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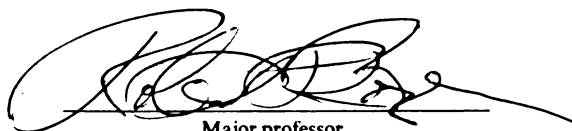
SUCCESSFUL CHILDREN OF ADOLESCENT MOTHERS:
IDENTIFYING MICROSYSTEM FACTORS IMPACTING
THE ADJUSTMENT OF CHILDREN

presented by

Susan Elizabeth Wheeler

has been accepted towards fulfillment
of the requirements for

PhD degree in Family and Child
Ecology



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**SUCCESSFUL CHILDREN OF ADOLESCENT MOTHERS:
IDENTIFYING MICROSYSTEM FACTORS IMPACTING
THE ADJUSTMENT OF CHILDREN**

By

Susan Elizabeth Wheeler

A DISSERTATION

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

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1997

ABSTRACT

Successful Children of Adolescent Mothers: Identifying Microsystem Factors Impacting the Adjustment of Children

By

Susan Elizabeth Wheeler

The purpose of this study was to examine specific microsystem factors which predict the academic achievement and behavioral adjustment of children of adolescent mothers with a special emphasis on those children who are academically and behaviorally successful. Data from the National Longitudinal Survey of Youth on 476 mothers between the ages of 15 and 19 years at the birth of their first child with first born children between the ages of 13 and 17 years in 1992 were used for this study. Of the sample mothers and children, 224 were African American, 155 were Caucasian, and 97 were Hispanic.

There were 19 independent variables identified in this study including 6 microsystems categories (15 variables) and 4 individual child characteristic variables. There were 3 dependent variables measured in the study: Academic achievement, Behavioral Adjustment, and Overall Success. Both bivariate analyses and multiple step logistic regression analyses were completed employing the enter method to examine the effects of the predictor variables on each of the three dependent variables.

Consistent with Bronfenbrenner's model of the Ecology of Human Development (1989), several of the identified microsystems were found to be related to the dependent variables. Neighborhood quality, maternal closeness, and maternal intelligence were found to be positively related to academic achievement. Neighborhood quality, family size, 1992 HOME scores, maternal depression, church attendance, and age of the child were all found to be related to behavioral adjustment and Neighborhood quality, 1992 HOME scores, and peer pressure were found to be related to overall success.

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To those who taught me most-
My parents
My husband
My children

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I would like to formally express my gratitude and appreciation to the many people who have contributed to this work.

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Chapter I

INTRODUCTION

More than one million teenagers become pregnant each year, resulting in over 500,000 births (Moore, K., 1996). Recent trends indicate that teenage mothers in greater numbers and at younger ages are opting to parent their children themselves (Internet Explorer, 1996). Between 1986 and 1991, the teen birth rate rose by 25% in the United States (Moore, K., 1996).

The literature abounds with information regarding the form and quality of adolescent parenting. Researchers have unmistakably identified an abundance of adverse consequences associated with both adolescent childbearing and childrearing (Baldwin & Cain, 1983; Christ et al., 1990; Klerman, L., 1993; Furstenberg, Brooks-Gunn, & Morgan, 1987; Luster & Dubow, 1992; East, Matthews & Felice, 1994). Risk factors and their relationship to poor maternal and child outcome have been studied at length.

In an effort to improve the life course of teenagers and their children, more than 30 billion dollars in federal monies are expended annually on programs and services for families begun when the mother was a teenager. Although costly, the vast majority of federal programs have not been successful in bringing about major change in either the

childbearing or childrearing behaviors of adolescents. The crisis of teenage parenting has become an issue of national concern.

Of course, not all children of adolescent mothers are negatively affected. Unfortunately, there is little definitive information regarding the specific factors which promote adjustment and/or prevent the negative consequences repeatedly associated with early childbearing. It is clear that additional research is needed to identify both amendable and immutable factors associated with individual differences in adolescent parenting and child outcome to facilitate the development of appropriate intervention strategies.

STATEMENT OF THE PROBLEM

This study was designed to identify specific microsystem factors which predict the academic achievement and behavioral adjustment of children of adolescent mothers with special emphasis on those children who are academically and behaviorally successful. Specifically, the predictor variables of this study are neighborhood quality and location; family size; quality of the home environment; poverty; father presence; maternal age at first birth, education, depression, and closeness to child; peer pressure on the child; child's church attendance; child's school satisfaction; and child intelligence, gender, age, and race. The outcome variables are academic achievement, behavioral adjustment, and overall success. This study was based on a

secondary analysis of the National Longitudinal Survey of Youth (NLSY) data set.

PURPOSE OF THE STUDY

The primary purpose of the present study is to identify individual child and microsystem factors which positively influence academic achievement, behavioral adjustment, and overall success of children of teenage mothers. Based on Bronfenbrenner's (1979) ecology of human development model, childrens' adjustment is thought to be multiply determined through the "mutual accommodation between the person, the immediate settings, relations between those settings, and the contexts in which these settings are embedded" (Griffore, R. And Phenice, L., 1988, p.515). This study specifically focused on the individual child characteristics of intelligence, gender, age, and race as well as the following microsystems which are thought to be most directly related to child achievement and adjustment: family (including specific maternal characteristics), friends/peers, school, church, and neighborhood. The present study examined the influence of multiple system factors due to the assumption that childrens' achievement, adjustment, and overall success are most likely multiply determined.

The study focused on first born children (aged 13 to 17 years) of adolescent mothers (between the ages of 15 and 19 years at the child's birth) from the 1992 wave of the National Longitudinal Survey of Youth (NLSY). The selection

of mid to upper age range adolescent mothers was influenced by both the notion that, developmentally, there is greater similitude within the 15 to 19 year olds than with the 13 to 19 year olds, and the vast majority of the sample group mothers being aged 15 and above (NLSY, 1992). In fact, the most recent national data indicate that 15 to 19 year old females gave birth to 501,000 babies in 1993 compared to only 12,500 births to females under age 15 (Moore, 1996).

The selection of offspring between the ages of 13 and 17 years allowed for the greatest flexibility in utilizing assessment data. An older, more chronologically similar sample group enhanced the applicability of assessment data and reduced the likelihood that age alone would affect the outcome variables. This combination of 15 to 19 year old mothers at first birth with 13 to 17 year old children, resulted in an adequate sample size.

A review of the literature indicated that there is a documented relationship between the majority of the individual predictor variables and children's academic achievement and/or behavioral adjustment. The literature is lacking in information regarding the predictor variables of school satisfaction, peer pressure, and church attendance and their relationship to achievement and/or adjustment of children. This study examined both the individual and combined effects of each predictor variable.

RESEARCH OBJECTIVES

The research objectives for this study are as follows:

1. To determine if the child characteristics of gender, age, race, and intelligence are predictive of academic achievement, behavioral adjustment, and overall success for children of adolescent mothers;
2. To determine if the neighborhood characteristics of quality and location (urban v.rural) are predictive of the academic achievement, behavioral adjustment, and overall success of children of adolescent mothers;
3. To determine if the family characteristics of family size, quality of the home environment, father presence, and poverty are predictive of the academic achievement, behavioral adjustment, and overall success of children of adolescent mothers;
4. To determine if the maternal characteristics of age at birth of child, intelligence, education, depression, and closeness to the child are predictive of academic achievement, behavioral adjustment, and overall success of children of adolescent mothers;
5. To determine if the quality of the child's peer relationships is predictive of academic achievement, behavioral adjustment, and overall success of children of adolescent mothers;
6. To determine if child church attendance is predictive of academic achievement, behavioral adjustment, and overall success of children of adolescent mothers, and;

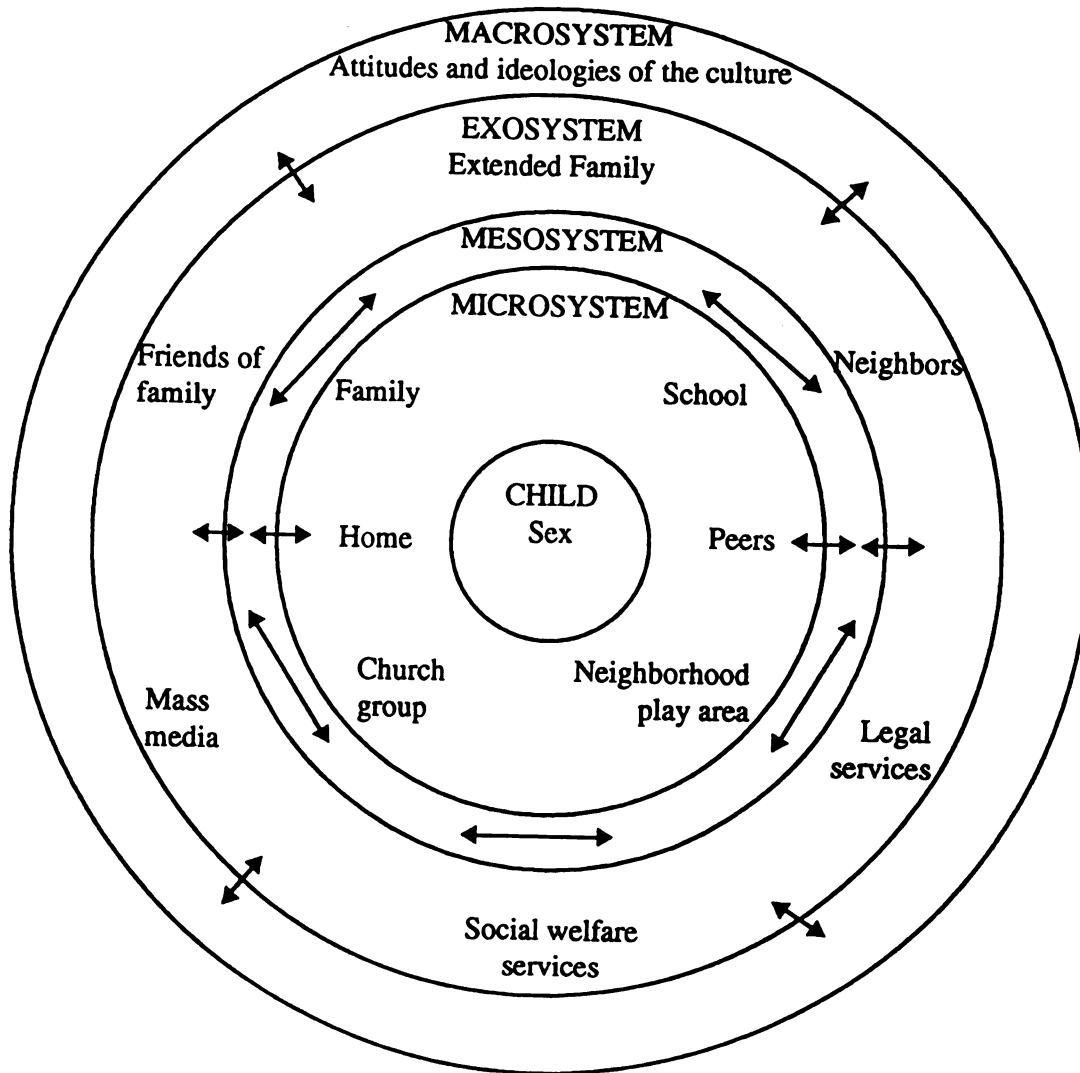
7. To determine if the child's school satisfaction is predictive of academic achievement, behavioral adjustment, and overall success of children of adolescent mothers.

CONCEPTUAL MODEL

The present study focuses primarily on microsystem factors which influence childrens' academic achievement, behavioral adjustment, and overall success. The theoretical framework guiding this study is Bronfenbrenner's (1979) ecology of human development model. According to Bronfenbrenner, behavior evolves as a function of the interplay between person and environment (Bronfenbrenner, 1979). Bronfenbrenner proposes a broad view of "environment" proposing an ecological framework which consists of multiple environmental systems including the microsystem, mesosystem, exosystem, and macrosystem (See Figure 1).

The present study focuses exclusively on the microsystems component of the environment identified by Bronfenbrenner. A *microsystem* has been defined as a "pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics" (Bronfenbrenner, 1979, p.22). A *setting* is defined as "a place with particular physical features in which the participants engage in particular activities in particular roles (e.g., daughter, parent, friend) for particular

Figure 1
Diagrammatic representation of Bronfenbrenner's
Ecology of Human Development Model (1979).



periods of time. The factors of place, time, physical features, activity, participant, and role constitute the elements of a setting" (Bronfenbrenner, 1977, p. 514). Bronfenbrenner further defines "setting" as a "place where people can readily engage in face-to-face interaction- home, day care center, playground, and so on" (Bronfenbrenner, 1979, p.22).

This study specifically focuses on the following microsystems: family, neighborhood, school, church, and peer group. Given that the children within this study are between the ages of 13 and 17 years, both the neighborhood and peer group may be viewed as settings with particular physical and material characteristics particularly relevant to the adolescent.

Bronfenbrenner also notes that " a critical term in this definition is 'experienced'...a term used to indicate that the scientifically relevant features of any environment include not only its objective properties (e.g., physical composition and boundaries) but also the way in which these properties are perceived by the persons in that environment" (Bronfenbrenner, 1979, p.22). He maintains that in order to fully understand the forces directly affecting personal development, it is essential that a theoretical perspective consisting of systems, rather than linear relationships, be utilized.

In addition to the microsystems dimension of Bronfenbrenner's Ecology of Human Development model, there

are four additional levels of ecological structure outlined below and represented in Figure 1: A **mesosystem** "comprises the interrelations among two or more settings in which the developing person actively participates (such as, for a child, the relations among home, school, and neighborhood peer group)" (Bronfenbrenner, 1979). It is a system of microsystems.

The ecosystem refers to "one or more settings that do not involve the developing person as an active participant, but in which events occur that affect, or are affected by, what happens in the setting containing the developing person" (Bronfenbrenner, 1979). Examples of an ecosystem for a child might include friends of the family, mass media, and social welfare services.

The **macrosystem** refers to "consistencies, in the form and content of lower-order systems (micro-, meso-, and exo-) that exist, or could exist, at the level of the subculture or the culture as a whole, along with any belief systems or ideology underlying such consistencies" (Bronfenbrenner, 1979). For example, within the United States, major institutions and settings such as schools, hospitals, or governmental agencies look and function much the same, but they all differ from their counterparts in other countries. These similarities of structure and function may actually exist in the form of recorded laws, regulations, and rules. However, most macrosystems are informal and implicit-maintained through custom and practice in everyday life.

Bronfenbrenner's ecological framework consists then, of environmental systems. He proposes that development never takes place in a vacuum; it is always embedded and expressed through behavior in a particular environmental context (Bronfenbrenner, p. 27, 1979). An ecological analysis "focuses on the interactions/transactions between individuals and other systems which make up the ecosystem. These include interactions/transactions between microsystems in their environments, or between microsystem and the mesosystem or ecosystem or macrosystem, or any combination thereof" (Griffore & Phenice, 1988).

This study was specifically developed to predict the academic achievement and behavioral adjustment of children of teenage mothers based upon the selection of variables representing multiple microsystems which are thought to most affect children. The additional levels of ecological structure (meso-, exo-, and macrosystems) are shown in the conceptual model (Figure 1) to clarify Bronfenbrenner's model but were not examined in this study. A complete discussion of these additional ecological structure levels may be found in Bronfenbrenner's 1979 book, the Ecology of Human Development.

The individual child characteristics which were examined in this study include gender, age, race, and intelligence. The microsystem elements which were explored reflect those identified by Bronfenbrenner as commonly included in the microsystem dimension: family (maternal

characteristics- age at birth of the first child, educational level, intelligence level, maternal closeness, and depression and general family characteristics- quality of the home environment, family size, father presence, and poverty level), neighborhood, (urban dwelling, quality of the neighborhood), church (child's church attendance), school (child's school satisfaction), and peers (quality of child's peer relationships) (See Figure 2).

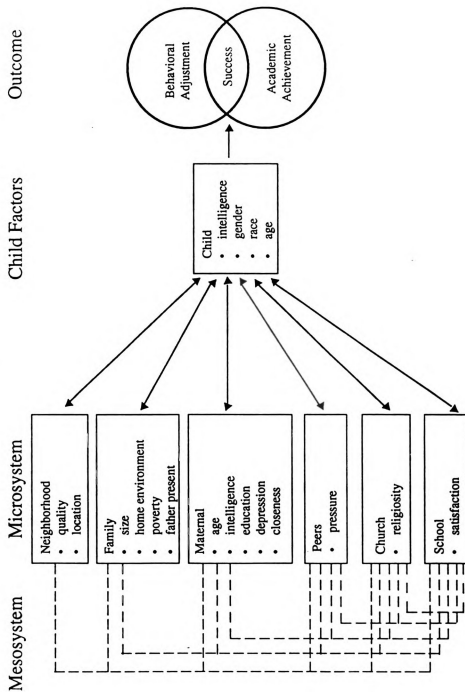
Variables

Dependent Variables: Behavioral Adjustment Indicators: Behavior was measured using the mother's responses to the Behavior Problem Index (BPI) (Peterson & Zill, 1986). This scale was created to measure the frequency, range and type of childhood behavior problems for children age four and over.

