* Significant Difference at $p < .05$ level

** Significant Difference at $p < .01$ level

Table 5.4 Frequency Distribution - Temperament by Biological Risk Status

Count / Row Pct / Col Pct / Total Pct	Difficult	Slow-to-Warm-up	Inter. High	Inter. Low	Easy	Row Total
Average Risk Status	9	8	14	18	26	75
	12.0	10.7	18.7	24.0	34.7	
	39.1	42.1	43.8	58.1	57.8	50.0
	6.0	5.3	9.3	12.0	17.3	
High Risk	14	11	18	13	19	75
	18.7	14.7	24.0	17.3	25.3	
	60.9	57.9	56.3	41.9	42.2	50.0
	9.3	7.3	12.0	8.7	12.7	
Column Total	23	19	32	31	45	150
	15.3	12.7	21.3	20.7	30.0	100.0

Chi Square = 3.95 df = 4 Significance = .41
Cramer's V = .1624

Table 5.5 Temperament Distributions in the Carey-McDevitt Standardization Sample, the New York Longitudinal Study and the Saltzman Study (in percentages)

	Carey/McDevitt (N=203)	N.Y.L.S. (N=141)	Saltzman (N=150)
Temperament Cluster			
Easy	42.4	40.0	30.0
Intermediate Low	31.0	-	20.7
Intermediate High	11.3	-	21.3
Slow-to-Warm-up	5.9	15.0	12.7
Difficult	9.4	10.0	15.3
Undesignated	-	35.0	-

the self-concept of the mother. (Self-concept here is measured by Total P on the Tennessee Self-Concept Scale, which reflects the overall level of self-esteem.) Thus, the effect of each variable is uniform across all the categories of the other. Since there was no interaction effect, the outcome is much clearer in looking at the significant effects of each independent variable (see Table 5.6).

Hypothesis 2b: There is no significant difference between the self-concept of mothers of "high risk" infants and the mothers of "average" infants.

The difference between the mean self-concept scores of mothers of infants at biological risk and mothers of average infants was found to be statistically significant. Hypothesis 2b was rejected at the $p < .05$ level ($F = 3.77$, df 1,140) (see Table 5.6). Examining the Multiple Classification Analysis (see Table 5.7) to determine the pattern of the risk status' relationship to the self-concept of the mother, it was noted that the self-concept of mothers of high risk infants varied in a downward direction while mothers of average infants varied in the direction of higher self-concept scores.

Hypothesis 2c: There is no significant difference in the self-concept of mothers of infants in different temperament categories.

The difference between the mean self-concept scores of mothers of infants in the five temperament categories was found to be statistically significant. Thus, hypothesis 2c was rejected at the $p < .01$ level ($F = 8.54$, df 4,140) (see Table 5.6). The Multiple Classification Analysis (see Table 5.7) indicates a pattern whereby lower self-concept

Table 5.6 ANOVA Table for Total Self-Concept over Temperament Category and Biological Risk Status

Source of Variation	DF	MS	F	Significance of F
Temperament Category	4	13604.784	8.542	.001
Biological Risk Status	1	6014.815	3.777	.050
Interaction Effect	4	1842.274	1.157	.333
Residual	140	1592.673		
Total	149	1999.355		

Table 5.7 Multiple Classification Analysis for Total Self-Concept over Temperament Category and Biological Risk Status

*Grand Mean for Total Self-Concept of Mothers = 347.69

Variable and Category	Deviation
Temperament Category	
Difficult	-15.30
Slow-to-Warm-up	-24.17
Intermediate High	-21.07
Intermediate Low	+13.63
Easy	+23.62
Biological Risk Status	
High Risk	-9.36
Average	+9.36
	Multiple R Squared = .227

scores were found in mothers of difficult, intermediate-high, and slow-to-warm-up infants, while on the other hand, higher scores were evident in mothers of easy and intermediate-low temperament infants.

The multiple R squared was found to be equal to .23 (see Table 5.7) and through this descriptive statistic it could be determined that 23% of the variance in self-esteem in the mothers was explained by the temperament category and the at-risk status of the infant.

> Hypothesis 3a: There is no relationship between the mother's perceptions of the infant's temperament and the psychologist's perceptions of temperament.

This hypothesis was rejected, as a significant relationship was found between the mother's perceptions and the psychologist's perceptions of the infant (chi square = 23.19, $p < .001$). As can be noted in Table 5.8, there was agreement in the rating of the psychologist and mother in 40% of the 150 situations. Psychologists were more inclined to judge infants as difficult than were mothers. In 53.3% of the cases there was disagreement with the psychologist rating the infant as more difficult, while in only 6.7 instances did the mother rate the child as more difficult than the psychologist did.

> Hypothesis 3b: There is no relationship between the mother's general perceptions of the child's temperament and the temperament scores on the Infant Temperament Questionnaire.

A significant relationship was also found between the variables in hypothesis 3b (chi square = 25.79, $p < .01$) (see Table 5.9). In 43.4% of the total cases studied, there was

Table 5.8 Frequency Distribution - Mother's Ratings of Temperament by Psychologist's Ratings

Mother's General Temperament Rating		Psychologist's General Temperament Rating: Easy	Average	Difficult	Row Total
	Easy	19 25.7 82.6 12.7	47 63.5 52.8 31.3	8 10.8 21.1 5.3	74 49.3
	Average	4 6.2 17.4 2.7	36 55.4 40.4 24.0	25 38.5 65.8 16.7	65 43.3
	Difficult	0 0 0 0	6 54.5 6.7 4.0	5 45.5 13.2 3.3	11 7.3
	Column	23	89	38	150
	Total	15.3	59.3	25.3	100.0

Count
Row Pct
Col Pct
Tot Pct

Chi Square = 23.19 df = 4 Significance = .0001
Cramer's V = .2780

Table 5.9 Frequency Distribution - Temperament (as measured by the I.T.Q.) by Mother's General Rating

Mother's Temperament Rating (Count / Row Pct / Col Pct / Tot Pct)	Difficult	Slow-to Warm-up	Inter. High	Inter. Low	Easy	Row Total
Easy	9 12.2 39.1 6.0	8 10.8 42.1 5.3	7 9.5 21.9 4.7	17 23.0 54.8 11.3	33 44.6 73.3 22.0	74 49.3
Average	13 20.0 56.5 8.7	10 15.4 52.6 6.7	19 29.2 59.4 12.7	12 18.5 38.7 8.0	11 16.9 24.4 7.3	65 43.3
Difficult	1 9.1 4.3 .7	1 9.1 5.3 .7	6 54.5 18.8 4.0	2 18.2 6.5 1.3	1 9.1 2.2 .7	11 7.3
Column Total	23 15.3	19 12.7	32 21.3	31 20.7	45 30.0	150 100.0

Chi Square = 25.79 df = 8 Significance = .0011

Cramer's V = .2932

agreement between the mother's general impressions and her ratings of the child on the Infant Questionnaire. It was noted that in approximately 42% of the cases the mothers rated their child as easier than the questionnaire would indicate, while in only 13% did they rate the infant as more difficult than the child apparently was.

> Hypothesis 3c: There is no relationship between the psychologist's general perceptions of the child's temperament and the temperament scores on the Infant Temperament Questionnaire.

A significant relationship was found between the psychologist's general perceptions of the infant's temperament and the scores on the Infant Temperament Questionnaire at the $p < .0001$ level (chi square = 64.02). The psychologist agreed with the Infant Temperament Questionnaire rating in approximately 55% of the total cases. When there was disagreement, the psychologist was more inclined to have rated the child as more difficult than the questionnaire indicated he was (see Table 5.10).

> Hypothesis 4a: There is no relationship between infant temperament and scores on a developmental index.

Examining the five categories of temperament and the performance on the Denver Developmental Scales, a significant relationship was indicated (chi square = 20.03, $p < .05$) (see Table 5.11). Out of 149 cases considered (one mother was not able to arrange a convenient time for testing her infant), 116 infants (77.9%) were found to be at developmental levels within normal limits, 30 infants (20.1%) were within the questionable range, and 3 infants (2%) showed delayed

Table 5.10 Frequency Distribution - Temperament (as measured by the I.T.Q.) by Psychologist's General Rating

Psychologist's Temperament Rating	Temperament Cluster - I.T.Q. Rating					
Count / Row Pct / Col Pct / Tot Pct	Difficult	Slow-to Warm-up	Inter. High	Inter. Low	Easy	Row Total
Easy	1 4.3 4.3 .7	1 4.3 5.3 .7	0 0 0 0	2 8.7 6.5 1.3	19 82.6 42.2 12.7	23 15.3
Average	9 10.1 39.1 6.0	12 13.5 63.2 8.0	17 19.1 53.1 11.3	27 30.3 87.1 18.0	24 27.0 53.3 16.0	89 59.3
Difficult	13 34.2 56.5 8.7	6 15.8 31.6 4.0	15 39.5 46.9 10.0	2 5.3 6.5 1.3	2 5.3 4.4 1.3	38 25.3
Column Total	23 15.3	19 12.7	32 21.3	31 20.7	45 30.0	150 100.0

Chi Square = 64.02 df = 8 Significance = .0001

Cramer's V = .4619

Table 5.11 Frequency Distribution - Temperament (as measured by the I.T.Q.) by the Denver Developmental Screening Test

Denver Development Test Score	Count / Col Pct / Row Pct / Tot Pct	Difficult	Slow-to Warm-up	Inter. High	Inter. Low	Easy	Row Total
Normal		17	10	21	30	38	116
		73.9	52.6	67.7	96.8	84.8	
		14.7	8.6	18.1	25.9	32.8	77.9
		11.4	6.7	14.1	20.1	25.5	
Questionable		6	8	8	1	7	30
		26.1	42.1	25.8	3.2	15.6	
		20.0	26.7	26.7	3.3	23.3	20.1
		4.0	5.4	5.4	.7	4.7	
Delayed		0	1	2	0	0	3
		0	5.3	6.5	0	0	
		0	33.3	66.7	0	0	2.0
		0	.7	1.3	0	0	
Column Total		23	19	31	31	45	149
		15.4	12.8	20.8	20.8	30.2	100.0

Chi Square = 20.03 df = 8 Significance = .0102

Cramer's V = .2592

development. The largest number of developmentally "normal" infants were in the "easy" temperamental category (38 out of 116 normal infants). In the "delayed range" no difficult nor easy infants were found; however, one slow-to-warm-up and two intermediate high infants were noted. In the "questionable" group, these two temperament groups (i.e., slow-to-warm-up and intermediate high) were again highly represented, although the five categories were fairly evenly distributed.

Hypothesis 4b: There is no relationship between infant temperament and the sex of the child.

This hypothesis was not rejected, and as such there was not found to be a significant relationship between temperament and the sex of the child (chi square = 4.19, $p > .30$). Thus, despite the fact that there were more than twice as many boys in the difficult category and more girls in the slow-to-warm-up cluster, these facts were not statistically significant.

Hypothesis 4c: There is no relationship between infant temperament and the child's ordinal position in the family.

The fact that this hypothesis was not rejected at the $p < .05$ level (chi square = 7.08) led to the conclusion that there was no relationship between temperament and the child's birth order in the family. The fact that there were nearly three times as many difficult infants who were firstborns as opposed to later-borns was a trend not found to be statistically significant.

Supplementary Analyses

In addition to the formal hypotheses that have just been noted, several additional points have been examined.

