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Home Environments of
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An Analysis of NLSY Data

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HOME ENVIRONMENTS OF PHYSICALLY HANDICAPPED CHILDREN: AN ANALYSIS OF NLSY DATA

BY

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ABSTRACT

HOME ENVIRONMENTS OF PHYSICALLY HANDICAPPED CHILDREN:
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More and more children with varying degrees of physical handicaps are entering the family ecosystem where they must rely on the parental subsystem for the quality of their home environment. It seems apparent that the effect the presence of a physically handicapped child has on the family would best be measured by assessing the effect this child has on the construction of his/her own home environment.

A family ecosystems model is utilized to examine the quality of the home environment of the handicapped child. The family is examined in this context by controlling and assessing variations (predictive variables) in family structure as well as maternal and child characteristics.

Data for this study were drawn from a larger on-going study, the National Longitudinal Survey of Youth 1990 Data Set. The measured home environments of 1323 children aged 3 to 6 years were assessed using an adapted form of the HOME Scale. The research samples were composed of 58 physically handicapped children and 1265 nonhandicapped children. The central focus of this study was the family's provision of a home environment including cognitive, physical, and

emotional aspects of the child's environment. T-tests, Chi-square analyses, and regression were utilized to analyze data.

No statistically significant differences were found between the measured home environments provided for the physically handicapped and nonhandicapped children in this study. Additionally no statistically significant differences were found between selected groups of physically handicapped children and the control sample. The quality of the home environment provided for the physically handicapped child was found to be significantly positively correlated with the measured intelligence of the mother and significantly negatively correlated with family poverty status. The most significant finding is the strength of the relationship between the sex of the physically handicapped child and the quality of the home environment. Female physically handicapped children are provided a better home environment. The findings suggest that on the variables measured, families with physically handicapped children are very similar to families with nonhandicapped children in their provision of home environments.

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CHAPTER I

INTRODUCTION

> It is important to begin with the realization that the birth of a baby is the culmination of the parents' best efforts and embodies all their hopes for the future. Therefore when a baby is born with a malformation it is not surprising that the effects on the parents and everyone else involved with the events are devastating (Kennell, 1978, p. 40).

The increasing recognition of the birth of a handicapped infant as a crisis for the family has led to research efforts that have supported the idea that early intervention may be necessary. The importance gleaned from the presence of a handicapped child will be different for each family system, and adjustment to the circumstance will rely upon the family's ability to withstand the crisis of the event and their ability to meet the needs of all family members (Earhart, 1984).

Parents play an important role in the socialization of a child, and the initial shock of a nonconforming baby can subconsciously influence the parents' treatment of the child (Robinault, 1978).

> The severity of a child's disability or the subtlety of it is not as relevant to a child's eventual (maturation) as the child's participation in those experiences that are generic to the early development of all human beings (Robinault, p 150).

In 1972 it was estimated that the incidence of babies with at least one major malformation apparent at or soon after birth was between fifteen and twenty per thousand (Gath, 1972). Due to the portentous advances in medical science in the areas of prenatal, perinatal and neonatal care over the two decades since those figures, infant mortality has been drastically reduced. The incidence of childhood mortality due to handicapping conditions has also been reduced, and newer methods of prolonging and enhancing the quality of life for handicapped children have been accomplished since 1972. Additional resources have also been committed to prevent the introduction of handicapped children into institutional systems. Institutionalization is no longer a viable option ethically or morally. These changes have led to more families keeping their handicapped children and wanting to integrate the child into the family system (Blacher, 1984).

With these changes more and more children with varying degrees of physical handicaps are entering the family ecosystem where the children must rely on the parental subsystem for the elements of their home environment that are germane to their development and maturation. How the

parents react to the handicapping condition may determine the quality of the home environment.

Professionals in the field of family ecology feel that the presence of a physically handicapped child in the family can be a source of stress and may place excessive demands on the energy and other resources of the family (Bubolz & Whiren, 1984). Research concerning the effects physically handicapped children have on the family is fraught with inconsistencies which seem to contradict one another. The methodologies utilized as well as the individual physical handicapping conditions studied are varied and generalizations not thought of as sound. The studies noted here are only given as an example of the myriad of findings within the paradigm of past studies concerned with the relationship between children with physically handicapping conditions and their families. The studies vary from those reporting higher than average divorce rates (Tew, Lawrence, Payne & Rawnsley, 1977), to those that report satisfactory marital adjustment and no rise in divorce rates (Buchanan, LaBarbera, Roelofs & Olson, 1979; Dorner, 1975; Freeston, 1971; Starr, 1981); from studies that report higher than normal stress level for mothers (Bradshaw & Lawton, 1978; Burden, 1980; Dorner, 1975; Tew & Lawrence, 1973), to those which report appropriate family stress levels and coping (Korn, Chess & Fernandez, 1978). There are those that report sibling

behavioral maladjustment (Cairns, Clark, Smith & Lansky, 1979; Gath, 1972, 1973; Tew & Lawrence, 1973), and conversely, those that report appropriately well adjusted siblings (Cleveland & Miller, 1977; Gayton, Friedman, Tavormina & Tucker, 1977; Pinyerd, 1983). Research studies have also indicated that both mother and father can experience lowered self-esteem (Cummings, 1967; Cummings, Bayley & Rie, 1966), while other researchers report no problems and successful parenting (Gallagher, Cross & Scharfman, 1980).

It has been noted that researchers and reviewers of studies on the impact of handicapped children have been guilty of assuming that dysfunction is a normative pattern in families with handicapped children (Longo & Bond, 1984). It has been additionally noted that some researchers and clinicians have gone so far as to expect to find problems in these families when none exist (Longo & Bond, 1984; Peterson 1984). Farber (1960) has implied that if the family system interprets a circumstance as no different from the expected situation (nonhandicapped child), and if the family system accepts family methods that will fulfill the situation, then there will be no crisis as a result of the handicapped child. There are variances in the emotional and nurturing responses a mother will exhibit in response to a handicapped child (Allen & Affleck, 1985).

Outcomes of previous research point to only one true

certainty; the effects of the presence of a physically handicapped child on the family and development of the home environment are inconclusive and seem to be mitigated by moderating-intervening uncontrolled variables. It also seems apparent that the effect the presence of a physically handicapped child has on the family would best be measured by assessing the effect this child has on the home environment. The concept of 'dynamic interaction', which is the process by which children may contribute to their own development by affecting responses of those around them, is as important a concept to study as are the factors of the ecosystem which affect family functioning (Busch-Rossnagel, 1981). "Longitudinal studies that examine the effect of the child's handicap on the ...mother appear to be needed" (Bush-Rossnagel, Peters & Daly, 1984, p. 150).

Stoneman & Brody (1984) pointed out that because of the reciprocal nature of family interactions, a handicapped child will influence the parents' behavior and vice versa. Because most studies of parent-child relations are correlational in character, it is not immediately obvious whether the significant relationships that have been reported indicate the influence of parents on the child or, alternatively, the effect of the child on the parent (Bell, 1968). There have been several studies that have concluded that child-rearing behaviors (home environment) are affected by child characteristics (Dion, 1972; Dion & Berschied;

1974; Milliones, 1978).

The majority of studies assessing the effect of handicapped children on families that have been accomplished to this point have been achieved by the use of small samples, and conducted on primarily clinical populations of children who have both physical and mental handicaps. Studies where the focus is the effects the handicapped child has on the family system can be subject to parental biases and overreaction (Barden, Ford, Jensen, Rogers-Salyer, & Salyer, 1989). Samples of families with handicapped children have not been longitudinally studied for any period of time. Additionally they have not been studied where the central focus of the study was <u>not</u> on the effects the child has on the family so as to alleviate compensatory reactive parenting. To this date, few studies have approached the study of physically handicapped children directly from a systems perspective taking into account variables concerning the home environment or the impact of intergenerational variables.

One notable study completed in 1990 which looked at the relationship between working mothers, moderating variables, and the development of the home environment included the health of the child as one of the moderating variables that could affect the mother's work environment (Menaghan & Parcel, 1991). In their study, Menaghan & Parcel utilized earlier (1986) data from the same study as this researcher.

'Working mothers' was utilized as their focus population. They incorporated 'children with health problems' as an independent variable. This researcher's study is analyzing some of the same independent variables that Menaghan and Parcel used. Menaghan and Parcel found that the working mothers who had children with health problems had higher scores on the home environment-NLSY test than those who did not. They concluded that the higher scores on the home environment part of the study could be explained with the rationale, "that mothers may compensate for their children's limitations by reinforcing the home environment" (Menaghan & Parcel, 1991, p. 426). Although this is a thorough analysis, the conclusions concerning why employed mothers of children with health problems would provide a stronger home environment are not clear, as well as which moderating variables affect working mothers to provide stronger or weaker home environments.

The rationale of 'compensation' seems to be one of thoughtful hypothesizing based on a societal myth that 'the limitation in physical being assures a limitation in quality of existence', and must be compensated for, rather than one based on system oriented development that is concerned with the maternal and intergenerational characteristics that are germane to issues of parenting, family development and quality of life. Although similar to this researcher's proposal, the Menaghan and Parcel (1991) study did not focus

on mothers of physically handicapped children, but on employed mothers, and it did not analyze the multiple moderating variables strictly for the families of physically handicapped children.

Barden et al. (1989), in a study of handicapped infant-mother interactions, found that even though mothers rated their satisfaction with the child and their nurturing practices more positively than did mothers of normal infants, they were observed to behave in a consistently less nurturant manner than mothers of normal children. They concluded that the handicap affected the quality of infant-caregiver interactions without parental awareness.

Belsky (1980) has proposed that an examination be conducted beyond the family's microsystem to intergenerational factors affecting the behaviors and functional roles the parents play. Most family studies have been accomplished using only the maternal oral reports which are described as family data, which is thought of as a weakness in family research due to only having a perspective from one parent(Larson, 1974). This weakness can be negated with the use of observational testing and repeated longitudinal testing, as well as the testing and observation of children and their environment (Larson, 1974).

This researcher concludes from a review of the preceding studies that there are system characteristics and member differences (moderating variables) that account for

the variations in findings and conclusions of other researchers. Research that has focused solely on moderating variables that mitigate the stress in mothers of handicapped children has found evidence that marital stability, financial capabilities and resources, physical help, and spousal and social support can perform determinant moderating functions (Friedrich, 1979; Luster & Dubow, 1990; McKinney & Paterson, 1987; Peterson, 1984; Schilling Gilchrist & Schinke, 1984). These researchers as well as others have found that the moderator variables (system and member characteristics) act to influence how a given phenomenon will be experienced, interpreted, and responded too (Dunst & Trivette, 1986; Gallagher, Beckman, & Cross, 1983). Although this evidence is helpful to service providers who help support those families, Bernier (1990) points out that, "they (the studies) did not account for individual differences nor do they explain why some parents who are provided services still experience problems" (p. 590). The only systematic method to study whether there is an effect on the home environment of the physically handicapped child is to examine this context by controlling and assessing for variations (moderating variables) in family structure as well as maternal and child characteristics.

Purpose of the Study

The purpose of this study was to undertake a comparative secondary analysis of the 1990 NLSY child file (merged mother-child) data scores on the HOME (Home Observation for Measurement of the Environment) Inventory portion of the National Longitudinal Study of Youth (NLSY) of those families who have had a physically handicapped child during the study, to determine if the presence of that physically handicapped child significantly relates to the quality of the measured home environment of the child in comparison to a control group. Beyond the global question this research was also to seek to further determine if the presence of specific groups of physically handicapping conditions significantly relates to the quality of the measured home environment of the child in comparison to the same control group. Since existing research has shown that variables involved with the mother of the child and family structure significantly relate to the quality of the home environment, these too were assessed as to the extent of their influence on the home environment of the physically handicapped child. It is necessary to distinguish those variables of maternal and family system which may predict or moderate the effect of the physically handicapped child on their own home environment. Existing research, which additionally was examined in the Review of Literature, also

demonstrates that there may be differences in child-parent care related to sex, hence, the characteristic of sex of the child was also examined.

It was also valuable in the context of this study (NLSY), to distinguish possible differences in effect between those physically handicapping conditions that are societally "visible" (e.g. paralysis, blindness, orthopedic, scarring), as opposed to those which are "invisible" in nature (e.g. asthma, diabetes, epilepsy). Many studies have assessed the impact of the severity of physical handicaps on family functioning (Kolin, Scherzer, New, & Garfield, 1971; Korn, Chess & Fernandez, 1978; McCubbin, 1988; McCubbin & Huang, 1989; and Tew & Lawrence, 1975), but few to this point have taken a look at the impact of 'visible' physical handicaps, as opposed to those which are termed 'invisible'. Related research on the effect that physical appearance of children has on the child-rearing behaviors of parents has shown a correlation between attractiveness and better child-rearing scores (Dion, 1972; Dion & Berschied, 1974). Additionally, a study already commented on by Barden et al. (1989), has shown that facial deformity/unattractiveness may affect the quality of infant-caregiver interactions without parental awareness. The term handicap or handicapped refers to 'physical handicap' or 'physically handicapped' within the rest of this document, unless noted that the population or condition referred to was of a different nature.

Theoretical Frameworks

Microenvironments and Human Development

The measured home environment, which fundamentally is a construct of the parents' nurturing behavior and reactions to the child, unfortunately does not take into consideration contemporary thought by developmental psychologists that people create their own environments (Scarr & McCartney, 1983). Scarr (1992) proposed, "that each child constructs a reality from the opportunities afforded by the rearing environment, and that the constructed reality does have considerable influence on variations among children and differences in their adult outcomes" (p. 2). This theory that children actually construct their own environments contests the fundamental principles of much of developmental thinking and has implications for handicapped children. Over the past decade developmental psychologists have moved more toward a theory of genetics as the predominant influence on human development. In the same light, this movement toward genetic developmental thinking has led to those who believe that environment does play a crucial role to underscore the importance of environmental variations.

Plomin (1990) has stated that "the majority of the variance for most behaviors is due to non-genetic factors, the environment" (p.117). Plomin and Thompson (1987) stressed that environmental variances are contributed by

nonshared environmental influences. Nonshared environmental influences are those that are not shared by members of a family; they act to make family members different from one another (Scarr, 1992). These nonshared environmental influences could be those reactions, medical interventions, and parental nurturing behaviors that handicapped children may experience. Plomin and Thompson went on to state that the concept of nonshared environmental influences, "implies that the unit of environmental transmission is not the family, but rather microenvironments within the families" (p. 20). Scarr added that microenvironments are predominantly the construction of individual members of the family in the ways they elicit reactions from others, "actively select or ignore opportunities, and construct their own experiences" (p. 14).

Developmental psychologists concluded that normal differences between families have little effect on children's development, unless the family is outside of a normal, developmental range. This conclusion on the surface would seem to weaken the purpose of this research, except that even Scarr noted that this <u>new</u> genetic and microenvironmental thinking does <u>not</u> say that parents may not have an effect on children's self-esteem, motivation, ambition, and other crucial characteristics. What it does say is that parental differences in nurturing styles, social class, and income have "small effects on the measurable

differences in intelligence, interests, and personality among their children" (Scarr, p. 10).

In closing this discussion on the importance of the individually created experiential microenvironments, Plomin (1989) stated that, since heredity contributes to the variations between siblings, sibling variations in experiences might reveal as well as influence variations in their behavior. To give credibility to this research, Plomin (1989) has commented that even small variations in comparable parental affection within the family might have substantial effects of variations in siblings' outcomes.

> "Siblings' perceptions of differences in treatment may be important even if their perceptions are not veridical. It is also possible that nonsystematic factors such as accidents, illnesses and other idiosyncratic experiences initiate differences between siblings that, when compounded over time, make children in the same family different, perhaps in unpredictable ways" (Plomin, 1989, p. 109).

This could have implications for handicapped children within the family if construction of their environment is dependent partly on the parental reactions they perceive.

Human Ecological Systems and Developmental Theory

This analysis of the handicapped child and home environment is based on and is important from a human ecosystemic perspective. Those factors of the HOME Inventory which are tested for in these families, emotional support and cognitive stimulation/physical environment, are

critical elements in the operationalization of human ecological theory.

Human ecological theory has advanced out of general systems theory, which is the concept that elements can only be understood as they relate to one another and to the whole (Bertalanffy, 1968). Human ecological systems theory as an outgrowth of general systems theory focuses on humans in interaction with their environments. Hook & Paolucci, (1970) in their theory building article, The Family as an Ecosystem, set the foundation for studying the family from an ecosystemic paradigm. They first identified the family as a life-support system, dependent upon its environments, natural and social, for basic sustenance, quality of life, and meaning. Family ecological theory evolved from this to focus on the family as a system that is interdependent with its natural physical-biological, human built, and social-cultural settings (Bubolz & Sontag, 1993). The basic axioms this theory is built on are: (a) the family in interaction with its environment constitutes an ecosystem, (b) families carry out physical-biological sustenance and economic maintenance functions as well as psycho-social and nurturance functions for their members, and (c) there is an interdependence of all peoples of the world with the resources of the earth (Bubolz & Sontag).

Human development in the ecosystems perspective places its focus on the family as the critical context/environment.