The BPI is a 28-item scale derived from Achenbach and Edelbrock's (1981) Behavior Problems Checklist and other child behavior scales. The BPI deals with specific behaviors the child may have exhibited in the past three months. Three response categories ("often true", "sometimes true", and "not true") were used in the questionnaire. The 28 items have been used to define six behavioral subscales: antisocial, anxious/depressed, headstrong, hyperactive, immature dependency and peer conflict/social withdrawal. The internal consistency of the subscales is modest (Chronbach's alpha ranging from .54 to .69). A stronger reliability is apparent for the total scale ($r=.86$).

Figure 2

Conceptual Framework: Wheeler Model
Identifying Microsystem Factors Impacting the Success of Children (1996).



Children's scores were standardized by gender, with a mean of 100 and a standard deviation of 15. As expected, the mean BPI score for the NLSY respondents is higher than average (109) reflecting a higher incidence of behavioral problems within this sample when compared to the general population. The Behavior Problems Index has been used in several prior national surveys that have included children from a wide range of social, economic, and ethnic backgrounds (NLSY, 1992).

Academic Achievement Indicators: Achievement was measured using the Math, Reading Recognition, and Reading Comprehension sections of the Peabody Individual Achievement Test (Dunn and Markwardt, 1970). The PIAT is a wide-range measure of academic achievement for children aged five and over which is commonly known and used in research. It is among the most widely used brief assessment of academic achievement having demonstrably high test-retest reliability and concurrent validity.

The overall normed standard mean for the NLSY sample on the Math assessment is 99.7 compared with a mean of 100 for the national sample it was normed against (NLSY, 1992). It has been noted that "while the overall standard score mean on PIAT Math for the NLSY sample approximates 100, a disproportionately small fraction of the children fell more than one standard deviation above, or one standard deviation below, the mean-compared with the late 1960's norming sample" (NLSY, 1992).

There is some modest evidence that the NLSY sample is above average, compared with 1960's children, in meeting minimal mathematics standards, but below average in coping with more complex mathematical operations (NLSY, 1992). Possible explanations for this phenomena include an increase in early Math readiness due in part to media exposure (e.g., Sesame Street) and early intervention programs (e.g., Head Start) especially aimed at high risk populations (such as the NLSY sample) since the norming of the PIAT in the late 1960's.

As with the PIAT Math assessment, the Reading Recognition section also shows an above average (103) mean when compared to the norming sample. Thus, even though the NLSY children are disadvantaged compared with a full cross section of children, they score ABOVE average on the reading recognition measure.

The third component of the Academic Achievement indicator is the PIAT Reading Comprehension section. As with the other PIAT measures, Reading Comprehension is considered a highly reliable and valid assessment. The test-retest reliability ranges from .61 to .78 (NLSY, 1992).

Again, the children of the NLSY scored above the national norming sample with a mean of 102.4. The patterning of PIAT comprehension scores show considerable variability by race, maternal education, and maternal age at first birth.

In an effort to simplify and clarify the academic achievement indicator, the three components (PIAT Math, Reading Comprehension, and Reading Recognition) were combined into one variable through an averaging of the three scores. Table 1 provides the correlation coefficients for the Academic indicators. Each of the measures are well correlated with each other ($r=.59$ to $r=.68$) and each is highly correlated to the overall academic measure ($r=.83$ to $r=.90$).

Overall Success Indicators: A composite measure of success was created to provide a "global" view of child outcome. Successful children were identified as those scoring in either the third or fourth quartile (highest) in both academic achievement and behavioral adjustment. The least successful children were identified as those scoring in either the first or second (lowest) quartile in both academic achievement and behavioral adjustment (See Table 2).

Independent Variables

Child's Intelligence: The Peabody Picture Vocabulary Test-Revised (PPVT-R) (Dunn & Dunn, 1981) was used as an indicator of child intelligence. This receptive vocabulary test is widely recognized as one of the most reliable and valid measures of verbal intelligence. Although the test results in a standardized score with a mean of 100 and a standard deviation of 15, it is not considered equivalent to

Table 1.

Correlation Coefficients for PIAT Math, Reading Recognition, Reading Comprehension and Created Variable "Academic"

	Academic	PIATMath	PIATRCom	PIATRead
Academic	1.00	.83	.87	.90
PIATMath	.83	1.00	.59	.61
PIATRCom	.87	.59	1.00	.68
PIATRead	.90	.61	.68	1.00

(p=.01)

Table 2.

Overall Success: Cross Tabulation of Academic and Behavioral Variables by Quartiles with Low and High Success Groups Identified

	Count	Behavior (BPIPCT quartiles)				
		1	2	3	4	Row Total %
Academic (quartiles)	1	27	17	23	28	95 23.9
	2	28	28	22	21	99 24.9
	3	27	32	23	19	101 25.4
	4	16	23	38	25	102 25.7
	Column Total %	98 24.7	100 25.2	106 26.7	93 23.4	397 100.0

a more complete IQ test such as the WISC-R or the McCarthy Scales of Children's Abilities.

On the other hand, due to the fact that the test does not rely on verbal or written responses, the PPVT-R has been recognized as particularly applicable for use with the economically disadvantaged or various under-represented groups who may have difficulty with verbal fluency (Dunn & Dunn, 1981; Chase-Lansdale et al., 1991).

The PPVT-R has strong psychometric properties correlating well with measures of intelligence and is a good predictor of achievement (Dunn & Dunn, 1981). The mean PPVT-R score for the children of the NLSY in 1986 was 92 with a standard deviation of 19 (NLSY, 1990).

Maternal Age at First Birth: Maternal age was identified at the birth of the first child. Mother's less than 15 years of age were not selected for this study due to their limited representation in the sample and the expected differences observed between the young adolescents and the mid to upper range adolescents in development, education, and experience.

Maternal Education: Maternal education is defined as years of mother's education as of interview time in 1992. Additionally, educational levels were also grouped into four categories: elementary school, middle school, some high school, and high school graduate to reflect the educational system's organization of elementary, middle, and high school which has been developed to support the clear developmental,

social, and educational differences of the various aged students. The high school graduate category was added because it is widely recognized that in the United States, high school graduates are economically and socially advantaged in comparison to those who have "attended some high school". The average level of education was 11.2 years for this sample.

Maternal Intelligence: The Armed Forces Qualification Test (AFQT) intelligence measures are derived from the mother's Profile scores on the Armed Services Vocational Aptitude Battery (ASVAB) component of the Armed Forces Qualifications Test which was administered to respondents in 1980. The AFQT is commonly used to determine trainability and general aptitude for the Armed Services and is well correlated to IQ (NLSY, 1992).

Home Environment: The elementary school version of the Home Observation for Measurement of the Environment (Caldwell & Bradley, 1984) was used as an index of the quality of stimulation provided in the home (e.g., maternal warmth and acceptance of the child, organization of the environment, provision of learning and cultural opportunities). An abbreviated version of the HOME (HOME-SF) was designed for the purposes of the National Longitudinal Survey of Youth study by the original authors of the measure. In 1988 and 1990, the HOME-SF items were expanded for children ten and over.

The HOME-SF has been among the most heavily used of the NLSY child assessments having relatively high completion rates and high reliability and face validity (NLSY, 1990). Previous longitudinal research indicates that the HOME predicts later cognitive, social, and physical development (Yeates et al., 1983; NLSY, 1990).

The HOME-SF was administered to children in 1986, 1988, 1990, and 1992. Although stability over time may be anticipated, the cross-year correlations are not overwhelmingly strong, perhaps reflecting the impact of significant life changes (divorce, separation, or birth of another child). The greatest differences were seen between the 1988 and the 1992 HOME-SF scores in this sample. Therefore, the HOME-SF scores from both 1988 and 1992 were selected as individual predictor variables.

Maternal Depression: The Center for Epidemiological Studies Depression Scale (CESD), first administered to NLSY respondents in 1992 was used to measure maternal depression. The 20 item, self-report scale, uses a 4 point Likert rating for each question. For example, item #4, "I felt that I was just as good as other people", may be answered with responses ranging from "0"= rarely/none of the time to "3"= frequently/all of the time.

Neighborhood Quality: Round 14, 1992 interviews provide the first assessment of the family neighborhood via maternal responses to questions in the maternal supplement. Specifically, a five point scale was used to rate maternal

response to the following: "How would you rate your neighborhood as a place to raise children"? With a score of 1 indicating "excellent", 2 indicating "very good", 3 indicating "good", 4 indicating "fair", and a score of 5 indicating "poor". For purposes of clarity in data analyses, this item was recoded with a score of 1 being "poor" and a score of 5 indicating "excellent". Therefore, the higher the score, the better the neighborhood rating.

Poverty: Poverty levels were obtained for each of the reporting years. Those families living in poverty (below the federally identified family income/size criteria) for more than six years between 1979 and 1992 were coded as "living in poverty"; those living in poverty less than six years were coded as not living in poverty. In light of the fact that the negative impacts of poverty are clearly more severe with persistent rather than intermittent or short term poverty, the grouped variable was created (Bane & Ellwood, 1986; Duncan, Hill, & Hoffman, 1988). Additionally, it has been well documented that children are negatively affected by factors associated with poverty such as low maternal education, father absence, crowding, and poor schools. This variable is used to identify the specific impact of persistent poverty in relation to the other factors identified.

Family Size: Family size was identified as the actual number of children living within the mother's household reported in 1992. In addition to actual number of children,

families were categorized into two subgroups; those having less than four children and those with four or more children in accordance with the literature which identifies decreased cognitive and social development in families with more than four children (Barocas et al., 1985).

Urban/Rural Residence: Families primary residence at the time of interview in 1992 was used to determine urban/rural residence. Residing in urban areas, especially large central cities in the United States, exposes one to a wide variety of hazards such as higher percentages of people living in poverty, higher rates of teen pregnancy, single parenthood, unemployment, crime, drug use, and school failure (Jencks & Mayer, 1988;). Urban v. Rural designations correspond to the definitions provided in the U.S. Bureau of the Census (NLSY, 1992).

Peer Relationships: The quality of the peer relationships was measured in terms of peer pressure, using item #45, Child Self Administered Supplement, NLSY, 1992, "Do you feel pressure from your friends to do any of the following things? A) try cigarettes, B) work hard in school, C) try marijuana or other drugs, D) drink beer, wine, or liquor, E) skip school, F) commit a crime, or do something violent" (NLSY Child Self Administered Supplement). The five negative items (A,C, D, E, and F) were selected and averaged to create a single "peer pressure" score reflecting negative peer pressure. The scores ranged from "0" to "5" with a yes answer coded as "1"

and a no answer coded as "0". The mean peer pressure score for this sample was 1.10.

Church Attendance: Church attendance was measured using item #39, Child Self Administered Supplement, NLSY, 1992, "How often have you attended religious services in the past year?" Responses ranged from "0" indicating "never" to "6", indicating "more than once per week" with a mean score of 3.06 for this sample group. Data supporting the relationship between church attendance and academic and behavioral indicators is currently lacking in the literature.

Maternal Closeness: Maternal closeness was measured using item #12 in the Child Self-Administered Supplement, NLSY, Round 14, 1992, "How close do you feel to your mother?" Responses range from "1" indicating "not very close" to "4" indicating "extremely close" with a mean score of 3.20 for this sample group.

School Satisfaction: School satisfaction was measured using item #22, Child Self Administered Supplement, NLSY, 1992, "How satisfied are you with your school?". Responses ranged from "1" to "4" with "1" indicating very dissatisfied and "4" indicating very satisfied.

RATIONALE FOR THE STUDY

The National Research Council's Panel on Adolescent Pregnancy and Childbearing completed a broad review of the literature that documents in great detail a host of negative consequences on the educational, economic, and social

development of young mothers (Hayes, 1987; Hoeffferth & Hayes, 1987). Further, the literature is replete with data regarding the likelihood of undesirable outcome for the children of young mothers (Brooks-Gunn & Furstenberg, 1986; Christ, 1990; Klerman, 1993; East, Matthews, & Felice, 1994; Luster & Dubow, 1992).

In 1993, Bucholz and Korn found that a confluence of factors other than maternal age may be causally related to the higher incidence of maltreatment of children of adolescent mothers. Maternal level of education and intelligence are widely believed to be fundamental factors in areas as diverse as socio-economic development, parenting behavior, and marital stability (vonWindeguth & Urbano, 1989; Bradley & Caldwell, 1984; Menaghan & Parcel, 1991).

Several studies have also found that parents' level of education and childrens' cognitive competence are positively related (Gottfried & Gottfried, 1984; Luster & Dubow, 1990).

The mother's personality, particularly her emotional well being, has been shown to influence how she relates to her children (Hannan & Luster, 1991). Past research has linked maternal depression and self-esteem to the quality of the mother-child relationship (Small, 1988; Dubow & Luster, 1990).

The extent to which the quality of the home environment influences the cognitive achievement of children has been debated within the literature. In the 1990 study by Luster and Dubow, HOME scores were found to enhance the

predictability of child cognitive intelligence when maternal intelligence was controlled.

Earlier studies have shown that socio-economic status of the family (which includes family income) is positively related to the quality of the home environment (Bradley & Caldwell, 1984). Low income parents have been consistently shown to provide less cognitively stimulating home environments than middle or high income parents (Elder & Caspi, 1988; Dubow & Luster, 1990). Several studies have found that families with fewer children are more likely to provide a supportive home environment when compared to families with many children (Luster & Dubow, 1990; Menaghan & Parcel, 1991).

In a study of urban and rural communities that were comparable in socio-economic status, it was found that behavioral and reading problems were twice as prevalent in the urban sample (Rutter, 1981). It may be postulated that geography is less an issue than the concordant factors of urban stressors including crowded living conditions, poor school systems, and dangerous neighborhoods. Nevertheless, urban residence in itself appears to be a marker for increased risk of poor behavioral and academic outcome (Dubow & Luster, 1990).

The perceived quality of the neighborhood has also been under-studied in the literature. This study will provide foundational data regarding the impact of the child's assessment of his school and neighborhood environments on

his subsequent academic and behavioral development. Evidence regarding the impact of church attendance and perceived quality of the school environment on children's academic achievement and behavioral adjustment is currently absent in the literature.

Although it is clear that an adolescent's life course, as well as that of her offspring, are significantly impacted by the experience of early childbearing, less attention has been given to those factors that may be related to the positive achievement and adjustment of such children. This study focuses on the impact of multiple systems and their predictors of successful child outcomes. Through the identification of factors related to successful child outcome, one may seek to alter various microsystems and enhance positive child characteristics to promote greater academic achievement, behavioral adjustment and overall success and mitigate the negative impact of early childbearing.

CHAPTER II

REVIEW OF THE LITERATURE

The previous chapter presented a brief review of the literature related to adolescent parenting and the subsequent achievement and adjustment of the adolescent's children. This chapter presents a review of studies that have explored the relationship between academic achievement and behavioral adjustment and the following microsystems: neighborhood, family, peers, school, and church. The discussion also includes a general review of adolescent parenting practices and the impact of child intelligence, gender, and race on individual achievement and adjustment.

ADOLESCENT PARENTING PRACTICES AND FACTORS IMPACTING ACHIEVEMENT AND ADJUSTMENT

During the past decade, more than a half a million children have been born to adolescent mothers each year. Nearly all of the adolescent mothers who carry their pregnancy to term choose to parent the child themselves (Hayes, 1987). Although limited, research exploring the parenting practices of this group has grown over the previous decade. Unfortunately, researchers examining the parenting of adolescent mothers have identified striking deficits in comparison with adult mothers. The literature is replete with data confirming the notion that teenagers, in general, do not make good parents. Adolescent mothers are reportedly less sensitive, less verbal, and less

responsive to their infants interactional cues (Panzarine, 1988; Elster, McAnarney, & Lamb, 1983).

Adolescent mothers have been found to provide less verbal stimulation for their infants (Brooks-Gunn & Furstenberg, 1986). They are more likely to have unrealistic expectations of their children which is thought to be associated with higher rates of child abuse among teenage parents (vonWiedeguth & Urbano, 1989).

Earlier studies have shown that children born to teenage mothers are more likely than their peers to have deficiencies in both the academic and behavioral domains. Dubow and Luster (1990) have provided support for the notion that children of adolescent mothers who experience multiple stressors may be at greatest risk for low achievement and behavioral problems. They also found that children exposed to several risk factors were much more likely to perform poorly academically and behaviorally than children exposed to no risk factors (Dubow & Luster, 1990).

Wyman et al. (1988) found that demographically comparable groups of children exposed to major life stressors, (e.g., adolescent mother) were either stress affected or stress resilient depending on factors other than maternal age alone. Luster and McAdoo (1994) reported that there was a positive relationship between the number of risk factors African-American children were exposed to and the probability that they were experiencing academic or behavioral problems.

Luthar (1989) found that moderating variables such as intelligence, internal locus of control, social skills, ego development, and positive life events, may also impact children's vulnerability or resilience to stress. Interestingly, the same study revealed that children labeled as resilient were significantly more depressed and anxious than were competent children from low stress backgrounds (Luthar, 1989).

Researchers have found that adolescent mothers provide less supportive home environments for their infants (Luster & Rhoades, 1989; Schilmoeller & Baranowski, 1985; Hannan & Luster, 1991). Adolescent mothers are less likely to be able to offer continuity to their offspring than adult mothers in part because they are attempting to balance parenting with the normative tasks of establishing an identity, achieving an education, and making decisions about employment and career choices (Hubbs-Tait, Osofsky, Hann, & Culp, 1994).