Mothers were interviewed to determine whether there was a relationship between self-concept, temperament of the child, the at-risk status of the child, and whether mothers thought their infant had influenced the way they felt about themselves (see item D in appendix). Seventy-three percent of the 150 mothers questioned felt that the child had, in fact, influenced the way they felt about themselves. Forty mothers stated that their child had not influenced their feelings about themselves. The relationship between responses to this question and temperament of the child was found to be significant at the $p < .001$ level (chi square = 19.09) (see Table 5.12). There was a trend observed that mothers of easy children were more inclined to acknowledge that their child had influenced them, while mothers of the more "difficult temperament" infants (including difficult, slow-to-warm-up, and intermediate high clusters) were inclined to see their child as <u>not</u> having influenced them.

It was also found that of the mothers who had reported that their child had affected them, 92.7% indicated that this influence was in a positive direction. The relationship between the temperament of the child and the way the mother saw her child as affecting her (i.e., in a positive or negative way) was found to be significant at the $p < .001$ level (chi square = 20.08). Examining this relationship in

Table 5.12 Frequency Distribution of Responses to the Question: "Do you feel that your child has influenced the way you feel about yourself?" - in Different Temperament Categories

Count / Col Pct / Row Pct / Tot Pct	Difficult	Slow-to Warm-up	Inter. High	Inter. Low	Easy	Row Total
Has Child Influenced You: Yes	15	11	17	29	38	110
	65.2	57.9	53.1	93.5	84.4	
	13.6	10.0	15.5	26.4	34.5	73.3
	10.0	7.3	11.3	19.3	25.3	
Has Child Influenced You: No	8	8	15	2	7	40
	34.8	42.1	46.9	6.5	15.6	
	20.0	20.0	37.5	5.0	17.5	26.7
	5.3	5.3	10.0	1.3	4.7	
Column Total	23	19	32	31	45	150
	15.3	12.7	21.3	20.7	30.0	100.0

Chi Square = 19.09 df = 4 Significance = .0008
Cramer's V = .3568

Table 5.13 Frequency Distribution of Responses to the Question: "If response to the above is yes, how has your child affected you?" - in Different Temperament Categories

Count / Col Pct / Row Pct / Tot Pct	Difficult	Slow-to Warm-up	Inter. High	Inter. Low	Easy	Row Total
How Influenced: Positively	10	11	15	28	38	102
	66.7	100.0	88.2	96.6	100.0	
	9.8	10.8	14.7	27.5	37.3	92.7
	9.1	10.0	13.6	25.5	34.5	
How Influenced: Negatively	5	0	2	1	0	8
	33.3	0	11.8	3.4	0	
	62.5	0	25.0	12.5	0	7.3
	4.5	0	1.8	.9	0	
Column Total	15	11	17	29	38	110
	13.6	10.0	15.5	26.4	34.5	100.0

Chi Square = 20.08 df = 4 Significance = .0005
Cramer's V = .4273

Table 5.13, it can be seen that of the mothers who felt that their child had influenced themselves in a negative way, the greatest number had children who were "difficult" temperamentally. Furthermore, there were no mothers of "easy" children in this group of "negatively influenced mothers".

In addition to the above, it was noted that there was not a significant relationship between the biological risk status of the infant and whether or not the mother felt she had been influenced by the child (chi square = .03, $p > .80$). Furthermore, examining the self-concept of mothers who felt that their child had influenced them positively as opposed to those who felt they were negatively influenced, a significant difference was indicated. Using a t-test to examine mean self-concept in the two groups of mothers, a one-tailed test with $F = 2.08$, $p = .05$, indicated significance. Mothers in the "positively influenced" group had a mean self-concept score equal to 360.36 while mothers in the "negatively influenced" group had a mean of 330.37. The mean self-concept score for all mothers in the study was 347.69.

The self-concept variable was a factor also examined beyond the formally stated hypotheses in this study. One subtest on the Tennessee Self-Concept Scale which was analyzed in addition to the overall self-concept was the Family Self-Concept. This score reflected the mother's feelings of adequacy, worth, and value as a family member, and as such it was believed that this would be especially affected by those variables previously noted in reference to the total

self-concept, namely infant temperament and the risk status of the child.

Referring to Table 5.14, it can be seen that there is no interaction effect between the two independent variables (temperament of the infant and risk status) over the dependent variable of Family Self-Concept ($F = .98$, df 4,140, $p > .40$). Testing the main effects did reveal significance. The analysis gives reason to believe that the differences in temperament made a difference in the family self-concept as did the differences in at-risk status. This is to say that there was a significant difference in the Family Self-Concept scores of mothers of infants in the different temperament categories at the $p < .01$ level ($F = 7.39$, df 4,140). There was also a significant difference in the Family Self-Concept scores of mothers of "high risk" infants and the mothers of "average" infants at the $p < .05$ level ($F = 6.59$, df 1,140). Examining the Multiple Classification Analysis in Table 5.15, it can be noted that scores on the Family Self-Concept variable are below the mean of the total population in the mothers of "difficult", "slow-to-warm-up", and "intermediate high" temperament infants (all towards the difficult end of the temperament continuum range). Family self-concept scores, on the other hand, are above the mean in "easy" and "intermediate low" temperament categories (both towards the easy end of the continuum of temperament scores). The self-concept scores can also be seen to vary in a "positive" direction in the "average" population while varying in a "negative"

Table 5.14 ANOVA Table for Family Self-Concept over Temperament Category and Biological Risk Status

Source of Variation	DF	MS	F	Significance of F
Temperament Category	4	806.720	7.390	.001
Biological Risk Status	1	718.913	6.586	.010
Interaction Effect	4	107.449	.984	.420
Residual	140			
Total	149			

Table 5.15 Multiple Classification Analysis for Family Self-Concept over Temperament Category and Biological Risk Status

*Grand Mean of Family Self-Concept of Mothers = 69.59

Variable and Category	Deviation
Temperament	
Difficult	-2.76
Slow-to-Warm-up	-5.85
Intermediate High	-5.68
Intermediate Low	+2.57
Easy	+6.15
Biological Risk	
High Risk	-2.89
Average	+2.89
	Multiple R Squared = .222

direction in the "high risk" group.

Comparing the analysis of the Family Self-Concept variable and the Total Self-Concept measure, one can note the very similar results in both instances. In the Family Self-Concept, however, the results are significant at a higher level. After examining the Multiple R Squared statistic, it can be determined that 22% of the variance in Family Self-Concept is explained by the temperament category and the at-risk status of the child.

An additional self-concept variable which was examined was the Physical Self-Concept scale of the Tennessee Self-Concept Scales. This score reflects the individual's view of his body, health, and physical appearance. It was believed that this score would be related to temperament and risk status as well. It can be seen from Table 5.16 that there is no interaction effect between temperament and risk status over this variable of Physical Self-Concept ($F = 2.22$, df 4,140, $p > .05$). In addition, there was not found to be a significant difference in Physical Self-Concept between "average" and "high risk" populations ($F = 2.41$, df 1,140, $p > .10$). There was, however, a significant difference in the Physical Self-Concept in the mothers of infants in the different temperament categories ($F = 6.82$, df 4,140, $p < .01$). After examining the Multiple Classification Analysis (see Table 5.17) it can be noted that the Physical Self-Concept scores are below the mean in the temperament categories towards the "difficult" end of the temperament continuum and above the mean towards the "easy" end.

Table 5.16 ANOVA Table for Physical Self-Concept over Temperament Category and Biological Risk Status

Source of Variation	DF	MS	F	Significance of F
Temperament Category	4	644.240	6.818	.001
Biological Risk Status	1	228.124	2.414	.120
Interaction Effect	4	209.689	2.219	.070
Residual	140	94.490		
Total	149	115.366		

Table 5.17 Multiple Classification Analysis for Physical Self-Concept over Temperament Category and Biological Risk Status

*Grand Mean of Physical Self-Concept of Mothers = 67.95

Variable and Category	Deviation
Temperament	
Difficult	-3.67
Slow-to-Warm-up	-4.12
Intermediate High	-4.82
Intermediate Low	+3.54
Easy	+4.83
Biological Risk Status	
High Risk	-1.91
Average	+1.91
	Multiple R Squared = .182

A final issue that was addressed in analyzing the data, was a consideration of the Denver Developmental Screening Test and the relationship between performance on this test and the at-risk status of the infant. As can be seen in Table 5.18, there was a statistically significant relationship between the scores on the Denver Developmental Screening Test and the "biological risk status" of the infant at the $p < .001$ level (chi square = 17.24). It can be noted that 91.9% of the babies in the "average" population were at developmentally "normal" levels while in the "high risk" group, 64% were developmentally normal. No infants in the "average" population were developmentally delayed, while three babies were delayed in the "high risk" population. In addition, out of thirty infants who were in the questionable category, twenty-four of them were from the "high risk" population.

Summary

Examining the analysis of the data in this chapter has revealed several important points. Initially, it was found that there was no statistically significant relationship between temperament and "biological risk" status, sex of the child, and the child's ordinal position in the family. There was statistical significance, however, in the relationship between the scores on the Denver Developmental Screening Test and both the temperament of the infant and his "biological risk" status.

The results also indicated that there was a significant

Table 5.18 Frequency Distribution - D.D.S.T. Score by At-Risk Status

At-Risk Status	Count / Row Pct / Col Pct / Tot Pct	Denver Developmental Test Score: Normal	Questionnable	Delayed	Row Total
Average		68	6	0	74
		91.9	8.1	0	
		58.6	20.0	0	49.7
		45.6	4.0	0	
High Risk		48	24	3	75
		64.0	32.0	4.0	
		41.4	80.0	100.0	50.3
		32.2	16.1	2.0	
Column Total		116	30	3	149
		77.9	20.1	2.0	100.0

Chi Square = 17.24 df = 2 Significance = .0002

Cramer's V = .3402

difference in the self-concept of mothers of infants in different temperament categories. Mothers' self-concepts also varied significantly depending on whether or not the child was in the "average" or "biological risk" population. No interaction effect was found between self-concept and risk status.

Mothers' perceptions of their infants' temperament were compared with psychologists' perceptions and scores on the more objective Infant Temperament Questionnaire. Significant relationships were once again found, with mothers rating their child as "easier" in temperament than both the questionnaire and the psychologist.

Supplementary analyses were also carried out examining mothers' feelings as to whether they thought they had been influenced by their child (and if so in what way). Significant results were found indicating that most mothers thought their child had influenced them in a positive way. Of those who perceived their child as a negative influence, the greatest number had children who were difficult temperamentally. Furthermore, mothers who felt negatively influenced by their child were found to have a significantly lower self-concept than mothers who felt positively influenced.

Finally, Family Self-Concept and Physical Self-Concept were examined in relation to temperament of the child and biological risk status. Both the Family Self-Concept and the Physical Self-Concept were found to differ significantly in the different temperament categories. Only the Family

Self-Concept was noted to differ significantly between the high risk and average groups.

Questions and issues generated by these results will be explored in the following chapter.

DISCUSSION

In this chapter, in addition to examining and interpreting the results that have been presented in the previous section, there will also be a focus on: practical and methodological issues, limitations of the study, possibilities for future research, implications of the study, and the conclusions generated.

Results

The first, and most obvious point emerging out of this study was a reaffirmation of the fact that infants, in no uncertain terms, do differ widely in their individual temperament styles. The distributions of temperament clusters found in this project were similar to the findings of both the New York Longitudinal Study and Carey and McDevitt's standardization of the Infant Temperament Questionnaire.