As defined by human ecological theorists, it is the "process of ongoing and interrelated changes in an individual's ability to perceive, conceptualize, and act in relation to his or her environment" (Bubolz & Sontag, 1993, p. 37). Bronfenbrenner (1989), further defined the ecology of human development as,

> ..the scientific study of the progressive, mutual accommodation, throughout the life course, between an active, growing human being, and the changing properties of the immediate settings in which the developing person lives, as this process is affected by the relations between these settings, and by the larger contexts in which the settings are embedded. (p. 188).

The result of this associative development is a person who gradually becomes more adept in interacting with more discriminate and intricate environments on physical, emotional, cognitive and social levels (Bronfenbrenner, 1979). There is considerable evidence, despite the assertions of Scarr, that home environments significantly mold the emotional, social, and cognitive development of children (Bradley, Caldwell, and Elardo, 1979; Bradley, Caldwell, and Rock, 1988; Bradley et al.,1989; Menaghan & Parcel, 1991; Schooler, 1987). The conclusions of this referenced research would suggest that home environments are important determinants of human development. The question is, how significant?

Most research that deals with development of the person treats the cognitive and socio-emotional traits of the

person as solely outcome variables. These traits are rarely studied as precursors of continuing development, or as moderating variables affecting the developmental process (Bronfenbrenner, 1989). Bronfenbrenner (1989) has labeled characteristics of the individual which help shape in a reciprocal nature the course of human development 'developmentally-instigative characteristics'. In most cases these characteristics are modes of behavior or beliefs that reflect an active, selective structuring orientation toward the environment and/or tend to provoke reactions from the environment. Bronfenbrenner listed several sets of developmentally-instigative characteristics, of which the last set, which is purely physical, deserves distinctive reference. The characteristics in this set are critical because they have no psychological content in themselves, but often lead to psychological sequelae. Two of the three characteristics in this set are important to this research: (a) forms of organic or maldevelopment that threaten ensuing psychological growth, e.g. congenital anomalies, physical handicaps, severe illness; and (b) bodily characteristics or changes associated with differing developmental outcomes, e.g. body size and shape, physical appearance and attractiveness. The extent to which these instigative characteristics influence and initiate behavior from the caregivers is the focus of this analysis.

Significance of the Study

This comparative secondary analysis is designed to try to provide an indication of the relationship that introducing a handicapped infant/child into the family has with the construction of the home environment, and which, if any, variables of maternal, family structure and individual characteristics act to influence this relationship. Although home environments do not necessarily determine human/parental behavior, and vice versa, they do pose limitations and apply pressure, as well as possibilities and opportunities (Bubolz & Sontag, 1993). The preceding cited research and theory suggest that the reciprocal impact of a handicapped child on its own home environment (microenvironment) could systematically affect its own human development.

Emotional support, cognitive stimulation, and physical environments are determining factors in some aspects of the development of the child as well as the health of the system. The value of life for any human being is delineated in terms of the degree to which basic needs are met and values realized (Bubolz & Sontag). Researchers relate that similar characteristics are needed for the mother (emotional support, a positive physical environment, and cognitive stimulation) in order for her to reciprocate. Maternal, familial, and individual characteristics are relevant to the

family systems theoretical paradigm and are an integral part of the analysis.

It is important to be able to identify those variables that will act as predictors or moderators of high risk families who may progress into crisis, so that family interventionists will be able to utilize the knowledge to act accordingly to assist in preventing family deterioration, including the possibility of abuse. Additionally this knowledge could expedite the intervention and assist in locating the resources required for the family in order for it to adapt to the presence of the handicapped child.

This study is also unique in that the individuals who participated in this study have been longitudinally studied since 1979, and their present nuclear family systems were developed during the course of the study. Nearly all of the parental participants in this secondary analysis gave birth to their handicapped children during the course of their involvement in the study.

Previous studies of families with handicapped children were limited and skewed by the fact that many were either clinical populations, or that the families/mothers knew that they were being studied for the effects that the handicapped child could possibly have on the family system. This awareness could conceivably affect their behaviors or responses.

The present study participants in the NLSY were observed in the home, as well as being assessed for a host of additional variables. This context has the feature of masking the need for compensatory, false or otherwise altered behaviors and/or responses, that are sometimes suspected from parents of handicapped children (Barden, et al., 1989). Even though the present analysis focuses solely on the responses and behavioral evaluation of the mother and child, the evaluative inquiry does assess several family and intergenerational variables. Although it has been noted that responses from 'mother's only' is a methodological weakness, several researchers point out that the mother is the one member of the family system who bears the greatest direct burden of child rearing in the handicapped family system (DeMyer, 1979; Holroyd, 1974; Tavormina, Boll, Luscomb, & Taylor, 1981).

Contextual Definitions

Family: a bonded unit of interacting and interdependent persons who have some common goals and resources, and for part of their life cycle, at least share living space...composed not only of persons related by blood, marriage, or adoption (Andrews, Bubolz and Paolucci, 1980).

Family Ecosystem: a system of members of a family in interaction with its environment. These environments

include their natural physical-biological, social-cultural, and human built environments (Bubolz & Sontag, 1993).

Measured Home Environment: those child-rearing behaviors of emotional support, cognitive stimulation, and physical environments that can be quantified.

Handicapped: in a physical sense, a loss or limitation in an organic functional process or a distortion in a cosmetic image.

Research Questions

1. Are there measured differences in home environments between:

(a) families with a child with a handicapping condition, &

(b) families with a child with no handicapping condition?

2. Are there measured differences in home environments between families with a child with no handicapping condition and the following three types of families?

(a) families with a child with a sensory handicapping condition (speech impairments, serious hearing difficulty, serious seeing difficulty),

(b) families with a child with a mobility/respiratory handicapping condition (crippled orthopedic, asthma, respiratory disorder),

(c) families with a child with an invisible handicapping

condition (allergic conditions, heart trouble, blood disorder/immune deficiency, epilepsy/seizures, brain dysfunction).

3. Are the following characteristics of the mother related to the measured home environment of the handicapped child ?

(a) Age

(b) Intelligence

(c) Educational level

(d) Employment status

(e) Self-esteem.

4. Are the following characteristics of the family related to the measured home environment of the handicapped child?

(a) Marital status

(b) Poverty status

(c) Number of children

(d) Presence of maternal grandmother

(e) Marital quality (1) Satisfaction
(2) communication
(3) conflict.

5. Are the following characteristics of the child related to the measured home environment of the handicapped child?

(a) Sex of child

(b) 'Visible' nature of handicap.

Hypotheses

Five major null hypotheses were proposed for this study.

Ho1 Home environments do not differ in families depending on presence or absence of a child with a physical handicapping condition.

Ho2 Home environments do not differ in families depending on the type of handicapping condition the child has:

a. sensory,

b. mobility/respiratory,

c. invisible,

or absence of a child with a physical handicapping condition.

Ho3 Characteristics of the mothers:

a. age,

b. intelligence,

c. educational level,

d. employment status, and

e. self-esteem,

are not related to the home environments of the handicapped children.

Ho4 Characteristics of the family:

a. marital status,

b. poverty status,

c. number of children,

d. presence of maternal grandmother, and

e. marital quality (1) satisfaction,

(2) communication, and

(3) conflict,

are not related to the home environments of the handicapped children.

Ho5 Characteristics of the handicapped child:

1. sex of child,

2. 'visible' nature of handicap,

are not related to their home environments.

The alternate hypothesis was not proposed for analysis in the event that the null hypothesis was rejected. The null hypothesis was reanalyzed at different levels.

Assumptions and Limitations

Assumptions

1. Handicapped by societal definition means a limitation in the physical and developmental existence of that person.

2. Changes in the family structure will affect all members of the family.

3. The nature of the NLSY would allow for unbiased assessments of the families of handicapped children.

4. All families in this study contain subsystems which will interact and reciprocate in their actions.

5. This sample will adequately represent the appropriate population for purposes of this research.

Limitations

1. Secondary investigations are limited to the content of the data collected in the primary study, and some variable construction is not precisely what was desired (slippage).

2. The definition of home environment is restricted to the original NLSY survey (HOME).

3. The classification of the handicapping conditions could be thought of as a limitation.

4. Interviewer observations of the handicapped children in the NLSY HOME could be subject to bias.

5. Shortened versions of the HOME are used.

6. Missing data on some cases is thought to be a limitation.

CHAPTER II

REVIEW OF LITERATURE

The literature for review explores relationships among handicapped children, family systems, and home environments. The review focused on those studies that have been accomplished by looking at the relationship between the introduction of a (physically) handicapped child, congenitally or early acquired handicap, and aspects of the family system; parents and parenting behavior, marital viability, family functioning/development, and siblings. The review also looked at those characteristics of the mother and the family structure, as they related to the quality of the home environment that is provided for the handicapped child, as well as in some instances, the reported effect a handicapped child may have had on these variables. The review centered mostly on studies that were accomplished using children who had physical handicaps, but studies utilizing children with mental handicaps were also reviewed due to the lack of those primarily dealing with physical handicaps. They were noted when they were other than 'physically handicapped'.

The review is divided into four principal sections for discussion: (a) the relationship of a handicapped child with family ecosystem characteristics (e.g. parents, marital relationships, maternal coping, siblings, interactions & family functioning); (b) the relationship of maternal characteristics with the adaptation, adjustment, and perception of the family system to the introduction of a handicapped child, as well as the effect on these characteristics; and (c) the relationship of family structure characteristics with the adaptation, adjustment, and perception of the family system to the introduction of a handicapped child, as well as the effect on these characteristics. A fourth section (d) describes briefly those studies that have been found depicting two characteristics of the handicapped child (sex and 'visible' nature of the handicap) and their relationship to the family system and home environment. The nature of the handicapping condition is referenced when available within the context of the research commented on. It is not this researcher's intent to attempt to distinguish relative differences between the impacts of handicapping condition within the review of literature, but rather to establish that there are possibilities that the results of referenced studies could be skewed in respect to findings of others by the nature of the handicapping condition.

The family of the handicapped member has been the

subject of much scrutiny (Berger & Foster, 1976; Bernier, 1990; Drotar, 1981; Faerstein, 1981; Longo & Bond, 1984). These researchers claim that the research has been fraught with a multitude of methodological complications which make it close to impossible to generalize the findings and replicate the work. The studies were reported to be combinations of simply narrative concerns and worries that parents of handicapped children confront, and not necessarily empirical evidence. The research reviewed here includes more than just self-reports, but tries to evaluate those studies from a systems perspective.

Relationship with the Family Ecosystem

There has been a plethora of clinical studies aimed at assessing the relationship of a handicapped child with the family system, as well as with the subsystems and associated systems: parental, sibling, marital, grandparent, support systems, and work environment. The principal conclusion garnered by a plurality of the researchers was that: considerable stress can be placed upon the family system by the introduction of a handicapped child (Bradshaw & Lawton, 1978; Breslau & Davis, 1986; Burden, 1980; Cameron & Dobson, 1987; Carver & Carver, 1972; Cohen, 1972; Friedrich & Friedrich, 1981; Kazak, 1987; McCormich, Charney, & Stemmler, 1986; Tavormina, Boll, Dunn, Luscomb, & Taylor, 1981; Wilton & Renault, 1986). These studies have asserted

that parents, especially mothers, of children with handicaps have been subject to higher than normal levels of stress, and have exhibited an inferior sense of psychological well being in comparison to the controls utilized. The stress is well documented, and a salient factor seems to be the ability of the family to adapt to the stress. This adaptation and various moderating characteristics seem to be the process/variables that need investigation, if not clarification.

According to some researchers the effect that a handicapped child has on the family is mitigated and comprised by stages of an acceptance and grieving theory. This theory suggests that parents adapt to the introduction of a handicapped child by enduring and coping with a series of stages that may include some of the following elemental facets: shock, disorganization, (which may include anger, denial, grief, blame, guilt, shame, anxiety, and fear), bargaining, reorganization, and finally adaptation (Bristor, 1984; Drotar, Baskiewicz, Irvin, Jennell, & Klaus, 1975; Fortier & Wanlass, 1984; Gath, 1985; Parks, 1977). Although this 'stage concept' is built on the grieving theories of Kubler-Ross (1969) and Bowlby (1960), that expound on Freud's (1976) mourning and loss theory, many contemporary theorists question the relevancy of each family having to negotiate the stages (Bernier, 1990; Silver & Wortman, 1980). In one study completed on parents who have

handicapped children, Allen and Afflek (1985) concluded that the mothers of these children exhibit considerable variability in their emotional responses to the presence of a handicapped child. Bernier concluded that even though the stage theories provide useful concepts for the practitioner working with families who have handicapped children, it appears that parents of handicapped children display considerable variability in their emotional responses to their handicapped children. The key to this process of adaptation may be the family's capability to put this 'crisis' into perspective by not letting it control every facet of the family's existence (Gallagher, Cross, & Scharfman, 1980). Studies have also been established that have reported successful coping and adaptation, although the child was perceived by the family to be a stressor (Bristor, 1984; Longo & Bond, 1984).

Ultimately the acceptance of the child depends on each parent's preconceived notions, values, rites, and rules, that are inherently cradled through the family of origin and transferred and reevaluated and then brought into the reformulated parenting subunit. Almost all parents have an idealized perception of the child that they will bring into this world. No parent is really ever prepared to be the nurturer of a handicapped child (Bernier, 1990). The loss of this idealized child can add stress to the parenting unit due to the discrepancies between what they 'idealized' and

what they actually received (Wilker, 1981). Many parents not only have to deal with their own reactions to their lost 'ideals', but must deal with their extended families' (grandparents) reactions to the handicapped child (Seligman, 1991).

Parents

Parents of handicapped children, especially mothers, have been reported to undergo more stress than controls (Bradshaw & Lawton, 1978; Breslau & Davis, 1986; Breslau, Staruch, & Mortimer, 1982; Burden, 1980; Davis, 1987; Friedrich & Friedrich, 1981; Kazak, 1986,1987; Tew & Laurence, 1973; Wilton & Renault, 1986). Much of the earlier research painted the mothers of handicapped children as guilt ridden, anxiety filled, and less affectionate than parents of normal children (Erickson, 1968, 1969; McMichael, 1972; Redner, 1980).

One research report found mothers of handicapped children to exhibit signs of greater depression, lower self-esteem, and lower interpersonal fulfillment than parents of nonhandicapped children (Cummings, Bayley and Rie, 1966). To the contrary, Busch-Rossnagel et. al. (1984) found no difference between mothers of handicapped children and those of nonhandicapped children when it came to self-esteem, interpersonal fulfillment, and depression. Another such study concluded that the mothers of young handicapped children "find meanings and enhanced self-esteem in coping

with caregiving despite the stresses involved" (Singer & Farkas, 1989, p.447).

Much of the literature that has been written about familial reaction to the handicapped child still has focused only on the mother's reaction and her coping mechanisms and needs (Seligman, 1983). Only recently, with the emergence of family systems theory, has there been a real focus on fathers and siblings who are not handicapped (Seligman & Darling, 1989). The studies that have been undertaken to study fathers' reaction have also been mixed. Tavormina et al. (1981) found fathers to experience as much or more stress than the mothers in their reactions to the handicapped child. This was also found by Cummings (1976), who concluded that the fathers of handicapped children showed evidence of higher levels of depression and lowered self-esteem when compared with a control group.

Gayton et al. (1977) found scores that were more suggestive of higher emotional disturbance possibilities among fathers than among the mothers in the sample. Fathers' reactions as signified by their emotions and worries are different from those of the mothers, although they both share the same concerns (Hersh, 1970; Love, 1973). As stated before, fathers were identified as not being the primary care-givers and environmentally sustaining factors in the handicapped child's existence (DeMyer, 1979; Holroyd, 1974; Tavormina et al. 1981). Role rigidity, which is the

term applied to family systems which maintain the traditional roles, is noted to be the reason why many fathers do not partake in the care and nurturing of the handicapped child (Kazak & Marvin, 1984).

Marital Relationships

Marital relationships have been examined in relation to the quality and resilience in the presence of a handicapped child (DeMyer, 1979; Farber, 1959, 1960; Friedrich, 1979; Gath, 1972, 1978). Although Farber (1959) concluded that the parents' marital union prior to the introduction of the handicapped child was most important in determining the child's effect on the marriage, Love (1973) reported divorce or separation incidence as high as three times the normal population. In samples of parents whose children had spina bifida, researchers found divorce rates as high as nine times that of the local population (Tew, Laurence, Payne, & Rawnsley, 1977). These figures were later refuted, and the rate was found to be no more than 1.5 times that of the local population (Stevenson, Graham, & Dorner, 1978). Gath (1972) reported that there was an increase of marital conflict in families of children with Down's syndrome, but countered this in 1978 with a similar study, which seems to support Farber's (1959) contention, that marriages that are fragile and unsteady before the introduction of a handicapped child seem to suffer the most.

Freidrich (1979) evaluated the relationships between

demographic and psychosocial variables and the maternal coping abilities, and found that a mother's feeling secure in the marital relationship was an important predictor of her coping behavior with the child. The conclusion reached was that 79% of the variability in the findings was due to marital satisfaction, which Freidrich concluded is the most accurate predictor of successful coping. Researchers outside of the handicapped field say that a mother's relationship with her marital partner is also the best predictor of child-rearing practices found in the home environment (Belsky, 1984; Lieberman, 1982). Additional studies focusing on handicapped children in the family found that the marriages of couples who had handicapped children with varying degrees of severity and types of handicaps remained solid notwithstanding the individual handicap of the child or methodological considerations (Dorner, 1975; Farber, 1959; Fowle 1968; Starr, 1981; Waisbren, 1980). The parents in these studies seemed to be able to keep their marriages intact even though they were enduring considerable stress from varying forms and severities of handicaps.