Several researchers have begun to look at both adolescent ability and conditions under which adolescents may be at greater or lesser risk for negatively impacting the development of their children (Bucholz & Korn, 1993). Bucholz and Korn (1993) found that a confluence of factors other than maternal age may be causally related to the higher incidence of maltreatment of children of adolescent mothers.

Klerman (1993) suggested that other factors, such as poverty, may be more reliable indicators of parenting performance than maternal age. Christ et al. (1990) found that teenage motherhood was spuriously related with child conduct problems because of common associations with socioeconomic status and parental anti-social personality disorder, rather than age alone.

Belsky et al. (1984) suggested that "individual differences in parenting are multiply determined by a variety of factors both within and beyond individual parents and their families in which they function" (p. 252). He identified three factors that influenced parental competence: a) personal resources of parents, b) the child's characteristics, and social sources of stress and support (Belsky, 1984). Unfortunately, most adolescent parents display few personal resources and often experience limited social and familial support.

Clearly, the true measure of successful adolescent parenting is not the parenting, per se, but the successful outcomes of the children. Unfortunately, the children of teenage mothers have been shown in many ways to do less well than children born to older mothers (Wadsworth, Taylor, Osborn, & Butler, 1982). Children born to younger mothers have been shown to "suffer more physical, emotional, and intellectual handicaps than other children" (Wadsworth et al., 1982). It seems that the additional burden of parenthood is, for many adolescents, overwhelming.

The neighborhood characteristic of urban residence has been linked with poor child outcome in the literature. Rutter (1981) found that in a comparison of urban and rural communities that were similar in socio-economic status, children residing in the urban setting were twice as likely to have behavioral and reading problems. It has been postulated that children in urban settings are frequently exposed to multiple risk factors including crowded living conditions, poor schools, and generally deteriorating neighborhoods. Information regarding overall neighborhood quality itself, rather than urban or rural residence has not been reported in the literature.

Over the past 20 years, numerous studies have documented the link between early parent-child interactions and children's subsequent IQ and academic achievement. Caldwell et al. (1975) devised the most notable measure of the quality of the home environment that parents provide for their children, aptly titled the HOME Inventory. These findings have been reproduced in a variety of studies throughout the years. Bradley and Caldwell (1984) found a strong relation between children's early home environment and their later intellectual and academic performance. They found substantial correlations between scores on the HOME Inventory administered during the first two years of life and intelligence test scores measured at ages 3 and 4 $\frac{1}{2}$.

In 1989, Bradley found that measures of specific aspects of the child's home environment such as parental

responsivity and availability of stimulating play materials were more strongly related to children's cognitive development than global measures of environmental quality such as socio-economic status. Other studies have recognized the effects of the quality of the home environment on cognitive development as well (Barnard, Bee, & Hammond, 1984; Hofferth, 1991). Barnard et al. (1984) found moderate correlations between the quality of the home environment and the child's performance on IQ tests at later ages. These correlations remained significant even when the effects of maternal education and socio-economic status were controlled (Barnard et al., 1984).

More recently, Luster and Dubow (1992) found a statistically significant relationship between home environment and the child's IQ after the effect of maternal IQ was partialled out. They also identified several contextual variables which were significantly related to the quality of the home environment including presence of spouse or male partner in the home, level of income, and family size. Although it was found that child characteristics contributed little to differences in HOME scores across various ethnic groups, some factors, such as level of education, were significant predictors of HOME scores for some ethnic groups (Luster & Dubow, 1990). Luster and Dubow (1992) clearly demonstrated that the strongest predictors of the quality of the home environment were poverty status, presences of a spouse or male partner in the home, and

mothers intelligence. Each of these factors are explored in the current work.

Investigations of the effects of the quality of the home environment on children's academic achievement have been ongoing for nearly thirty years. As early as 1968, longitudinal studies were undertaken to examine this phenomenon.

Although predating the HOME scores used today, home environments were measured using similar criteria and measures. For example, Moore (1968) collected data regarding children's experiences with toys and books, the parents' use of examples and encouragement with the child, and the level of acceptance, warmth, and sensitivity of the parents of the child. Moore found that at age 2 $\frac{1}{2}$ years, none of the variables were significantly related to the children's scores on developmental tests. However, at age eight, significant correlations were found between each of the variables and the children's scores on IQ, vocabulary, comprehension, and reading tests (Baharudin, unpublished dissertation, 1992). Moore proposed that these broad measures of the home environment during early childhood are significant predictors of later IQ and language development (1968).

More recently, Bradley and Caldwell (1984), found a strong relation between children's early home environment (measured with the HOME) and their later intellectual and academic performance.

Several other researchers have conclusively demonstrated that home environment contributes significantly to the cognitive development of children (Elardo et al., 1975; Bradley & Caldwell, 1976; Ramey et al., 1979; Yeates et al., 1983; Sigman et al., 1989). However, some studies have found that the correlation between child intellectual development and home environment is seriously overestimated when maternal intelligence is allowed to covary (Longstreth et al., 1981). In 1985, Scarr found that when mother's education and her IQ score were put into the regression equation, only the mother's IQ significantly predicted the child's IQ.

Family size has frequently been linked to academic and behavioral outcomes with children of larger families displaying poorer outcomes (Baldwin & Cain, 1981). A common explanation for this finding lies in the finite nature of family resources available for each child and the potential overburdening of such critical resources as time and energy available for the child.

Wadsworth et al., (1982) reported that "the single most influential factor on the English Picture Vocabulary Test (EPVT) was the social index", where over .6 standard deviation separated the adjusted mean scores of advantaged and disadvantaged children. They also noted that "social index" (i.e., poverty) was an important independent influence on the child's behavior scores; children from economically disadvantaged homes had adjusted behavior

scores .2 standard deviation lower than those from economically advantaged homes. Barratt (1991) reported that mothers who did not live in poverty "were able to offer their children environments with more reading and enrichment" (p.446) which in turn affected the child's academic achievement.

During the late 1980's research data emerged which also documented significant negative impacts of father absence. Furstenberg et al., found that children born to adolescent mother's who grew up without a father present were at greater risk for both academic and behavioral problems. Furstenberg also identified persistent or chronic poverty as a significant risk factor for poor behavioral and cognitive outcome for children of teenage parents (Furstenberg et al., 1987).

Teenage mothering has been associated with marked differences in performance on both the Peabody Picture Vocabulary Test (PPVT) and the English Picture Vocabulary Test (EPVT). Wadsworth et al., (1982) reported that children of the youngest mothers (less than 18 years) had a mean score almost half a standard deviation below the norm, with the most marked difference between children of the youngest mothers and those whose mothers were 35 years old or more at delivery. Examination of the effects of maternal age on the scholastic achievement and aptitude of their school-aged children showed a clear pattern of disadvantage (Barratt, 1991). Children of younger mothers are less

academically competent overall (Hardy, Welcher, Stanley, & Dallas, 1978; Kinard & Reinherz, 1987; Opel & Royston, 1971).

Maternal age has been found to be positively associated with emotionally supportive responses to preschool age children (Conger, McCarty, Yang, Lahey, & Burgess, 1984). Behavioral adjustment has also been positively correlated with maternal age. In their 1982 study, Wadsworth and her associates found that there were large differences in behavioral scores related to maternal age. They reported once again that the largest differences were between children of the youngest mothers and those of mothers aged 30-34.

Children of teenage mothers have also been found to be more active with less impulse control and increased distractibility (Opel & Royston, 1971; Marecek, 1979). Numerous studies have shown greater behavioral disturbance in children of teenage mothers (Wadsworth et al., 1982). Maternal age has also been shown to be related to the home environment when other factors were controlled (Luster & Dubow, 1990).

Maternal intelligence was found to be significantly associated with the provision of reading and enrichment activities within the home which are in turn significantly related to children's scholastic achievement (Barratt, 1991). Interestingly, Luster and Dubow (1991) reported that maternal intelligence was not directly related to HOME

scores but "that the effect of intellectual ability on the quality of the home environment is mediated by other variables, particularly the mother's educational attainment and financial status" (p. 490) which are logically associated with intellectual ability. In their study, they reported that more intellectually capable mothers completed more education, were less likely to be living in poverty, and had higher levels of self esteem (Dubow & Luster, 1991).

Various researchers have identified the impacts of maternal education on the academic and behavioral progress of their children (Cohen et al., 1980; Kinard & Klerman, 1983; Kinard & Reinherz, 1987). As early as 1981, Baldwin and Cain reported that low maternal education was a major contributor to deficits in the scholastic achievement and aptitude of their offspring. Mothers with higher levels of education also provide significantly more enrichment and reading activities than do those with lower levels (Barratt, 1991). Unfortunately, research suggests that teenage mothers are more likely to drop out of High School (Card & Wise, 1981).

Higher levels of maternal depression have also been found to be associated with specific parenting practices which, in turn, have been associated with behavior problems in children (Hubbs-Tait et al., 1994). For example, mothers with depression demonstrate lower attentiveness to their children, alternating disengagement and intrusiveness, lower reciprocity and synchronicity, and alternating lax

discipline and harsh discipline techniques (Hubbs-Tait et al., 1994). Other researchers have identified the benefits of high maternal self esteem which has been associated with prosocial parenting practices which nurture the development of childrens social competence (Openshaw, Thomas, & Rollins, 1983).

Data regarding the impact of maternal closeness, quality of peer relationships, church attendance, and school satisfaction on children of adolescent mothers is currently lacking in the literature.

Children of teenaged mothers have been found to have lower levels of performance on IQ tests (Hofheimer, 1980) and demonstrate below average academic achievement at seven years of age (Broman, 1981; VonWindeguth & Urbano, 1989). Additionally, the children have lower reading levels and are more likely to demonstrate behavioral problems (Broman, 1981; Oppel & Royston, 1971; VonWindeguth & Urbano, 1989).

Several gender differences have been reported throughout the literature related to child achievement and adjustment. Boys have been reported to score significantly higher than girls on the EPVT (Wadsworth et al., 1982).

The impact of race on child academic and behavioral outcome is complicated at best. Race has been identified as an overarching factor in adolescent parenting and child outcome. Luster and Dubow (1991) noted that black mothers were more likely to be living in poverty than other mothers, even though they completed more years of education than

white or Hispanic mothers. Additionally, they found that black mothers were more likely to be influenced by contextual factors such as being nearly twice as likely to be living in poverty and without a male partner in the home (Luster & Dubow, 1991). Hispanic mothers were reported to have low levels of education and slightly larger families than either black or white mothers (Luster & Dubow, 1991).

SUMMARY

It is evident that there are multiple factors which impact the academic achievement and behavioral adjustment of children of adolescent mothers. The literature is clearly underdeveloped in the area of identifying factors which promote the success of children of adolescent mothers. Debate continues regarding which of these factors best predict successful child outcomes. The current study provides additional information regarding the specific characteristics within the child himself and the microsystems in which he develops, which may be related to the academic achievement, behavioral adjustment, and overall success of children of adolescent mothers.

CHAPTER III

METHODOLOGY

The objectives of this study are to identify specific microsystem factors that predict the successful academic and behavioral adjustment of children of adolescent mothers. The methods used to meet these objectives are described in this chapter. The chapter is divided into the following sections: a) research hypotheses, b) research design and procedures, c) sample selection, d) sample descriptions, e) research instruments, and f) data analyses.

RESEARCH HYPOTHESES

Based on the research objectives, the following hypotheses were tested in this study:

- Ho 1: Child intelligence is unrelated to the academic achievement of children of adolescent mothers.
- Ha 1: Children with higher intelligence levels, as measured by the PPVT, demonstrate greater academic achievement than those with lower intelligence levels.
- Ho 2: Gender is unrelated to the academic achievement of children of adolescent mothers.
- Ha 2: Female children of adolescent mothers demonstrate greater academic achievement than male children of adolescent mothers.
- Ho 3: Race is unrelated to the academic achievement of children of adolescent mothers.

- Ha 3: Children of color of adolescent mothers demonstrate lower academic achievement than do non-minority children.
- Ho 4: Age of the child is unrelated to the academic achievement of children of adolescent mothers.
- Ha 4: Younger children of adolescent mothers demonstrate greater academic achievement than older children.
- Ho 5: The neighborhood microsystem characteristic of geographical location is unrelated to the academic achievement of children of adolescent mothers.
- Ha 5: Children of adolescent mothers residing in a rural area demonstrate greater academic achievement than those children residing in urban areas.
- Ho 6: The neighborhood microsystem characteristic of neighborhood quality is unrelated to the academic achievement of children of adolescent mothers.
- Ha 6: Quality of the neighborhood, as perceived by the mother, is positively related to the academic achievement of children of adolescent mothers.
- Ho 7: The family microsystem characteristic of family size is unrelated to the academic achievement of children of adolescent mothers.
- Ha 7: Children who are reared in families with fewer than four children demonstrate greater academic achievement than those children reared in families with more than four children.

- Ho 8: The family microsystem characteristic of quality of the home environment is unrelated to the academic achievement of children of adolescent mothers.
- Ha 8: Quality of the home environment is positively related to the academic achievement of children of adolescent mothers.
- Ho 9: The family microsystem characteristic of maternal depression is unrelated to the academic achievement of the child.
- Ha 9: Children whose mother's are less depressed demonstrate greater academic achievement than those children whose mother's are more depressed.
- Ho 10: The family microsystem characteristic of maternal age at the birth of the first child is unrelated to the academic achievement of children of adolescent mothers.
- Ha 10: Maternal age at the birth of the first child is negatively related to the academic achievement of the child.
- Ho 11: The family microsystem characteristic of maternal intelligence is unrelated to the academic achievement of children.
- Ha 11: Children of mother's with higher levels of intelligence demonstrate greater academic achievement than those children of mother's with lower levels of intelligence.

- Ho 12: The family microsystem characteristic of level of maternal education is unrelated to the academic achievement of the children.
- Ha 12: Children of adolescent mothers with higher levels of education demonstrate higher academic achievement than those children with mothers with lower levels of education.
- Ho 13: The family microsystem characteristic of maternal closeness is unrelated to the academic achievement of the child.
- Ha 13: Children who report higher levels of maternal closeness demonstrate higher academic achievement than those children with lower levels of maternal closeness.
- Ho 14: The family microsystem characteristic of poverty is unrelated to the academic achievement of children of adolescent mothers.
- Ha 14: Children of adolescent mothers not experiencing persistent poverty demonstrate greater academic achievement than those children not experiencing persistent poverty.
- Ho 15: The family microsystem characteristic of father presence is unrelated to the academic achievement of children of adolescent mothers.

- Ha 15: Children residing in families with their father present demonstrate greater academic achievement than those children without a father present in the household.
- Ho 16: The peer microsystem characteristic of peer pressure is unrelated to the academic achievement of children of adolescent mothers.
- Ha 16: Peer pressure is negatively related to the academic achievement of children of adolescent mothers.
- Ho 17: The school microsystem characteristic of school quality is unrelated to the academic achievement of children of adolescent mothers.
- Ha 17: Perceived quality of the school is positively related to the children's academic achievement.
- Ho 18: The church microsystem characteristic of religiosity is unrelated to the academic achievement of children of adolescent mothers.
- Ha 18: Religiosity is positively related to the academic achievement of children of adolescent mothers.
- Ho 19: Child intelligence is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 19: Children with higher intelligence levels demonstrate greater behavioral adjustment than those with lower intelligence levels.
- Ho 20: Gender is unrelated to the behavioral adjustment of children of adolescent mothers.

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- Ha 20: Female children of adolescent mothers demonstrate greater behavioral adjustment than male children of adolescent mothers.
- Ho 21: Race is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 21: Children of color of adolescent mothers demonstrate poorer behavioral adjustment than do non-minority children.
- Ho 22: Age of the child is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 22: Younger children of adolescent mothers demonstrate greater behavioral adjustment than older children of adolescent mothers.
- Ho 23: The neighborhood microsystem characteristic of geographical location is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 23: Children of adolescent mothers residing in a rural area demonstrate greater behavioral adjustment than those children residing in an urban area.
- Ho 24: The neighborhood microsystem characteristic of neighborhood quality is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 24: Quality of the neighborhood is positively related to the behavioral adjustment of children of adolescent mothers.

- Ho 25: The family microsystem characteristic of family size is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 25: Children who are reared in families with fewer than four children demonstrate greater behavioral adjustment than those children in families with more than four children.
- Ho 26: The family microsystem characteristic of quality of the home environment is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 26: Quality of the home environment is positively related to the behavioral adjustment of children of adolescent mothers.
- Ho 27: The family microsystem characteristic of maternal depression is unrelated to the behavioral adjustment of the child.
- Ha 27: Children whose mother's are less depressed demonstrate greater behavioral adjustment than those children whose mother's are more depressed.
- Ho 28: The family microsystem characteristic of maternal age at the birth of the first child is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 28: Maternal age at the birth of the first child is negatively related to the behavioral adjustment of the child.

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- Ho 29: The family microsystem characteristic of maternal intelligence is unrelated to the behavioral adjustment of children.
- Ha 29: Children of mother's with higher levels of intelligence demonstrate greater behavioral adjustment than those children of mother's with lower levels of intelligence.
- Ho 30: The family microsystem characteristic of level of maternal education is unrelated to the behavioral adjustment of the children.
- Ha 30: Children of adolescent mothers with higher levels of education demonstrate greater behavioral adjustment than those children with mothers with lower levels of education.
- Ho 31: The family microsystem characteristic of maternal closeness is unrelated to the behavioral adjustment of the child.
- Ha 31: Children who report higher levels of maternal closeness demonstrate greater behavioral adjustment than those children with lower levels of maternal closeness.
- Ho 32: The family microsystem characteristic of poverty is unrelated to the behavioral adjustment of children of adolescent mothers.