Earlier this writer reported several "armchair" analyses made on the basis of many months of work as the psychologist on a team screening "high risk" infants in a developmental assessment clinic. As it turns out, the first of these beliefs, namely, that there was a relationship between "biological risk" status of the infant and his/her temperament style, was not proven to be valid statistically. While at a descriptive level there were more "difficult infants" in the "high risk" population and more "easy infants" in the "average" group, statistical analysis indicated that the differences between the two groups were not statistically significant.

It would appear that factors associated with "high risk" infants in this study were not especially influential on the temperamental characteristics of these babies. Related to this, one might also assume that the label of being a "high risk" infant did not appreciably influence the child's temperament. Considering the current focus on "labels" and the potential negative effects they are purported to have, this point would seem to warrant further exploration. It should be noted that no implication is made here that the lack of a significant relationship between temperament and risk status will hold up over time. This is to say that a follow-up of this "high risk" group would be desirable to determine whether or not at some time in the future there might, in fact, be indications of some type of influence.

Another "armchair" analysis did prove to be not only descriptively significant, but statistically significant as well. A relationship was found between the infant's temperament and the mother's self-concept, as well as between this same self-concept variable and the "biological risk" status of the baby. Thus, mothers with lower self-concepts were found more often in dyads with infants who had temperament clusters towards the "difficult" end of the continuum (i.e., difficult, slow-to-warm-up, and intermediate high temperament categories). Furthermore, mothers with lower self-concepts were also found more frequently to have infants in the "high risk" population. The implications of these findings, while incomplete, are vast and complex, and

most definitely remain to be studied further. In any case, several possibilities could be explored to explain these findings. The first feasible idea that comes to mind is that perhaps these "low self-concept" mothers do believe the "conventional middle class wisdom" of our society which states that they are solely, by their maternal attitudes and motivations, influencing the course of their child's development. Thus, with this in mind, easy children would seem to reassure their mothers that they are adequate and loving parents. These babies provide their mothers with ample opportunities to prove themselves and possibly even feel superior to those mothers struggling with their "difficult infants". The mothers with "difficult" babies probably are given fewer opportunities to prove themselves as adequate. Where self-esteem is built on evidence of specific achievement as a mother, it would seem very likely to be influenced by "failure as a mother" as seen by having a "difficult" child. Mothers of such children no doubt would feel anxious and threatened out of fear that the difficulties that they are having in caring for their infant are exposing their inadequacy as parents. As for mothers of children at "biological risk", they too, perhaps, are experiencing the "feeling of failure" associated with not having delivered that "perfect child" spoken of in the theory section of this study. It should be noted that these factors - difficult temperament and high risk status - were in and of themselves related to low self-concept. The interaction of the two of them did not affect

self-concept any more than either of them alone. Thus, there was no indication that having a "difficult child who was at biological risk" increased the likelihood of the mother having a lower self-concept, than if either of these factors existed separately. It should also be noted that these two variables accounted for twenty-three percent of the variation in the self-concept of the mother. Thus, there are clearly other factors involved here. Nonetheless, it does seem that twenty-three percent is an influential amount and should be recognized as important.

Until now, the relationships that have been noted in this section have been examined from the point of view of the child influencing the mother's self-concept. Since cause and effect has in no way been determined, it would be essential to consider the relationship in the opposite direction. This is to say that perhaps it is the case that the mother has a lower self-concept prior to birth and, as such, influences the child's temperament. This might, hypothetically, take place through attitudes and behavior that could adversely affect the mother's ability to relate to her infant and cause the development of certain styles of behavior in the child. Mothers more concerned with having their own needs met, than with meeting the needs of their child, would seem to be an example of a situation where negative influences on the behavioral style of the child could occur.

Examining the relationship between risk status in the infant and the self-concept of the mother (in the direction of effect noted above) would seem to be related to studies

carried out (see MacDonald, 1968) that have found evidence to suggest that mothers who were more emotionally troubled, more dependent, and had more negative attitudes towards pregnancy, had a greater incidence of premature births. Sameroff and Zax (1973) also found that there were relationships between emotional illnes and prenatal complications, noting that the length of time the woman had been ill rather than the severity of the illness led to prenatal difficulties.

An interesting possibility related to the above issue is the consideration that the self-concept of the mother influences the "biological risk status" of the child. Research shows that how people feel about themselves is related to how they feel about their bodies (Rosen et al., 1968). This being the case, it may be that mothers who have negative feelings about themselves as persons would also have negative feelings about their bodies. Consequently, it would seem feasible that mothers with negative feelings about their bodies would take poorer care of themselves. This might take the form of smoking excessively, high intake of alcohol and/or drugs, or poor nutritional care. The fact that a mother had a poor diet during pregnancy has been found to negatively influence the prenatal environment provided for the infant (see, for example, Birch, 1971), and to create a situation where a child "at risk" could be born. An attempt at investigating the relationship between physical self-concept in mothers and the "biological risk" status and temperament pattern of the child was made in this study. Using the

physical self-concept scale of the Tennessee Self-Concept Scale, self-concept was examined in relation to these two variables. Significant differences were not found between the physical self-concept of mothers in the "high risk" group and those in the "average" group. However, there were significant differences in self-concept of mothers of infants in the different temperament clusters. Mothers of infants at the "difficult" end of the temperament continuum were found to have lower self-concepts than mothers of babies at the "easy" end. This seems to be another indication of the relationship between self-concept in the mother and the temperament of the infant. The fact that there was not a significant difference in the physical self-concept of mothers in high risk and average populations would seem to speak against the possibility of mothers' negative feelings about their bodies influencing their child's biological risk status. It would appear that this issue is a highly complex one and findings noted here are far from conclusive. This point remains to be investigated in greater detail in the future, possibly using additional research methods and instruments.

Another factor examined through the data in this study was the Family Self-Concept variable of the Tennessee Self-Concept Scale. This factor was purported to reflect the mother's feelings of adequacy, worth, and value as a family member. It was found to be significantly related to temperament and biological risk status of the infant, thus further focusing the cause and/or effect of self-concept on these

two variables. This again was in the direction that was expected (i.e., with mothers who had difficult infants having lower self-concept scores). Statements made about the effect of temperament and risk status on the Family Self-Concept could be made with greater certainty than the same statements made about the overall self-concept (as measured by the Total Self-Concept score on the T.S.C.S.). It would appear that there is less of a sense of worth or value as a family member in the mother when either difficult temperament or high risk status is an existing condition in her child. Considering what would be involved in caring for a difficult child, it would seem that one's sense of adequacy and worth could very likely be affected. Furthermore, when one realizes the emphasis placed on the mother's role in our society and her importance as a family member, it would appear that this particular variable would be quite significant and consequently reflect the critical nature of the self-concept/temperament, biological risk relationship.

Certainly, the possibilities thus far examined in this chapter, representing opposite points in the "direction of effect" issue, are far from exhaustive. Other variables are likely involved in the relationship between the three variables discussed. It would appear to this writer that a plausible response to this "direction of effect dilemma" is that there is an interaction between a temperament predisposition in the infant and the self-concept of the mother. Thus, rather than the self-concept simply affecting the infant

(and his temperament), and the infant's temperament simply influencing the mother's self-concept, there is a mutually influencing interaction pattern affecting each dyad to differing degrees and in a multitude of ways. It is also possible that there is an interaction between mothers' self-concept and the biological risk status of the infant and that this too is not simply a unidirectional reaction.

Attempting to get further insight into the relationship between self-concept, temperament cluster, and risk status, mothers in this study were asked about their infants' influence on their feelings about themselves. In regard to this question, as was expected, the majority of the mothers thought that their child had, in fact, influenced the way they felt about themselves in some way. Of these mothers, an even greater proportion thought that they had been influenced in a positive way. Of the mothers who thought that they were negatively influenced, most had children rated as difficult on the Infant Temperament Questionnaire. Carey (1970) had noted that the more difficult the infant was, as measured by his questionnaire, the more likely the mother was to report having found his temperament a problem. Thus, the fact that most of the mothers who felt negatively influenced by their child had "difficult children" (as measured by the Infant Temperament Questionnaire) would in a sense relate to Carey's observation. Mothers who have found their child's temperament to be a problem would, it seems, also be more inclined to feel that their child had negatively influenced the way they felt about themselves. This point was by no

means found in all the mothers of difficult infants. What about the remainder of the mothers of difficult babies? Did they actually perceive their infants as having positively influenced the way they felt about themselves? It seems that this could be interpreted in several ways. The first is that the "positive" aspects of their child and their relationship to him outweighed the negative points and the majority of mothers of "difficult" babies did indeed feel positively influenced. A second possibility was simply differences in frustration tolerance in the mothers. Perhaps these mothers of "difficult" infants develop a higher frustration tolerance in response to their children, and thus learn to deal with them, showing a minimal amount of stress. A final explanation, that appears to be the most plausible to this writer, is the social desirability factor. Quite possibly, mothers in general were reluctant to admit that their child could influence them in a negative fashion. This goes along with McBride's (1974) observations of the metaphor of mother equal to "perfect, love, and nurturance". Our society has conveyed the idea that mothers are always loving and accepting under all conditions and at all times. Admitting that their child had influenced them in a negative way would very possibly be equated with being a failure as a mother.

It is important to note that mothers who were "positively influenced" by their child had a significantly higher self-concept than mothers who were "negatively influenced". Thus, mothers who felt that they were adversely affected by their

infants were the same mothers who felt poorly about themselves in general. Considered together, these factors strengthen the argument for the effect of the child on the mother's feelings about herself.

Another approach to gaining insight into the relationship between the variables discussed was to have mothers and psychologists rate the temperament of the infant and then to compare the results. These results were also compared with the more detailed and objective scores on the Infant Temperament Questionnaire. Mothers were found to be in agreement with the Questionnaire scores 43% of the time. However, in 42% of the cases, the mother rated the child as easier than was indicated on the Questionnaire. Here again we can see a tendency to minimize the difficulty of the infant. Of the twenty-three infants who were found to be "difficult" temperamentally (as measured by the Infant Temperament Questionnaire), only six were acknowledged as such by their mothers. The explanations just provided for this similar trend in response to the "how influenced" question would appear to be applicable in this situation as well. This does, after all, appear to be a similar type of inquiry. It was observed, however, that mothers were less reluctant to call their child "difficult" than they were to say that they had been "negatively influenced" by him. Looking at this finding from a social desirability perspective, one might speculate that this relates to the issue of being in control, which is so highly emphasized in our society. For example, McBride

(1974) notes that mothers are expected to act in controlled ways and to be able to shape the child into an "outstanding product" and through their control alone create children who conform to our society's stereotype of what is a "good" child. If they are not in control, this would seem to have negative connotations. Having a child that could create negative influences in themselves would seem to be just such a situation and they may be less willing to admit this effect.

In comparing the mother's perceptions of the child's temperament with the psychologist's perceptions, we find that the mother was inclined to rate the child as easier than the psychologist. Attempts at explaining this trend are more complicated than the comparisons that have just been made. These points will be discussed later on in this chapter when methodological issues are addressed. At this time, it would suffice to note that psychologists are evidently more objective and have a wider range of infants with which to compare each infant. Mothers may have assumed that their child was "as easy as others", since this question did ask the mother to compare her child to others his age. Psychologists were also apparently less reluctant to call a child "difficult", and also had stricter guidelines for what constitutes an "easy" child. Both of these points relate back to the objectivity issue. Psychologists were more accurate in rating the infant's temperament (again, if accuracy is defined as agreement with the Questionnaire), but there was a noticeable trend to rate the child as "average". Apparently, when mothers were in doubt about which temperament category a

child fit into, they classified him as "easy". When psychologists were in doubt, they rated the infant as "average".