Siblings

The effect on siblings has been well documented but is also laden with inconsistencies attributable, at least in part, to methodological issues. In many instances the siblings were not the ones interviewed, but the parents were asked questions about the welfare of the children (Longo &

Bond, 1984). Research on sibling reaction and development in the presence of a handicapped brother or sister is limited and less understood. Grossman (1972) undertook a study of 83 nonhandicapped college age siblings of retarded children and found that nearly half reported that they had negative experiences and emotions, which included shame, guilt, and a sense of being neglected by their parents. Those from two-sibling households also reported that they felt the need to make up for the deficiencies of the retarded child.

Breslau, Weitzman, and Messenger (1981) found in their study of 239 families with handicapped children that the handicapped child's disability level had no significant effect, but that birth order and sex were found to have a relationship. Younger male siblings had inordinately more psychological damage than female siblings who were younger than the handicapped child. Also, older sisters had more psychological damage than older brothers of the handicapped children. Once again the study was biased due to data obtained through second-hand reports.

Gath (1972,1973), who utilized the responses of parents and teachers, found that the siblings were reported to exhibit no differences in the extent of behavioral disturbances; controls and clinical populations were studied. Tew and Laurence (1973) conversely found that the rate of inferior adjustment scores in siblings of spina

bifida brothers and sisters was up to four times that compared to those in the control group. Farber (1960), in his pioneer study of the effect handicapped children have on siblings, was the first to recognize that the handicapped child (retarded in this study) would move into the role of the youngest child in the family, thus disrupting the role of the sibling who rightfully should maintain that role. He found that this 'pseudo' role continued as the handicapped child progressed in age. This study was also based on mothers' reports and is open to their prejudices.

Most of the studies of the effect that handicapped children have on siblings were accomplished by using children who were retarded. One of the only studies to utilize handicapped children who were physically limited in nature was conducted by McMichael (1971). He asked the mothers of handicapped children about the sibling's social, attitudinal, and activity relationships with their handicapped brother/sister. One-third of the mothers felt that the children had neurotic impulses and jealous tendencies which were related to the handicapped child. Nearly 20% reported having siblings who had adjustment problems. The principal factors influencing sibling adjustment were mother's anxiety, severity of the handicap, and the emotional difficulties of the handicapped child.

In another study of physically handicapped children, Schwirian (1976) concluded that the effect on the older

sibling's social activities, home-care responsibilities, independence and privileges, of having a hearing-impaired younger sibling was nil. The older siblings were thought possibly to experience more difficulty as the situation needed a higher level of verbal interaction with the child or the child with his outside environment. It appears that the type of physical handicap that the child possesses can also affect the relationship of siblings. Barsch, (1968) in his study of families with deaf, cerebral palsied, blind and organically handicapped children, found that the mothers of siblings of deaf brothers and sisters more regularly reported that their nonhandicapped children resented their deaf siblings than the mothers of siblings in the other designated handicapped groups.

Family Functioning

The effects that a handicapped child has on family functioning, the process of the family interacting with its environments while moving along the path of development and meeting the challenges of life-cycle tasks and resulting changes, may not differ greatly from those of nonhandicapped families. Carr (1975), Gath (1978) and Waisbren (1980) made note in their respective studies on Down's syndrome babies that many of the daily child care necessities may not vary prominently from those of a normal baby. In another study restricted to autistic children, Harris and Powers (1984) found that the presence of the handicapped child intensified

the conflicts that emanate during the transition from one phase of family life to the next. Grossman (1972) also pointed out that parents of autistic children felt that they needed to help the siblings of these children cope with the enigmatic roles these children may have to negotiate. Grossman implied that some of the siblings of the handicapped were damaged by the experience of having an autistic sibling, which added to role confusion. Bierenbaum (1971) reported that the handicapped child's need for care could significantly hamper the mother's latitude to expand the meaning of her life position and conceivably hinder her own movement through the normal family life cycle.

Many of the researchers reviewed felt that family functioning continued with little or no effect. In earlier studies, neither Barsch (1968) nor Caldwell and Guze (1960) found any evidence of parental rejection or interference with the lives of the families they studied. Korn, Chess, and Fernandez (1978), in working with families with handicapped children, reported that the added stress and workload of managing a family with a handicapped child did not really impair its coping abilities or functioning. In a study undertaken by Starr (1981), utilizing children with cleft-palates, it was found, using control groups of parents and nonhandicapped children for comparison, that there was no difference in the parent-child relationships between the two groups. After reviewing research on family functioning

after the introduction of a handicapped child, Longo & Bond (1984) concluded that, "The more care the investigator takes in providing a control group and matching samples, the less likely the results will demonstrate marked differences in functioning between families with handicapped children and healthy children" (p. 61).

Interactive Analysis

In one of the landmark studies undertaken to examine families of handicapped children in an interactive context, Barsch (1968) studied the childrearing routines of parents of 177 children with a multiplicity of handicapping conditions. They included: deafness, mongolism, blindness, brain damage, and associated cerebral palsy. Using clinical investigation and a battery of tests, Barsch concluded that 'parents will be parents'. He found no difference in the child-rearing practices among the different handicaps, nor any differences between the handicapped children and the nonhandicapped siblings. The parents demonstrated no significant psychological distress and did not show signs of any social isolation from peers. Barsch recommended that adaptive strategic perspectives of parents should be an essential element of investigation when studying families with handicapped children.

Research findings, with their methodological inconsistencies, seem to conclude that there will be some effect on the parents, the marital quality, and siblings of

families of handicapped children, although there are those who would assert the opposite. Many of the studies reviewed called for future directions for investigation with the use of standardized norms or control groups, and the use of system oriented investigative techniques.

The methodologically inharmonious research on family functioning and development engenders a quandary. As alluded to before, in many instances families of handicapped children have been pessimistically typecast by researchers as dysfunctional. Problems may appear where none exist. Part of the dilemma may exist in the theoretical approach utilized to study families of the handicapped. What is needed is a systematic approach, one that utilizes assessments of environments and pertinent independent variables. The next section of the review looks at the research that has been undertaken to delineate some of these systematic variables that may influence the relations of families to the handicapped child.

Maternal Characteristics: Home Environments and Handicapped Children

It is widely known that mothers bring to their current situation characteristics of their family, psychological, and social backgrounds that affect parent-child interactions. Peterson (1984) reported in a study of

families with a handicapped child that a relationship existed between stressful events and outcome dysfunction, but that this relationship was influenced by mediating variables. This section and the next review research completed assessing the relationship between having a handicapped child and these mediating variables as well as the relationship between these variables and the perceived stress of the mother and the construction of a home environment.

Most of the research undertaken to study the handicapped family was directed at assessing the effect, if any, that the child may have on different facets of the family system. Some of these investigators have been accused of looking for an assumed effect, one that may not even be present. In essence they were studying assumptions about the handicapped family (Longo & Bond, 1984). Few if any studies have assessed solely which variables about the mother (caregiver) may affect the kind of home environment that is provided for the handicapped child. Will the maternal variables that are key predictors of home environment for nonhandicapped children be the same for those who have handicapped children? Will the 'assumed' stress of the presence of a handicapped child lead mothers of these children toward marital instability, lowered self esteem, loss of employment, or loss of schooling? Will those maternal characteristics (age, employment,

intellectual ability) already present in the mother associate additional stress and influence her to provide a less than optimal home environment for the handicapped child, or will it be the reverse?

A study undertaken by Wyckoff and Erickson (1987), of maternal variables of families who had handicapped or seriously ill children, found the variables of social class and maternal levels of anxiety to be the best predictors of stress in mothers. Singer and Farkas (1989) came to a similar conclusion. They found in a study of 27 mothers who had children with tracheotomies that the higher the social class the higher the personal stress for the mothers. They felt this was due to the greater financial burden assumed by families with higher social class than by poorer families. They concluded that not only does social class predict the amount of stress the mother will experience, but the financial status of the mother, and severity of the child's handicap also are strong predictors. This researcher does not assume that just because there is reported added stress to the mother, the mother will necessarily provide an inferior home environment for the handicapped child. Singer and Farkas did respond to their own conclusions by suggesting that from the way the mothers responded to their questions, the mothers found meaning and enhanced self-esteem in coping with caregiving despite the stresses involved.

In studies of parents as combined caregivers, several researchers found that the ability of the caregivers to cope with the stress of having a handicapped child and provide for it depended not only on social and therapeutic help, but also on cultural and ethnic factors, the severity of the handicap and other factors (Fraley, 1988; Jackson, 1974; Searl, 1978). Gallagher et al. (1983) found in a study of families with handicapped children that the sources of stress on the families depended on several moderator variables within the environment. Peterson (1984) presented evidence in support of these findings, in that resource variables, such as financial and social support, helped to ameliorate the stress of a handicapped child.

Employment

Menaghan & Parcel (1991) reported that conditions adults experience at work and in employment affect their own cognitive functioning, attitudes, and values. They go on to report that mothers' working conditions influence their ability to provide suitable and understanding parenting to their young children when they are with them. Work stress has also been shown to reduce the self-esteem and personal control the mothers have (Gegas & Seff, 1989). Research shows us that for the majority of women and for a significant number of men with a handicapped child, parental work roles and employment can be adversely affected (Baldwin, 1985; Botkins, 1982; Kew, 1973).

Danziger (1981) pointed out that the actual decision of mothers of handicapped children to seek work outside of the home is influenced more by the age and number of children, by the husband's earnings, whether her work and earnings were adequate, support from the husband and family, and suitable child care arrangements, than by the child itself. There are numerous studies which support the opposite, which is that the presence of a handicapped child will have an impact on the work status of the mother, her income potential, and the kind of position in the work force she takes or can obtain (Baldwin, 1982, 1985; Philp, 1982).

No studies were found that assessed how the maternal employment question related specifically to the relationship of a handicapped child with provision of an adequate home environment, except for the study completed by Menaghan and Parcel (1991). As noted before, their study utilized data from the same longitudinal study (NLSY) that this researcher is using to conduct this secondary analysis. Their study differs from this one in that they utilized the 1986 mother-child data set from the NLSY, plus they were assessing only mothers who were employed to determine which maternal and family characteristics had determining potential for the home environment of their children.

In the course of their study they utilized the 'health of the child' as one of the variables that they hypothesized would predict the quality of the home environment. They

felt that mothers of less healthy children would make a deliberate effort to redress for child health problems by maintaining a stimulating and affectionate home environment. Their results showed that mothers who were employed and had a child with health limitations had higher NLSY-HOME Scores, implying that the mothers may compensate for their children's limitations by fortifying the home environment.

Although these findings would seem to contradict studies which contend that having a handicapped child would add considerable stress to the family, and even though this researcher does not agree with their surmisable rationale for the higher scores, the study is valuable in the assertion that there are mediating variables which may predict the way a mother or family will react and adapt to the presence of a handicapped child. The study points to maternal employment as being a predictor of home environments for children with limited health.

This present study parallels the study of Menaghan and Parcel only in identifying relationships of variables with the home environment. This study differs in three conceptual and operational aspects from that of Menaghan and Parcel: (a) it utilized the 1990 mother/child data set for analysis and only the 3-6 year olds, (b) the analysis focused on handicapped children as the main independent variable, and (c) it analyzed all mothers and families who have a handicapped child, not just employed mothers.

Maternal Age

Age of the mother as a mediating variable in assessing the relationship that a handicapped child will have with the provision of a functioning home environment has not been directly assessed, except in those cases of the risks of adolescent mothers (Anastasiow, 1983; Brooks-Gunn & Furstenberg, 1986; Chilman, 1980; DeLissovoy, 1973; Levine, Coll & Oh, 1985). They concluded that the younger age contributes to a less than optimal interaction in the developmental context between child and parent. These researchers concluded that the reasons for these risks center around general knowledge and attitudes related to parenting or personal maturity. Other researchers have not been so pessimistic and have found that adolescents do have a complement of parenting skills (King & Fullard, 1982; Luster & Rhoades, 1989). A study completed by Helm, Comfort, Bailey & Simeonsson (1990) supports this conclusion, but suggests that the mediating variables may be perception of support and maternal locus of control. It is noted however, that the risks are much higher among younger parents. Generally, many researchers conclude that the greater maturity and experience of older mothers will contribute to a more functional home environment.

Maternal Education

Higher educational attainment of the mother has been shown to be an advantage in providing an adequate home environment for nonhandicapped children (Bradley, 1985). It has also been shown to be a positive force in encouraging self direction (Luster & Rhoades, 1989; Wright & Wright, 1976). The only study found that relates in any form to the educational attainment of the mother and how this variable mediates the impact of the handicapped child was a study conducted by Wyckoff and Erickson (1987). Here social class was ranked as one of the best predictors of stress in mothers of handicapped children. This social class, which is predominantly inherited as an intergenerational variable, affords those mothers with more opportunity for higher educational attainment (Menaghan, 1983).

Family Structural Characteristics: Home Environments and Handicapped Children

Factors that compose the structure of the family are thought to influence the maternal nature as well as influence the parameters of the home environment and the relationship that a handicapped child has on the structuring of that environment.

Marital Status and Quality

On a general level, the marital status of the mother is said to have a strong relationship with her state of mind, and the presence of another adult who is available to care for the children helps strengthen the home environment (Belsky, 1984; Crouter, Belsky, & Spanier, 1984; Parcel & Menaghan, 1990). Singer and Farkas (1989) have shown that the maternal marital status is an important demographic variable affecting family life with a handicapped child. Although much has been written about the effect on marriages of the introduction of a handicapped child, very little has been done to specifically study marital status as a predictor variable for the amount of stress the mother or family will experience or endure in the home environment.

Marital satisfaction has been recognized as an important factor in a family's ability to cope with a handicapped child (Friedrich, 1979; Gallagher, Cross & Scharfman, 1981). Friedrich found that a mother's feeling of security in the marital relationship was an important predictor of her coping behavior with the handicapped child. It has been assumed for some time that the presence of a handicapped child has a negative affect on the marital relationship of the parents (Longo & Bond, 1984). After reviewing several research studies to assess the stress level of the parents and the resulting quality of marriage, Longo and Bond concluded that the caliber of marriage in the

families studied remained stable regardless of the handicap. In general researchers who are now studying moderator variables agree that the maternal well-being and the quality of the home environment are strongly enhanced when there is a positive relationship with a marital partner.

Number of Children

The number of children in a family is related to stress on the family budget and can add to the strains of providing a healthy home environment (Blake, 1989; Bradley & Caldwell, 1984; and Menaghan & Parcel, 1991). Menaghan and Parcel concluded that, "..one of the strongest effects in the model is the negative impact of number of children on home environments" (p. 427). The impact on nonhandicapped siblings has already been reviewed, and the impact on them appears to be influenced by moderator variables (Vadasy, Fewwll, Meyer & Schell, 1984).

Family Income/Poverty Status

The effect that a secure job position will have on the economic viability and thus the home environment of children is enormous (Menaghan & Parcel, 1991). Peterson (1984) found that the husband's unemployment was one of the moderator variables that could add stress to the handicapped family. Several studies found that the work roles and income of the men in their studies were affected by the presence of a handicapped child (Baldwin, 1985; Bradshaw 1980; Burton; 1975). In a study undertaken by the British

Parliament to assess the effects of handicapped children on work roles and income of fathers, it was found that several men attributed their unemployment to the fact that they had to quit work because their wives could no longer take care of both the needs of the handicapped child and the rest of the family by themselves (Baldwin, 1982).

Intergenerational Relationships

The positive or negative effects of intergenerational relationships have not been studied or weighed until recently (Sonnek, 1986). Positive relationships between grandparents and parents of handicapped children can add to a family's well-being (Seligman, 1991). As stated before, the reaction of having a handicapped child can be exacerbated by the reaction of the grandparent. The emotions elicited by the birth of a handicapped child can be strong and damaging to the mother and handicapped child if the grandmother perceives the child as a life-long burden. The grandmother can go so far as to deny the child's problems (Meyer & Vadasy, 1986). Seligman (1991) concluded that mothers feel more positive about their handicapped child if they observe their parents to be supportive. George (1988) feels that grandparents can enhance the coping capabilities of the whole system.

Characteristics of the Handicapped Child

'Visible' Nature of the Handicapping Condition

Some research has addressed the importance of appearance and physical attractiveness as critical factors in the success of social relationships (Barden, in press; Dion & Berscheid, 1974). Additional studies have demonstrated that cranio-facially disfigured infants and children previous to surgery are assessed at the lowest end of the attractiveness continuum by adults and children (Barden, Ford, Wilhelm, Rogers-Salyer, & Salyer, 1988a, 1988b). Berscheid (1981) points out that Western cultures are inclined to depreciate the significance of attractiveness in social interactions. The importance of appearance and attractiveness in the development of such personality traits as self-control of gratification and aggressiveness has been made evident (Barden & Ford, 1987; Dion & Berschied, 1974).