- Ha 32: Children of adolescent mothers not experiencing persistent poverty demonstrate greater behavioral adjustment than those children experiencing persistent poverty.
- Ho 33: The family microsystem characteristic of father presence is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 33: Children residing in families with their father present demonstrate greater behavioral adjustment than those children without a father present in the household.
- Ho 34: The peer microsystem characteristic of peer pressure is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 34: Peer pressure is negatively related to the behavioral adjustment of children of adolescent mothers.
- Ho 35: The school microsystem characteristic of school quality is unrelated to the behavioral adjustment of children of adolescent mothers.
- Ha 35: Perceived quality of the school is positively related to the children's behavioral adjustment.
- Ho 36: The church microsystem characteristic of religiosity is unrelated to the behavioral adjustment of children of adolescent mothers.

- Ha 36: Religiosity is positively related to the behavioral adjustment of children of adolescent mothers.
- Ho 37: Child intelligence is unrelated to the overall success of children of adolescent mothers.
- Ha 37: Children with higher intelligence levels demonstrate greater overall success than those with lower intelligence levels.
- Ho 38: Gender is unrelated to the overall success of children of adolescent mothers.
- Ha 38: Female children of adolescent mothers demonstrate greater overall success than male children of adolescent mothers.
- Ho 39: Race is unrelated to the overall success of children of adolescent mothers.
- Ha 39: Children of color of adolescent mothers demonstrate lower overall success than do non-minority children.
- Ho 40: Age of the child is unrelated to the overall success of children of adolescent mothers.
- Ha 40: Younger children of adolescent mothers demonstrate greater overall success than do older children.
- Ho 41: The neighborhood microsystem characteristic of geographical location is unrelated to the overall success of children of adolescent mothers.

- Ha 41: Children of adolescent mothers residing in a rural area demonstrate greater overall success than those children residing in urban areas.
- Ho 42: The neighborhood microsystem characteristic of neighborhood quality is unrelated to the overall success of children of adolescent mothers.
- Ha 42: Quality of the neighborhood is positively related to the overall success of children of adolescent mothers.
- Ho 43: The family microsystem characteristic of family size is unrelated to the overall success of children of adolescent mothers.
- Ha 43: Children who are reared in families with fewer than four children demonstrate greater overall success than those children in families with more than four children.
- Ho 44: The family microsystem characteristic of quality of the home environment is unrelated to the overall success of children of adolescent mothers.
- Ha 44: Quality of the home environment is positively related to the success of children of adolescent mothers.
- Ho 45: The family microsystem characteristic of maternal depression is unrelated to the overall success of the child.

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- Ha 45: Children whose mother's are less depressed demonstrate greater overall success than those children whose mother's are more depressed.
- Ho 46: The family microsystem characteristic of maternal age at the birth of the first child is unrelated to the overall success of children of adolescent mothers.
- Ha 46: Maternal age at the birth of the first child is negatively related to the overall success of the child.
- Ho 47: The family microsystem characteristic of maternal intelligence is unrelated to the overall success of children.
- Ha 47: Children of mother's with higher levels of intelligence demonstrate greater overall success than those children of mother's with lower levels of intelligence.
- Ho 48: The family microsystem characteristic of level of maternal education is unrelated to the overall success of the children.
- Ha 48: Children of adolescent mothers with higher levels of education are more successful than those children with mothers with lower levels of education.
- Ho 49: The family microsystem characteristic of maternal closeness is unrelated to the overall success of the child.

- Ha 49: Children who report higher levels of maternal closeness are more successful than those children with lower levels of maternal closeness.
- Ho 50: The family microsystem characteristic of poverty is unrelated to the overall success of children of adolescent mothers.
- Ha 50: Children of adolescent mothers not experiencing persistent poverty demonstrate greater overall success than those children experiencing persistent poverty.
- Ho 51: The family microsystem characteristic of father presence is unrelated to the overall success of children of adolescent mothers.
- Ha 51: Children residing in families with their father present demonstrate greater levels of overall success than those children without a father present in the household.
- Ho 52: The peer microsystem characteristic of peer pressure is unrelated to the overall success of children of adolescent mothers.
- Ha 52: Peer pressure is negatively related to the overall success of children of adolescent mothers.
- Ho 53: The school microsystem characteristic of school quality is unrelated to the overall success of children of adolescent mothers.
- Ha 53: Perceived quality of the school is positively related to the children's overall success.

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Ho 54: The church microsystem characteristic of religiosity is unrelated to the overall success of children of adolescent mothers.

Ha 54: Religiosity is positively related to the overall success of children of adolescent mothers.

RESEARCH DESIGN AND PROCEDURE

A correlational design with bivariate analyses including cross tabulations and logistic regression were used to test the hypotheses. The study contained two major categories of independent variables: a) child characteristics, and b) microsystems characteristics (peers, family, school, church, and neighborhood) with the primary microsystems of focus being the family. Three dependent variables (academic achievement, behavioral adjustment, and overall success) were examined.

The unit of analysis examined in this study was the 13 to 17 year old first born child of adolescent mothers. This secondary data analysis addressed the extent to which the data available from the NLSY data set were consistent with the model presented in Figure 2. The data for this study were extracted from the National Longitudinal Survey of Youth (NLSY,1992). The data were collected by the National Opinion Research Center (NORC) in Chicago. The project was sponsored by the United States Department of Labor and the National Institute for Child Health and Human Development (Baker, Keck, Mott, & Quinlan, 1993). A complete description of the NLSY data set is presented in the next

section. Permission for the present study was granted by the Michigan State University Human Subjects Review Committee (UCRIHS) (see Appendix A).

SAMPLE SELECTION

Data for this study were extracted from the National Longitudinal Survey of Youth (NLSY) data set. The Children of the NLSY represent a unique combination of measurement and design on the part of developmental psychologists, demographers, economists, and sociologists (Chase-Lansdale et al., 1991). This data set consists of more than 7,000 children who have participated in, or been the subject of, detailed assessments every two years beginning in 1986.

The NLSY was begun in 1979 as an extension of the National Longitudinal Survey of Labor Market Experience (NLS) which was funded by the U.S. Department of Labor in the 1960's to study labor-force behavior in the United States. The NLSY was added to assess the impact of new employment and training programs for youth. Given these goals, the creators of the NLSY collected a sample consisting of youth aged 14-21 in 1979 and over-represented Blacks, Hispanics, and economically disadvantaged Whites. Chase-Lansdale et al. (1991) have identified this data set as "particularly fertile ground for studying the impacts on children of specific demographic and social phenomena....including adolescent parenting (p.919).

In an effort to study the ever-growing population of children born to the women of the original NLS, a

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collaborative advisory board of scholars was convened from the Foundation for Child Development, the William T. Grant Foundation, the National Institute for Child Health and Human Development, the National Opinion Research Center at the University of Chicago, and the Center for Human Resource Research at the Ohio State University. The children were first assessed in 1986, as part of Round 8 of the NLSY, and then every two years (1986, 1988, 1990, 1992) thereafter.

The overall sample of the NLSY is a multistage stratified random sample, identified through random selection of counties and more than 75,000 dwellings. There were nearly 13,000 youth identified in the Fall of 1978 with 90% interviewed for the first time in 1979 (Chase-Lansdale, 1991). The NLSY boasts an exceptional retention rate surpassing 90% over the assessment years.

It should be noted that Children of the NLSY does NOT constitute a nationally representative sample of children due to the fact that the majority of the children were born to teenage and young adult mothers and these younger mothers were more likely to be less educated and from minority groups than a full cross section of all women (Chase-Lansdale, 1991).

In addition to the Children of the NLSY data set, two additional data files were used, 1) the Merged Child-Mother file, and 2) the Child Self-Administered Survey, 1992. The Merged Child-Mother file represents a substantial subset of behavioral and attitudinal data relating to the mothers and

families of the children from 1979 to 1992. The Child Self Administered Survey was first completed in 1986 and provides foundational assessments regarding various attitudes and perceptions of the youth surveyed through direct interviewing of the children themselves (Child Self Administered Survey, NLSY, 1992) The sample selected for this study includes 476 mothers between the ages of 15 and 19 years at the birth of their first child with first born children between the ages of 13 and 17 years at NLSY assessment time in 1992. Of the sample mothers and children, 224 were African American, 155 were Caucasian, and 97 were Hispanic.

SAMPLE DESCRIPTION

The sample consisted of a subset of children from the National data set, National Longitudinal Survey of Youth, 1992 wave, with the following characteristics: 1) Children aged 13 to 17 years in 1992; 2) first born child; and 3) mother's age between 15 and 19 years at the time of child's birth.

Table 3 presents a summary of the demographic and background characteristics of the overall sample and ethnic subsamples. This section will provide a discussion of the overall sample.

The mean age at the birth of her first child of the 476 mothers sampled was 17.12 years. The youngest mother was 15 years and the oldest was 19 years. Most (66%) of the

Table 3.
Overall Sample Characteristics (n=476)

Independent Variables	Overall Sample (n=476)	African American (n=224)	Hispanic (n=99)	Caucasian (n=155)
Age of mother (92)				
Mean	32.4	32.2	32.3	32.5
SD	1.6	1.6	1.5	1.6
Age of mother at first birth				
Mean	17.1	16.9	17.1	17.4
SD	1.2	1.2	1.2	1.2
Maternal Education				
Mean	11.1	11.8	9.8	11.0
SD	2.3	1.9	2.8	2.1
Father Present				
% no	52.7	70.5	41.2	34.2
% yes	24.4	9.8	35.1	38.7
Age of child (92)				
Mean	14.8	14.9	14.7	14.7
SD	1.3	1.4	1.4	1.3
Gender of child				
% male	51.3	54.9	51.5	45.8
% female	48.7	45.1	48.5	54.2
Race of child				
% Black	47.1	---	---	---
% Hispanic	20.4	---	---	---
% White	32.6	---	---	---
Poverty level (79-92)				
% < 6 yrs	57.8	45.5	53.6	80.7
% ≥ 6 yrs	39.9	53.1	43.3	19.3
Family location				
% urban	75.4	79.0	90.7	60.6
% rural	23.5	20.1	6.2	39.4
Family size (children)				
% less than or equal to 4	77.9	76.8	69.1	85.2
% greater than 4	22.1	23.2	30.9	14.8

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mothers were between the ages of 17 and 19, 23% were 16 years of age, and only 10% were 15 years of age.

The number of years of education completed by the mothers in the overall sample ranged from 1 to 20 years. The average years of education was 11.15, or some high school. Seventy-five percent of the sample lived in an urban area and nearly 40% lived in poverty for the majority of the time between 1979 and 1992. Additionally, in more than one half (52.7%) of the families, the child's father did not live in the home during any of the previous ten (10) years.

The average number of children born to the mothers was 2.79, with a range from 1 to 8. The age of the children in the sample ranged from 13 to 17 years, with a mean of 14.78 years ($SD = 1.35$). About half of the children were female and half were male. All of the children sampled were first born.

RESEARCH INSTRUMENTS

There were 19 independent variables identified in this study including sixcrosssystems categories (15 variables) and the individual child characteristic variables (4 variables). This section describes the measurement techniques used for each independent variable.

The independent variable, child's intelligence, was measured using the Peabody Picture Vocabulary Test-R (PPVT-R) which was administered during the 1992 assessment round. The PPVT-R is recognized as one of the most reliable and

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valid measures of verbal intelligence. It has strong psychometric properties and correlates well with various measures of intelligence (Dunn & Dunn, 1991).

The remaining independent variables relating to child characteristics are race and gender. Race and gender are self identified by the mother, with the child's race listed as identical to the mother.

The independent variables relating to the neighborhood microsystems are neighborhood quality and location. Quality was measured using the mother's response to the following five point Likert scale question: "How would you rate your neighborhood as a place to raise children"? A rating of "1" corresponds to a description of "excellent" and a rating of "5" corresponds to a description of "poor". For the data analyses, this variable was recoded so the higher numbers correspond to the excellent neighborhood and the lower numbers corresponded to the poorer neighborhoods. The neighborhood location is identified via the NLSY as either "rural" or "urban". A community of 50,000 people or greater is identified as "urban". Essentially, these variable definitions parallel those used by the U.S. Bureau of the Census (NLSY,1992).

The independent variables relating to the family microsystems are family size, quality of the home environment, poverty, and presence of the father. Family size was measured by the number of children living with the mother at the 1992 assessment date. Additionally, this

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variable was grouped and dichotomized into families with 1-3 children (77.9%) and families with 4-8 children (22.1%). Poverty was measured according to the federal guidelines for poverty levels based on family size. Additionally, this variable was also dichotomized to reflect families living the majority of the time either in or out of the poverty designation in recognition of the substantial literature which documents the increased effects of persistent poverty. This grouping was done by the use of the mean function, counting the years in poverty from 1979 to 1992. Families with greater than 50% of their time in poverty were listed as living in poverty, those with less than 50% of their time reported were identified as not living in poverty. Further, respondents were required to have reported poverty levels for a minimum of six years to be included in this variable grouping.

Father presence was measured using the mother's response to the following question in survey years 1984, 1986, 1988, 1990, and 1992: "Was the father of the child living in the household of the mother"? Mother's answered this question either "yes" or "no" for each survey year. Additionally, this variable was grouped on a "0" to "5" scale with "0" indicating that the father had never lived in the household and "5" indicating that he had always lived in the mother's household. Scores of 1, 2, 3, and 4

indicated that he had lived in the mother's household 2, 4, 6, and 8 years respectively out of the preceding 10 years.

The independent variables relating to the maternal characteristics are maternal age, intelligence, education, depression, and closeness to child. Maternal age is identified and measured as the age of the mother at the birth of her first child. Maternal intelligence was measured using the Armed Forces Qualification Test (AFQT). This test consists of four subsets of the Armed Services Vocational Aptitude Battery (ASVAB). It was administered to all mothers in the 1980 NLSY main survey. The AFQT score reflects the sum on the four subsets (word knowledge, paragraph comprehension, numeric operations, and arithmetic reasoning) and has been demonstrated to be a highly reliable and valid measure. The alternate form reliability coefficient and the internal consistency of the AFQT subsets range from .7 to .9 (U.S. Department of Defense, 1982).

Maternal depression was measured using the CESD. The CESD is a 20 item scale using a 4 point Likert scale for each response. Responses are "0"= rarely/none of the time; "1"= some/a little of the time; "2"= occasionally, moderate amount of time; and "3"= most/all of the time. Questions in items 4, 8, 12, and 16 are phrased in a positive direction e.g., Item #4... "I felt that I was just as good as other people". The other 16 items are phrased inversely, e.g., item #3... "I felt that I couldn't shake off the blues even with help from my family and friends".... A maternal

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depression score was computed using the mean scores of items 1 through 20 with items 4, 8, 12, and 16 recoded to reflect a unidirectional response pattern. A score of 0 indicated the least depressed and a score of 3 indicated the most depressed.

Maternal closeness was measured using the child response to the item #12 in the Child Self Supplement, Round 14, NLSY, 1992: "How close do you feel to your Mother"? A 4 point Likert scale was used with 1 corresponding to "not very close" and 4 indicating "extremely close".

The independent variable relating to the peer microsystems is peer pressure. This variable was measured using item #45 in the Child Self Supplement, Round 14, 1992: "Do you feel pressure from your friends to do any of the following things: A) try cigarettes; B) work hard in school; C) try marijuana; D) drink beer, wine or liquor; E) skip school; and F) commit a crime or do something violent". The individual items are scored either yes (1) or no (2). A composite score of the summed answers to each item was computed (recoding item B) and a single measure "peer pressure" was identified. Therefore, the higher the score, the more peer pressure to engage in negative behaviors.

The independent variable related to the Church microsystems was measured using item #39 in the Child Self Supplement, Round 14, NLSY, 1992: "How often have you attended religious services in the past year"? Responses

were obtained using a 6 point Likert scale with 1 indicating "not at all" and 6 indicating "more than once a week".

The independent variable related to the school microsystems was measured using item #22 in the Child Self Supplement, Round 14, 1992: "How satisfied are you with your school"? Responses range from 1 to 4 with 1 indicating very dissatisfied and 4 indicating very satisfied.

There are three dependent variables measured in this study. The first dependent variable, academic achievement, was measured using the Math, Reading Comprehension and Reading Recognition sections of the Peabody Individual Achievement Test (PIAT) (Dunn & Markwardt, 1970). The PIAT is a wide-range measure of academic achievement for children aged five and over. It has demonstrated high test-retest reliability and concurrent validity. A single academic achievement score was computed using the mean scores from the PIAT math, PIAT reading recognition, and PIAT reading comprehension scores. The individual test scores were highly correlated with the composite score with correlation coefficients ranging from .83 to .89. Additionally, the relationship between the individual test scores was also quite high with correlation coefficients ranging from .6 to .9 (See Table 2). Therefore, a single measure of academic achievement was appropriate for this study.