After examining the ratings of mothers, psychologists, and scores on the Infant Temperament Questionnaire, the idea of "accuracy of perception" would be a helpful one to consider. Most notably, mothers of "difficult" infants were found to agree in only four percent of the cases with the scores on the Infant Temperament Questionnaire, while in the "easy" temperament clusters, the mothers agreed seventy-three percent of the time. This extreme discrepancy might be interpreted as evidence that mothers of "difficult" infants were more likely to misperceive their infant's temperament than mothers of "easy" babies. While this is strictly conjecture, it could be that mothers who are reluctant to acknowledge their child's temperament might also be reacting to them in ways that fail to take into account the child's individual style of behavior. This "reaction" may occur involving two potentially harmful types of reasoning on the part of the mother: 1) "If my child is just as easy as any other child, and things are going wrong, then it must be my fault." 2) "Since my child is just as easy as any other child, he should do 'such and such' without any problem." These two situations could very likely set the stage for future problems in both the infant and the mother, due to a failure to recognize the child's individual temperament style. Not recognizing a "difficult" infant as being difficult and assuming that he is "just like any easy baby" is likely to

place considerable strain on a mother/child relationship. Thus, a situation might be highlighted, whereby intervention could dissipate a potentially harmful reaction. Intervention could obviously occur only after the situation was identified. The results of this study suggest that using an instrument such as the Infant Temperament Questionnaire may be helpful in identifying mother-infant dyads where intervention may prove constructive.

Some of the results of the limited amount of prior work in the area of infant temperament research have been confirmed in this study. As in previous studies, there were only modest differences between temperament scores of boys and girls. While boys were found more frequently in the "difficult" cluster and girls more often found in the "slow-to-warm-up" and "easy" categories, these differences were not statistically significant. Thus, there is no compelling evidence to suggest strong sex-related genetic differences in temperamental style. Although prior research has shown that parents treat boy and girl infants differently (Korner, 1973), this did not seem to influence temperament style appreciably for either sex.

The relationship between birth order and temperament cluster was not statistically significant, which would suggest that ordinal position does not have a striking effect on overall temperament style. Prior research would lead one to expect that since the first pregnancy is believed to be a "crisis situation" (Ryder, 1973), and that since "the second

child is so much easier than the first" (Thomas and Chess, 1977), then the first child should be more difficult to raise. One would therefore expect that firstborns would have a greater likelihood of being "difficult" in temperament as well. This did not prove to be the case in this research project.

Temperament clusters were found to be significantly related to scores on the Denver Developmental Screening Test. While the overwhelming majority of infants tested in both populations in this study were well within normal limits, about one fourth of the infants seen were either questionable or delayed in development. Furthermore, the majority of this group were from the "biological risk" population. Analysis of the data indicated that infants with questionable or delayed development were overrepresented in those temperament clusters towards the "difficult" end of the temperament continuum (particularly in the slow-to-warm-up category). One possible explanation for this was the low activity level in these infants, which is a component of the slow-to-warm-up temperament cluster. Perhaps the motor problems in the delayed or questionable infants accounted for this temperament classification. On the other hand, it is conceivable that these infants were just "slow-to-warm-up" to the testing situation and this accounted for their "delayed" scores. In any case, there were a greater number of infants with developmental problems in the more difficult temperament categories. In this particular study, knowing that a child had a

developmental problem made it a likely guess that he also had a relatively "difficult" temperament. Facts such as these lead one to question the possible effects on temperament of developmental delays as the infant matures. A follow-up study of these delayed infants with "difficult" temperaments would be valuable in gaining greater insight into the potential importance of this relationship. This not only to determine a possible cause and effect between the variables but also to examine the possibility of confusing developmental delays and difficult temperament. It would appear that it could be quite easy to mistake the inactivity, negative mood, and slow-to-warm-up temperament of an infant with the characteristics of a child who is developmentally delayed as measured by the Denver Developmental Screening Test. It stands to reason that confusion of factors associated with "difficult" temperament and developmental delay could lead to the implementation of less effective strategies of intervention. The ramifications of such errors in examining the child would likely have strong consequences for his future healthy development, and consequently demands continued future research.

Practical Issues

While there were several practical issues that recurred throughout the life of this project, none was more pressing and omnipresent than the dilemma of carrying out research while maintaining a full concern for the ethicality of the study. The complex administrative and institutional

arrangements understandably in effect to protect patients were often frustrating. While stringent ethical views were maintained throughout the project, it did appear that this was often a hindrance. What would have ordinarily been excellent opportunities for research were discouraged by strict screening procedures. Thus, scientific concern had to be disregarded in several instances in favor of social concern. This clearly is a dilemma and it appears to be becoming more complicated as increasing demands for ethicality are made.

Persistence on the part of those doing the research and striving for scientific rigor in the face of numerous administrative regulations is the formidable goal for which the researcher must aim. This, while at the same time he is maintaining an ever increasing concern for the ethicality of his project and the procedures being used.

Juxataposing this problem with the welcome reaction to obtaining information on the part of all involved was quite striking. Nowhere was this more evident than in the subjects themselves. The majority of the mothers, and for that matter the fathers, were anxious to learn more and more about their new infants. This curiosity dominated interviews with parents, who were more than too happy to talk, share, and learn (and very often - teach!). It seemed that the mothers were unusually conscientious in filling out the designated questionnaires and eager to obtain results. This idea of receiving results and the strong curiosity that was evident, seemed to be the primary motivation for taking part in a

study that provided no financial reimbursement. These incentives likely helped account for the fact that no mother refused to take part in the study and only twelve percent of the mothers of "average" infants, and eighteen percent of the "high risk" infants, failed to mail back their completed questionnaires. This high return rate was important to note since one of the most serious issues raised in using questionnaires is the bias that could result due to nonresponse (Hillestad, 1972). Evidence has been found to indicate that very often nonrespondents differ from those who do return their completed questionnaires. Hillestad also notes that unless the response rate is over eighty percent, sample bias is likely to be quite prominent.

Other factors were also believed to have contributed to this high rate of volunteer participation. Rosenthal and Rosnow (1975), noting that situational determinants of volunteering are very important in regard to methodology, have observed that in addition to an interest in the topic under investigation, perceiving the investigation as important was influential in encouraging volunteers. Most of the parents recognized the practical significance of this study and the possibility of it benefitting others. This point was strengthened by their physician's endorsement of the project (or the clinic physician's endorsement). The mid-Michigan communities where the research was carried out were well accustomed to requests for research participation, and while this could be looked at as a hindrance (i.e., due to the

possibility that potential subjects would be driven away because they felt "over-researched"), this was not the case. The positive reputation of the University and the department within the University where the research was carried out, no doubt contributed further to the high rate of response, as did the fact that volunteering was treated as the appropriate thing to do. Most importantly, the efforts to make the interactions with the parents as informal, nonthreatening, and as individualized as possible were all believed to be important positive factors.

Methodological Issues and Limitations of the Study

The first methodological issue warranting mention concerns the rating of temperament, and specifically the use of the Infant Temperament Questionnaire for this purpose. Findings in this study would speak to the value of using this instrument. Comparing the frequencies of the various temperament clusters in the New York Longitudinal Study, Carey's standardization sample for the questionnaire, and the current study, similarities can be noted.

Simply asking mothers and/or psychologists to rate a child's temperament in general provided agreement in about one half the number of cases seen. Various complications result if one uses just one of these reports. It should be noted that only two psychologists were used in this study and no claim is made that they are representative of the population of psychologists at large. Nonetheless, there are certain factors that can be observed that likely generalize to

psychologists and other workers who might evaluate infant temperament. One of these issues is the fact that the psychologist is seeing the infants under far from ideal conditions. Infants are frequently very fussy in doctors' offices (and in clinics) and as such, to use one mother's words, the babies "are not themselves". In addition, the psychologist does not have extensive opportunity for observation of the infant. In both the clinic and in this research study, the amount of time the psychologist was able to spend with the infant was realistically limited and longer periods over extended periods of time would be needed for the most exact estimates of temperament.

As for the mothers, the question of accuracy in the use of their general descriptions of their child's temperament has already been noted. The lack of objectivity due to heavily value ladened questions, and the generally limited frame of reference they have for infant temperament are part of the difficulty. Inaccurate recollections, which reflect the mother's biases about the infant's behavior - rather than the actual behavior - further complicate the problem with using mothers' general temperament ratings.

The Infant Temperament Questionnaire does overcome some of the problems with objectivity, and while the difficulty with ambiguity of the frame of reference would still be an issue, the problem is considerably less with this instrument due to the fact that the behavior in the questions has been broken up into relatively specific observable and measurable

traits. While other problems in rating temperament such as central tendency errors (i.e., those cases where mothers avoided using extremes and stuck to middle ratings) were still likely to be issues when using this scale, it does provide the psychologist with greater insight into the child's temperament.

Carey had received some initial criticism regarding his original Questionnaire (1970) and very positively went about correcting these faults. Increasing the number of items and rating options, randomizing the items as to content area and category, and clarifying questions by using simplified terms have been answers to these comments and have strengthened the instrument. In addition to these improvements in the Infant Temperament Questionnaire, certain steps were taken in the procedures in this study to insure a high degree of validity. Efforts were made to motivate the mothers to do as accurate a job as possible. If they felt that the topic under study was about some inconsequential matter, it was believed that they might have answered the questions by marking anything or giving little thought to their responses. Because of this, the mothers were given the questionnaires to complete at home. This was done in part to allow them more time to think about their answers than would have been possible if they were interviewed or if they simply completed the form while waiting at the clinic. They were also encouraged to answer only those questions applicable to their child and were given the researcher's phone number and address so that they could

contact him if they had any specific questions.

The methodological issue of questionnaires versus observational data has been addressed in many studies (see Thomas and Chess, 1977; Scholom, 1975). Thomas and Chess have stressed that the accuracy of behavioral data is related to the emphasis on objective descriptive reports from a wide variety of sources, life situations, and experiences. Clearly, there is a need for the development of increasingly sophisticated observational techniques for use in various situations. Considering what has just been noted, it is believed that the Infant Temperament Questionnaire, while having many of those shortcomings attributed to questionnaires, has been proven to be quite reliable and valid for the purpose of examining temperament. While being relatively specific and objective, it is also economically feasible (in both time and money) for use by physicians, nurses, psychologists, and mental health workers dealing with infants, not to mention for use in furthering research studies such as this current one.

Another methodological issue relates to the measurement of self-concept. There are researchers who believe that self-perception cannot be assessed. There does seem to be some confusion and disagreement about what exactly "self-concept" actually is. Wells (1976) has observed that dealing with "psychological ideas" such as self-concept involves a number of complex issues. As used, self-concept is a "hypothetical construct formed by social scientists to summarize certain

features of human behavior and it shares all of the difficulties that people have encountered with such scientific abstractions" (p. 9). Nonetheless, the utility of the theory of self-concept has been demonstrated in the countless number of research studies done over the years. This concept has been found to be extremely useful for describing and explaining human behavior.

Since self-concept is theory bound, each usage of the term is relative to the particular theoretical context in which it occurs. This is to say that it is from each theory that self-concept gets its definition. Wells (1976) notes that certain basic analytic properties must be present if one is to be able to describe self-concept in a way that allows comparisons among descriptions. In terms of an instrument, this means that the observations "should be standardized, objective, and quantitative" (i.e., numerically expressible in terms of the amount of self-concept reflected) (Wells, 1976).