The importance of one form of an altered appearance, facial deformity, in the mother-infant interactions was made apparent with the research of Langolis and Swain (1981). They found that two day old infants generally perceived as attractive are held closer and given more contact than infants that are perceived as unattractive. In another such study, Field and Vega-Lahr (1984) established that mothers of infants with slight facial deviations (cleft lip and

palate) were less active with their infants than were mothers of the control group.

In a recent extensive study of the relationship of appearances, facial configuration, unattractiveness, and mother-infant interactions, Barden et al. (1989) concluded that "infant attractiveness is an important predictor of the quality of the mother-infant interactions" (p. 823). They compared infants with craniofacial deformities and their mothers' nurturing interactions and self-reports with that of a similar control group whose children were not handicapped. Utilizing self-reports and observations, they found that mothers of facially deformed (unattractive) infants rated their parental satisfaction and current life satisfaction more positively than did mothers of normal infants, however, these same mothers were observed to behave in a consistently less nurturant manner than mothers of normal children. "These results suggest that infant facial deformity/unattractiveness may affect the quality of infant-caregiver interactions without parental awareness" (Barden et al., 1989, p. 820).

Sex of the Child

No studies were found that focused solely on the relationship of sex of the handicapped child and the family system. Several studies of the effect of the sex of the child on maternal-infant interactions and relationships have demonstrated that mothers will vary in their care of either

a son or daughter (Bradley & Caldwell, 1979, 1987; Bronfenbrenner, Alvarez, & Henderson, 1984).

Summary

The evidence points to the conclusion that there is considerable stress in terms of time and energy placed on the family system and its associated subsystems by the introduction of a handicapped child. The research seems to point out that this situation not only can affect the parent-child relationships but other facets of family functioning as well, which can reciprocally affect the parent-child relationship. The way this 'stress' is perceived, dealt with, adapted to, or denied seems open to much speculation and continued research. It is apparent that clinicians and researchers must provide empirically astute information about the relationship of handicapped children with families, as well as clear concise effects as to those variables which either help predict or moderate the relationship of the introduction of a handicapped child.

CHAPTER III

METHODS AND PROCEDURES

This secondary analysis was accomplished by utilizing the 1990 merged mother-child data set from the National Longitudinal Survey of Youth (NLSY). The purpose of this secondary analysis was: (a) to ascertain if families with a handicapped child scored differentially on tests that measure the quality of the home environment from those of the control group, (b) to ascertain if families with a child who had a handicapping condition which fit one of the three classifications utilized scored differentially as a classified group from those of the control group, (c) to ascertain the relationship for families with a handicapped child of individual maternal variables with the scores on the home environment measures, (d) to ascertain the relationship for families with a handicapped child of family structure variables with the scores on the home environment measures, and (e) to ascertain the relationship of variables of the handicapped child with the scores of families with a handicapped child who were evaluated on the home environment measures.

Rationale for Secondary Analysis

Hyman (1972) stated that secondary analysis may be the optimal approach to be utilized in examining social behavior and change when tension may warrant the necessity of no further intrusions of a researcher, or when current surveys may antagonize the circumstance. Secondary analysis is a process of extraction of data that relates to a present day intricacy from research carried out for other intentions (Glasser, 1962). The limitations of these data are secondary to the potential advantages for the researcher who can construct an analysis within a sometimes narrow paradigm. The cost and impracticality of doing an extended national survey or longitudinal survey gives support to utilizing data that are made available to the public at little or no cost.

The vast array of data that are generated by studies such as the NLSY that are longitudinal and national is overwhelming and underutilized. Secondary analysis in this context allows the researcher the unintrusive examination of a moment of social behavior in an ongoing process of longitudinal examination. In this data set the introduction of a handicapped child has occurred during the process of the longitudinal investigation. This reality and the fact that the analysis is being accomplished secondarily has presumably diminished responses and behaviors that would be

exhibited by the parent as compensatory. These compensatory behaviors are thought to occur as the result of the parents' reactions to the limitations of the child or for 'stigma' sometimes felt by the parents of a handicapped child. That is where the methodology of this study differed from those cited. The research cited utilized reported data that were gathered for the sole purpose of ascertaining the impact of the handicapped individual on the system or parts of it. This researcher believes that is what sets this methodology apart from those reviewed.

Secondary analysis is, in essence, not too dissimilar to the methods utilized in primary research. The secondary analysis researcher, not unlike the primary researcher, sets out with a provisional question identified, then looks for a suitable population to examine. The difference is that the secondary analysis researcher examines suitable existing data sets for analysis. Facets of the questions are modified as the researcher becomes more familiar with the data set chosen, and as the possibility of refining or broadening of the question is explored. The difference between what the researcher wants in a variable and/or a research question, and what is present for secondary analysis is termed "slippage" (Hyman, 1972). The restrictions inherent in any secondary analysis, other than a particularly restrictive data set that does not meet the goal of the questions, are human. That is, they are usually

associated with limitations of the researcher's creativity and the methodological paradigm of the researcher (Hyman, 1972).

Selection of the Data Set

The goal of examining the relationship of handicapped children and the family system has always been a transcending concern for many researchers with a family systems background. It was apparent with this researcher's general systems theory and ecosystems training that it would have to be a population or data set that was evaluated for not only the effect of the handicapped child, but a corollary examination of variables of the family ecosystem that may mitigate or determine the relationship in complex ways.

Realizing parameters of ecological theory, population size, unintrusive evaluation, and having a global question, existing data sets were sought out utilizing the archives at the University of Michigan, through the Library system at Michigan State University. The Inter-University Consortium for Political and Social Research (ICPSR) based at the University of Michigan, was the directory holder for these data sets. After perusing the list of data sets available for secondary analysis a reference was made concerning the National Longitudinal Survey of Youth (NLSY), in which young

women were being longitudinally tracked since 1979, and reevaluated every year. The possibility of those women (over 6,000) having given birth to handicapped children during this process left this researcher with great anticipation. Ready availability in the Department of Family and Child Ecology of the data for the newly released 1990 mother-child data set, as well as the code book, offered a chance to study the data for possible usage. After examining the data set for the presence of handicapped children and possibilities of addressing the global questions of intent within an ecological paradigm, with handicaps being secondary or unintrusive to the general nature of the study, the NLSY 1990 merged-mother child data set was chosen for this secondary analysis.

The National Longitudinal Survey of Youth

The National Longitudinal Survey of Youth, or NLSY as it will be referred to in the rest of the document, was and is an ongoing research project that initially tracked youths, both men and women, between the ages of 14-21 years of age beginning in 1979, the first year of evaluation. The project is located at Ohio State University in the Center for Human Resource Research. The survey has been tracking the women since 1979, and began keeping data on their children in 1986, with new studies completed in 1988 and

1990. The 1990 data set was made available in 1993. The original survey was obtained by utilizing two sample paradigms. The first one employed a cross section of a cohort of youth in the population, while the second took an oversampling of Hispanic and African-American youth, as well as economically disadvantaged youth who were not African-American or Hispanic. This was done to yield supplementary samples of economically disadvantaged youths for analysis. Following the 1990 survey cycle, the original economically disadvantaged "poor" white oversample, which included 901 women, was dropped because of financial constraints. Data have been collected on these individuals every year up to and including 1992.

In 1986 the NLSY data retrieval efforts included a significant array of assessment information about the children of the female respondents. This collection was updated in 1988 and 1990 and the 90s' data supersedes the information in the previous files. The merged mother-child data set was entitled the Merged Child-Mother Data File in 1986 and 1988. The 1990 file is simply called the '1990 NLSY Child File'. The file includes all of the summary scores and in some cases, subscores and national norms for all of the assessments. The 1990 file includes all of the individual assessment elements from the 1986, 1988, and 1990 child assessments as well as all the 1986, 1988, and 1990 obtained raw and norm scores. The 1990 NLSY Child File

contains constructed child-based variables drawn from the mother's record, including 1,718 variables chosen from the mothers' data on the NLSY main data records.

Each representative case in the 1990 NLSY Child File is a child who had been born by 1990 to one of the original NLSY female respondents. The sample represents a cross-section of children born to a nationally representative sample of women who were between the ages of 25 and 32 on January 1, 1990. The sample children characterize approximately the first two-thirds of childbearing to a contemporary cohort of American woman and should not be thought of as representative of all American woman. The sample of children now numbers 6401, down from 7346 in 1988. This drop in numbers is due to eliminating 1254 children born to poor white women who were dropped from the survey in 1990. These "economically disadvantaged- poor", part of an oversample which included 901 women, were dropped due to budget constraints. Deletion of almost all the military women and the poor white women left 4944 women eligible to be interviewed.

Of the original 6283 women who were in the initial samples in 1979, 4510 (about 91% of those eligible) of these women were interviewed in 1990, with about 68% of these (3088) women being mothers. There were 8513 children identified as having been born to the original 6283 NLSY women as of 1990. The unknown children born to those who

left the survey, as well as the 858 children known to have been born to women who left the sample before 1990 and an additional 1254 children born to the poor white women have reduced the number of children to be assessed in 1990 to 6401. Assessments have been completed with 5803 (90% of eligible) (Baker & Mott, 1993).

Sample Population

As was noted before, the handicapped children in the NLSY were primarily born to the mothers while the survey was in process. In 1990 the women in this survey were now between the ages of 25 and 32. For purposes of this study the age range of the children chosen was 3-6 (3 years through 5 years and 11 months). This age range was chosen for several reasons. The first reason has to do with the relationship with home environment. It is generally thought in reviewing research of families with a handicapped child that the effect, if any, on the family system will be most notable in the earlier years, and thus the time for intervention strategies is during these years.

The second reason for utilizing this age group is that this researcher wanted the mothers to be past the adolescent and middle teen years stage of childbirth. The mothers in this sample would have given birth between the ages of 19 and 29. Researchers have shown that adolescent parents,

especially mothers, afford less supportive home environments as measured by the same instrument utilized in this analysis, the Home Observation for Measurement of the Environment (HOME) (King & Fullard, 1982; Luster & Dubow, 1990; Luster & Rhoades, 1989). The third reason is that the HOME instrument utilized to measure the quality of the home environment has an abbreviated version for the age group (3-6) that taps the facets of the home environment (cognitive stimulation and emotional support) that this researcher feels were necessary. Each of these subscores have internally standardized norms for comparison. All of the scores of the children between the ages of 3-6 were extracted and those not qualifying as 'handicapped' were utilized as the control/comparison population.

Defining what is a handicap in contemporary society is a complicated task. State and national definitions differ in respect to the context of analysis and/or determination of rights and resources. This researcher purposely utilized "handicapped" and not "disabled". "Disability" by legal and literature definition means, "to make or be incapable or unable, lack of legal qualification, inability to pursue..". This term implies 'not able', and is restrictive by nature. Handicapped, on the other hand, is defined, "to have a disadvantage or physical limitation; to be put at a disadvantage which makes achievement unusually difficult" (Webster's, 1972). This term altered slightly by this

researcher allowed entrance of those children that were not necessarily only orthopedically or severely handicapped, and thus add to the pool.

It must be once again noted that some researchers feel that combining of all the handicapping characteristics together could be considered a limitation, and that the handicaps should be separated for purposes of distinguishing effect among them. Due to the limitations of this study, separating the characteristics into specific handicapping conditions for the overall question would fragment this researcher's population to a degree which would make the numbers too small for appropriate analysis. If a researcher is studying strictly a clinical population this rationale for total separation would be justifiable, but since this is a nonclinical population, and assessment of the handicapped children's home environment is made apparently unintrusive by the longitudinal nature of the study, it is preferable to group them into one category of 'handicapped/limited'.

An additional rationale for combining is one of perception. The "handicapping" experience is in the "eye of the beholder", which simply means that the nature or severity of the handicap is not as important as is the perception of the person or persons who must accept and/or adapt to it. The feeling these researchers have is that each handicapping characteristic exacts a unique effect on the family. Taking into account that this may have some

validity, this researcher chose to categorize further the specific characteristics into three more definitive classifications based on physical limitation and societal view to see if there were any significant difference between the categories, noting that the small samples may skew the outcome. The other restriction this researcher imposed on this sample is accepting only those children who have a physical handicap/limitation.

The following variables/characteristics were chosen from the NLSY data set in order to obtain an adequate number of handicapped children for this study: (a) brain dysfunction, (b) asthma, (c) respiratory disorder, (d) speech impairments, (e) serious hearing difficulty, (f) serious difficulty seeing, (g) allergic conditions, (h) crippled orthopedic, (i) heart trouble, (j) blood disorder/immune deficiency, and (k) epilepsy/seizures (these variables also took into consideration the definition of handicap which designates limitations in specifically the physical domain). These variables/characteristics were those most recognized by handicapped service and advocate organizations as considered physical handicaps.

Certain variables/characteristics were ruled out as not necessarily fitting the definition utilized, as well as those conditions that were thought of more as a chronic illness or infection, in which the limitation may not show up for some time in the development of the child. The

variables/characteristics that were ruled out were: mental retardation, learning disability, serious emotional disturbance, chronic ear problems-infections, hyperkinesis/hyperactivity, and other conditions (See Appendix A).

As noted above, this researcher then grouped the handicapping characteristics into levels of limitations for further analysis, in order to allow for investigation of possible relationships between types of limitation. It has been stated that grouping all the characteristics together would skew the results. The levels of classification utilized did not allow for adequate numbers within each grouping to assure acceptable representation, but did permit a superficial examination of different handicapping conditions based on classifications chosen by this researcher. The classifications included: (a) sensory- speech impairments, serious hearing difficulty, and serious difficulty seeing, (b) mobility/respiratory- respiratory disorder, asthma, and crippled orthopedic, and (c) invisible- brain dysfunction, allergic conditions, heart trouble, blood disorder/immune deficiency, and epilepsy/seizures.

These classifications were based on this researcher's own personal experiences and twenty years of work experience with people with handicaps. The classifications were not based on levels of medical care given, actual physical

difficulties experienced, financial outlays, or prognosis of the conditions. They were based on societal perception, service delivery categorization, and the handicapped individual's perception of their own condition(s). In the Office of Programs for Handicapper Students at Michigan State University, where this researcher has worked the last eight years, the office is split into four divisions based on service delivery and student's perceptions: (a) mobility, (b) visual, (c) hearing, (d) alternative learners/invisible. These designations have been altered to accommodate the variable presented, and in order to allow for reliable individual group analysis.

The individual variables/characteristics that were chosen were extracted and those cases that were duplicates (more than one characteristic per child) across the variables/characteristics were counted as only one for the first research question, but were utilized within the split designations.

The control/comparison group were comprised of all the mother-child merged scores from the child age group 3-6 that did not have a handicapped child.

The 'visible' handicapped group as a predictor variable was obtained by selecting those handicapping variables/characteristics that are 'visible' to others from the list of variable/characteristics utilized to constitute the handicapped group. Due to the nature of the variables

constructed, this researcher could not determine from those variables selected to represent handicaps whether they included specific "cosmetic" handicapping conditions (e.g. cleft palates, craniofacial deformities, burns) that would be clinically designated as deformities. Due to this secondary analysis "slippage", 'visible' in this context did not only refer to cosmetic anomalies of the body, but included those that represent visibly to others (e.g. mothers, siblings, society) the representation of a handicapping condition (e.g. leg braces=mobility handicap). These representations were based on this researcher's experience in the field of handicapped services.

These alterations in visual dynamics of existence have been shown to cause alterations in society's reactions to these people. These 'visible' representations would include: altered forms of mobility (chair user), assistive devices (leg braces), and alternative or lack of a form of communication (sign language). The handicapping characteristics utilized were: (a) child has crippled orthopedic handicap, (b) child has serious hearing difficulty, (c) child has serious seeing difficulty.

Measures

Dependent Variable

HOME (Home Observation of the Environment Inventory)

The 1990 NLSY child file data set utilized the Home Observation for Measurement of the Environment scales to assess the family system (mother-child). HOME was developed by Bradley & Caldwell (1979, 1984) to identify and characterize homes of infants and young children who were at profound developmental risk (Bradley, Caldwell, Rock, Hamrick, & Harris 1988). Bradley (1985) has noted that the scales have demonstrated effectiveness in perceiving home environments that correlate with impaired clinical malnutrition, mental development, abnormal growth, and inferior school achievement. The scales in their entirety draw out data concerning cognitive, social, and physical environment variables. Within these sets of variables the scales can give information on encouragement of the child to achieve, provision of stimulation, responsiveness and warmth shown the child, and arrangement of the child's physical environment. The early scales were developed primarily for newborns and toddlers (Bradley & Caldwell, 1977). Scales were later developed for preschool and elementary age children (Bradley & Caldwell, 1979; Bradley, Caldwell, Rock, Hamrick, & Harris, 1988).

The scales developed for NLSY were done in consultation

with Bradley, and incorporated aspects of all three age group measures for inclusion in the 1986 assessments. In 1988, the HOME was divided into four sections: (a) for under three years of age, (b) for children between the ages of three and six, (c) for children between the ages of six through nine, and (d) for children ten and over. The 1988 assessment effected the split up of the six and over children to incorporate the advancing age of the children in the study. The 1990 analysis utilized the same parameters. The present study is only concerned with the scores from the 3-6 age group (See Appendix A).