The second dependent variable, behavioral adjustment, was measured using the mother's response to the Behavior Problems Index (BPI) (Peterson & Zill, 1986). The BPI is a

28 item scale derived from the Achenbach and Edelbrock's (1981) Behavior Problems Checklist and other child behavior scales. The 28 items have been used to define six behavioral subscales. The internal consistency of the subscales is modest (r 's ranging from .54 to .69) however, a stronger reliability is apparent for the total scale ($r=.86$). Therefore, the total percentile score was selected as the measure of child behavioral adjustment. As previously noted, the mean BPI score for the NSLY respondents is higher than average (109) with higher scores indicating increasing behavioral difficulties.

The third dependent variable, overall success, is a composite measure of the academic achievement and behavioral adjustment of the children within the sample. Those children scoring in the first or second quartile (i.e., most favorable) in both academic achievement and behavioral adjustment were identified as being successful overall (see Table 3). Those children scoring in the third or fourth quartile (i.e., least favorable) in both academic achievement and behavioral adjustment were identified as being the least successful overall. This measure was created to provide a more global view of childhood success encompassing both the child's academic and behavioral performance.

DATA ANALYSES

Data analyses were completed using the IBM-PC version of the Statistical Package for the Social Sciences (SPSS-

PC). The analyses were conducted separately for each of the dependent variables (academic achievement, behavioral adjustment, and overall success). Descriptive statistics were used to determine the distributional characteristics of each of the independent and dependent variables.

BIVARIATE ANALYSES

Bi-variate analyses were completed for each of the independent variables and the three dependent variables. For these analyses, a series of cross tabulations were run to examine the association between the individual predictor variables and the outcome measures. Cross tabulations were used to direct the focus of study to the highest and lowest groups in both the predictor and outcome variables and to provide consistency with the data analyses.

LOGISTIC REGRESSION ANALYSES

Logistic regression analyses, employing the enter method, were completed to examine the combined effects of several predictor variables on each of the three dependent variables, academic achievement, behavioral adjustment, and overall success. In each case, predictor variables were selected for the regression analyses in a three step process based on 1) identification as significant through the Bivariate analyses, 2) identification as conceptually relevant, and 3) as part of the total list of dependent variables selected for this study. A chance probability level of less than .05 was set to reject the null hypotheses.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter will present the results of the data analyses separately for each of the dependent variables; academic achievement, behavioral adjustment, and overall success. A Bivariate analyses using cross tabulations will be presented first followed by a presentation of the logistic regression analyses in which the combined influence of several factors on academic achievement, behavioral adjustment, and overall success will be assessed. The discussion will be presented in terms of the research hypotheses presented in Chapter III. Further, a brief description of the fit of the data to the model presented in Figure 2 (Chapter I) will also be presented.

BIVARIATE ANALYSES OF PREDICTOR VARIABLES AND ACADEMIC ACHIEVEMENT

This section discusses the associations between the predictor variables and the academic achievement of the children, as assessed using the average of the PIAT Math, Reading Recognition, and Reading Comprehension Scores. For these analyses, only children scoring in the highest and lowest quartiles for academic achievement were included resulting in a sample size of 211. There were 105 children in the lowest quartile (low academic achievement) and 106 in the highest quartile (high academic achievement). Those children scoring in the mid-range were excluded from these

analyses in order to most clearly identify the differences between the most academically successful and the least academically successful.

A series of cross tabulation analyses were run to examine the differences between the individual predictor variables and the outcome measure of Academic Achievement. Cross tabulations were used in order to direct the focus of study to the highest and lowest groups in both the predictor and outcome variables. Table 4 displays those predictor variables which were significantly related to the outcome measure at the $p .05$ level.

As can be seen from the table, the majority (13/19) of the variables were significantly related to the Academic Achievement scores of the children at the $p .05$ level or below. As expected, both of the neighborhood factors (quality and location) were positively related to the academic achievement of the children. Nearly 30% of the highest achieving children resided in the highest quality neighborhoods while only 3% resided in the lowest quality neighborhoods. Those children in the lowest quartile for academic achievement were nearly twice as likely to reside in a poor quality neighborhood as well. Amongst the high achievers, 71.7% lived in urban areas and 28.3% lived in rural areas. In the low achieving group, 82.9% resided in urban areas with 17.1% residing in rural areas. This trend reflects that of the overall sample with the vast majority of respondents residing in urban settings. Therefore, the

Table 4.

Bivariate Analyses: Academic Achievement Percentage of Children in Top and Bottom Quartiles for Selected Microsystem Predictor Variables

Predictor Variable	High Academics Top Quartile Percent	Low Academics Bottom Quartile Percent
<u>Neighborhood</u>		
Quality		
low	2.9	14.3
high	28.6	8.6
Location		
urban	71.7	82.9
rural	28.3	17.1
<u>Family</u>		
Home Environment 1988 (HOME Score)		
low	10.3	38.6
high	37.1	14.9
Home Environment 1992 (HOME Scores)		
low	8.7	33.0
high	34.6	16.5
Family Size		
1-3 children	84.9	66.7
4-8 children	15.1	33.3
Poverty		
< 6 years	73.3	44.1
> 6 years	26.7	55.9
Father Present		
low	45.3	62.9
high	34.9	16.2
<u>Maternal</u>		
Intelligence (AFQT)		
low	8.7	42.2
high	48.5	9.8
Education		
Elementary	1.8	2.9
Some High School	26.3	54.7
High School graduate	43.4	29.8
Some College	21.7	9.7
Closeness to Child		
low	7.0	4.0
high	48.0	59.0

Table 4 (cont.)

Predictor Variable	Top Quartile Percent	Bottom Quartile Percent
Peers		
Peer pressure (negative)		
low	68.8	40.4
high	32.2	59.6
Child Characteristics		
Intelligence (PPVT-R, 1992)		
low	14.3	62.1
high	80.1	2.3
Race		
Black	34.0	69.0
Hispanic	18.9	21.0
White	47.2	20.0

Note. Only predicted variables which were significantly related to Academic Achievement at the $p \leq .05$ level were included.

hypotheses that the neighborhood microsystem characteristics of quality of the neighborhood and urban dwelling are related to academic achievement are supported by the data.

Similarly, the family characteristics of family size, poverty, quality of the home environment, and father presence were also significantly related to academic achievement. Table 4 documents a clear relationship between representation in the lowest quartile for academic achievement and persistent poverty (55.9%). As expected, those children in the highest academic achieving group were more likely (73.3%) to not have experienced persistent poverty.

Small family size is also shown to be predictive of higher academic achievement within this sample. Eighty-five percent of those children in the highest achieving group were reared in families with 3 or less children.

Additionally, in the lowest achieving group, 62.9% of the children never had their father present in the home compared with only 45.3% of those children in the highest achieving group.

Finally, there is a clear relationship between the quality of the home, as measured using the HOME scores from both 1988 and 1992, and the academic achievement of the children. Those children in the highest achieving group were three times as likely to have a high quality home environment. Additionally, those children in the lowest academic group were most likely to have a low quality home environment (38.6%). Therefore, the hypotheses that the family microsystem characteristics of family size, quality of the home environment, father presence, and poverty are related to the academic achievement of children of adolescent mothers are supported by the data.

The maternal characteristics of education, intelligence, and closeness to the child were also significantly related to the outcome measure of academic achievement. Table 4 demonstrates that those children in the highest achieving group were most likely to have mothers with higher levels of both intelligence and education.

Interestingly, the characteristic of maternal closeness to the child was found to be significantly negatively related to academic achievement. Table 4 shows that 48% of the high achieving group rated themselves as being "extremely close" to their mothers while only 7.0% rated themselves as being "not very close". Therefore, the hypotheses that the maternal microsystem characteristics of education and intelligence are related to the outcome measure of academic achievement are supported by the data.

The hypotheses that the maternal characteristics of age at first birth, depression, and closeness to the child are related to the outcome measure were not supported by the data. School satisfaction, church attendance, and peer pressure were not significantly related to this outcome measure.

Lastly, Table 4 demonstrates that the individual child characteristics of intelligence and race were significantly related to academic achievement. Given that intelligence and achievement have been closely associated throughout the literature, it is anticipated that those children scoring the highest on intelligence measures would present similarly on measures of academic achievement. The data clearly support this notion with 80% of the highest achieving children scoring in the top quartile for intelligence. Conversely, only 2.3% of those children in the lowest academic achieving group earned top quartile scored in the PPVT-R.

The characteristic of race is less clear as to the source of the differences discovered. The data reflect that African American children are over represented in the low group and under represented in the high group. Caucasian children were conversely under represented in the lowest group and over represented in the highest group. There was no significant relationship identified for the Hispanic children. These differences are most likely best explained in view of the earlier cultural/ethnic differences identified such as greater likelihood that African American children will be living in Urban areas, residing in poverty, and with poorer HOME scores than either the Hispanic or Caucasian groups.

The individual child characteristics of age and gender were not significantly related to academic achievement in the bivariate analyses.

Multiple Predictors of Academic Achievement

As discussed in Chapter II, academic achievement is most likely influenced by multiple factors. Therefore, in this section, the combined influence of the various factors identified in the conceptual model on the Microsystems Factors Impacting the Achievement and Adjustment of Children is assessed. Fifteen variables within six major microsystems and four individual child characteristics were identified in the model. In order to best evaluate the group differences between the most academically successful children and the least academically successful children a

Logistic regression model was selected. The enter method was selected. The logistic regression analyses were completed using a three stage process; first, those variables which were identified in the bivariate analysis as being significantly related to the outcome measure were entered into the regression analysis. Second, the independent variable measuring child intelligence (PPVT-R) was deleted from the model due to the fact that intelligence has been strongly associated with academic achievement throughout the literature and was, indeed, shown to be strongly correlated with academic achievement in this model specifically ($r=.65$). Both the PPVT-R and the identified outcome measure of academic achievement (PIAT math and reading scores) may be too closely related to be useful in identifying causal or predictive relationships.

Third, the full group of predictor variables (except child intelligence) were entered in the logistic regression equation due to the fact that all of the variables presented in the conceptual model have been identified as theoretically and/or conceptually relevant to academic achievement.

Table 5 displays the results of the first logistic regression analyses which included those variables identified in the bivariate analyses as significantly associated with academic achievement. The method of entry was "enter". Five variables entered in the equation were found to be predictive of academic achievement: Quality of

Table 5.

Logistic Regression Analysis: Stage I-Predictors of Academic Achievement Based on Significant ($p < .05$) Bivariate Analysis (Child Intelligence (PPVT) Excluded)

Predictor Variables (n=156)	Beta	S.E.	Wald	Significance
*Neighborhood Quality	.55	.24	5.27	.02
Neighborhood Location	.05	.33	.02	.87
Family Size	.60	.33	3.31	.07
*HOME Scores (1988)	.01	.00	4.87	.03
HOME Scores (1992)	-.00	.00	.04	.84
Poverty	-.31	.31	.95	.33
Father Presence	.22	.14	2.31	.15
*Maternal Intelligence (AFQT)	.00	.00	4.40	.03
Maternal Education	.39	.84	.21	.64
*Maternal Closeness	-.83	.34	6.11	.01
Peer Pressure	-.12	.26	.21	.64
*Child Intelligence	.08	.02	17.01	.00
Child Race				
Black	.26	.40	.43	.51
Hispanic	.77	.55	1.96	.16

Note: Model chi square=108.57, $p=.00$. (*) indicates significant variable at $p \leq .05$ level.

the neighborhood, quality of the home environment (as measured by the 1988 HOME score), maternal intelligence, maternal closeness to the child, and child intelligence.

Table 6 provides the classification table for academic achievement demonstrating a high accuracy rate of 87.18%. Table 6 shows that 68 (87.18%) of the least successful children were correctly predicted by the model to be in the least successful group. Additionally, 68 (87.18%) of the

Table 6.

Academic Achievement: Classification Table for Academic Achievement. Logistic Regression with Selected Predictor Variables

Observed	Predicted		
	Low	High	
Low	68	10	87.18%
High	10	68	87.18%
OVERALL			87.18%

Note: Predictor variables selected based on bivariate analyses.

most successful children were correctly predicted by the model to be in the most successful group. The off-diagonal entries of the table indicate the number of children incorrectly classified by the model. A total of 20 children (12.8%) were misclassified in the model--10 in the high group and 10 in the low group. Overall, in both the highest and lowest success groups, 87.18% were correctly classified. The model chi square (108.57) was found to be highly significant ($p = .00$).

Interestingly, maternal closeness to the child was found to be negatively related to academic achievement. Thus, those children identifying themselves as "extremely close" to their mother contributed negatively to the regression equation. In view of the fact that the HOME scores were significantly related to achievement and maternal child relationships are an integral part of the

measurement of the Home environment, it was assumed that maternal closeness would, in fact, be positively related to the achievement outcome. Although extensive investigation and examination of this counter-intuitive finding was undertaken, it remains largely unexplainable. One would expect that a more thorough assessment of maternal closeness, in addition to the single item question "How close are you to your mother" might provide a clearer evaluation of actual maternal/child relationship patterns which then may reflect the expected positive relationship clearly identified throughout the literature. Conversely, one possible explanation for this perplexing finding might be that given the age of the respondents (13-17 years) it would be developmentally appropriate for the children to have begun the process of independence and separation from their mothers. If, in fact, they are "extremely close" as teenagers, perhaps there is an over-dependence on their mother which then relates negatively to the child's academic performance and achievement.

Child intelligence, maternal intelligence, quality of the home environment, and quality of the neighborhood all contributed in a positive direction as expected. For example, the higher the child's intelligence and the higher the HOME score, the better the academic achievement score. As expected, child intelligence was the strongest predictor of academic achievement.

In addition to the expectation that children with higher intelligence perform better academically, the measures of child intelligence and child academic achievement are strongly correlated ($r=.65$) indicating that there is probably significant overlap in precisely what quality they are measuring.

The second phase of the logistic regression analysis included an analysis of those factors which were identified as significantly related to academic achievement through the bivariate analysis (cross tabulations) with the exception of child's intelligence. Given the clear relationship between academic achievement and intelligence, it was determined that child's intelligence would be removed from the equation in an attempt to identify other significant factors which may have been obscured by the intelligence variable. Table 7 shows the results of the second phase logistic regression analysis. With child intelligence removed from the equation, maternal intelligence emerged as a significant contributor to the logistic regression equation along with quality of the neighborhood, quality of the home environment (1988 HOME scores), and maternal closeness which had been identified in the first stage analysis.

Although decreased without child intelligence considered, the second phase equation still produced an accuracy rate of 74.86%. Table 8 shows that 71 (77.17%) of the least successful children were correctly predicted by the model to be in the least successful group.

Table 7.

Logistic Regression Analysis: Stage II-Predictors of Academic Achievement Based on Significant ($p < .05$) Bivariate Analysis (Child Intelligence (PPVT) Excluded)

Predictor Variables (n=179)	Beta	S.E.	Wald	Significance
*Neighborhood Quality	.47	.18	6.58	.01
Neighborhood Location	.10	.25	.17	.68
Family Size	.31	.25	1.45	.22
*HOME Scores (1988)	.00	.00	4.59	.03
HOME Scores (1992)	.00	.00	.54	.46
Poverty				
Father Presence	.00	.11	.00	.97
*Maternal Intelligence (AFQT)	.00	.00	13.56	.00
Maternal Education	.31	.58	.29	.58
*Maternal Closeness	-.65	.25	8.17	.00
Peer Pressure	-.09	.18	.25	.62
Child Race				
Black	-.07	.31	.04	.83
Hispanic	.18	.39	.21	.65

Note: Model chi square=83.43, $p=.00$. (*) indicates significant variable at $p \leq .05$ level.

Table 8.

Academic Achievement: Classification Table for Academic Achievement. Logistic Regression with Selected Predictor Variables (Child Intelligence Excluded)

Observed	Predicted		
	Low	High	
Low	71	21	77.17%
High	24	63	72.41%
OVERALL			74.86%

Additionally, 63 (72.41%) of the most successful children were correctly predicted by the model to be in the most successful group. The off-diagonal entries of the table indicate the number of children incorrectly classified by the model. A total of 45 children (25.1%) were misclassified in the model--21 in the high group and 24 in the low group. Overall, in both the highest and lowest success groups, 74.86% were correctly classified. The model chi square (83.43) was found to be highly significant ($p = .00$).

In consideration of the fact that each of the 19 factors identified in the conceptual model have been theoretically linked with academic achievement, the third phase analysis provided the opportunity to consider the full set of predictor variables (with the exception of child intelligence which had been omitted in phase 2 due to the question of intelligence measures and achievement measures being intertwined).

Table 9 displays the results of the third phase analysis which again demonstrate that neighborhood quality, maternal intelligence, and maternal closeness are significant predictors of child's academic achievement at the $P = .00$ level. Interestingly, the quality of the home environment as measured by the 1988 HOME scores drops out as a significant predictor at the $p < .05$ level. It is noted that the quality of the home environment (1992 HOME scores) remained significant at the $p = .07$ level.

Table 9.