Keeping the above in mind and recognizing the difficulties associated with measuring self-concept, it was decided that rather than avoiding the topic, further research in the area was needed. Recognizing that the Tennessee Self-Concept Scale represents "one of the best of the current scales specifically designed to measure self-concept" (Robinson and Shaver, 1976), it was chosen. This is not to say that all problems are eliminated by using this instrument. Clearly some remain, the most obvious of which is the control of

social desirability. Despite the fact that a "lie scale" is included in the Tennessee Scale, the problem of mothers answering to appear socially appropriate was no doubt an impinging factor. This, despite the fact that no names were used throughout the study and mothers were emphatically encouraged to put down their "real feelings".

A final point to stress is that low self-concept scores must be considered carefully. Different people derive esteem from widely different sources. Thus, low self-concept in mothers with "difficult temperament" or "high risk" infants might come from other sources not studied in this project, and it is likely that it comes from an interaction with such variables. The family self-concept score on the Tennessee Self-Concept Scale was an attempt at controlling for this point and it is believed that it did add strength to inferences made about the relationships.

It is hoped that this research study has generated new questions and shed some new light on timeworn issues that have been examined in the past. In any case, hopefully this work will have heuristic value for the encouragement of additional research in the areas under study at this time. Some of these possibilities for future exploration will be examined in the following section.

Future Research

A major possibility for future research focuses on the particular designs of the studies. This cross-sectional

study does not offer any proof of cause and effect in the relationship between the variables investigated. In no way is this study stating that the mothers' self-concepts are lowered by difficult infants or that difficult infants are created through the low self-concepts of the mothers. A longitudinal study would be beneficial in this regard. If mothers could complete the Tennessee Self-Concept Scale prior to the birth of their child and these same mothers "followed up" at several points after the child's birth, it might be possible to observe any changes in self-concept in correlation with the temperament of the infant. This would lend strength to the cause and effect argument but by no means eliminate the question of innate constitutional differences. Blank (1976) notes that even within a few days after birth the infant's behavior may be influenced by the environment; thus, it is extremely difficult to interpret innate differences.

It would also seem to be very valuable to follow up populations such as those under study at this time in an effort to explore the development of behavior disorders in children, specifically as this relates to temperament, biological risk status, and the self-concept of the mother.

An interesting idea that occurred to this writer while carrying out this study related to the broader aspect of parent-child interactions. It would appear to be quite valuable to speak with parents prior to the birth of their child and have them "paint a picture" of the baby as they

would like him or her to be. One year after birth it would be interesting to approach these parents again and note their ideal infant picture and whether or not their infant did fit with this picture or whether they had changed their idealized image of the child. Solnit and Stark (1961) have observed that during the course of a normal pregnancy, the mother and father develop a mental picture of their baby. They note that one of the tasks of parenting is to resolve the discrepancy between the idealized image of the infant and the actual appearance and behavior of the real infant. One would hypothesize that there would be a degree of modification on "both sides". This is to say that parents would likely change their image to correspond with the actual infant, and the infant would likely change in the direction of the parents' image. Considering the populations studied in this research project, it would seem that a mother with a premature infant would have "further to go" to adjust her image considering the physical state of most premature infants (i.e., small in size, poor health, etc.).

Another point that would seem worth studying, would be the interactions between both of the parents of a "difficult" temperament child. Is there an impact on the family as a system? Does such an infant create tension and disagreement over handling between his parents? Are the siblings affected? If so, how?

One occurrence that was noted informally in this study was the fact that the mothers of "high risk" infants reported

that their child had been very "difficult" (this in response to questions about the child's temperament). However, as the infant got "older", and at the time of this study, the mothers observed that their infant had become "considerably easier". This could possibly explain why more "difficult infants" were not found in the biological risk group. Perhaps any change in the direction of "easier" temperament was perceived as placing the child in the "easy" category. These parents conveyed the feeling, as one mother put it, that through their "persistence and sense of humor" they were able to "manage" their child. Thomas and Chess (1977) note that the first eighteen months are the hardest. It would be an important finding if trends were discovered that did, in fact, confirm these speculations. Do infants become easier in their temperament style or is there simply a mutual adjustment on the part of mother and child?

Finally, future research should have as a goal the development of more rigorous instruments for measuring temperament. Since the value of temperament as a significant factor in the development of children has been established, more efficient devices for examining it would seem essential.

This was only an introduction to the possibilities for future research. It seems to this writer that the possibilities are endless and the need clearly demonstrated.

Implications

Several salient, practical implications can be inferred from this study. These implications relate not only to the temperamental individuality of infants and the self-concept of mothers but to other areas, including the self-concept of children, child abuse and intervention, and the idea of parenting versus mothering.

In this study, as in others in the past, the temperamental individuality of infants has been demonstrated. This is, however, one part of a complex and organized human being with abilities that are more developed than most people would believe, even at a few months of age.

There are several areas which together make up the total child. These include intellectual, physical, and social/emotional components. If a child is to achieve his full potential, all areas must be considered and helped to develop. Clearly, the results of this study lend strength to the belief that along with considering physical health, cognitive abilities, and social interactions, the temperament of the child must also be examined. It is apparent that there is a need on the part of parents, and later on the part of schools, to respect the individuality of the child. This includes not only his growth patterns and innate aptitudes, but also his own specific temperament.

This issue would seem to relate to child rearing practices in general. It would appear that allowances must be

made for differences in temperament. Too often in the past, research has been carried out assuming that children are pretty much all alike, so that one kind of behavior on the part of parents would affect each child the same way. Obviously this is not so, considering the differences in temperament observed in the infants in this study. It would appear that child rearing practices must be considered along with the temperament of the child. It would seem that there is, in reality, no one best way to bring up a child, but rather a style of parent child rearing geared to the particular infant and his temperament.

In this study, the temperament of infants was found to be related to the self-concept of their mothers. It has been noted that the basic attitudes that make up the child's self-image develop out of his interactions with his immediate emotional environment. This relationship between infant temperament and maternal self-concept would likely influence the growth of self-concept in the child. The child's self-concept is first and foremost an outgrowth of his home and the people who live with him there. While the focus in this study has been on the effect of temperament of the infant on the mother's self-concept, certainly the implication goes beyond the mother to the child's self-perception. This is to say that the child's temperament and risk status could directly and indirectly influence his mother's self-concept and in turn his own. If a child's parents have not been able to demonstrate an attitude of acceptance towards the child

and allowed him some flexibility in his growth, possibly because of his "difficult temperament" style, then quite likely the child could develop a negative self-concept. Furthermore, if he is given the impression that he is not worthwhile, because his temperament is more difficult than his parents would like, this too could possibly lower his self-concept. As has been noted in the theory section of this study, Coopersmith (1967) has found evidence suggesting that children with low self-concepts had mothers who were themselves low in self-concept. He noted a significant modeling effect which found children likely to identify with their "active, poised, and relatively assured" high self-concept parents. A child with a difficult temperament style and with parents with low self-concepts would evidently have less of a chance to imitate such behavior. It would seem that this topic of self-concept in the child would relate to a study by Cox (1966) which found evidence to suggest that parental disagreement was significantly related to negative self-concept in the child. The implications for this present study are that if a "difficult" child causes discord and disagreement between his parents (see section on Future Research), then the repercussions of this strife might be evidenced in his self-concept. Thus, it appears that there are very real possibilities of maternal self-concept and the temperament of the infant influencing the child's own self-concept.

There has been an emphasis in this study on the fact

that mothers are not born with special skills that automatically enable them to handle all infants without difficulty. "Motherhood is a role that one must grow into gradually" (McBride, 1974). Complicating matters is the fact that our society is preoccupied with the idea of "perfect mothers producing perfect children" (McBride, 1974). McBride goes on to suggest that we should be concerned with what is "appropriate and better" rather than perfection. This point would relate to the idea discussed earlier, of mothers being "blamed" for everything that could go wrong with their infants, including what has been recognized in this study as "difficult temperament". The speculation in this research, which was not disproved, was that this attitude could be related to the mother's self-concept and quite possibly set the stage for a cycle of impossible expectations on the mother's part and guarantee failure. If a mother has expectations of "making a difficult child conform" to stereotypic images of a "good baby", then she is likely to meet with failure. If she in turn assumes that this failure has occurred because of her incompetence as a mother, it very possibly could lower her self-concept. As has been noted (see Kiesler et al., 1970), this could affect her actual performance as a mother and serve only to increase the likelihood of failure.

Earlier it was stated that cycles like the above are conducive to abusive situations in the home. Child abuse has been established as a major problem in our society.

Research has shown that it is a very complex issue, with many variables affecting the outcomes of various situations. It would seem, however, that the temperament of the child is, in fact, one variable that rightly ought to be considered as important. Recognizing those mother-infant dyads where extreme conflict exists would be paramount in keeping situations from reaching the abuse stage. How is one to recognize those situations? From this study, it was implied that extreme discrepancy between scores on a relatively objective temperament questionnaire, when compared with the mother's general ratings of a child's temperament and a psychologist's general ratings of a child's temperament, could lend insight into potentially difficult situations in the home. Gregg (1973) has found evidence to suggest that child abusing mothers were more likely to perceive their children as more difficult than they actually were. It would seem that these three measures could likely compliment each other by giving a more comprehensive view of the child, his temperament, and its possible effect on the family situation. They could help gain insight into the mother's perceptions of her child's temperament compared to more objective measures of how "difficult" the child appeared to be. For example, a situation where a psychologist and an objective temperament questionnaire rated a child as difficult and the mother felt that the child was easy, would probably be looked at (and likely should be handled) differently from a case where the psychologist, mother, and the questionnaire were all in agreement

about the child's temperament. The fact that the mother, for example, was in disagreement with both the psychologist and the questionnaire could indicate that she might be misperceiving the child's temperament style. Quite possibly she was having difficulty coming to terms with her child's individual style of behavior and might need help in understanding and adjusting to it. On the other hand, a mother in agreement with the psychologist and the questionnaire about her child's temperament would seem more likely to be recognizing her child's style of behavior but might need support in dealing with it. These are indicative of two possible situations that could arise. It should be noted that the fact that there is disagreement between both the psychologist and questionnaire as compared to the mother's rating clearly does not mean that the mother is definitely failing to recognize her child's temperament style. It would, however, seem to highlight situations warranting closer examination to insure the mental health of both mother and child. Child Find centers could be optimal locations for screening using instruments such as those just discussed. Programs such as Child Find could also follow up infants at planned intervals, monitoring any changes in the status of the infants and their relationships with their parents.