Overall raw scores as well as two subscores for the HOME, (a) cognitive stimulation- which includes physical environment, and (b) emotional support scores, were created (Baker & Mott, 1991). The preschool scale (3-6) has 26 items, which measure cognitive stimulation and emotional support through mother's responses and interviewer observation of child and mother. All the individual items were recoded into dichotomous zero-one variables and then suitably aggregated. The total raw scores, which are a total of the recoded individual items, vary by age group. The two subscores as well the overall scores for the HOME do not have suitable national norms available. Internally normed standard and percentile scores for the 1990 overall HOME scores as well as the cognitive stimulation and emotional support scores are provided (Baker & Mott, 1991).

The total raw score, and the two subscale scores were chosen for this analysis in the age group 3-6. The scores from the sample population were analyzed in relationship to the scores of the control group extracted from the 3-6 age group. Overall scores, as well as for the cognitive stimulation and emotional support subscores, were compared on null hypotheses I & II. Only the total score were utilized in hypotheses III-V.

Independent Variables

Maternal Characteristics

The **age of mother** was measured by referring to the variable which asks each mother their age at the time of the interview in 1990.

The variable of **self-esteem** was utilized in assessing mothers' psychological well-being. Self-esteem was measured in 1988 utilizing the Rosenberg (1965) self-esteem scale which consisted of a 10 item scale. The mothers responded to a continuum which has four responses that range from "strongly agree to strongly disagree". They were recoded and summed to yield one score.

Intellectual scores were measured by taking the score the mother acquired on the AFQT (Armed Forces Qualification Test) taken by all of the subjects in 1980. The AFQT is a conglomerate of four subtests of the Armed Services Vocational Aptitude Battery. This measure utilizes

variations of age, educational attainment, family of origin and region oriented tests to measure developed abilities in literature, math, and English comprehension. Published data on the reliability coefficients for the AFQT subtests make it in the above .7 range (U.S. Department of Defense, 1982, 1985).

Years of schooling of the mother was measured by the mother reporting the highest grade she has attained by May 1, 1990.

The issue of mother's **employment** was measured by the variable which assesses the employment status of the mother utilizing four categories which range from (1) working to (4)in active forces. The data was recoded and collapsed to represent: (1) employed, and the rest as (0) not employed. This did not assume that the rest do not work in the home or may be capable of working themselves.

Family Structure Characteristics (Independent variables)

Number of children in the household was measured as a continuous variable. This number includes the handicapped child, as well as any additional children.

Marital status was measured using the collapsed variables which represent: (a) never married, (b) married, spouse present, and (c) other, which may include divorce, widowed, separated or never married. The data was recoded to represent (1) not married, and (2) married, spouse

present (Previous research utilizing this dynamic has shown no problems).

Family Poverty Status was measured by the interviewer who put those families who meet poverty status criteria, which is based on federal guidelines regarding income level and family size, in either (1) 'poverty', or (2) 'not in poverty'.

The presence of the **grandmother in the house** was measured by asking whether a mother/step/grandmother of the mother is present in the home of the mother- (1)yes (0)no.

Marital Quality was measured by creating three variables from the 13 questions asked in 1988, concerning marital satisfaction, conflict, and communication. Satisfaction was recoded out of one question/variable asking how satisfied they were with their marital relationship. Conflict was formed from nine questions/variables asking frequency of certain forms of arguments. Communication was formed from three questions/variables asking frequency of certain forms of communication.

Handicapped Child Characteristics (Independent variables)

The **sex** of the child was measured by the variable asking the sex of the child and coded as (1) male or (2) female.

Visible handicapping condition was measured by including; (a) crippled orthopedic, (b) serious hearing

difficulty, and (c) serious seeing difficulty.

Handicapping Variables (Independent variables)

The **handicapping variable** was measured by assessing the 11 variables already mentioned. (See Appendix B).

The specific **grouping of handicapping conditions** was measured by assessing the variables mentioned within the three groupings: (a) sensory (E-8132, 8133, 8134), (b) mobility/respiratory (E-8130, 8131, 8137), (c) invisible (E-8128, 8136, 8139, 8142, 8143).

Data Analysis

The data utilized for secondary analyses in this study were from the 1990 child file (merged mother-child data) from the NLSY. Variables were identified that would best measure the concepts of interest for this study. All analyses were accomplished utilizing raw data.

The first research question was concerned with whether the scores on the home environment scales (HOME) for the handicapped samples were significantly different from the control sample (nonhandicapped) scores. A table (1) was constructed which gives the means, standard deviations, and numbers of cases between the HOME scores of handicapped and control samples. A separate table (2) comparing the scores of the handicapped HOME total scores and separate

handicapping conditions with the scores of the control group was also constructed.

T-test analysis and Chi-square analyses were performed on all of the mother, family and child predictor variables between the handicapped sample and the control sample (Table 1). Significant ($p<.05$) differences found between the two samples' predictor variables were identified.

A t-test was utilized to determine if the HOME scores from the handicapped sample significantly differ from the control (nonhandicapped) scores for HOME, as well as those of the subscales of cognitive stimulation and emotional support. This researcher wanted to establish if there was any significant difference in the total HOME scores of the handicapped sample(s) and the control scores. The two subscores of cognitive stimulation and emotional support were evaluated in the same manner. The two groups were compared on all other independent predicting variables.

The second research question was similar to the first except that the handicapped sample was grouped into categories (types), to further differentiate between families with handicapped children and the control group. T-tests were once again utilized to discern if the HOME scores from the sample significantly deviate from the total control sample scores for HOME, as well as those of the same subscales. This researcher wanted to verify if there were any significant variations on the total HOME scores between

the various types of grouped handicapped families and the nonhandicapped families.

On the bivariate level it is considered necessary to identify correlations between the independent predictor variables and the total raw scores of the handicapped sample. Zero-order correlations between each variable and the quality of the home environment for the handicapped sample and the control sample were included in Table 4.

Table 4 also shows the results of multiple regression computed to observe the ability of each set of variables to predict HOME scores and which of the variables in the set were significantly related to the quality of the home environment. Additionally on the multivariate level, this researcher analyzed the 'significant' variables from the sets. The need was to examine those variables that have a significant predicting relationship within their demographic set (maternal, family, child) to see if they would hold these relationships when significant predictor variables from other 'sets' were added.

Additional analysis were completed to compare the scores of the HOME measurement between the 'male' and 'female' handicapped groups. A t-test was performed on the mean scores of male and female handicapped children.

CHAPTER IV

RESULTS

In this study, the measured home environments of handicapped children were compared with the home environments of nonhandicapped children; the home environments of nonhandicapped children were also compared with distinct groupings of those handicapped children. Maternal, family, and child variables were also considered with regard to their potential relationships to the measured home environment scores of the handicapped children. A primary null hypothesis was formulated for each of the main concepts being investigated. Null hypotheses proposed concerning relationships between demographic variables and HOME scores that were rejected remained in their present form for supplementary more definitive analyses. The results of the data analysis are presented as follows: (a) Demographic Differences Between Samples; (b) HOME Scores Comparisons Between Samples; (c) Quality of the HOME Environment; (d) Predictors of the Home Environments of Handicapped Children.

Demographic Differences Between Samples

Data for this study were obtained from the 1990 National Longitudinal Survey of Youth project (NLSY). As stated in the preceding chapter, of the original respondents interviewed in 1979 (6283), only 3088 were mothers as of the 1990 interview date. There were 6401 children available to be assessed in the 1990 interview. The data for this analysis were extracted from the 1990 Child file on the variable 'child age 3 - 5 years 11 months'. This extraction yielded 1323 children to be assessed. In those 1323 children were found 73 cases of handicapping conditions as outlined in the operational segment. It was additionally found that these handicapping conditions represented 45 children who had one of these handicapping characteristics, 11 who had two, and 2 who had three handicapping characteristics. The children who had more than one condition were only counted once, which yielded a handicapped sample of 58. The 58 children came from 58 different families. The control (nonhandicapped) sample numbered 1265. There were missing data for both groups on different variables. The extent of the missing data was not large, and listwise deletion of cases was utilized in analysis when appropriate.

T-tests and chi-square tests were used to examine differences between the two groups on a number of family, mother, and child demographic characteristics. Table 1 was

constructed to display the means, standard deviations, and either t values and probabilities, or Pearson chi-square statistics. Demographic variables of both samples were tested and those variables found to be significantly different were noted and later held constant in a hierarchial regression model run on the dependent variable (HOME scores) in the sample. That model assessed for significant R^2 change when the handicapped variable is added.

The groups did not differ significantly on any of the mother's characteristics (see Table 1). The mean age of the mother's in the nonhandicapped group was 29.1, and 28.9 in the handicapped group. The age range at time of interview was 25 to 32. The AFQT intelligence test yielded a mean of 62.37 for the nonhandicapped group as compared to a 60.71 for the handicapped group. Years of education was almost identical at 12.3 for nonhandicapped and 12.4 for handicapped sample. In the nonhandicapped sample, 55% of the women were employed at the time of interview, as opposed to 48% for the handicapped sample. Although different, it was not significant. Mothers in the two groups did not differ in average level of self-esteem (handicapped- 32.5, nonhandicapped- 33.0).

Only one difference between the groups was found when family characteristics were compared. The mean number of children in the nonhandicapped sample was 2.4, as opposed to

Table 1

Description of Samples and Differences Between Handicapped and Nonhandicapped in Demographic Variables

Variables	NonHandicapped (N=1265)(a)	Handicapped (N=58)(a)	T-test(t) /ChiSq(X^2)
Mother's Characteristics			
Age			
Mean	29.1	28.9	t=.96
SD	2.2	2.4	p=.341
IQ (AFQT)			
Mean	62.37	60.71	t=.57
SD	21.60	21.07	p=.569
Education (years)			
Mean	12.3	12.4	t=-.11
SD	2.2	2.2	p=.910
Employment			
% employed	55.0	48.1	X^2=.96 p=.327
Self-esteem			
Mean	33.0	32.5	t=.88
SD	4.0	4.4	p=.381
Family's Characteristics			
Marital Status			
% married	67.0	64.0	X^2=.34 p=.558
Poverty level			
% in poverty	25.0	31.1	X^2=1.04 p=.308
Number of Children			
Mean	2.4	2.1	t=2.24
SD	1.1	.8	p=.028**
Maternal Grandmother			
% living in house	8.0	7.0	X^2=.48 p=.542
Child's Characteristics			
Sex			
% male	51.0	65.5	X^2=4.54 p=.033**

Table 1 (cont'd)

Visible (c) % with	NA	34.1	
Marital Quality	[n=39](b)	[n=868](b)	
Satisfaction			
Mean	2.7	2.6	t=.39
SD	.58	.52	p=.695
Communication			
Mean	11.1	11.1	t=.31
SD	1.4	1.6	p=.760
Conflict			
Mean	26.7	27.9	t=-1.62
SD	4.5	4.5	p=.113

(a) Degrees of freedom may be unequal for different variables within the groups due to missing data for some subjects for some variables.
(b) Numbers are different for these constructed variables that measure marital quality because only those that were married answered this question.
(c) Visible handicapping condition was not utilized in this analysis for it is not applicable in the nonhandicapped sample.
p= 2-tailed separate variance probability quotient
** $p < .05$.

2.1 in the handicapped sample. This difference was found to be significant at the $p<.05$ level. Sixty-four percent of the handicapped sample's mothers were married, while 67% of the nonhandicapped sample's mothers were. Information was available on marital quality (satisfaction, communication, conflict) from mothers who were married. Maternal grandmother was present in 8% of the nonhandicapped sample and 7% of the handicapped sample. Twenty-five percent of the nonhandicapped sample were living below the poverty level, while 31% of the handicapped sample were found to live in poverty; this difference is not large enough to be statistically significant.

Sex of the child was the only child demographic variable which could be utilized in a comparison of the two groups. The nonhandicapped sample was 51% male, while the handicapped sample was 65% male. This difference was found to be significant at the $p<.05$ level. The other child characteristic was the created variable, 'visible nature of the handicapping condition'. As an independent child characteristic to be utilized as a predictor variable within the handicapped sample it was found in 34% of the handicapped sample.

Marital quality as a family demographic concept included three variables, which were created from several questions: satisfaction, communication and conflict levels. There were no differences between the two groups on these

three measures. The average scores of the samples were identical on the communication index (11.1), and essentially identical in their level of satisfaction (2.7 for nonhandicapped, and 2.6 for handicapped). The average conflict score was 26.7 for nonhandicapped sample and 27.9 for the handicapped sample. In summary, the samples differed significantly only on sex of child and number of children.

HOME Scores Comparisons Between Samples

Home environment scores were measured by adapted versions of the Home Observation for Measurement of the Environment (HOME) scales developed by Bradley & Caldwell (1979, 1984). The preschool scale (3 - 6 age) developed for the NLSY has 26 items, which measure cognitive stimulation and emotional support through mother's responses and interviewer observations of the child and mother. The two subscale scores were extracted from the total HOME score.

The first null hypothesis is concerned with whether the quality of the home environment of handicapped children, on average, differs from the quality of the home environment of nonhandicapped children.

Ho1 Home environments do not differ in families depending on presence or absence of a child with a physical handicapping condition.

A t-test was used to determine the difference between the means of the two samples (Table 2). The nonhandicapped sample was composed of 1265 families, while the handicapped sample had 58 families. The total raw score mean for the nonhandicapped sample was 19.92 (3.77 Standard Deviation), and 19.21 (4.93 SD) for the handicapped sample. The t value was 1.05 ($p=.30$). Separate variance estimates were utilized for all analyses. Utilizing a significance level of $p<.05$, the null hypotheses (Ho1) that the two means are not different could not be rejected for the total HOME score.

The cognitive subscale yielded a mean of 11.39 (2.46 SD) for the nonhandicapped sample and a mean of 10.92 (3.01 SD) for the handicapped sample. The t value was 1.08 ($p=.28$). The null hypothesis that the subscale of cognitive home environment means were the same also could not be rejected.

The emotional subscale HOME score means were 8.55 (1.98 SD) for the nonhandicapped sample and 8.44 (2.30 SD) for the handicapped sample. The t value was .34 ($p=.739$). Based on this result the hypothesis could not be rejected.

Although the mean scores for the handicapped sample were lower on the total HOME as well as the two subscales the differences were not significant. Thus, the null hypotheses (Ho1) that the families of both samples would not differ in provision of a home environment could not be rejected.

Table 2

HOME Total and Subscale Score Comparisons Between Handicapped Group(s) and the Nonhandicapped Group.

HOME Scores	Nonhandicapped Group	Handicapped Group(s)	T-test (t) 2-tail (p)
	Total Sample [n=1265](a)	Total Sample [n=58](a)	
Total Raw			
Mean	19.92	19.21	t=1.05
SD	3.77	4.93	p=.300
Cognitive Raw			
Mean	11.39	10.92	t=1.08
SD	2.46	3.01	p=.283
Emotional Raw			
Mean	8.55	8.44	t=.34
SD	1.98	2.30	p=.739
	Total Sample [n=1265]	'Sensory' Sample [n=11](a,b)	
Total Raw			
Mean	19.92	17.07	t=1.49
SD	3.79	6.33	p=.167(c)
Cognitive Raw			
Mean	11.39	9.66	t=1.28
SD	2.46	4.03	p=.235(c)
Emotional Raw			
Mean	8.55	8.71	t=-.20
SD	1.98	2.25	p=.849
	Total Sample [n=1265]	'Mobile' Sample [n=34](a,b)	
Total Raw			
Mean	19.92	19.76	t=.21
SD	3.79	4.19	p=.833
Cognitive Raw			
Mean	11.39	10.97	t=.81
SD	2.46	2.79	p=.427
Emotional Raw			
Mean	8.55	8.85	t=-.91
SD	1.98	1.74	p=.369

Table 2 (cont'd)

	Total Sample [n=1265]	'Invisible' Sample [n=25](a,b)	
Total Raw			
Mean	19.92	19.47	t=.41
SD	3.79	5.35	p=.687
Cognitive Raw			
Mean	11.39	11.40	t=-.02
SD	2.47	2.95	p=.984
Emotional Raw			
Mean	8.55	7.87	t=1.11
SD	1.98	2.88	p=.281

(a) Degrees of freedom may be unequal for different score comparisons within groups due to missing data for some subjects for some variables.
(b) Some of the members of this sample may have characteristics from other handicapped groups.
(c) Pooled variances for these t-test where significant at p<.05 two-tailed probability.

To determine whether the significant differences (sex of child and number of children) in the sample populations would affect further analyses both of the variables were held constant in a hierarchial regression model which utilized the dependent variable (total HOME score and the two subscale scores) for one output. The equation model (see Table 3) employed a 'significant change' statistical procedure. The model produced a multiple regression output on the dependent variables (HOME scores) by entering sex and number of children on the first step. The R^2 (amount of variance explained) for total HOME raw amounted to .047 (F=28.27) when sex and number of children were entered. The dummy variable (handicapped vs. nonhandicapped) (see

Table 3

Hierarchial Regression Utilized for Sample Differences

Two demographic variables (# of children of mother in household, and sex of child) were found to be significantly different between the handicapped and nonhandicapped sample. The following hierarchial regression equation was utilized to determine if the significant differences would skew results.