Logistic Regression Analysis: Stage III-Predictors of Academic Achievement Based on the Conceptual Model (Child's Intelligence Scores Excluded)

Predictor Variables (n=168)	Beta	S.E.	Wald	Significance
*Neighborhood Quality	.55	.21	7.03	.00
Neighborhood Location	.01	.29	.00	.97
Family Size	.42	.30	1.88	.17
HOME Scores (1988)	.00	.00	3.25	.07
HOME Scores (1992)	.00	.00	1.61	.20
Poverty	-.20	.27	.57	.45
Father Presence	.07	.13	.33	.57
Maternal Age	.02	.20	.01	.90
*Maternal Intelligence (AFQT)	.01	.00	12.93	.00
Maternal Education	.32	.67	.24	.62
Maternal Depression	-.05	.43	.01	.90
*Maternal Closeness	-.71	.25	8.06	.00
Peer Pressure	-.07	.20	.13	.71
Church Attendance	-.29	.46	.39	.53
School Satisfaction	.13	.29	.20	.65
Child Intelligence	+	+	+	+
Child Gender	.26	.45	.33	.56
Child Age	.20	.18	1.22	.26
Child Race				
Black	-.10	.37	.08	.78
Hispanic	.43	.43	.99	.32

Note: Model chi square=83.36, p=.00. (+) indicates child intelligence excluded from model.

Table 10 provides the classification table for academic achievement demonstrating a high accuracy rate of 78.57%. Table 10 shows that 69 (79.31%) of the least successful children were correctly predicted by the model to be in the least successful group. Additionally, 63 (77.78%) of the most successful children were correctly predicted by the model to be in the most successful group. The off-diagonal entries of the table indicate the number of children incorrectly classified by the model. A total of 36 children (21.4%) were misclassified in the model--18 in the high group and 18 in the low group. Overall, in both the highest and lowest groups, 78.57% were correctly classified. The model chi square (88.37) was highly significant at the $p = .00$ level.

BIVARIATE ANALYSES OF PREDICTOR VARIABLES AND BEHAVIORAL ADJUSTMENT

This section discusses the bivariate relationships between the predictor variables and the outcome measure, behavioral adjustment. For these analyses, only those children scoring in the top and bottom quartiles on the Behavior Problems Index (BPI) were selected resulting in a sample size of 221. For the bivariate analysis, the BPI scores were recoded to reflect a higher score equating with fewer behavioral problems and a lower score indicating greater behavioral difficulties. There were 108 children in the lowest quartile (most behavioral problems) and 113

Table 10.

Academic Achievement: Classification Table for Academic Achievement. LogisticRegression with All Model Variables Except Child Intelligence

Observed	Predicted		
	Low	High	
Low	69	18	79.31%
High	18	63	77.78%
OVERALL			78.57%

children in the highest quartile (fewest behavioral problems).

A series of cross tabulations were run to examine the association between the individual predictor variables and the outcome measure of behavioral adjustment. Cross tabulations were again used to direct the focus of study to the highest and lowest groups in both the predictor and outcome variables and to provide consistency with the data analyses. Table 8 identifies the percentage of children in the top and bottom quartiles for behavioral adjustment scores (BPI) for selected predictor variables. Predictor variables identified with the asterisk (*) were found to be significantly related to the outcome measure at the $p=.05$ level or below. Additional predictor variables which approached significance are shown in the table for comparison purposes only. As can be seen from the table,

there were four variables which were significantly related at the $p < .05$ level to the behavioral adjustment of children: Quality of the neighborhood, quality of the home environment (1992 HOME scores), father presence, and age of the child.

As expected, good behavior was positively related to the quality of the neighborhood. Of those children displaying the best behavior, 18.7% resided in high quality neighborhoods vs. Only 3.7% residing in low quality neighborhoods. Of those children displaying the poorest behavior, 11.5% resided in low quality neighborhoods and 10.6% resided in high quality neighborhoods.

The location (Urban v. Rural) was not significantly related to behavioral adjustment and is shown in the table for comparison purposes only.

As with academic achievement, there is a clear relationship between the quality of the home, as measured using the 1992 HOME scores, and the behavioral adjustment of the children. Table 11 demonstrates that those children with the best behavior were more likely to reside in high quality home environments (26.0%) than those children with poor behavior (11.2%). It is interesting to note that the HOME scores from 1988 were not significantly related to the children's behavioral adjustment scores. The BPI measures behavioral difficulties only over the previous three months perhaps accounting for the limited predictive value of home environment from 4 years previous. The 1992 HOME scores

Table 11.

Behavioral Adjustment Percentage of Children in Top and Bottom Quartiles for Selected**Predictor Variables**

Predictor Variable	Good Behavior Top Quartile Percent	Poor Behavior Bottom Quartile Percent
<u>Neighborhood</u>		
+Quality		
low	3.7	11.5
high	18.7	10.6
Location		
urban	71.0	73.2
rural	29.0	26.8
<u>Family</u>		
*Home Environment 1992 (HOME Score)		
low	21.2	36.4
high	26.0	11.2
+Father Presence		
low-never	61.1	56.6
high-always	18.5	22.1
Family Size		
1-3 children	70.4	77.0
4-8 children	29.6	23.0
Poverty		
< 6 years	59.8	59.8
> 6 years	40.2	40.2
<u>Child Characteristics</u>		
*Age of Child		
13-13 years/11 months	15.7	23.9
14-14 years/11 months	19.4	22.1
15-15 years/11 months	13.9	21.2
16-16 years/11 months	38.9	20.4
17-17 years/11 months	12.0	12.4

Note. *Indicates Predictor variables which were significantly related to behavioral adjustment at the $p \leq .05$ level. +Indicates predictor variables which were significantly related at the $p \leq .10$ level. Additional variables are shown for information only.

measure the quality of the home environment during the same period that the child's behavior is measured.

The individual child characteristic of age was significantly related to behavioral adjustment as well ($p=.04$). In the highest behavior group, 15.7% of the children were thirteen years old compared to 50.9% who were sixteen or older. In the poorest behaving group, 23.9% were Table 11 shows that there was a clear pattern of younger children (13-15 years, 11 months) demonstrating poorer behavioral adjustment while the older (17 years- 17 years, 11 months) children were fairly evenly distributed between the top and bottom quartiles for behavioral adjustment. These data may reflect normative, developmental changes associated with adolescence, e.g., the older adolescent may have matured and developed greater internal control over his behavior and impulses.

The characteristic of father presence also approached significance($p=.09$). Table 11 shows that of the best behaving children 61.1% never had their father present while in the poorest behaving group, 56.6% never had their father present. Conversely, in the best behaving group only 18.5% always had their father present and in the worst behaving group 22.1% always had their father present. This finding is inconsistent with previous research which identified father absence as a risk for poor child outcome.

Unlike the bivariate analyses for academic achievement, none of the other predictor variables were found to be

significantly related to behavioral adjustment perhaps reflecting the difficult nature of attempting to identify relationships between individual predictors and overall behavior.

MULTI VARIATE ANALYSES OF PREDICTOR VARIABLES AND BEHAVIORAL ADJUSTMENT

In this section, the combined influence of the various factors identified in the conceptual model (Microsystems Factors Impacting the Achievement and Adjustment of Children) is addressed. Again, the fifteen variables within the six major microsystems and the four individual child characteristics which were identified in the model were included in these multi-variate analyses. Logistic regression analyses were used to examine which of the predictor variables contributed to the behavioral adjustment of the children. The method of entry was "enter". The regression analyses were completed using a three stage process; first, those microsystems variables which were identified in the bivariate analyses as being significantly related were entered; second, all of the variables from the conceptual model were entered; and third, the 1988 HOME scores were excluded due to the high correlation ($r=.68$) with the 1992 HOME scores and in light of the fact that the bivariate analyses revealed that the 1988 HOME scores were not significantly related to behavioral adjustment measured in 1992.

Table 12 displays the results of the first stage logistic regression analysis which included those variables identified in the cross tabulations as significantly associated with behavioral adjustment. The method of entry "enter". Of the four variables entered, only age of the child and quality of the home environment (1992 HOME scores) were found to be significantly related at the $p=.05$ level. The neighborhood quality emerged as a significant predictor at the $p=.06$ level. Father presence was not a significant predictor of child's behavioral adjustment. Table 13 provides the classification table for behavioral adjustment demonstrating an accuracy rate of 63.81%. Table 13 shows that 70 (65.42%) of the children with the poorest behavior were correctly predicted by the model to be in the poorest group. Additionally, 64 (62.14%) of the children with the best behavior were correctly predicted to be in the best group. The off-diagonal entries of the table indicate the number of children incorrectly classified by the model. A total of 76 children (36.2%) were misclassified in this model--39 in the low group and 37 in the high group. Overall, in both the high and low groups, 63.81% were correctly classified. The model chi square (22.81) was found to be highly significant at the $p=.00$ level.

In the second stage, all of the predictor variables identified in the conceptual model were included in the analysis. Table 14 shows the results of the second stage analysis which demonstrated that neighborhood quality,

Table 12.

Logistic Regression Analysis: Stage I--Predictors of Behavioral Adjustment Based on Significant ($p < .10$) Bivariate Analyses

Predictor Variables (n=210)	Beta	S.E.	Wald	Significance
Neighborhood Quality	.22	.13	3.35	.06
*HOME Scores (1992)	.00	.00	10.52	.00
Father Presence	-.09	.08	1.24	.26
*Age Child	.33	.11	8.33	.00

Note: Model Chi Square=22.81, $p = .00$. (*) indicates significant variable at $p \leq .05$ level, (+) indicates significant variable at $p \leq .10$ level.

Table 13.

Behavioral Adjustment: Classification Table for Behavioral Adjustment. Logistic Regression with Selected Predictor Variables

Observed	Predicted		
	Low	High	
Low	70	37	65.42%
High	39	64	62.14%
OVERALL			63.81%

Table 14.

Logistic Regression Analysis: Stage II-Predictors of Behavioral Adjustment Based on the Conceptual Model

Predictor Variables (n=138)	Beta	S.E.	Wald	Significance
*Neighborhood Quality	.51	.20	6.32	.01
Neighborhood Location	.04	.26	.02	.88
*Family Size	-.51	.26	3.80	.05
HOME Scores (1988)	-.00	.00	.06	.80
*HOME Scores (1992)	.01	.00	7.70	.00
Poverty	.12	.28	.19	.66
Father Presence	-.18	.13	1.97	.16
Maternal Age	-.07	.19	.15	.70
Maternal Intelligence (AFQT)	-.00	.00	.05	.81
Maternal Education	.44	.62	.50	.48
*Maternal Depression	-.90	.44	4.23	.04
Maternal Closeness	.07	.27	.06	.80
Peer Pressure	-.21	.18	1.29	.26
+Church Attendance	.24	.13	3.33	.07
School Satisfaction	.19	.30	.40	.53
Child Intelligence (PPVT)	.01	.02	.13	.72
+Child Age	.32	.18	3.21	.07
Child Race	.33	.38	.72	.39

Note: Model chi square=42.52, $p=.00$. (*) indicates variables significant at the $p \leq .05$ level. (+) indicates variables significant at the $p \leq .10$ level.

family size, quality of the home environment (1992 HOME scores), and maternal depression were significant predictors of child's behavioral adjustment at the $p=.05$ level.

Both church attendance and child's age were significant predictors at the $p= .07$ level. Table 15 provides the

Table 15.

Behavioral Adjustment: Classification Table for Behavioral Adjustment. Logistic
Regression Analysis with all Variables Included

Observed	Predicted		
	Low	High	
Low	46	21	68.66%
High	16	55	77.46%
OVERALL			73.19%

classification table for behavioral adjustment demonstrating a relatively high accuracy of 73.19%. Table 15 shows that 46 (68.66%) of the children with the poorest behavior were correctly predicted by the model to be in the poorest group. Further, 55 (77.46%) of the children with the best behavior were correctly predicted to be in the best behaving group. The off-diagonal entries again represent the number of children incorrectly classified by the model. A total of 37 children (26.8%) were misclassified in this model--21 in the poorest behaving group and 16 in the best behaving group. Overall, in both the highest and lowest behaving groups, 73.19% were correctly classified. The model chi square (42.52) was found to be highly significant at the $p=.00$ level.

As expected, the regression equation reflects the positive relationship between high quality home environments and high quality neighborhoods and the inverse relationship

between large family size and maternal depression and children's behavioral adjustment. The variable with the greatest weight in the equation is maternal depression ($b = -.9022$) with neighborhood quality and family size fairly evenly weighted ($b = .5084$ and $b = -.5081$). Table 14 shows that the 1992 HOME scores are the lowest weighted variable with $b = .0051$.

The correlation matrix following the second stage analysis revealed a relatively high correlation between the HOME 1988 and HOME 1992 scores ($r = .68$). In an attempt to more clearly examine the impact of the current home environment (found to be significant with both cross tabulations and logistic regression) and eliminate some of the influence of the earlier environment, the HOME scores from 1988 were eliminated from the model in the third stage analysis. Therefore, the third stage of the logistic regression analysis included an analysis of the total group of predictor variables with the HOME scores from 1988 excluded. Table 16 displays the results of the logistic regression analysis for this model which again demonstrates that neighborhood quality, quality of the home environment (1992 HOME scores), family size, and maternal depression, are significant predictors of the child's behavioral adjustment at the $p = .05$ level. Additional predictor variables which became significant with this model are age of the child and church attendance ($p = .05$). Table 17 provides the classification table for behavioral adjustment

Table 16.

Logistic Regression Analysis: Stage III-Predictors of Behavioral Adjustment Based on the Conceptual Model (HOME 1988 Scores Excluded)

Predictor Variables (n=138)	Beta	S.E.	Wald	Significance
*Neighborhood Quality	.49	.19	6.41	.01
Neighborhood Location	.00	.25	.00	.99
*Family Size	-.53	.26	4.33	.04
*HOME Scores (1992)	.01	.00	8.67	.00
Poverty	.11	.27	.15	.70
Father Presence	-.16	.12	1.77	.18
Maternal Age	-.15	.19	.64	.42
Maternal Intelligence (AFQT)	-.00	.00	.18	.66
Maternal Education	.22	.57	.15	.69
*Maternal Depression	-.87	.42	4.22	.04
Maternal Closeness	.01	.25	.00	.98
Peer Pressure	-.23	.18	1.61	.20
*Church Attendance	.26	.13	4.31	.04
School Satisfaction	.14	.28	.26	.61
Child Intelligence (PPVT)	.00	.01	.12	.73
Child Gender	-.22	.22	1.07	.30
*Child Age	.35	.17	3.98	.05
Child Race	.21	.38	.31	.58

Note: Model chi square=45.07, $p=.00$. (*) indicates significant variables at the $p \leq .05$ level.

Table 17.

Behavioral Adjustment: Classification Table for Behavioral Adjustment. Logistic Regression with Selected Predictor Variables (HOME, 1988 Scores Excluded)

Observed	Predicted		
	Low	High	
Low	54	16	77.14%
High	14	59	80.82%
OVERALL			79.02%

with all model variables included (except 1988 HOME scores) demonstrating a high accuracy rate of 79.02%. Table 17 shows that 54 (77.14%) of the poorest behaving children were correctly predicted to be in the poorest group. Additionally, 59 (80.82%) of the best behaving children were correctly predicted by the model to be in the best group. The off-diagonal entries of the table indicate the number of children incorrectly classified by the model. A total of 30 children (19.18%) were misclassified in the model--16 (22.8%) in the low group and 14 (19.2%) in the high group. Overall, 79.02% were correctly classified. The model chi square (45.07) was found to be highly significant at the $p=.00$ level. The regression equation identifies the directional significance of both larger family size and maternal depression impacting behavioral adjustment negatively ($b=-.5324$ and $b=-.8662$).

BIVARIATE ANALYSES OF PREDICTOR VARIABLES AND OVERALL SUCCESS

This section discusses the bivariate relationships between the predictor variables and the outcome measure, overall success. For these analyses, only those children scoring in the top and bottom quartiles in the overall success measure were selected resulting in a sample size of 154. Again, those children scoring in the mid range were excluded from these analyses in order to most clearly identify the differences between the most overall successful and the least overall successful children. A series of

cross tabulations were run to examine the differences between the individual predictor variables and the outcome measure of overall success. Table 18 displays those predictor variables which were significantly related to the outcome measure. As can be seen from the table, the majority (11/19) of the variables were significantly related to the Overall Success scores of the children.

As expected, the neighborhood quality was positively related to the overall success of the children. Of those children demonstrating the highest overall success, 23.5% resided in the highest quality neighborhoods while only 2.5% resided in the lowest quality neighborhoods. Similarly, of those children displaying the lowest overall success, only 4.2% resided in high quality neighborhoods.

Similarly, the family characteristics of poverty, quality of the home environment in 1988 and 1992, and family size were also significantly related to overall success. Table 18 documents a clear relationship between success and the absence of persistent poverty with 75.6% of the most successful children residing in poverty for less than 6 years. As expected, those children in the highest quartile for success did not experience persistent poverty. Small family size is also shown to be predictive of greater overall success within this sample. Among the most successful children, 82.9% were reared in families with fewer than 4 children. Lastly, there is a clear relationship between quality of the home environment, as

Table 18.