A critical issue that is related to much, if not all, of the ideas discussed in this work is that of the concept of mothering. Implications from this study would suggest that in many instances, especially in the case of difficult

and high risk babies, it might be beneficial for both mother and infant if the role of primary caretaker was shared. While the father would be the most likely person for this sharing, it could also involve other relatives if necessary, or possibly some type of day care facility. Butler (1970), among others, has noted that adjustment leading to a productive life is most facilitated if the child is cared for by many warm, friendly people, so long as there is continuity with a mothering person. It would seem likely that once others are involved in the child's rearing process and the responsibility for the socialization of the child is not resting solely on the shoulders of the mother, feelings of guilt and inadequacy would be less likely to develop in the mother. In the past, the mother has often been held entirely responsible for the child's problems and as such, this probably created many problems for both mother and child - not to mention the entire family as well. No doubt much parental discord has been generated by such situations. As Wortis (1970) has observed, "recognizing the social needs of mothers and infants, some investigators have begun to encourage entry into day care nurseries at much earlier ages than is customary". This is not to say that the family is not important. Research and common sense have taught us that the family is extremely important. Indeed, the family is so important that opportunities should exist, particularly for mothers of "biological risk" infants and infants with "difficult" temperaments, to have access to adequate child care

facilities. Mothers need their separateness from their child and time for themselves. Time to collect their thoughts and time for a much needed rest! Mothers need places to leave their children when "crisis" situations arise and pressures have built up to such an extent that they must get away. Organizations such as Child Find could be starting points where mothers could learn about the existence of facilities, such as full and part time child care centers, where they could stop in at "crisis" points, leave their children, and/or talk about their own special needs. At these times, further assistance could be offered in the form of complete listings of what is available in the community in terms of supportive services. The provision of nurses, social workers, other mental health workers, as well as other parents for home visits to help parents deal with difficult situations is another option. A possibility that seems particularly promising for helping parents to deal more adequately with their child relates to "parenting programs". Parenting refers to those skills needed by the adults who assume responsibility for the care and guidance of children. Presented through classroom and group programs, Parenting Programs are designed to disseminate materials, increase awareness, and better educate caregivers in child growth and development. The options for training could take place at various levels including: high school family life courses, vocational education courses for students who wish to prepare themselves for careers as child caregivers, infant/parent programs for

young parents wishing to continue their education, continuing education courses for older parents seeking to further their parenting skills, as well as further training for professionals who work with infants and parents. In addition to providing knowledge about the way children grow and develop, these programs could also provide information about the procedures necessary for parents to obtain services for themselves and their children when they are needed. These skills would clearly be important in the case of "biological risk" infants and with infants having "difficult" temperaments. Unquestionably the parents of these infants need specific knowledge, awareness, and understanding in order to help their children grow up to be as healthy as possible.

In the sample of families studied in this project, there appeared to be strong appreciation for the shared responsibility and pleasure of caring for children. Perhaps this sharing of responsibility accounted for, in part, those instances when there wasn't a significant lowering of self-concept in the mothers of difficult and high risk infants. It was the writer's observation that many fathers in these instances helped their wives maintain positive pictures of themselves, by assisting in setting realistic goals and developing favorable estimations of their performances as mothers. When mothers and fathers equally share the responsibility, it would seem that there would be less of a belief that the course of development in the infant is solely determined by the mother's attitudes, motivations, and needs. Consequently,

there would be less of a threat to the mother when the turmoil of raising a "difficult" child arises.

Some writers have recently gone so far as to suggest that the term "mothering" should be "buried" (McBride, 1974). The A.P.A. (1977) has suggested in dealing with problems of designation, that the term "parenting" be used to describe this nurturing that parents give. Moving from "mothering" to "parenting" would, it seems, allow each of the parents more freedom to appreciate their children more fully. As Thomas and Chess (1976) have observed, "Parents who enjoy their children in their own individual ways can be sure the children are also benefiting. If there is one thing above all that children will thrive on it is their parents' pleasure in them" (p. 203). Continued encouragement for men to take increasing parts in emotional and social interaction with their infants and children has been found with growing frequency in child development literature. This study would directly and indirectly support this stand. As Wortis (1970) has noted, this requires continued emphasis in social and educational institutions to help prepare future generations for this sharing of responsibilities. It would seem that everyone stands to gain from trends in this direction.

Summary and Conclusions

In this research, no significant relationships were found between temperament and 1) a child's "biological risk" status, 2) a child's sex, and 3) a child's ordinal position

in his family. Thus, it would seem that none of these variables influence temperament in any striking fashion. One can infer that any behavior or attitudes on the parents' part that are specifically related to either of these three variables do not appreciably influence the infant's temperament. This does not eliminate the possibility that over time these factors could modify the child's temperament to a significant degree. This point would need to be examined in a follow-up study where changes could be studied. In any case, of those early postnatal parental influences that do affect the child's temperament, the above three variables are not among them.

On the other hand, "developmental level", as measured by the Denver Developmental Screening Test, was found to be significantly related to the temperament of the infant. Infants who were delayed developmentally were more frequently found in the "difficult temperament categories". It could be possible that infants who are "delayed" do develop more difficult temperaments. While this has not been proven directly, it does seem to be an important point for centers such as developmental assessment clinics to be aware of when screening infants who are at risk for the development of growth or learning problems. On the other hand, these findings do relate to another possibility. Perhaps it is the case that the less active, bland mood, slow-to-warm-up infant is more easily confused with a developmentally delayed child. Furthermore, a child with a more difficult temperament style might not really show what he can actually do

during the testing situation. These points should serve as a word of caution for examiners at developmental assessment clinics to be aware of, and would speak to the need for expecially sensitive evaluations when both developmental delay and difficult temperament are observed in an infant. Developmental deviations are very difficult to detect in young children, and while such problems are often overlooked, one must also be careful that they are not being confused with a child's difficult temperament style. Further study of this relationship is most definitely warranted, considering the possible ramifications of decisions made for providing supportive services to the child for his future development.

A major purpose of this work was to examine the temperament of the infant and the mother's self-concept to determine whether a relationship exists. There was a significant difference in the self-concept of mothers in the different temperament categories, with mothers of infants with more difficult temperaments having lower self-concepts. Although the direction of cause and effect between the variables was not established, it does appear to this investigator that this relationship would most profitably be considered as a consequence of a reciprocal interaction between mother and child. That is, the self-concept of the mother influences the infant's temperament and, in turn, the temperament of the infant affects the self-concept of the mother. As such, intervention at several points could have beneficial effects should problems be detected. Not only could assistance be

directed to bolstering the self-concept of the mother, but help could also be offered to assist her in adjusting to her infant's temperament. This could help her feel more successful and consequently serve as a catalyst in developing a more positive self-concept. By adjusting to the infant's temperament, the mother would likely be placing less stress on him, and thus influence the way he is behaving to a positive degree. One can see how a positive cycle could be established through this cycle of events.

Many infants are now surviving birth who would have died in earlier years. The development of sophisticated techniques and instruments has helped to save the lives of many babies and at the same time created an ever growing population of infants at "biological risk". These infants warrant special consideration not only because of their physical difficulties, but also because of the possible social/emotional influence these complications could have on the babies themselves, and those in their environment. With this in mind, another intention of this study was to look at the relation between "biological risk" status and the self-concept of the mother. A significant relationship was noted, with mothers of infants at "biological risk" having lower self-concepts. The direction of effect, however, was not established. Should this lower self-concept exist as a result of the birth of a "high risk" infant - a fact that remains to be proven in future research - it would seem that hospitals should make arrangements to deal with this as early as possible. The

factors commonly associated with the birth of an infant at "biological risk", including the separation of mother from infant, have been consistently recognized as potential problem points for the future development of relationships between the mother and her child. Helping mothers to come to terms with the problems of their children would certainly be important for the future healthy adjustment of both mother and child.

Helping mothers to recognize and respect their child's individual temperament style would seem to be a need that could be implied from this study. Mothers of difficult infants appeared especially likely to misperceive their child's temperament, or perhaps were simply reluctant to acknowledge it. The stereotypes conveyed in our society, both overtly and covertly, about mothers and infants need to be dealt with. Clearly, all babies are not "Gerber babies", mothers are not always in complete control of their infants, and they do not have "exclusive" power to meet their baby's each and every need. Mothers need to be helped to recognize that they are not solely responsible for their child's behavior, and fathers need to be helped to accept increasing amounts of responsibility for the care and raising of their child. McBride (1974) notes that once an equal relationship is arrived at between mothers and fathers in dealing with their child, they are then "free to think about how to divide the task of parenting in new ways that might develop the growth potential of all concerned".

If one thing has been realized at the completion of this research study, it is that infants are truly complex individuals differing in many ways. It is apparent that they are very influential in their relationships with their parents, and affect their parents as much, if not more than their parents do them. Appreciation of these facts could make childrearing considerably easier.

Finally, parents - and as a result of this study - specifically mothers, need to deal with preoccupations of perfection. Images our culture has created of "perfect" mothers creating "perfect" infants need to be challenged. To quote Briggs (1975):

> "All any of us can do is our best each day, but that 'best' will never be perfect. And children do quite nicely with fully human parents who fall short here and there" (p. 306).

APPENDICES

APPENDIX A

Nine Categories of Temperament and Their Definitions

* Taken from: Thomas, Alexander and Chess, Stella, Tempera- and Development. (p. 21-22)

1) ACTIVITY LEVEL - the motor component present in a given child's functioning and the diurnal proportion of active and inactive periods. Protocol data on motility during bathing, eating, playing, dressing and handling, as well as information concerning the sleep-wake cycle, reaching, crawling, and walking, are used in scoring this category.

2) RHYTHMICITY - the predictability and/or unpredictability in time of any function. It can be analyzed in relation to the sleep-wake cycle, hunger, feeding pattern and elimination schedule.

3) APPROACH or WITHDRAWAL - the nature of the initial response to a new stimulus, be it a new food, new toy or new person. Approach responses are positive, whether displayed by mood expression (smiling, verbalizations, etc.) or motor activity (swallowing a new food, reaching for a new toy, active play, etc.). Withdrawal reactions are negative, whether displayed by mood expression (crying, fussing, grimacing, verbalizations, etc.) or motor activity (moving away, spitting new food out, pushing new toy away, etc.).

4) ADAPTABILITY - responses to new or altered situations. One is not concerned with the nature of the initial responses, but with the ease with which they are modified in desired directions.

5) THRESHOLD OF RESPONSIVENESS - the intensity level of stimulation that is necessary to evoke a discernable response, irrespective of the specific form that the response may take, or the sensory modality affected. The behaviors utilized are those concerning reactions to sensory stimuli, environmental objects, and social contacts.

6) INTENSITY OF REACTION - the energy level of response, irrespective of its quality or direction.

7) QUALITY OF MOOD - the amount of pleasant, joyful and friendly behavior, as contrasted with unpleasant, crying and unfriendly behavior.

8) DISTRACTIBILITY - the effectiveness of extraneous environmental stimuli in interfering with or in altering the direction of the ongoing behavior.

9) ATTENTION SPAN and PERSISTENCE - two categories which are related. Attention span concerns the length of time a particular activity is pursued by the child. Persistence refers to the continuation of an activity in the face of obstacles to the maintenance of the activity direction.

APPENDIX B

Data Sheet for Recording Information from Mothers' Reports and Physician/Clinic Records

Code Number _____

Sex M _____ F _____

Firstborn Yes No

Chronological Age _____

Developmental Screening Index Normal Questionable Delay

Additional:

Do you feel that your child has influenced the way you feel about yourself? Yes No

If so, has this been in a positive or negative way?

COLLEGE OF EDUCATION · DEPARTMENT OF COUNSELING,
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Consent to Participate Forms for Mothers

Consent to Participate

Study of the Relationship Between
Infant Temperament Variables and
the Self-Concept of the Mother

I _____ agree to participate, along with my child, in the above mentioned study. The nature of the study and the processes involved have been adequately explained to me, and even though I give my consent at this time, I understand that I may, at any time, withdraw without penalty from the study and retract my permission to use any information obtained.

I have been assured that all information will be held in the strictest confidence, and have been offered an explanation of the findings at the conclusion of the project.