Equation Number 1 Dependent variable: HOME Inventory
Variable(s) Entered on Step Number
1. # of children of mother in household
2. sex of child

Multiple R	.218		
R Square	.047	R square change	.047
Adjusted R square	.049	F change	28.271
Standard Error	36.541	Signif F Change	.000

F= 28.271 Signif F= .000

	Beta
1. # of children in H.H.	-.21**
2. sex of child	.05

Variable Entered on Step Number (Method- enter)
3. Handica2 (all 11 variables in 58 cases)

Multiple R	.219		
R square	.048	R square change	.001
Adjusted R Square	.045	F change	.912
Standard Error	36.542	Signif F change	.339

F= 19.149 Signif F= .000

	Beta
1. # of children in H. H.	-.21**
2. sex of child	.05
3. handica2	-.02

** p<.01

Appendix B) was then added to the model in step two and the change in R^2 and the F for the change in R^2 was computed. The amount of change was not significant. The new R^2 was .048 (R^2 change of .0007). The F value for the change in R^2 was .912. Coinciding insignificant results were found for changes in R^2 values on both dependent subscale scores (cognitive subscale- R^2 change = .0009, F cha.=1.05; emotional subscale- R^2 change =.0002, F cha. =.26).

Beyond the global question of whether families with any handicapped child differ in their provision of a home environment in comparison to families with a nonhandicapped child, there is the question of whether certain kinds of handicapping characteristics would alter the provision of this home environment. The total handicapped sample was strategically divided into three groupings: sensory, mobility/respiratory, and invisible. The rationale for these divisions was presented in the last chapter. Eleven of the children were found to have two handicapping characteristics that fit into two separate classifications, and their scores were used in the means of both groups.

Ho2 Home environments do not differ in families depending on the classification of handicapping condition the child has,

a. sensory,

b. mobility/respiratory,

c. invisible,

or absence of a child with a physical handicapping condition.

Once the samples were established, a t-test was utilized to determine the differences between means (Table 2). The total HOME score mean as well as the subscale means were compared with the control group mean, minus the other handicapping characteristic subsamples. Total cases for the control group was 1265. Total numbers for the divided handicapped samples were: 'sensory'=11, 'mobility/respiratory'=34, and 'invisible'=25. The mean scores and standard deviations for the control (nonhandicapped) sample were the same as in the analysis for null hypotheses I and were the same for all three raw scores in comparison with the three handicapped divisions.

The average total HOME score for the 'sensory' handicapped sample was 17.07 (6.33 SD). Although considerably lower than the average score for the nonhandicapped sample (19.92), the difference was not large enough to be statistically significant (t value was 1.49, p=.167). It should be noted that the t-test using the pooled variance was significant at p=.014, but cannot be utilized in this instance because the amount of variability on the HOME scores differed for the two groups.

The average scores of the children with 'sensory' handicaps on the two HOME subscale scores did not differ from the scores for the nonhandicapped children. Based on

these results Ho2(a) cannot be rejected.

The 'mobility/respiratory' handicapped sample total HOME raw score mean was 19.76 (4.19 SD), and did not differ from the average score for the nonhandicapped group. The t value was .21 (p=.833). The cognitive subscale mean was 10.97 (2.79 SD) for the subsample and did not differ significantly from the average score in the nonhandicapped group (t=.81; p=.427). The emotional subscale mean was 8.85 (1.74 SD) for the subsample and the t value was -.91 (p=.369). It should be noted that once again the scores for both total and cognitive means were lower for this subsample, but the difference is not significant. Based on these results Ho2(b) cannot be rejected.

The 'invisible' handicapped sample total HOME raw score mean was 19.47 (5.35 SD), and did not differ significantly from the mean score for the nonhandicapped group. The t value was .41 (p=.687). The cognitive subscale mean was 11.40 (2.95 SD) with a t value of -.02 (p=.984). The emotional subscale mean was 7.87 (2.88 SD) with a t value of 1.11 (p=.281). Based on these results Ho2(c) cannot be rejected.

Although all three HOME total raw score means were smaller than the control group means, the differences were not significant at the $p < .05$ level. Ho2 cannot be rejected.

Quality of the Home Environment

Correlations between each demographic variable and the quality of the home environment (total HOME Score) for the handicapped sample are shown in Table 4. Correlations between HOME scores and all variables were computed separately for control (nonhandicapped) and handicapped groups. Table 4 also displays the outcome of multiple regressions that were computed in order to determine the capability of sets of independent variables to predict HOME scores. Correlation coefficients (r), regression standardized 'Beta' coefficients (Beta), and the significance level ($p<.10,.05,.01$), were reported for each variable. In the regression analysis, due to the modest size of the handicapped sample, an alpha level of <.10 was utilized to minimize the possibility of making a type II error (Luster & Dubow, 1990). The percentage of variance accounted for by each of the models (R^2) is reported as well as F values.

The third hypothesis of this research was concerned with those variables of the handicapped child's environment that would act as predictors of the quality of the home environment provided by the family. The hypothesis concerning maternal characteristics has five independent variables that were rejected or not rejected individually.

Ho3 Characteristics of the mothers in these families--

(a) age, (b) intellectual ability, (c) years of schooling, (d) employment status, and (e) self-esteem-- are not related individually to the home environments of the handicapped child.

The maternal characteristics of the handicapped sample that were significantly correlated with the HOME scores were 'self-esteem' (.45), 'intellectual ability' (.65), and 'education level' (.46). Neither 'age' nor 'employment status' were significantly correlated with HOME scores. Mothers who were more intelligent, had higher education levels and high self-esteem provided better home environments.

Multiple regression analysis was used to determine which maternal characteristics were related to HOME scores in the two samples when other maternal characteristics were controlled. For these analyses, the predictor variables were entered simultaneously. Only 'intellectual ability' was found to be significantly related to HOME score in the handicapped sample. The set of mother's characteristics did account for 51% of the variance in the HOME scores for the handicapped sample, as compared to 30% for the nonhandicapped sample.

Significant correlations were found between all five of the mother's characteristics and the HOME scores in the control (nonhandicapped) sample. A modest, but negative correlation was found on status of employment. All five

Table 4

Correlates of the Quality of the HOME Scores for the Handicapped and NonHandicapped Samples(a)

Variables	Handicapped [N = 58](b) r	Handicapped [N = 58](b) Beta	NonHandicapped [N = 1265](b) r	NonHandicapped [N = 1265](b) Beta
Mother's Characteristics				
Age	-.01	-.17	.20***	.06**
Intelligence	.65***	.51***	.50***	.35***
Education level	.46***	.21	.40***	.13***
Employment(c)	-.05	.08	-.17***	-.05**
Self-esteem	.45***	.15	.34***	.14***
F		9.26***		95.84***
R^2		.51		.30
Family's Characteristics				
Marital St.(d)	.40***	.15	.37***	.25***
Poverty St.(e)	-.50***	-.39**	-.42***	-.25***
Number of Children	-.11	-.06	-.23***	-.20***
Grandmother in home(f)	.09	.03	-.07***	-.02
F		3.97***		86.08***
R^2		.26		.24
Marital Quality(g)				
Satisfaction	-.17	-.40*	.16***	.03
Communication	.10	.23	.20***	.14***
Conflict	.10	.27	.19***	.14***
F		1.43		18.14***
R^2		.12		.06

Table 4 (cont'd)

Child's Characteristics				
Sex(h)	.37***	.37***	.04	.04
Visible handicap(i)	-.17	-.18	Not Applicable	
F		5.43***		2.01
R^2		.17		.00

(a) Zero-order correlations are provided for each variable with the total raw HOME scores. For each set of correlates, multiple regressions were computed to assess the relative contribution of variables within that set. The standard regression coefficients as well as the R^2 are provided for each set.
(b) Degrees of freedom may be unequal for different variables the groups due to missing data for some subjects for some variables.
(c) Employment was coded as follows 1=employed, 2=unemployed.
(d) Marital status was coded as 1=no, 2=yes.
(e) Poverty status was coded as 0=not in, 1=in poverty.
(f) Presence of Grandmother in home was coded as 0=no, 1=yes.
(g) Marital quality was treated as a separate group due to the fact that only those married answered the questions (handicapped=39 non=868). Variables recoded and collapsed.
(h) Sex was coded as 1=male, 2=female.
(i) Visible handicapping condition was coded as 0=invisible, 1=visible.

* $p < .10$
** $p < .05$
*** $p < .01$

beta coefficients in the regression equation (model) were found to be significant in predicting HOME scores accounting for 30% of the variance.

The fourth null hypothesis of this research was concerned with those family structure variables of the handicapped child's environment that would act as predictors of the quality of the home environment provided by the family. This null hypothesis has four independent components that can be rejected. The fifth family component is a concept which is measured by three indexes of marital quality. These segments were treated as elements of that component of the hypothesis that were rejected or not rejected on their own.

Ho4 Characteristics of the family structure in these families-- (a) marital status, (b) poverty status, (c) number of children, (d) presence of maternal grandmother, and (e) marital quality- (1) satisfaction, (2) communication, and (3) conflict-- are not related to the home environments of the handicapped children.

The handicapped sample family structure variables that were significantly correlated with the HOME scores were 'poverty status' (-.50) and 'marital status' (.40). Neither 'number of children' (-.11), nor 'presence of grandmother' (.09) were significantly correlated with total HOME scores. Those families which were not in poverty and had an intact

marriage provided better home environments for their handicapped children.

A regression analysis utilizing all of the family structure variables was undertaken. This set of family variables accounted for 26% of the variance in scores within the handicapped sample. Only 'poverty status' with a beta coefficient of -.39 was significant ($p.<.05$) in the final equation.

Family structure variables in the control sample were all significantly correlated with total HOME scores. 'Poverty status' was the highest with a negative correlation of .42. A nominal but significant negative correlation was found between 'presence of grandmother' and HOME scores (-.07), as well as for 'number of children' (-.23). Using these variables in a simultaneous multiple regression model, they accounted for 24% of the variance. All the family variables entered the equation with significant beta coefficients except for the variable 'presence of grandmother'.

The variables that were constructed to measure marital quality were analyzed independently of the other family structure variables for methodological reasons. Listwise deletion of data during regression would reduce the total numbers in both samples due to the fact that only those that were married answered these questions (numbers are available in Table 1).

None of the indexes for marital quality were significantly correlated with HOME scores for the handicapped sample. Surprisingly a negative coefficient (-.17) was found for marital 'satisfaction'. The hypothesis regarding marital quality could not be rejected.

All three variables measuring marital quality (satisfaction, conflict, and communication) were modestly but significantly correlated with HOME scores in the control (nonhandicapped) sample. Only 'communication' and 'conflict' were significant in the regression equation with beta coefficients of .14 for both. Marital quality only accounted for 6% of the variance in the HOME scores of the control group.

The fifth proposed hypothesis of this research was concerned with those individual characteristics of the handicapped child that would act as predictors of the quality of the home environment provided by the family. This hypothesis has two independent variables that were analyzed.

Ho5 Characteristics of the handicapped child in these families, (a) sex, and (b) 'visible' handicapping characteristic, are not related individually to their home environments.

'Sex of the child' for the handicapped sample was found to be correlated significantly at the $p<.01$ level with home environment ($r=.37$). 'Visible handicapping condition' was

not found to be significant at the bivariate level with a -.17 coefficient.

A regression analysis utilizing 'sex of the child' and 'visible handicapping condition was undertaken. 'Sex of the child' was found to be significant at the $p<.01$ alpha level within the regression equation with a coefficient of .37. Child characteristics accounted for 17% of the variance of HOME scores for the handicapped sample.

'Sex of child' was the only variable that could be analyzed within the control sample. It was not found to be correlated with the HOME scores of the control group (.04).

Due to the significant relationship on both the bivariate and multivariate levels for sex of child, this researcher also computed t-tests on the means of the HOME scores between male and female handicapped sample cases (t-tests are also shown for visible characteristic- Table 5).

The total HOME raw score mean for the male handicapped sample was 17.9 (5.2 SD) and 21.7 (3.1 SD) for the female sample. The t value was -3.41 with a probability of .001. The quality of the home environment for the female handicapped child was significantly higher than that which was measured for the male handicapped child.

Table 5

HOME Total Score Comparisons Between Child Independent Variables Within Handicapped Sample

HOME Scores	Handicapped Sample [n=58](a)		T-tests (t) 2-Tail Prob (p)
	Sex		
	Male [n=36]	Female [n=19]	
Total Raw Mean	17.89	21.72	t=-3.41
SD	5.23	3.08	p=.001***
	'Visibility'		
	Visible [n=14]	Invisible(b) [n=41]	
Total Raw Mean	17.72	19.72	t=1.16
SD	5.84	4.54	p=.259

(a) Degrees of freedom may be unequal for different variables within handicapped groups due to missing data for some subjects for some variables.
(b) Invisible group included all handicapping conditions that were not coded 1 within the handicapped group.
*** p < .01

Predictors of the Home Environments of Handicapped Children

Although many studies have been completed noting the impact that handicapped children have on the environment of the family and its subsystems, few have been accomplished detailing how this 'noted' impact may affect the provision of a quality home environment for the handicapped child. Studies have also established several of the variables in this study as significant predictors of home environments

(Gottfried & Gottfried, 1984; Luster & Dubow, 1990; Menaghan & Parcel, 1991). To further isolate those predictors of the quality of the home environments of handicapped children and their singular contribution to the quality of the HOME scores, multiple regressions were computed for the handicapped sample and the control sample. The control sample was analyzed solely for comparison. Only those variables found to have a significant relationship with the HOME scores in the preliminary regression analyses were utilized. All of the variables listed in Table 4, except for 'sex of child', were utilized in the regression equation for the control sample. The marital quality variables were also not utilized in the regression equation due to their lack of strong significance and the sample's loss of power due to listwise deletion of data. The variables mother's- 'intelligence', family's- 'poverty status', and child's- 'sex' were the only variables utilized in the regression equation for the handicapped sample. Following the results obtained by Luster and Dubow (1990) utilizing this method, a stepwise forward selection model was selected for the regression procedure. This methodology employs an approach which enters the variables with the largest F values into the equation first. The variables are entered at each step until none remain that are significant in their offering to the model. A variable which does not match the significance level set by the equation ($p<.10$) would not enter the

equation. The variables entered into the equation remain even though ensuing variables may diminish the relevance of the contribution of the preceding variables. This researcher felt it was once again appropriate to utilize an alpha level of $p<.10$ in these analyses in order to reduce the likelihood of making a type II error.

The handicapped sample's environmental variables all entered the regression equation at the $p <.10$ level. 'Mother's intelligence' had the highest beta coefficient (.55), followed by 'sex of the child' (.30) (both standardized and unstandardized beta coefficients are presented in Table 6). Poverty status was significant at the $p <.10$ level with a beta of -.19. These three predictor variables accounted for 58% of the variance in HOME scores with a significant ($p<.01$) F value of 19.24.

Table 6 shows that only two environmental predictor variables entered the regression equation for both samples: 'poverty status' and 'mother's intelligence'. 'Mother's intelligence' emerged as the strongest predictor of HOME scores for both samples.

The most relevant finding in this closing analysis is that 'sex of the child' was highly significant as a predictor variable for the handicapped sample with a sizable beta coefficient (.30). 'Sex of the child' was not related to HOME scores on any level with the nonhandicapped sample.

Table 6

Multiple Regression Analyses (Stepwise): Predictors of the Quality of the Home Environment for the Handicapped and Nonhandicapped samples (a)

Variables(b)	Handicapped [N = 58] Beta(S)	B(U)	Nonhandicapped [N = 1265] Beta(S)	B(U)
Mother's Self-esteem			.13***	1.18
Number of Children			-.17***	-6.09
Marital Status(c)			.22***	17.49
Age of Mother			.07**	1.07
Sex of Child(d)	.30***	31.37		
Mother's Intelligence	.55***	.14	.25***	.04
Mother's Education			.08***	1.53
Poverty Status(e)	-.19*	-19.83	-.09***	-8.58
Employment Status(f)			NE	
F value	19.24***		89.73***	
R^2	.58		.39	

(a)A listwise deletion, stepwise, forward selection, multiple regression was utilized, which enters variables at each step which have the largest F statistic, until no remaining variables make a contribution ($p < .10$). Betas (Beta) are not reported for those variables that failed to enter the model (NE- not entered)(S=standardized; U=unstand).

(b)Only three variables (poverty, I.Q., and sex) were significant ($p < .10$) and used in the handicapped stepwise regression. All variables except 'sex', and 'presence of grandmother' were significant and utilized in the nonhandicapped stepwise regression. Marital quality variables were also not utilized due to the loss of sample power that would occur.

Table 6 (cont'd)
(c)Marital Status was coded as 1=no, 2=yes.
(d)Sex of child was coded as 1=male, 2=female.
(e)Poverty Status was coded as 0=not in, 1=in poverty.
(f)Employment Status was coded as 1=employed, 2=unemployed.
* p < .10
** p < .05
*** p < .01

The nonhandicapped (control) sample's environmental variables all entered the equation at the p<.10 level, except for 'employment status'. The predictor variables accounted for 39% of the variance in HOME scores for the sample. All variables were significant at the p<.01 level, except for 'mother's age' which was significant at the p<.05 level. The total F value was significant at 32.8 (p<.01).