Overall Success: Percentage of Children in High and Low Success Groups for SelectedMicrosystem and Individual Child Predictor Variables

Predictor Variables (n=154)	High Success Top Quartile	Low Success Bottom Quartile
<u>Neighborhood</u>		
Quality		
Low	2.5	16.7
High	23.5	4.2
<u>Family</u>		
*Family Size		
1-3 children	82.9	70.8
4-8 children	17.1	29.2
Poverty		
< 6 years	75.6	47.1
> 6 years	24.4	52.9
Quality of Home (HOME, 1992)		
Low	6.2	39.1
High	37.0	11.6
Quality of Home (HOME, 1988)		
Low	14.7	41.8
High	36.0	14.9
<u>Maternal</u>		
Intelligence (AFQT)		
Low	6.2	35.7
High	50.6	14.3
Education		
Elementary	2.4	9.7
Some High School	23.2	45.8
High School Graduate	42.7	34.7
Some College	31.7	9.7
<u>Peers</u>		
*Peer Pressure (negative)		
Low	86.5	66.6
High	0.0	5.6

Table 18. (Continued)

Predictor Variables (n=154)	High Success Top Quartile	Low Success Bottom Quartile
<u>Church</u>		
Religiosity		
No attendance	15.6	38.8
x 2 month	11.7	13.4
x 1 week	29.9	10.4
<u>Child Characteristics</u>		
*Race		
Black	40.2	58.3
Hispanic	20.7	18.1
White	39.0	23.6
Intelligence (PPVT-R)		
Low	5.6	54.1
High	51.4	9.8

Note. Only predictor variables which were significantly related to overall success at the $p \leq .05$ were included. (*) indicates those variables that approached significance with $p \leq .10$ level.

measured using the 1988 and 1992 HOME scores, and the overall success of children. Those children in the most successful group were most likely to be in the highest quality home environments as well (37% in 1992 and 36% in 1988). In the least successful group the children were over represented in the lowest quality home environments (39.1% in 1992 and 41.8% in 1988). In this analysis, both the 1988 and 1992 HOME scores were significant perhaps reflecting both the academic and behavioral nature of the overall success measure which appears to be impacted by both current and historical home quality.

The maternal characteristics of intelligence and education were also significantly related to the outcome measure of overall success. Table 18 demonstrates that those children who were most successful were more likely to have mothers with higher levels of education and intelligence than were those children who were the least successful. Amongst the most successful children, 50.6% had mothers with high intelligence and 74.4% had mothers who had completed High school or beyond. In the least successful group, 35.7% of the children had mothers who scored in the lowest quartile for intelligence and only 44.4% had completed high school or beyond.

The peer characteristic of negative peer pressure was also significantly related to overall success. Amongst the most successful group, 86.5% experienced low peer pressure compared with 66.6% of the least successful group. Amongst the least successful group, 5.6% reported high levels of negative peer pressure while none (0.0%) of the most successful children reported experiencing negative peer pressure. Clearly, the impact of negative peer pressure is damaging to the overall success of children. The absence of negative peer pressure is not as strong a predictor of success.

Similarly, the church characteristic of religiosity , as measured by church attendance, was also significantly related to the outcome measure of success. Table 18 demonstrates a clear relationship between church attendance

and overall success. Of those children who were the most successful, 29.9% attended church at least once per week compared with only 10.4% of those children who were the least successful. Conversely, 38.8% of the least successful children never attend church compared with 15.6% of the most successful children. The data reflect that as church attendance increases, so does the likelihood of overall success.

Finally, the child characteristics of intelligence and race were found to be significantly related to the outcome measure of success. Considering that a central component of the success measure is "achievement" it is not surprising that 51.4% of the most successful children scored in the top quartile for intelligence versus only 9.8% of the least successful children. As with the academic achievement measure, it is less straight forward to explain the relationship between race and overall success. Table 18 shows that African American children are under represented (40.2%) in the highest quartile for success and over represented in the lowest quartile for success (58.3%). Hispanic children are evenly distributed between the highest and lowest success groups with 20.7% in the highest group and 18.1% in the lowest group. White children are the most unevenly distributed with 39.0% in the most successful group and only 23.6% in the least successful group. These differences are most likely explained in view of other identified differences for minority children such as the

greater likelihood that they will be living in poverty and residing in Urban areas with poorer HOME scores than non-minority children.

MULTIPLE PREDICTORS OF OVERALL SUCCESS

As discussed in Chapter II, the academic achievement and behavioral adjustment of children is most likely multiply determined. Therefore, in this section, the combined influence of the various factors identified in the conceptual model (Microsystems Factors Impacting the Achievement and Adjustment of Children) is assessed. Again, the fifteen variables associated with the identified microsystems and the four individual child characteristics were examined in this model. In order to best evaluate the group differences between the most successful children and the least successful children, a logistic regression model was selected. The method of entry was "enter". The logistic regression was completed using a two step process: first, an analysis was done using the predictors of overall success based on significant ($p=.05$) bivariate analyses. Table 19 displays the results of the Logistic regression which shows that both the 1992 HOME scores and child's intelligence were significant predictors of overall success for this sample ($p=.000$ and $p=.001$). Table 20 provides the classification table for success demonstrating a high accuracy rate of 78.5%. Table 20 shows that 43 (75.44%) of the least successful children were correctly predicted by the model to be in the least successful group.

Table 19.

Logistic Regression Analysis: Stage I Predictors of Overall Success Based on Significant (p<.05) Cross Tabulations

Predictor Variables (n=138)	Beta	S.E.	Wald	Significance
Neighborhood Quality	-.36	.26	1.95	.16
Home Quality (HOME Scores)				
1988	.00	.00	.26	.61
* 1992	.01	.00	4.53	.03
Poverty	.02	.31	.00	.94
Maternal Intelligence (AFQT)	.00	.00	.02	.89
Maternal Education	.19	.90	.04	.83
Church Attendance	.24	.16	2.41	.12
*Child Intelligence (PPVT)	.05	.02	7.60	.01

Note. Model chi square (59.82) significant at p=.00 level.

Table 20.

Overall Success: Classification Table for Success. Logistic Regression with Selected Predictor Variables

Observed	Predicted		Percent Correct
	Low	High	
Low	41	11	78.85%
High	13	47	78.33%
OVERALL			78.57%

Additionally, 51 (78.46%) of the most successful children were correctly predicted by the model to be in the most successful group. The off-diagonal entries of the table indicate the number of children incorrectly classified by the model. A total of 28 children (22.9%) were misclassified in the model--14 (24.5%) in the low group and 14 (21.5%) in the high group. Overall, 77.57% were correctly classified. The model chi square (59.82) was found to be highly significant at the $p=.00$ level.

Again, given the high correlation between academic achievement and intelligence, and the relationship between achievement and the overall success measure, the measure of child intelligence was excluded from the second round analyses. By eliminating child intelligence, it was expected that other, possibly significant, variables would emerge. Table 21 displays the second stage Logistic regression, which demonstrates that neighborhood quality, home quality (1992 HOME scores), and peer pressure were significant predictors of overall success when child intelligence was omitted ($p=.000$). Table 22 provides the classification table for success when all predictor variables are entered (except child intelligence). Table 22 shows that the overall accuracy rate was minimally reduced from 78.57% to 77.05%. The model chi square (67.30) was found to be highly significant at the $p=.00$ level.

Table 21.

Stepwise Logistic Regression Analysis: Stage II Predictors of Overall Success Based on the Conceptual Model (Child's Intelligence Scores Excluded)

Predictor Variables (n=122)	Beta	S.E.	Wald	Significance
*Neighborhood Quality	.61	.27		
Neighborhood Location	.20	.34	.34	.56
Family Size	-.32	.38	.70	.40
Quality of the home (HOME 1988)	.00	.00	.63	.43
*Quality of the home (HOME, 1992)	.01	.00	6.27	.01
Poverty	.00	.35	.00	.99
Father Presence	-.07	.18	.14	.71
Maternal Intelligence	.00	.00	1.89	.16
Maternal Education	.95	.62	2.35	.12
Maternal Closeness	.02	.30	.00	.95
*Peer Pressure	-.54	.24	5.01	.02
Maternal Depression	-.56	.51	1.16	.28
Maternal Age at 1st Birth	.00	.24	.00	.99
Church Attendance	.17	.17	1.04	.31
School Satisfaction	-.45	.43	1.10	.29
Child Gender	-.48	.29	2.68	.10
Child Race	1.01	.57	3.14	.07
Child Age	.09	.21	.19	.66

Note. Model chi square (67.30) significant at $p=.00$ level. (*) indicates variables significant at $p\leq .05$ level.

Table 22.

Overall Success: Classification Table for Success. Logistic Regression with all Predictor Variables Based on Conceptual Model (Child's Intelligence-PPVT-R Excluded)

Observed	Predicted		Percent Correct
	Low	High	
Low	47	10	82.46%
High	15	50	76.92%
OVERALL			79.51%

Summary of Results

In this section, the results of the study are summarized in terms of the research hypotheses addressed in the study.

Hypothesis 1: Children with higher intelligence levels demonstrate greater academic achievement than those with lower intelligence levels.

Hypothesis 2: Female children of adolescent mothers demonstrate greater academic achievement than male children of adolescent mothers.

Hypothesis 3: Children of color of adolescent mothers demonstrate lower academic achievement than do Caucasian children.

Hypothesis 4: Older children of adolescent mothers demonstrate greater academic achievement than do younger children.

The results presented in the earlier section support hypotheses 1 and 3. Children's intelligence levels were significant predictors of academic achievement across the board. Minority children were over represented in the lowest quartile for academic achievement but race was not identified as a significant predictor of academic achievement in the multiple regression analyses. Hypotheses 2 and 4 were not supported by the data as age and gender were found not to be significant predictors of academic achievement.

Hypothesis 5: Children of adolescent mothers residing in a rural area demonstrate greater academic achievement than those children residing in an urban area.

Hypothesis 6: Quality of the neighborhood is positively related to the academic achievement of children of adolescent mothers.

Hypothesis 7: Children who are reared in families with fewer than four children demonstrate greater academic achievement than those children in families with four or more children.

Hypothesis 8: Quality of the home environment is positively related to the academic achievement of children of adolescent mothers.

Hypothesis 9: Children whose mothers' are not clinically depressed demonstrate greater academic achievement than those children whose mothers' are clinically depressed.

Hypothesis 10: Maternal age at the birth of the first child is negatively related to the academic achievement of the child.

Hypothesis 11: Children of mothers with higher levels of intelligence demonstrate greater academic achievement than those children with mothers with lower levels of intelligence.

Hypothesis 12: Children of adolescent mothers with higher levels of education demonstrate higher academic achievement than those children with mothers with lower levels of education.

Hypothesis 13: Children who report higher levels of maternal closeness demonstrate higher academic achievement than those children with lower levels of maternal closeness.

Hypothesis 14: Children of adolescent mothers who do not experience persistent poverty demonstrate greater academic achievement than children experiencing persistent poverty.

Hypothesis 15: Children residing in households with their father present demonstrate greater academic achievement than those children without their father present in the household.

The data were consistent with each of these hypotheses except for Hypothesis 9 and 13. The bivariate analyses demonstrated that all of the microsystem (family) characteristics identified in the model were significantly related to academic achievement with the exception of maternal depression. Additionally, although maternal

closeness was a significant predictor, it was not in the expected direction, i.e, those children reporting that they were extremely close to their mother did less well academically than those children reporting less closeness to their mother.

The logistic regression analyses demonstrated that quality of the home environment (1988), maternal intelligence, and maternal closeness were all significant predictors of child academic achievement. As with the bivariate analysis, maternal closeness was negatively related to academic achievement and, thus, not in support of Hypothesis 13.

Hypothesis 16: Peer pressure is negatively related to the academic achievement of children of adolescent mothers.

The data were consistent with hypothesis 16. The bivariate analyses demonstrated that those children who were experiencing lower levels of negative peer pressure were more academically successful than those children with higher levels of negative peer pressure. The logistic regression analyses did not identify peer pressure as a significant contributor to the regression equation.

Hypothesis 17: Perceived quality of the school environment is positively related to the children's academic achievement.

This hypothesis was not supported by the data. The children's perception of their school environment as measured within this study was not related to their academic

performance in the bivariate analyses or the logistic regression analyses.

Hypothesis 18: Church attendance is positively related to the academic achievement of children of adolescent mothers.

This hypothesis was not supported by the data. Child religiosity as measured within this study was not significantly related to academic achievement in either the bivariate analyses or logistic regression analyses.

Hypothesis 19: Children with higher intelligence levels demonstrate greater behavioral adjustment than those with lower intelligence levels.

Hypothesis 20: Female children of adolescent mothers demonstrate greater behavioral adjustment than male children of adolescent mothers.

Hypothesis 21: Children of color of adolescent mothers demonstrate poorer behavioral adjustment than do non-minority children of adolescent mothers.

Hypothesis 22: Older children of adolescent mothers demonstrate greater behavioral adjustment than do younger children.

Hypotheses 19 and 20 were not supported by the data. Both child intelligence, as measured by the PPVT-R, and child gender were not significant predictors of the child's behavioral adjustment with either the bivariate or logistic regression analyses.

Hypotheses 21 and 22 were supported by the data. Age of the child was significantly related to behavioral

adjustment in both the bivariate and logistic regression analyses. The younger children (aged 13 to 15 years, 11 months) were almost twice as likely to be in the lowest quartile (poorest behavior) as children aged 16 years and above. Age was also a significant predictor of behavioral adjustment in the logistic regression analyses, again indicating that the older children were most likely to perform better behaviorally.

The race of the child did not appear to be significantly related to behavioral adjustment in the bivariate analyses, nor did it become a significant predictor when combined with the other predictor variables in the logistic regression analyses.

Hypothesis 23: Children of adolescent mothers residing in a rural area demonstrate greater behavioral adjustment than those children residing in an urban area.

Hypothesis 24: Quality of the neighborhood is positively related to the behavioral adjustment of children of adolescent mothers.

Hypothesis 25: Children who are reared in families with fewer than four children demonstrate greater behavioral adjustment than those children reared in families with more than four children.

Hypothesis 26: Quality of the home environment is positively related to the behavioral adjustment of children of adolescent mothers.

Hypothesis 27: Children whose mothers' are less depressed demonstrate greater behavioral adjustment than those children whose mothers' are more depressed.

Hypothesis 28: Maternal age at the birth of the first child is negatively related to the behavioral adjustment of the child.

Hypothesis 29: Children of mothers with higher levels of intelligence demonstrate greater behavioral adjustment than those children of mothers with lower levels of intelligence.

Hypothesis 30: Children of adolescent mothers with higher levels of education demonstrate greater behavioral adjustment than those mothers with lower levels of education.

Hypothesis 31: Children who report higher levels of maternal closeness demonstrate greater behavioral adjustment than those children with lower levels of maternal closeness.

Hypothesis 32: Children of adolescent mothers experiencing persistent poverty demonstrate poorer behavioral adjustment than do those children not experiencing persistent poverty.

Hypothesis 33: Children residing in families with their father present demonstrate greater behavioral adjustment than those children without a father present in the household.

The data were consistent with Hypotheses 24, 25, 26, and 27. Quality of the neighborhood was significantly related to behavioral adjustment in both the Bivariate and multiple regression analyses in the direction proposed.

Those children living in the highest quality neighborhoods were significantly more likely to demonstrate fewer behavioral problems. Neighborhood quality was shown in the multiple regression analyses to be a significant predictor of behavioral adjustment in all phases of the analyses. Although family size did not appear to be significantly related to behavioral adjustment during the bivariate analyses, it did become a significant predictor during the logistic regression analyses when all of the variables were entered and the 1988 HOME scores were deleted from the equation. Those children living in families with more than four children were more likely to experience behavioral problems. The 1992 HOME scores, or current quality of the home environment, was significantly related to behavioral adjustment in both the bivariate and logistic regression analyses regardless of the inclusion of the 1988 HOME scores. Again, behavioral adjustment was measured using the BPI, which addresses behavioral patterns during the presiding 3 months only. The data suggest that the current home quality may be more significant in predictor behavioral problems than the previous home quality. This concept may lend support to the notion of enhancing home quality throughout the child's life rather than concentrating exclusively on the preschool and early school time period.

Finally, maternal depression emerged as a significant predictor of behavioral problems in the logistic regression analyses regardless of inclusion of 1988 HOME scores. Those

children with mothers experiencing greater depression exhibiting significantly more behavioral problems than did those with mothers who were less depressed. It may postulated that mothers experiencing increased depression may be less capable of providing high quality home environments and neighborhoods than those mothers who are less depressed which in turn impacts the child's behavior.

The data were not consistent with Hypotheses 23, 28, 29, 30, 31, 32, and 33. There were no significant relationships identified with either the Bivariate or multiple regression analyses for neighborhood location, past quality of the home (1988), poverty, father presence, maternal age at first birth, maternal intelligence, maternal education, or maternal closeness and behavioral adjustment.

Hypothesis 34: Peer pressure is positively related to the behavioral adjustment of children of adolescent mothers.

The data were not consistent with this hypothesis. Peer pressure was not significantly related to behavioral adjustment through bivariate analyses, nor did it emerge as a significant predictor with logistic regression analyses entering all of the variables identified in the model.

Hypothesis 35: Perceived quality of the school environment is positively related to the children's behavioral adjustment.

The data were not consistent with this hypothesis. There were no significant relationships identified between the child's perception of school quality and behavioral

adjustment with either the Bivariate or multiple regression analyses. As previously stated, a more in depth assessment of school quality may reveal significant relationships which are not apparent with this limited evaluation of school quality.

Hypothesis 36: Church attendance is positively related to the behavioral adjustment of children of adolescent mothers.