_____

Mother's Signature Date

APPENDIX D

Mother's General Impressions of Infant's Temperament (Carey/McDevitt)

A. How would you describe your baby's temperament in your own words?

B. In comparison with what you know of other babies of the same age, how would you rate your baby as to the following criteria? (Circle one)

I. Activity level - the amount of physical activity during sleep, feeding, play, dressing, etc.

(1) high (2) medium (3) low

II. Regularity - of bodily functioning in sleep, hunger, bowel movements, etc.

(1) fairly regular (2) variable (3) fairly irregular

III. Adaptability to change in routine - the ease or difficulty with which initial response can be modified in socially desirable way.

(1) generally adaptable (2) variable (3) generally slow at adaptation

IV. Response to new situations - initial reaction to new stimuli, to food, people, places, toys, or procedures:

(1) approach (2) variable (3) withdrawal

V. Level of sensory threshold - the amount of external stimulation, such as sounds or changes in food or people, necessary to produce a response in the baby.

(1) high threshold (much stimulation needed)
(2) medium
(3) low threshold (little stimulation)

VI. Intensity of response - the energy content of responses regardless of their quality.

(1) generally intense (2) variable (3) generally mild

VII. Positive or negative mood - amount of pleasant or unpleasant behavior throughout day.

(1) generally positive (2) variable (3) generally negative

VIII. Distractibility - the effectiveness of external stimuli (sounds, toys, people, etc.) in interfering with ongoing behavior.

(1) easily distractible (2) variable (3) non-distractible

IX. Persistence and attention span - duration of maintaining specific activities with or without external obstacles.

(1) persistent (2) variable (3) non-persistent

C. How has the baby's temperament been a problem for you?

D. In general, temperament of baby is:

(a) about average
(b) more difficult than average
(c) easier than average

APPENDIX E

Infant Temperament Rating
Psychologist's Form

ACTIVITY LEVEL - How much does child move around during the testing?	HIGH	MEDIUM	LOW
APPROACH/WITHDRAWAL - How does infant behave when presented with something (or some situation) for the very first time?	APPROACH	VARIABLE	WITHDRAWAL
ADAPTABILITY - How easy or difficult is it to modify the child's initial response?	ADAPTIVE	VARIABLE	NONADAPT.
THRESHOLD OF RESPONSIVENESS - How much external stimulation is necessary to produce a response in the infant?	HIGH	MEDIUM	LOW
QUALITY OF MOOD - How pleasant or unpleasant is the infant during the testing?	POSITIVE	VARIABLE	NEGATIVE
DISTRACTIBILITY - How effective is external stimuli in interfering with the ongoing behavior of the infant?	DISTRACT.	VARIABLE	NONDIST.
INTENSITY OF RESPONSE - How much "energy" does the child use in responding?	INTENSE	VARIABLE	MILD
PERSISTENCE AND ATTENTION SPAN - Does the infant stick to what he is doing with or without external obstacles?	PERSIS.	VARIABLE	NONPERST.

In general, the temperament of the baby could best be described as:

(a) about average
(b) more difficult than average
(c) easier than average

OBSERVATIONS:

APPENDIX F

Infant Temperament Questionnaire
(for 4 to 8 month old infants)
revised, 1977
by William B. Carey, M.D., and Sean C. McDevitt, Ph.D.

Child's Name: _____ Sex _____

Date of Birth: _____ Present Age _____

Rater's Name: _____ Relationship to child _____

Date of Rating: _____

The purpose of this questionnaire is to determine the general pattern of your infant's reactions to his/her environment.

The questionnaire consists of several pages of statements about your infant. Please circle the number indicating the frequency with which you think the statement is true for your infant. Although some of the statements seem to be similar, they are not the same and should be rated independently. If any item cannot be answered or does not apply to your infant, just draw a line through it. If your infant has changed with respect to any of the areas covered, use the response that best describes the recently established pattern. There are no good and bad or right and wrong answers, only descriptions of what your infant does. When you have completed the questionnaire, which will take about twenty-five to thrity minutes, you may make any additional comments at the end.

USING THE FOLLOWING SCALE, PLEASE CIRCLE THE NUMBER THAT INDICATES HOW OFTEN THE INFANT'S RECENT AND CURRENT BEHAVIOR HAS BEEN LIKE THAT DESCRIBED BY EACH ITEM.

	Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5					Almost always 6	
1.	The infant eats about the same amount of solid food (within 1 oz) from day to day.			almost never	1	2	3	4	5	6	almost always
2.	The infant is fussy on waking up and going to sleep (frowns, cries)			almost never	1	2	3	4	5	6	almost always
3.	The infant plays with a toy for under a minute and then looks for another toy or activity.			almost never	1	2	3	4	5	6	almost always
4.	The infant sits still while watching TV or other nearby activity.			almost never	1	2	3	4	5	6	almost always
5.	The infant accepts right away any change in place or position of feeding or person giving it.			almost never	1	2	3	4	5	6	almost always
6.	The infant accepts nail cutting without protest.			almost never	1	2	3	4	5	6	almost always
7.	The infant's hunger cry can be stopped for over a minute by picking up, pacifier, putting on bib, etc.			almost never	1	2	3	4	5	6	almost always
8.	The infant plays continuously for more than 10 min. at a time with a favorite toy.			almost never	1	2	3	4	5	6	almost always
9.	The infant accepts his/her bath any time of the day without resisting it.			almost never	1	2	3	4	5	6	almost always
10.	The infant takes feedings quietly with mild expression of likes and dislikes.			almost never	1	2	3	4	5	6	almost always
11.	The infant indicates discomfort (fusses or squirms) when diaper is soiled with bowel movement.			almost never	1	2	3	4	5	6	almost always
12.	The infant lies quietly in the bath.			almost never	1	2	3	4	5	6	almost always
13.	The infant wants and takes milk feedings at about the same times (within one hour) from day to day.			almost never	1	2	3	4	5	6	almost always
14.	The infant is shy (turns away or clings to mother) on meeting another child for the first time.			almost never	1	2	3	4	5	6	almost always

2.

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6

15. The infant continues to fuss during diaper change in spite of efforts to distract him/her with game, toy or singing, etc.	almost never	1	2	3	4	5	6	almost always
16. The infant amuses self for ½ hour or more in crib or playpen (looking at mobile, playing with toy).	almost never	1	2	3	4	5	6	almost always
17. The infant moves about much (kicks, grabs, squirms) during diapering and dressing.	almost never	1	2	3	4	5	6	almost always
18. The infant vigorously resists additional food or milk when full (spits out, clamps mouth closed, bats at spoon, etc.)	almost never	1	2	3	4	5	6	almost always
19. The infant resists changes in feeding schedule (1 hour or more) even after two tries.	almost never	1	2	3	4	5	6	almost always
20. The infant's bowel movements come at different times from day to day (over one hour difference).	almost never	1	2	3	4	5	6	almost always
21. The infant stops play and watches when someone walks by.	almost never	1	2	3	4	5	6	almost always
22. The infant ignores voices or other ordinary sounds when playing with a favorite toy.	almost never	1	2	3	4	5	6	almost always
23. The infant makes happy sounds (coos, smiles, laughs) when being diapered or dressed.	almost never	1	2	3	4	5	6	almost always
24. The infant accepts new foods right away, swallowing them promptly.	almost never	1	2	3	4	5	6	almost always
25. The infant watches other children playing for under a minute and then looks elsewhere.	almost never	1	2	3	4	5	6	almost always
26. The infant reacts mildly (just blinks or startles briefly) to bright light such as flash bulb or letting sunlight in by pulling up shade.	almost never	1	2	3	4	5	6	almost always
27. The infant is pleasant (smiles, laughs) when first arriving in unfamiliar places (friend's house, store).	almost never	1	2	3	4	5	6	almost always
28. The infant gets sleepy at about the same time each evening (within ½ hr.)	almost never	1	2	3	4	5	6	almost always
29. The infant accepts regular procedures (hair brushing, face washing, etc.) at any time without protest.	almost never	1	2	3	4	5	6	almost always

3.

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6

30. The infant sits still (little squirming) while traveling in car seat or stroller.	Almost never	1	2	3	4	5	6	almost always
31. The infant's initial reaction to a new baby sitter is rejection (crying, clinging to mother, etc.)	almost never	1	2	3	4	5	6	almost always
32. The infant keeps at it for many minutes when working on a new skill (rolling over, picking up object, etc.)	almost never	1	2	3	4	5	6	almost always
33. The infant moves much (squirms, bounces, kicks) while lying awake in crib.	almost never	1	2	3	4	5	6	almost always
34. The infant objects to being bathed in a different place or by a different person even after 2 or 3 tries.	almost never	1	2	3	4	5	6	almost always
35. The amount of milk the infant takes at feedings is quite unpredictable (over 2 oz. difference) from feeding to feeding.	almost never	1	2	3	4	5	6	almost always
36. For the first few minutes in a new place or situation (new store or home) the infant is fretful.	almost never	1	2	3	4	5	6	almost always
37. The infant notices (looks carefully at) changes in the appearance or dress (hairdo, unfamiliar clothing) of the mother.	almost never	1	2	3	4	5	6	almost always
38. The infant reacts strongly to foods, whether positively (smacks lips, laughs, squeals) or negatively (cries).	almost never	1	2	3	4	5	6	almost always
39. The infant is pleasant (coos, smiles etc.) during procedures like hair brushing or face washing.	almost never	1	2	3	4	5	6	almost always
40. The infant continues to cry in spite of several minutes of soothing.	almost never	1	2	3	4	5	6	almost always
41. The infant keeps trying to get a desired toy, which is out of reach, for 2 min. or more.	almost never	1	2	3	4	5	6	almost always
42. The infant greets a new toy with a loud voice and much expression of feeling (whether positive or negative)	almost never	1	2	3	4	5	6	almost always
43. The infant plays actively with parents-much movement of arms, legs, body.	almost never	1	2	3	4	5	6	almost always

4.

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6

44. The infant watches another toy when offered even though already holding one.	almost never	1	2	3	4	5	6	almost always
45. The infant's initial reaction at home to approach by strangers is acceptance.	almost never	1	2	3	4	5	6	almost always
46. The infant wants daytime naps at differing times (over 1 hour difference) from day to day.	almost never	1	2	3	4	5	6	almost always
47. The infant continues eating solid foods without reacting to differences in taste or consistency.	almost never	1	2	3	4	5	6	almost always
48. The infant cries when left to play alone.	almost never	1	2	3	4	5	6	almost always
49. The infant adjusts within 10 min. to new surroundings (home, store, play area).	almost never	1	2	3	4	5	6	almost always
50. The infant's daytime naps are about the same length from day to day (under one half hour difference).	almost never	1	2	3	4	5	6	almost always
51. The infant moves about much during feedings (squirms, kicks, grabs).	almost never	1	2	3	4	5	6	almost always
52. The infant reacts (stares or startles) to sudden changes in lighting (flash bulbs, turning on light).	almost never	1	2	3	4	5	6	almost always
53. The infant can be soothed by talking or games when sleepy.	almost never	1	2	3	4	5	6	almost always
54. The infant displays much feeling (vigorous laugh or cry) during diapering or dressing.	almost never	1	2	3	4	5	6	almost always
55. The infant lies still when asleep and wakes up in the same place.	almost never	1	2	3	4	5	6	almost always
56. The infant adjusts easily and sleeps well within 1 or 2 days with changes of time or place.	almost never	1	2	3	4	5	6	almost always
57. The infant reacts to changes in temperature or type of milk or substitution of juice.	almost never	1	2	3	4	5	6	almost always
58. The infant watches television for more than 5 minutes at a time.	almost never	1	2	3	4	5	6	almost always
59. The infant can be calmed for a few minutes by being picked up, played with, T.V., if fussing about soiled diaper.	almost never	1	2	3	4	5	6	almost always
60. The infant wants and takes solid food feedings at about the same time (within 1 hour) from day to day.	almost never	1	2	3	4	5	6	almost always

5.