Summary

In this study the measured home environment was the focus. The measured home environments of handicapped children were compared with the home environments of nonhandicapped children. The home environments of nonhandicapped children were also compared to distinctive groupings of those handicapped children. Maternal, family, and child characteristics were also analyzed for their relationships to the measured HOME environment scores of the handicapped children. Five major questions were asked and null hypotheses were formulated for each of the questions asked, as well as for the characteristics of mother, family and child (see Table 7).

Table 7

Summary of Hypotheses

Hypothesis (Null & alternate)	Research Hypothesis	Significance Level
Ho1 (HOME score means) (total & subscales)	not rejected	NS
Ho2 (HOME score means) (total & subscales)		
(a) sensory	not rejected	NS
(b) mobility/res.	not rejected	NS
(c) invisible	not rejected	NS
Ho3 (mother's characteristics- bivariate level)		
(a) age	not rejected	NS
(b) intelligence	rejected	<.01
(c) education	rejected	<.01
(d) employment	not rejected	NS
(e) self-esteem	rejected	<.01
(multivariate level-)		
Ho3.b intelligence	rejected	<.01
Ho3.c education	not rejected	NS
Ho3.e self-esteem	not rejected	NS
Ho4 (family structure characteristics- bivariate level)		
(a) marital status	rejected	<.01
(b) poverty status	rejected	<.01
(c) number of children	not rejected	NS
(d) grandmother present	not rejected	NS
(e) marital quality (1,2,3)	not rejected	NS
(multivariate level-)		
Ho4.a marital status	not rejected	NS
Ho4.b poverty status	rejected	<.05
Ho5 (child characteristics- bivariate level)		
(a) sex of child	rejected	<.01
(b) visible	not rejected	NS
(multivariate level-)		
Ho5.a sex of child	rejected	<.01
(group means- alternate testing)		
Ho5.a sex	rejected	<.01
Multivariate Predictors (combined significant variables)		
(re-tested null; combined regression equation)		
Ho3.b intelligence	rejected	<.01
Ho4.b poverty status	rejected	<.10
Ho5.a sex of child	rejected	<.01

Null hypothesis 1, home environments do not differ in families depending on presence or absence of a child with a physical handicapping condition, was not rejected. Null hypothesis 2 (a,b,c), home environments do not differ in families depending on the type of handicapping condition (sensory, mobility/respiratory, invisible) child has or absence of a child with handicapping condition, cannot be rejected on any of the types.

Null hypothesis 3, characteristics of the mothers in these families are not related individually to the home environments of the handicapped children, was rejected on the multivariate set level on (b) mother's intelligence.

Null hypothesis 4, characteristics of the family in these samples are not related individually to the home environments of the handicapped children, was on the multivariate set level rejected on the demographic variable (b) poverty status.

Null hypothesis 5, characteristics of the handicapped child in these families are not related individually to their home environments, was rejected on the variable, (a) sex of the child.

On the combined multivariate set level, the null hypotheses were retested with a combined regression equation to differentiate the quality of the relationship of these significant subsystem variables when combined with other significant characteristic variables with the HOME scores of

handicapped children. The null hypotheses concerned with 'sex of the child', 'mother's intelligence, and 'poverty status', were rejected. These variables were all significant in predicting the quality of the HOME scores of handicapped children in this sample.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Numerous advances in the practice of medicine along with changes in societal values and mores have led to more families having handicapped children and wanting to integrate the child into the family system (Blacher, 1984). Literature which has been produced concerning these families tends to flow from the health care field, thereby concentrating upon a specific clinical population. Prior studies of families with handicapped children were also limited and may be skewed by the fact that many knew they were being studied for the effects that the handicapped child could possibly have on the family system. This awareness could conceivably affect their behaviors or responses. Although a great deal has been written concerning the presence of a handicapped child and the impact upon the individual family members and upon the family as a whole, no research was found by this researcher that actually assessed the quality of the home environment that was provided for this handicapped child in lieu of

these reported impacts on the family ecosystem. The concept of 'dynamic interaction', which is the process by which children may contribute to their own development by affecting responses of those around them, is as important a concept to study as are the factors of the ecosystem which affect family functioning (Busch-Rossnagel, 1981).

The conceptual framework for this research is the family ecosystem. Interactions between the individual subsystems within the family are critical in the development of the family as well as the development of the members of the family. The presence of a handicapped child has the potential to jeopardize the intrafamily environment. Human development in the ecosystems perspective places its focus on the family as the critical context/environment. 'Developmentally-instigative characteristics' of the individual help shape in a reciprocal nature the course of human development. These characteristics tend to provoke reactions from the environment (Bronfenbrenner, 1989). The perception and resulting action by members of the family is the central function of this research. Does the process of providing a home environment, however different and 'non-shared', impact the development of the child, and which variables of the family system subsequently predict this action?

The major purpose of this study was to undertake a comparative analysis of the measured home environment (HOME-

Home Observation for Measurement of the Environment) scores of those families who have had a handicapped child aged 3 to 6, to determine if the presence of that handicapped child significantly relates to the quality of the measured home environment of the child in comparison to a control group of nonhandicapped children's scores. The use of control groups has seldom been reported in literature concerning the measurement of the impact of a handicapped child on the family. The lack of control groups is thought to be a methodological weakness and is additional to the list of recognized failings in the existing literature.

The present study participants in the NLSY were observed in the home, and were assessed with regard to a host of additional variables by verbal questions. This context has the feature of masking the need for compensatory, false, or otherwise altered behaviors and/or responses, that are sometimes suspected from parents of handicapped children (Barden et. al., 1989). Even though the present analysis focused solely on the responses and behavioral evaluation of mother and child variables, the evaluative inquiry did assess several family and intergenerational structure variables for their respective relationships to the quality of the home environment of handicapped children.

Cases for this secondary analysis were drawn from the 1990 National Longitudinal Survey of Youth (NLSY). Criteria

for entry into this present study included children's age- between 3 and 5 years 11 months. Thirteen hundred and twenty-five children of the 5803 assessed in 1990 were eligible and utilized in this study. The 58 handicapped cases were extracted from this sample by virtue of 11 separate self-report questions within the NLSY assessment. They were selected by this researcher and represented various physical handicapping characteristics of the children. The remaining cases (1267) were utilized as the control (nonhandicapped) sample. The handicapped sample was additionally divided into three smaller samples based on subjective constructed groupings for additional analysis. Demographic variables of the mother, family structure, and the child were selected and utilized to determine the relationship of these variables to the quality of the measured home environment of the handicapped children. Statistical tests included t-tests for independent samples, chi square tests, and hierarchial and step-wise regression.

Conclusions

This study led to several conclusions:

1. The measured home environments of physically handicapped children as a group do not differ significantly from those of nonhandicapped children in this sample.

2. The measured home environments of 'sensory' handicapped children do not differ significantly from those of nonhandicapped children in this sample.
3. The measured home environments of 'mobility/respiratory' handicapped children do not differ significantly from those of nonhandicapped children in this sample.
4. The measured home environments of children with a 'invisible' handicapping condition do not differ significantly from those of nonhandicapped children in this sample.
5. The poverty level of the family is significantly related to the quality of the home environment provided for the physically handicapped child.
6. The intelligence of the mother is significantly related to the quality of the home environment provided for the physically handicapped child.
7. The sex of the physically handicapped child is significantly related to the quality of the home environment provided for the child.

Discussion of Findings

It has been noted that researchers and reviewers of studies concerned with the impact of handicapped children on family functioning have been guilty of assuming that

dysfunction is a normative pattern in families with handicapped children (Longo & Bond, 1984). It has also been suggested that some researchers and clinicians have gone so far as to expect to find problems in these families when none exist (Peterson 1984). Even though previous research has been contradictory in findings on the impact of handicapped children on family systems, numerous researchers believe, as does this researcher, that handicapped children do impact upon system characteristics.

This research was not so concerned with the impact that a handicapped child would have on the family system with its subsystems and encompassing environments, as it was on the effects these 'developmental instigative' characteristics of the child may have on the parents' behavior in provision of a quality home environment. A family that provides age appropriate cognitive experiences and stimulation should be more beneficial developmentally to the child than one that does not, and a family that provides appropriate warmth and emotional support should also facilitate child development (Bradley, 1985).

Earlier research has brought to light some of the important predictive variables in provision of home environment, and comparisons to these studies concerning the findings of this research can be made on the predictive variables. Comparison on results of the quality of home environment scores between families with a handicapped child

and those without one are harder to do. Studies on the provision of home environments to handicapped children were not available.

It should be noted that when comparing the two sample populations for demographic differences there were few significant differences noted. Only sex of child and number of children were found to be significantly different between the handicapped and nonhandicapped populations. Even these differences were found not to significantly influence the analyses. The fact that the samples are so similar in itself is significant in the sense that this researchers experience would lend to believing the samples would be significantly different on such variables as poverty level, marital satisfaction, as well as percentage of mothers employed.

Initially, this study sought to determine whether there were any differences in the provision of a home environment for the handicapped child. The results indicate that there is no significant difference made in the provision of home environments based on a physical handicap as a characteristic of the child. Additionally these results were consistent across the subscales of the HOME scores, cognitive and emotional. These findings were not consistent with the only study found by this researcher which used 'similar' parameters. Menaghan and Parcel (1991) found that children with a 'health limitation' have somewhat better

current home environments, and suggest that mothers may compensate for their children's limitations by reinforcing the home environment. Child health measured in their study was based on mother's report of the child having health conditions that limit school attendance or play or sports activities. Their study incorporated only working mothers. 'Health limitations' could incorporate a multitude of variables which do not necessarily fit this researchers definition of handicap and could possibly skew the results of this present analysis.

The results of HOME scores concerned with 'types' of handicapping condition were also without prior comparative analyses. This researcher felt that the placement of these handicapping conditions into the groupings was valid and would yield subsequent analysis. Although none of the differences in scores (total and subscales) were significant across the groupings with the nonhandicapped sample, there were some trends that should be noted for future studies.

Total HOME scores for all handicapped samples were lower, although not significantly, than the control sample. The HOME scores for the 'sensory' handicapped sample were lower on both the total and cognitive subscale scores. They were significantly different utilizing the pooled variance estimates, although the pooled variance estimates could not be utilized in the final analysis. The approximate two point difference in scores suggests that handicapped

children in this sample were not being provided the same opportunities for a quality home environment.

The 'sensory' sample, which represents visual, hearing, and speech limitations, was the only sample to differ in this respect. If not sampling error, then an explanation for this difference may be due to the nature of parental perceived limitation in the senses. Measurements of the environment using HOME included indices of the cognitive environment provided. They included items that pertain directly to the senses: books owned, reading stories to children, records or tapes owned, family helps with colors, and family helps with letters. This may directly illustrate why the 'sensory' handicapped group received lower scores in this analysis, and why the scores for the emotional subscale were mathematically, but not significantly, higher. This researcher hypothesizes that the perceived lack of available opportunities for cognitive development of this grouping leads to more affective behavior from parents to compensate for their child's perceived deficits.

It should also be noted for future studies that the score for the emotional subscale of the 'mobility/respiratory' group was also higher, but the score for the emotional scale of the 'invisible' group was lower in comparison to the other handicapped groupings (sensory & mobility/respiratory). This suggests to this researcher the possibility of emotional affective responses to 'visible'

handicapping condition, which includes all cases of 'sensory' and 'mobility' handicapping conditions, as opposed to those which have 'invisible' handicapping conditions. The separate t-tests performed on the means of the 'visible' and 'invisible' handicapped groupings held this to be the case, with lower scores on the total and cognitive subscales for the 'visible' groupings, but higher scores for the emotional subscale as compared to the 'invisible' group. Although these findings were not significant, they are notable for future studies.

This study has additionally attempted to identify those variables of the family ecosystem of the handicapped child that were predictive of the quality of the home environment. Earlier studies have utilized many of the same variables employed in this study and have found them to be predictive of the quality of the home environment (Bradley & Caldwell, 1984; Dubow & Luster, 1990; Furstenberg, Brooks-Gunn & Morgan, 1987; King & Fullard, 1982; Parcel & Menaghan 1990). The above studies employed different populations with varied outcome goals and findings, but added credence for exploring the variables utilized in this study.

Many of the variables that were tested for their predictive significance were measures of maternal characteristics: self-esteem, age, intelligence, and education level. The question to be addressed was whether characteristics of the mother are directly correlated to the

quality of the home environment of handicapped children or whether the effects of these characteristics are mostly indirect due to other demographic variables that are current.

In the nonhandicapped sample, with its large sample size and power, all maternal characteristics were found to correlate and predict the quality of the home environment, except for employment status, which did not enter the final regression model when other factors were controlled.

In the handicapped sample there were significant zero-order correlations between self-esteem, education level, intelligence and HOME scores. In the final analysis, when other variables were controlled, intelligence was the only significant, of the mother's characteristics, predictor of home scores for handicapped children. This variable was most significant in the final analysis for both populations.

This finding runs in contradiction to preceding studies which have indicated maternal intelligence as not being significant in the final analysis of which demographic variables are predictive of provision of a quality home environment to a child (Luster & Dubow, 1990; Parcel & Menaghan, 1990). Those studies utilized mothers with an average age that was significantly less than this one. The average age in this study was 29. Intelligence in this study was highly correlated with age ($r=.60$; $p<.001$), suggesting that more intellectually able mothers may have

waited to have children. These mothers also were less likely to live in poverty ($r=-.41$; $p<.01$) and were more likely to have higher self-esteem ($r=.44$; $p<.001$).

Studies on older mothers also show that intelligence is a strong predictor of home environments (Gottfried & Gottfried, 1984). The mean age of the mothers in this study would also explain why age did not show up in this sample as a significant predictor of the quality of the home environment. Age of the mother was also significantly positively correlated with self-esteem ($r=.39$; $p<.001$) and education level ($r=.22$; $p<.05$), which suggests why these predictors were highly correlated at the bivariate level, but did not hold their significant relationship on the multivariate level when other factors were controlled. The older age of this sample led to less variation in self-esteem and educational level to predict home environment.

Most of the variables analyzed in this study have to do with current circumstances, whether family or child characteristics or marital quality. The data from this study suggest that the family structure variables of marital status, poverty status, and number of children are all important predictors of quality of home environments of nonhandicapped children. The data also suggest that only poverty status is a significant predictor of home environments for families with handicapped children. Although marital status was significantly correlated with

home scores, the impact was not so significant when other factors were controlled. The variable, number of children, was not correlated with any of the other predictor variables, let alone with HOME scores. This is surprising in the light of the number of studies which suggest that number of children is one of the most significant predictors of the quality of home environment (Bradley & Caldwell, 1984; Menaghan & Parcel, 1991; Zuravin, 1988). This researcher proposes that older mothers have more existing children as a fact of age. This fact could possibly control the negative effects of family size in this sample as opposed to families which have much younger mothers and large numbers of children.

Presence of the maternal grandmother was only correlated with HOME scores in the nonhandicapped sample and not related on any level in the handicapped sample. This researcher would attribute this to the age of the mothers of this sample, and that Furstenberg et al. (1987) found that the presence of the grandmother over a period of extended time would not result in a favorable outcome. The older the mother, the less chance of the maternal grandmother still being present, or if she is, there will likely be a situation of diminished return. This is due to the fact that as both age, the need of the mother and the advancing age of the grandmother will result in the grandmother no longer being an asset, but a liability.

The data suggest that the variables measuring marital quality, communication, and conflict are important facets in predicting the quality of the home environment in the nonhandicapped sample. None of the indices of marital quality were found to be significant predictors of the quality of the home environment of the handicapped sample. Marital satisfaction, which was noted as being one of the best predictors of coping with a handicapped child (Friedrich, 1979), was found not to correlate with HOME scores. Marital satisfaction correlated significantly with the other marital quality variables (communication and conflict), but not with any of the other predictor variables except for sex of child, where it was found to correlate at the $p<.10$ ($r=-.24$; $p<.07$). It should be noted that the relationship was significant with a negative coefficient, which may suggest a connection between marital satisfaction, sex of the child, and quality of the home environment for the handicapped child. Marital satisfaction would appear to be less in those families who have a handicapped boy. In the final analysis when all other variables were controlled, marital satisfaction was not a factor.

The data from this study demonstrate no significant relationships existed between sex of the child and the quality of HOME scores within the nonhandicapped sample at any level of analysis. This conclusion has been suggested by other researchers (Luster & Dubow, 1990; Menaghan &

Parcel, 1991). This was not the case with the handicapped sample. The findings suggest that sex of the child is a significant predictor of the quality of the home environment of the handicapped child. Sex of the child was correlated with HOME scores ($r=.37$) at the $p<.01$ alpha level and held significance when all other variables were controlled. This correlation was also found between sex of the child and the cognitive subscale score, but was not found on any level with the emotional subscale score. The separate t-tests on the mean scores of male handicapped children and female handicapped children were significant at the $p<.01$ alpha level on the total HOME score, as well as on the cognitive subscale, but not significant on the emotional subscale.

The difference in total mean scores between the sexes is also significant in the sense that, even though there is a four point margin, it is not in one direction. The female mean score (21.7) was two points above the total handicapped sample (19.2), and the male mean score (17.7) was approximately two points below. If the difference had only been in one direction, above or below the total mean score, it may have indicated to this researcher the possibility of maltreatment in the provision of a home environment based on the sex of the handicapped child. It does suggest to this researcher that sex of the child is a significant predictor of the quality of the total measured home environment.