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6							
61. The infant is content (smiles, coos) during interruptions of milk or solid feeding.				almost never	1	2	3	4	5	6	almost always
62. The infant accepts within a few minutes a change in place of bath or person giving it.				almost never	1	2	3	4	5	6	almost always
63. The infant cries for less than one minute when given an injection.				almost never	1	2	3	4	5	6	almost always
64. The infant shows much bodily movement (kicks, waves arms) when crying.				almost never	1	2	3	4	5	6	almost always
65. The infant continues to react to a loud noise (hammering, barking dog, etc.) heard several times in the same day.				almost never	1	2	3	4	5	6	almost always
66. The infant's initial reaction is withdrawal (turns head, spits out) when consistency, flavor or temperature of solid foods is changed.				almost never	1	2	3	4	5	6	almost always
67. The infant's time of waking in the morning varies greatly (by 1 hour or more) from day to day.				almost never	1	2	3	4	5	6	almost always
68. The infant continues to reject disliked food or medicine in spite of parents' efforts to distract with games or tricks.				almost never	1	2	3	4	5	6	almost always
69. The infant reacts even to a gentle touch (startle, wriggle, laugh, cry).				almost never	1	2	3	4	5	6	almost always
70. The infant reacts strongly to strangers: laughing or crying.				almost never	1	2	3	4	5	6	almost always
71. The infant actively grasps or touches objects within his/her reach (hair, spoon, glasses, etc.).				almost never	1	2	3	4	5	6	almost always
72. The infant will take any food offered without seeming to notice the difference.				almost never	1	2	3	4	5	6	almost always
73. The infant's period of greatest physical activity comes at same time of day.				almost never	1	2	3	4	5	6	almost always
74. The infant appears bothered (cries, squirms) when first put down in a different sleeping place.				almost never	1	2	3	4	5	6	almost always
75. The infant reacts mildly to meeting familiar people (quiet smiles or no response).				almost never	1	2	3	4	5	6	almost always

6.

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6

76. The infant is fussy or moody throughout a cold or an intestinal virus.	almost never	1	2	3	4	5	6	almost always
77. The infant wants an extra feeding at a different time each day (over one hour difference).	almost never	1	2	3	4	5	6	almost always
78. The infant is still wary or frightened of strangers after 15 minutes.	almost never	1	2	3	4	5	6	almost always
79. The infant lies still and moves little while playing with toys.	almost never	1	2	3	4	5	6	almost always
80. The infant can be distracted from fussing or squirming during a procedure (nail cutting, hair brushing, etc.) by a game, singing, TV, etc.	almost never	1	2	3	4	5	6	almost always
81. The infant remains pleasant or calm with minor injuries (bumps, pinches).	almost never	1	2	3	4	5	6	almost always
82. The infant's initial reaction to seeing doctor is acceptance (smiles, coos).	almost never	1	2	3	4	5	6	almost always
83. The infant reacts to a disliked food even if it is mixed with a preferred one.	almost never	1	2	3	4	5	6	almost always
84. The infant plays quietly and calmly with toys (little vocalization or other noise).	almost never	1	2	3	4	5	6	almost always
85. The infant's fussy period occurs at about the same time of day (morning, afternoon or evening.)	almost never	1	2	3	4	5	6	almost always
86. The infant lies still during procedures like hair brushing or nail cutting.	almost never	1	2	3	4	5	6	almost always
87. The infant stops sucking and looks when he/she hears an unusual noise (telephone, door bell) when drinking milk.	almost never	1	2	3	4	5	6	almost always
88. The infant pays attention to game with parent for only a minute or so.	almost never	1	2	3	4	5	6	almost always
89. The infant is calm in the bath. Like or dislike is mildly expressed (smiles or frowns).	almost never	1	2	3	4	5	6	almost always
90. The infant requires introduction of a new food on 3 or more occasions before he/she will accept (swallow) it.	almost never	1	2	3	4	5	6	almost always

7.

Almost never 1	Rarely 2	Variable usually does not 3	Variable usually does 4	Frequently 5	Almost always 6

91. The infant's first reaction to any new procedure (first haircut, new medicine, etc.) is objection.	almost never	1	2	3	4	5	6	almost always
92. The infant acts the same when the diaper is wet as when it is dry. (no reaction)	almost never	1	2	3	4	5	6	almost always
93. The infant is fussy or cries during the physical examination by the doctor.	almost never	1	2	3	4	5	6	almost always
94. The infant accepts changes in solid food feedings (type, amount, timing) within 1 or 2 tries.	almost never	1	2	3	4	5	6	almost always
95. The infant moves much and for several minutes or more when playing by self (kicking, waving arms and bouncing).	almost never	1	2	3	4	5	6	almost always

Additional Comments

INFANT TEMPERAMENT QUESTIONNAIRE (Rev. 1971) - Scoring Sheet

Name of Child _____ Date of rating _____ Age at rating _____

Cobr #

Activity		Rhythmicity		Approach		Adaptability		Intensity		Mood		Persistence		Distractibility		Threshold	
Low	High	Rhyth	Arr	App	With	Adap.	Nonad	Mild	Int.	pos.	Neg	Pers	Non	Dist	Non	High	Low
4	6 5 4 3 2 1	1	6 5 4 3 2 1	5	6 5 4 3 2 1	6	6 5 4 3 2 1			2	1 2 3 4 5 6	3	1 2 3 4 5 6	7	6 5 4 3 2 1		
12	6 5 4 3 2 1	13	6 5 4 3 2 1	14	1 2 3 4 5 6	9	6 5 4 3 2 1	10	6 5 4 3 2 1			8	6 5 4 3 2 1	15	1 2 3 4 5 6	11	1 2 3 4 5 6
17	1 2 3 4 5 6	20	1 2 3 4 5 6	24	6 5 4 3 2 1	19	1 2 3 4 5 6	18	1 2 3 4 5 6	23	6 5 4 3 2 1	16	6 5 4 3 2 1	21	6 5 4 3 2 1	22	6 5 4 3 2 1
26	6 5 4 3 2 1	28	6 5 4 3 2 1	31	1 2 3 4 5 6	29	6 5 4 3 2 1	27	6 5 4 3 2 1	30	6 5 4 3 2 1	25	1 2 3 4 5 6				
33	1 2 3 4 5 6	35	1 2 3 4 5 6	36	1 2 3 4 5 6	34	1 2 3 4 5 6	38	1 2 3 4 5 6	37	6 5 4 3 2 1	32	6 5 4 3 2 1	40	1 2 3 4 5 6	37	1 2 3 4 5 6
43	1 2 3 4 5 6	46	1 2 3 4 5 6	45	6 5 4 3 2 1	41	6 5 4 3 2 1	42	1 2 3 4 5 6	48	1 2 3 4 5 6	47	6 5 4 3 2 1	44	6 5 4 3 2 1	47	6 5 4 3 2 1
51	1 2 3 4 5 6	50	6 5 4 3 2 1					53	1 2 3 4 5 6					53	6 5 4 3 2 1	52	1 2 3 4 5 6
55	6 5 4 3 2 1	66	6 5 4 3 2 1	61	6 5 4 3 2 1	56	6 5 4 3 2 1			61	6 5 4 3 2 1	58	6 5 4 3 2 1	59	6 5 4 3 2 1	57	1 2 3 4 5 6
64	1 2 3 4 5 6	67	1 2 3 4 5 6	66	1 2 3 4 5 6	65	1 2 3 4 5 6	70	1 2 3 4 5 6	63	6 5 4 3 2 1			68	1 2 3 4 5 6	69	1 2 3 4 5 6
71	1 2 3 4 5 6	73	6 5 4 3 2 1	75	1 2 3 4 5 6	78		156	6 5 4 3 2 1	76	1 2 3 4 5 6					72	6 5 4 3 2 1
79	6 5 4 3 2 1	77	1 2 3 4 5 6	82	6 5 4 3 2 1	78	1 2 3 4 5 6	80	6 5 4 3 2 1	81	6 5 4 3 2 1			80	6 5 4 3 2 1	83	1 2 3 4 5 6
86	6 5 4 3 2 1	85	6 5 4 3 2 1	91	1 2 3 4 5 6	90	1 2 3 4 5 6	87	6 5 4 3 2 1	93	1 2 3 4 5 6	88	1 2 3 4 5 6	87	6 5 4 3 2 1	92	6 5 4 3 2 1
95	1 2 3 4 5 6					99	6 5 4 3 2 1										
Total																	
Factor	× 1 2 3 4 5 6	×	1 2 3 4 5 6	×	1 2 3 4 5 6	×	1 2 3 4 5 6	×	1 2 3 4 5 6	×	1 2 3 4 5 6	×	1 2 3 4 5 6	×	1 2 3 4 5 6	×	1 2 3 4 5 6
Product																	
Sum Prod																	
# Items rated																	
Category Score																	

Instructions to scorer: 1) Check off above responses on questionnaire. 2) For category score add checks in 6 columns and multiply sums by Factors Indicated. Resulting products are added and divided by number of items rated, producing category score. 3) **Nine category scores are transferred to Profile Sheet.**

INFANT TEMPERAMENT QUESTIONNAIRE - PROFILE SHEET

FOR 4 TO 8 MONTH OLD INFANTS

Revised 1977 by William B. Carey, M. D., and Sean C. McDevitt, Ph.D.

Name of child_____ Date of rating_____

Age at rating:_____ months_____ days. Sex_____

Category score from Scoring Sheet:

_____ _____ _____ _____ _____ _____ _____ _____ _____

Profile: Place mark in appropriate box below:

	Activity	Rhythm.	App/With.	Adapt.	Intens.	Mood	Persist.	Distract.	Thresh.
6	high	arryth.	withdr.	slowly adapt.	intense	negative	low per.	low dist.	low
+1S.D.	4.96	3.05	3.05	2.61	4.13	3.48	3.85	2.84	4.55
mean	4.40	2.36	2.27	2.02	3.42	2.81	3.03	2.23	3.79
-1S.D.	3.83	1.68	1.50	1.42	2.71	2.13	2.20	1.63	3.04
1	low	very rhyth.	app.	very adapt.	mild	positive	high per.	high dist.	high

Diagnostic cluster:

Easy		rhyth.	app.	adapt.	mild	positive			
Diff		arryth.	withdr.	slowly adapt.	intense	negative			
STWU	low		withdr.	slowly adapt.	mild	negative			

Definition of diagnostic clusters used for individual scoring:

Easy - Scores greater than mean in no more than two of difficult/easy categories (rhythmicity, approach, adaptability, intensity, and mood) and neither greater than one standard deviation.

Difficult - 4 or 5 scores greater than mean in difficult/easy categories (rhythmicity, approach, adaptability, intensity, and mood). These must include intensity and two scores must be greater than one standard deviation.

Slow-to-warm-up - as defined above, but if either withdrawal or slow adaptability is greater than one standard deviation, activity may vary up to 4.68 and mood may vary down to 2.47.

Intermediate - all others. Intermediate high - 4 or 5 difficult/easy categories above the mean with one greater than one standard deviation, or 2 or 3 above the mean with 2 or 3 greater than one standard deviation. Intermediate low - all other intermediates.

This child's diagnostic cluster _____ Date of scoring _____

Comments: Scorer _____

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