It needs to be noted anew that no significant

relationship was found between the emotional HOME subscale and the sex of the handicapped child in any analysis (zero-order, t-test, regression). This is significant in the discussion due to the fact that even though there were no significant relationships between the sex of the child in the nonhandicapped sample and total HOME scores in any analysis (zero-order, t-test, and regression), there were significant relationships found on the emotional subscale (zero-order-r=.06;p<.05)(t=-2.0;p<.05). This finding suggests that sex of the child may influence the emotional content of the home environment of nonhandicapped children, but does not within the handicapped sample. The previous findings suggest, that the sex of the child may influence the cognitive and total home environment, but not the emotional content of the home environment of handicapped children.

This researcher theorizes that these seemingly opposing findings in the predictive nature of sex of the child is due to the perceptions, socialization, and stereotypical thoughts and actions of the macrosystem in which the sample was drawn. The image of the ideal male stresses cognitive competence while the ideal female is expected to be interpersonally oriented (Dion & Berscheid, 1974). This is compounded with the fact that parents of handicapped infants may try harder in the beginning to stimulate the infant's development, but over time they become less responsive due

to the child's lack of responsiveness (Beckwith & Cohen, 1980; Goldberg, Brachfeld, & Divitto, 1980). The results suggest that the parents in this study might have had cognitive expectations of their male child that have not been achieved. This could be due to the unresponsive behavior of the child. The literature cited above suggests that this unresponsive behavior could be a result of the handicapping characteristic or perception of it. This conjecture would also account for the lack of significant differences in the emotional content of the sexes. This researcher suggests that the parents supplemented emotional content for the non-responsive cognitive stimulation in the male handicapped child.

The increase in the total and cognitive HOME scores for handicapped females above both male handicapped and female nonhandicapped children may suggest that the increase in cognitive stimulation may be due to cross sex stimulation. The literature suggests that children are more responsive to influence by opposite-versus same sex adults, and that adults may inadvertently behave in a more nurturant manner towards children of the opposite sex (Dion & Berscheid, 1974; Rothbart & Maccoby, 1966). Most of the data for this study were extracted from the mother and child. Further analysis may reveal that the fathers in this study may be adding to the home environment of the female handicapped child, especially those who are working outside of the home.

This researcher also acknowledges that the results may be due to significant differences in the physical home environment which is part of the total HOME score assessment (see Appendix A), or even compensatory in the manner to which Menaghan and Parcel (1991) refer to.

In summary, the data from this study suggest that sex of the child is a strong predictor of the quality of the home environment for handicapped children between the ages of 3 - 6. Additional analysis needs to be undertaken to verify these results as well as to test the logic of this researcher's suppositions.

The visible nature of the handicapping condition as characterized by the constructed variable was not found to be predictive of the home environment of handicapped children. It should be noted that the visible nature of the handicapping condition sample's mean score was two points lower that the average handicapped mean score (see Table 5). Future studies should use a more definitive characterization of 'visible'. It should be noted that the constructed variable 'visible' did correlate with mother's self-esteem ($r=-.27$; $p<.05$). These data have implications for future studies focusing on how the visible nature of handicapping conditions may affect mother's self esteem.

Recommendations

The recommendations derived from this study are two-fold: first, recommendations for embodiment of these findings into professional thought and practice with families with handicapped children, and second, clear recommendations for further research.

Practice

The data from this research affirm the necessity to use an ecological systems perspective, one that looks beyond the individual handicapped child to examine the family system and embodied microsystems. The data also affirm the need for professionals not to assume that family or developmental dysfunction will be the result of a handicapped child entering the family system. It has been suggested that when this does occur, clinical intervention strategies can become skewed toward a non-productive, and sometimes dangerous direction, rather than offering realistic support and assurance (Longo & Bond, 1984). Even if stress does result from the presence of a handicapped child, it should not be presumed that this stress will result in dysfunction in the family or in the presentation of a home environment for the handicapped child. Professionals in training as well as established professionals should be aware that these families are not necessarily pathological and in need of therapy as they are often depicted in the literature (Busch-

Rossnagel, Peters, & Daly, 1984).

How a family reacts to a handicapped child may be shaped by how the family defines their expectations of the child (Farber, 1960). If the family defines the presence of the handicapped child as no different from the expected situation, as in having a nonhandicapped child, and they believe that the family system will meet the predicament, then there may be no crisis in having a handicapped child. This theory presumes that the handicap must first be perceived and then judged as a problem for it to affect the parents' behavior and family operation. Family intervention approaches directed at modifying the parents' expectations and effectiveness rather than centering exclusively on the child would be the choice (Hanson, 1977).

In light of the findings within this study concerning sex as a predictor, parental intervention dealing with expectations should address issues of sexual expectations and stereotypes. Sexual expectations are also thought to be a consequence of cultural and ethnic (macrosystem) values. This element of the expectations must be raised within the pattern of thought among family interventionists.

Issues concerning expectations and stereotypes should be addressed with the family at a much earlier age than the age of the children utilized in this study. It is suggested that in the early months of children's lives, mothers of handicapped and nonhandicapped children are much more alike

than different (Busch-Rossnagel, Peters & Daly, 1984).

It has also been suggested that parents become less responsive to handicapped children who do not respond to stimulation given by the parents (Beckwith & Cohen, 1980). The need for alternative stimulation, cognitive, physical and even emotional, may be needed for those handicapped children that cannot respond affectively to the parents. Handicapped children, especially those with 'sensory' handicaps may not be able to respond to the 'normal' home environment stimulation indices, and thus not provide affective reciprocity, such as laughing and smiling. Als, Tronick, and Brazelton (1980) have depicted how parents must adapt to the blind infant's differential behaviors to establish effective reciprocity. This is critical in light of the literature which depicts this interaction between parent and infant as a constructed microenvironment. Scarr (1992) says that these microenvironments are "largely the construction of individual(s)...in the ways they evoke responses from others, actively or ignore opportunities, and construct their own experiences" (p. 14).

Although this study found no significant differences in the measured home environments of handicapped and nonhandicapped children it is still critical to identify those variables that will act as predictors or moderators of high risk families that may progress into crisis. Family interventionists need to be able to utilize the knowledge to

act accordingly to assist in preventing family deterioration, including the possibility of abuse. The intelligence of the mother may be a key element not only in the provision of a developmentally stable home environment with handicapped children, but also in preventing abuse.

The maltreatment literature is laden with suggestive evidence that a child with a physical handicap in a high-risk family can be subject to abuse (Hart & Brassard, 1987). Bronfenbrenner (1986) points out that this 'developmentally instigative characteristic' within the environment of high-risk families needs to be addressed. This is especially critical when the family has the indications of being high-risk. This researcher would recommend that families that have been assessed as high-risk with handicapped children be exposed early to a program designed to increase the parents' sensitivity to their child's differential response cues and miscues, their understanding of child development, and their contact with sources of emotional, social, and physical support for parenting. This may be especially important for those mothers with less than average intelligence. Operationalization of such programs may be impeded by the macrosystem's preference for crisis-oriented correction over primary and secondary prevention, as well as resistance to interference in family life, but family professionals have an ethical obligation to attempt to implement such programs (Hart & Brassard).

Unless a couple has prior genetic counseling and prenatal screening, the knowledge that a family is going to have a child with a physical handicap is rarely known before the actual birth of the child. In the event that a family does know that a handicapped child will be entering the system, either through birth or illness, professionals should recommend to the parents that they may want to consider being assessed to determine if they may be high-risk. Assessment must be inclusive of psycho-social as well as physical aspects of the family to allow for a data base that will sustain problem identification and then intervention if needed. If the families are not assessed to be high-risk, then only minimal or no intervention may be necessary. When the family is within the normal developmental range, and the environment is good enough to support the child's development, then ordinary differences between families may have little effect on the child's outcome (Scarr, 1992).

Society must provide suitable financial and emotional support services to the whole family unit. It is suggested that the additional resources flowing into the family in goods and money should be at least equal to the void created by the additional care and finances that a handicapped child may require the family unit to expend (Bubolz and Whiren, 1984).

Research

The need for further research cannot be understated. Knowledge concerning family systems is still limited, as is our knowledge about families with handicapped children; consequently additional research is needed to augment our knowledge base. The present study has only opened the door into the research opportunities within the data of the National Longitudinal Survey of Youth. The data from this study have the research potential to track longitudinally the home environments of handicapped children, as well as additional total developmental system aspects of the children in this sample.

The use of families with children in dissimilar stages of development would afford further data and allow for more consideration of normative variations as well as abnormal variations. A study that was longitudinal in methodology would allow for better understanding of how the normal developmental family life cycle and reciprocal behaviors are impacted by the presence of a handicapped child. A longitudinal study would also be useful in assessing family interactions, patterns of relationships, attitudes, and provision of home environment through the developmental spectrum.

The results of this study cannot necessarily be generalized to the population due to the limitations in sample size and representativeness, but they are suggestive

of the need for further research. The results were clearly indicative of the need to look beyond the child presenting with a handicap to include the family unit and all of the encompassing developmental and interactional environments. The data from this study were clearly suggestive, and the study should be replicated with specific modifications. Secondary analysis has the inherent impediment which requires the researcher to use only the data that are available and in the context that the data were collected.

Future studies utilizing a similar sample should implement assessment tools which expose fine differences in expectations, especially those of sex and gender. Future studies should also utilize tools that measure the coping and adaptive perspectives of the parents. These indices of family functioning may be determinant as to which families are impacted by the presence of a handicapped child and are reciprocal in their treatment of the child.

This study did not measure the severity of the handicapping condition. Future studies should utilize populations in which the intensity of the condition can be more closely measured. The severity of a child's handicapping condition may be inversely related to a family's level of reciprocal nurturing environment. Because the data would not allow for attempts to measure the severity of the handicapping characteristic, there remain the questions in regard to the impact upon the parental

behavior and reciprocal behavior upon the child when there are varying degrees of severity of their conditions. Future studies could include families obtained from clinical populations, where the severity of the handicapping characteristic can be more closely assessed.

Further distinctions in handicapping conditions should also be utilized. Comparing different handicapping conditions across age groups within the NLSY may allow for a clearer and more powerful analysis of how specific handicaps may or may not affect provision of home environment. Along with these distinctions there could be assessments of family members within the handicapped child's family including fathers. Research on the home environments of the siblings of the handicapped child should be performed. The 'nonshared' environments of these siblings would be a critical element in the development of any ecological intervention program geared at influencing the home environments of handicapped children.

In conclusion, any family oriented intervention program would do well to keep in mind the concept of mutual influence of parent and child since previous research has shown that development of handicapped children cannot be predicted without considering the parenting that the child receives (Busch-Rossnagel, 1981). It is also imperative to keep in mind that assumptions about the integrity of a family system of a handicapped child should be kept to a

minimum. Any research or intervention endeavors directed at the family of a handicapped child should consider the entire family unit and all reciprocal interactions among members of the family as well as interactions with all encompassing environments.

APPENDICES

APPENDIX A

Home Environment Measures

The following are items from the short form (SF) of the HOME utilized for the National Longitudinal Survey of Youth. The subscales into which the items fit are also included. Many of the items have been recoded from the original 1984 HOME. Items with an (*) asterisk were developed especially for this short form.

HOME Inventory: Short Form (Preschool- 3-6)

Total Home Scale (26 items)

Cognitive Subscale (15 items)

*1. About how often do you read stories to your child?
2. Child has at least 10 children's books?
3. Family subscribes to at least one magazine.
4. Child has record player and at least five children's records.
5. Child is encouraged to learn numbers.
6. Child is encouraged to learn the alphabet.
7. Child is encouraged to learn colors.

APPENDIX A (cont'd)

8. Child is encouraged to learn shapes and sizes.
9. Child can hit parent without harsh reprisal.
10. Child is taken on outing by family member at least every other week.
11. Child has been taken to a museum during past year.
12. Play environment appears safe.
13. Interior of home not dark or perceptually monotonous.
14. Home is reasonably clean.
*15. All rooms in the house are reasonably free of clutter.

Emotional Subscale (11 items)

16. Child is permitted choice in breakfast or lunch menu.
17. TV is used judiciously.
18. Child eats at least one meal per day with mother and father.
19. No more than one instance of physical punishment during the past week.
20. Parent converses with child at least twice during visit.
21. Parent answers child's questions or requests verbally.

APPENDIX A (cont'd)

22. Parent caresses, kisses, or cuddles child during visit.
23. Parent introduces visitor to child.
24. Parent does not use physical restraint during visit.
25. Parent neither slaps nor spanks child during visit.
26. Parent's voice conveys positive feeling to child.

APPENDIX B

Handicapping Conditions (variables)

The following variables were utilized in the formation of the handicapped sample of children. The variables were taken from mother's reports of the child and his/her physical condition. All eleven of the variables chosen to represent the sample were combined to form one variable for analysis termed handica2.sys. The variables were additionally grouped into more definitive categories for purposes of analyses. They are listed here within their grouping.

Handica2.sys (11 variables)

Sensory Group (3 variables)

1. Does child have serious hearing difficulty or deafness?
2. Does child have speech impairment?
3. Does child have serious difficulty in seeing or blindness?

Mobility/respiratory Group (3 variables)

4. Is child crippled, orthopedic handicap?
5. Does child have respiratory disorder?
6. Does child have asthma?

APPENDIX B (cont'd)

Invisible Group (5 variables)

7. **Does child have minimal brain dysfunction?**
8. **Does child have heart trouble?**
9. **Does child have allergic condition(s)?**
10. **Does child have a blood disorder/immune deficiency?**
11. **Does child have epilepsy/seizure disorder?**

APPENDIX C

COGNITIVE SUBSCALE

Correlates of the Quality of the HOME Score for the Handicapped and Nonhandicapped Samples(a)

	Handicapped [N = 49](b)		Nonhandicapped [N = 1168](b)	
Variables	r	B	r	B
Mother's Characteristics				
Age	.02	-.19*	.16***	.03
Intelligence	.68***	.48***	.49***	.34***
Education	.53***	.30**	.39***	.13***
Employment(c)	-.08	.11	-.14***	-.02
Self-esteem	.51***	.23**	.33***	.14***
F		13.22***		80.44***
Rsq		.61		.27
Family's Characteristics				
Marital St.(d)	.25**	-.02	.27***	.13***
Poverty St.(e)	-.39***	-.42**	-.36***	-.26***
Number of Children	-.04	-.02	-.21***	-.17***
Grandmother in home(f)	.01	-.08	-.06**	-.02
F		1.86		49.07***
Rsq		.16		.14

APPENDIX C (cont'd)

Marital Quality(g)				
Satisfaction	-.28*	-.42*	.18***	.07
Communication	.06	.22	.21***	.11***
Conflict	-.09	.10	.17***	.15***
F		1.33		17.47***
Rsq		.12		.06
Child's Characteristics				
Sex(h)	.33***	.33**	.01	.01
Visible handicap(i)	-.15	-.15	Not Applicable	
F		3.61**		.07
Rsq		.13		.00

EMOTIONAL SUBSCALE

Correlates of the Quality of the HOME Score for the Handicapped and Nonhandicapped Samples(a)

	Handicapped [N = 49](b)		Nonhandicapped [N = 1168](b)	
Variables	r	B	r	B
Mother's Characteristics				
Age	.03	-.08	.14***	.04
Intelligence	.46***	.46***	.34***	.24***
Education	.21	.02	.26***	.09**
Employment(c)	.02	.05	-.14***	-.07
Self-esteem	.22	.05	.23***	.10***
F		2.48**		36.07***
Rsq		.23		.15

APPENDIX C (cont'd)

Family's Characteristics				
Marital St.(d)	.42***	.27	.37***	.30***
Poverty St.(e)	-.41***	-.20	-.32***	-.13***
Number of Children	-.15	-.10	-.18***	-.18***
Grandmother in home(f)	.19	.17	-.06**	.01
F		3.24**		56.04***
Rsq		.25		.19
Marital Quality(g)				
Satisfaction	-.03	-.18	.05	-.02
Communication	.14	.20	.09***	.11***
Conflict	.06	.13	.12***	.07*
F		.41		4.87***
Rsq		.04		.02
Child's Characteristics				
Sex(h)	.23**	.23	.06**	.06**
Visible handicap(i)	.03	.03	Not Applicable	
F		1.29		4.00**
Rsq		.05		.00

(a) Zero-order correlations are provided for each variable with the total raw HOME scores. For each set of correlates, multiple regressions were computed to assess the relative contribution of variables within that set. The standard regression coefficients as well as the Rs are provided for each set.
(b) Degrees of freedom may be unequal for different variables the groups due to missing data for some subjects for some variables.
(c) Employment was coded as follows 1=employed, 2=unemployed.
(d) Marital status was coded as 1=no, 2=yes.
(e) Poverty status was coded as 0=not in, 1=in poverty.
(f) Presence of Grandmother in home was coded as 0=no, 1=yes.

APPENDIX C (cont'd)

(g) Marital quality was treated as a separate group due to the fact that only those married answered the questions (handicapped=39 non=868). Variables recoded and collapsed.

(h) Sex was coded as 1=male, 2=female.

(i) Visible handicapping condition was coded as 0=invisible, 1=visible.

* $p < .10$

** $p < .05$

*** $p < .01$

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