The data were consistent with Hypothesis 36. The logistic regression analyses revealed that the child's church attendance was a significant predictor of behavioral adjustment at the $p=.07$ level. Those children attending church more frequently were less likely to experience behavioral difficulties than those children who did not attend church. Further exploration of this variable may reveal that those children attending church may also be more likely to experience other factors such as better quality homes and neighborhoods than those children who are not connected with a church community. Church attendance remained a significant predictor regardless of the inclusion of the 1988 HOME scores.

Hypothesis 37: Children with higher intelligence levels demonstrate greater overall success than do those children with lower levels of intelligence.

Hypothesis 38: Female children of adolescent mothers demonstrate greater overall success than do male children of adolescent mothers.

Hypothesis 39: Children of color of adolescent mothers demonstrate lower overall success than do non-minority children of adolescent mothers.

Hypothesis 40: Older children of adolescent mothers demonstrate greater overall success than do younger children.

The data were consistent with Hypotheses 37 and 39. The bivariate analyses revealed significant relationships between the child's intelligence and their overall success. Given that a central component of the overall success measure is academic achievement, it is expected that there would be a relationship between child intelligence and overall success which was, in fact, apparent. In consideration of the strong correlation between child's intelligence and overall success and the overlap in the characteristics measured (intelligence and achievement) child's intelligence was deleted in the logistic regression model.

The race of the child was identified in the Bivariate analyses as a significant predictor of overall success. Black children were significantly under represented in the highest quartile for overall success while Hispanic children and White children are over represented in the highest quartile for success. Again, it seems unlikely that race itself is a central issue, rather the greater likelihood that minority children are more likely to be exposed to multiple negative factors such as poorer neighborhoods,

urban environments, and persistent poverty than are the non-minority children.

Hypotheses 38 and 40 were not consistent with the data analyses. Both age and gender were not found to be significantly related to overall success in either the Bivariate or logistic regression analyses.

Hypothesis 41: Children of adolescent mothers residing in a rural area demonstrate greater overall success than do those children residing in urban areas.

Hypothesis 42: Quality of the neighborhood is positively related to the overall success of children of adolescent mothers.

Hypothesis 41 was not consistent with the data. There was no significant relationship between neighborhood location (rural v. urban) and overall success in either the Bivariate or logistic regression analyses. Quality of the neighborhood was significant in both the bivariate analyses and in the logistic regression analyses when all of the predictor variables were entered. In fact, quality of the neighborhood is the strongest predictor of overall success in the logistic regression equation ($b=.61$, $p=.02$) when the child's intelligence scores were excluded. Therefore, the data support Hypothesis #42.

Hypothesis 43: Children reared in families with fewer than four children demonstrate greater overall success than those children reared in families with more than four children.

Hypothesis 44: Quality of the home environment is positively related to the overall success of children of adolescent mothers.

Hypothesis 45: Children whose mothers are less depressed demonstrate greater overall success than those children whose mothers are more depressed.

Hypothesis 46: Maternal age at the birth of the first child is negatively related to the overall success of the child.

Hypothesis 47: Children of mothers with higher levels of intelligence demonstrate greater overall success than do those children of mothers with lower levels of intelligence.

Hypothesis 48: Children of adolescent mothers with higher levels of education are more successful than those with lower levels of education.

Hypothesis 49: Children who report higher levels of maternal closeness demonstrate greater overall success than those children with lower levels of maternal closeness.

Hypothesis 50: Children who do not experience persistent poverty demonstrate greater overall success than those children who do experience persistent poverty.

Hypothesis 51: Children residing in families with their father present demonstrate greater overall success than those children without their father present in the household.

Hypotheses 43, 45, 46, and 51 were not consistent with the data. Family size, maternal depression, age of the mother at first birth, and father present were not

significantly related to overall success in either the bivariate or logistic regression analyses.

Hypotheses 44, 48, 49, and 50 were supported by the data. The quality of the home environment in both 1988 and 1992 was significantly related to overall success in the bivariate analyses. The quality of the home in 1992 was also shown to be a significant predictor of overall success in the logistic regression model regardless of the inclusion of child's intelligence. HOME scores from 1988 dropped out in the logistic regression model. Maternal intelligence, maternal educational levels, and persistent poverty were significantly related in the bivariate analyses but did not emerge as significant predictors in the logistic regression model. The 1992 HOME scores may have masked the influence of the other related predictors (maternal intelligence, maternal education, and persistent poverty) in the logistic regression model.

Hypothesis 52: Peer pressure is negatively related to the overall success of children of adolescent mothers.

The data were consistent with Hypothesis 52. The logistic regression analyses revealed that peer pressure was a significant predictor of overall success. The model indicated that those children who were exposed to increased peer pressure (to behave negatively) demonstrated lower overall success than those children who were exposed to less peer pressure. The regression equation shows a negative relationship between peer pressure ($b = -.54$, $p = .02$) and

overall success, i.e., the less negative peer pressure, the greater the overall success. This data is also consistent with the developmental expectation that children between the ages of 13 and 17 would be more likely to be influenced by their peers than would younger school or pre-school age children.

Hypothesis 55: Perceived quality of the school is positively related to the overall success of the child.

This hypothesis was not supported by the data. As with academic achievement and behavioral adjustment, there was no significant relationship identified between school satisfaction and overall success.

Hypothesis 56: Church attendance is positively related to the overall success of children of adolescent mothers.

This hypothesis is consistent with the data presented. The bivariate analysis revealed a significant relationship between church attendance and overall success. However, church attendance was not a significant predictor of overall success in the logistic regression analyses. It may be noted that other variables, such as quality of the home, may cover the impact of church attendance alone.

CHAPTER V

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This chapter presents a summary of the study, conclusions, limitations, implications and suggestions for future research.

Summary of the Study

The major purposes of this study were to identify microsystems and individual child factors that predict the academic achievement, behavioral adjustment and overall success of 13 to 17 year old children of adolescent mothers between the ages of 15 and 19 years using the NLSY data. In this section, findings relative to the eight specific research objectives are summarized. Tables 23 and 24 provide a summary of the pertinent research findings.

Objective 1

The first objective was to determine if the child characteristics of race, age, gender, and intelligence were predictive of the child's academic achievement, behavioral adjustment, and overall success. The results of the study show that intelligence, race, and age of the child are significantly related to one or more of the outcome measures. Children with the highest levels of intelligence were most likely to be in the highest achieving group and the highest overall success group. Non-minority children were also more likely to be in the highest achieving group and highest overall success group. In fact, white children

Table 23.

Summary of Results: Bivariate Analyses

Summary of Results Significant Variables Bivariate Analysis		
Academic	Behavior	Success
Neighborhood Quality	HOME 1992	Neighborhood Quality
Neighborhood Location	Child Age	HOME 1988
Family Size		HOME 1992
HOME 1988		Poverty
HOME 1992		Maternal Intelligence
Poverty		Maternal Education
Father Presence		Church Attendance
Maternal Education		Child Intelligence
Maternal Intelligence		Child Race
Closeness to Child		Peer Pressure
Peer Pressure		
Child Intelligence		
Child Race		

NOTE: Variables significant at $p=.05$ level.

Table 24.

Summary of Results: Logistic Regression Analyses

Summary of Results Significant Variables Logistic Regression Analyses			
	Academic	Behavior	Success
Step 1	Neighborhood Quality HOME 1988 Maternal Intelligence Maternal Closeness Child Intelligence A.R.-87.2%	HOME 1992 Age Child A.R.-=63.8%	HOME 1992 Child Intelligence A.R.-78.6%
Step 2	Neighborhood Quality HOME 1988 Maternal Intelligence Maternal Closeness A.R.-74.9%	Neighborhood Qual. Family Size HOME 1992 Maternal Depression A.R.-73.2%	Neighborhood Quality HOME 1992 Peer Pressure A.R.-79.5%
Step 3	Neighborhood Quality Maternal Intelligence Maternal Closeness A.R.-78.6%	Neighborhood Qual. Family Size HOME 1992 Maternal Depression Church Attendance Church Attendance Child Age A.R.-79.0%	

NOTE: Variables significant at $p=.05$ level.

were represented in the high achieving group and highest overall success group twice as frequently as Black children. The age of the child was a significant predictor of behavioral adjustment with the youngest children most likely to be represented in the bottom quartile (poorest behavior) for behavioral adjustment. In the bivariate analysis, 16 year olds are nearly twice as likely to be in the highest behavioral group as are 13 year olds. Age did not appear to be related to academic achievement or overall success measures. Only gender of the child was found to be unrelated to the outcome measures.

Objective 2

The second objective was to determine if the neighborhood characteristics of quality and location (Urban v. Rural) were predictive of the academic achievement, behavioral adjustment, and overall success of the children of adolescent mothers.

The results of the analyses indicated that the quality of the neighborhood was a significant predictor for each of the outcome measures in both the bivariate and multi factor analyses. The children residing in higher quality neighborhoods were most likely to be in the highest quartile for academic achievement, behavioral adjustment, and overall success regardless of child intelligence or quality of the home environment.

The location of the neighborhood was a significant predictor of academic achievement and behavioral adjustment

in the bivariate analyses but not in the multiple regression analyses. Urban dwelling was unrelated to the overall success of the children in this sample in both the bivariate and logistic regression analyses.

Objective 3

The third objective was to determine if the family characteristics of family size, quality of the home environment, father presence, and poverty were predictive of the academic achievement, behavioral adjustment, and overall success of children of adolescent mothers.

Quality of the home environment was consistently shown to be a strong predictor of all three outcome measures. For academic achievement, those children with the highest HOME scores in both 1988 and 1992 were most likely to be in the highest achieving group and those with the lowest HOME scores both 1988 and 1992 were most likely to be in the lowest achieving groups. Additionally, those children with the highest HOME scores in 1992 are represented nearly two times as often as the children with low 1992 HOME scores in the top quartile (best behavior) for behavioral adjustment. The multiple regression analyses also show that quality of the home environment from 1988 and 1992 respectively are significantly related to academic achievement and behavioral adjustment. The logistic regression analyses demonstrate that quality of the home environment as measured in 1992 is a solid predictor of overall success.

Family size was significantly related to behavioral adjustment of children through the bivariate and logistic regression analyses. The greater the family size the greater the likelihood of behavioral problems within the child. Family size was not a significant predictor of academic achievement or overall success in either the bivariate or logistic regression analyses.

Father presence was significantly related to academic achievement with those children having a father present in the home most likely to be in the top quartile for academic achievement. Conversely, those children with a father present in the home were more likely to be in the lowest quartile for behavioral adjustment. The multi-variate analyses did not reveal a significant relationship between father presence and any of the outcome measures.

The family characteristic of poverty was also a significant predictor of both academic achievement and overall success in the bivariate analyses. For example, those children residing in persistent poverty (more than 50% of the time between 1979 and 1992) were twice as likely to be in the lowest achieving group and almost twice as likely to be in the lowest overall success group. The logistic regression analyses revealed that poverty was not a significant predictor at the $p=.10$ level. The data also revealed that poverty was not a significant predictor of behavioral adjustment in this sample in either the bivariate or logistic regression analyses.

Objective 4

The fourth objective was to determine if the maternal characteristics of age at birth of first child, intelligence, level of education, depression, and closeness to the child were predictive of academic achievement, behavioral adjustment, and overall success.

The data show that maternal intelligence and maternal education were significantly related to the child's academic achievement and overall success following bivariate analyses. The children of mother's with the highest intelligence levels were over represented in the highest overall success group (80%) and the highest academic achievement group (83%). Maternal education levels displayed a positive relationship to the child's academic achievement and overall success as well. The multi-variate analyses revealed that maternal intelligence was a good predictor of child's academic achievement (when the child intelligence variable was removed) but not significantly related to their overall success group. Maternal intelligence was unrelated to the child's behavioral adjustment in both bivariate and multi variate analyses.

Maternal closeness to the child was found to be significantly related to academic achievement in both the bivariate and logistic regression analyses. Those children who reported that they were less close to their mother were twice as likely to be in the top quartile for achievement. Similarly, those children who reported they were "extremely

close" to their mother were over represented in the bottom quartile for achievement. This counter-intuitive finding was unexpected and requires additional exploration and investigation. The logistic regression analyses revealed that maternal closeness was a significant predictor of achievement although not in the anticipated direction ($b = -.70$, $p = .00$). Maternal closeness was not a significant predictor of either behavioral adjustment or overall success.

The maternal characteristic of maternal depression was found to be a significant predictor of only behavioral adjustment following the logistic regression analyses. The variable was the most powerful contributor ($b = -.90$, $p = .04$) to the regression equation.

Age of the mother at the birth of her first child was not shown to be a good predictor for any of the outcome measures in either bivariate or multi variate analyses.

Objective 5

The fifth objective was to determine if the quality of the child's peer relationships as measured through negative peer pressure were predictive of the child's academic achievement, behavioral adjustment, and overall success. Peer pressure was found to be significantly related to academic achievement and overall success in the bivariate analyses. Those children experiencing the least negative peer pressure were over represented in the highest quartile for academic achievement and overall success. Additionally,

the logistic regression analyses revealed that peer pressure was a significant predictor of overall success at the $p=.000$ level. No significant relationship was identified between peer pressure and behavioral adjustment with either bivariate or multi-variate analyses.

Objective 6

The sixth objective was to determine if the child's church attendance was predictive of academic achievement, behavioral adjustment, and overall success.

The bivariate analyses show that child church attendance is significantly related to overall success with those children attending church at least once per week more likely (77%) to be in the highest quartile for overall success. Church attendance did not retain its significance through the logistic regression analyses for overall success. However, although not significant in the bivariate analyses, logistic regression analyses demonstrated that church attendance was a significant predictor of behavioral adjustment at the $p=.04$ level.

Objective 7

The seventh objective was to determine if the child's satisfaction with school was predictive of their academic achievement, behavioral adjustment, and overall success.

The data revealed no significant relationships between school satisfaction and any of the outcome measures through either bivariate or multi-variate analyses.

CONCLUSIONS

Bronfenbrenner (1979) proposed that behavior evolves as a function of the interplay between person and environment with each person embedded in a multiply transacting environment. He suggested that development is a product of objective properties of various microsystems as well as the individual's perception of those microsystems. Findings from this study are consistent with Bronfenbrenner's model. Characteristics from several microsystems and the individual child himself were found to be significantly related to academic achievement, behavioral adjustment, and overall success. Additionally, objective properties such as location of residence and father presence were examined as well as perceptual properties such as school satisfaction and maternal closeness.

Of the neighborhood characteristics, quality of the neighborhood was found to be predictive of the child's academic achievement, behavioral adjustment, and overall success. Those children residing in higher quality neighborhoods were most likely to be in the top quartile for each of the outcome measures. Location of the neighborhood (Urban v. Rural) was a significant predictor of academic achievement and behavioral adjustment but was not significant for overall success. Those children residing in rural environments were more likely to be among the top quartile for academic achievement and behavioral adjustment.

Results of the study show that the family characteristic of quality of the home environment was significantly related to each of the predictor variables. It is interesting to note that HOME scores from 1988 were significantly related to academic achievement while HOME scores from 1992 were significantly related to behavioral adjustment and overall success. Given that the HOME scores measure the current home environment the data indicate that past living conditions may most impact academic success and current living conditions may most impact behavior and overall success. The HOME scores were consistently found to be strong predictors of the outcome measures even when variables such as child intelligence was withheld. In the behavioral adjustment sample, 1988 HOME scores were not found to be good predictors of behavior yet the scores were well correlated to the 1992 HOME scores. In an effort to reveal any colinearity issues, the 1988 HOME scores were excluded from the second multiple regression analyses. With the 1988 HOME score variable excluded, both family size and race became significant in the multiple regression equation (See Table 11). This indicated that by eliminating the influence of earlier home scores, other issues such as family size and race were revealed as being significant predictors of overall success.

Father presence was significantly related to both academic achievement and behavioral adjustment. Interestingly, the direction of the relationship was

negative for behavioral adjustment. Those children with fathers present the majority of the time were most likely to be represented in the lowest quartile for behavioral adjustment but the highest quartile for academic achievement.

Poverty was found to be a significant predictor of both academic achievement and overall success but was unrelated to behavioral adjustment. These findings may be reflective of academic limitations associated with poverty such as poorer schools, fewer learning experiences, and generally less stimulating environments rather than a result of poverty itself.

The maternal characteristics of age and intelligence were most strongly related to the outcome measures of achievement and overall success but unrelated to behavioral adjustment. Further analyses (multiple regression) revealed that maternal intelligence was a good predictor of child's academic achievement but not of their overall success. This finding is consistent with the literature supporting the notion that mothers with higher intelligence produce children with higher intelligence and achievement scores probably based on a combination of genetics and ability to better provide multiple factors associated with academic success such as better home environments, neighborhoods, and experiences. Maternal education levels displayed a positive linear relationship to the outcome measures of academics and

success as well. There is an expected strong correlation between maternal intelligence and education as well.

Maternal closeness measures were found to be negatively associated with academic achievement. Although maternal closeness was the least powerful component of the equation, it was nonetheless revealed as a significant predictor of academic achievement in a negative direction. This finding may reflect a possible developmental problem within this sample. E.g., the children in this sample were between the ages of 13 and 17 years resulting in a normative expectation that they would NOT be "extremely close" to their mother. Children in mid adolescence are faced with the developmental task of establishing a separate identity from their parents. It may be more appropriate that children of this age would report a more mid-range connection to their mother and a higher reliance and closeness to peers. Secondly, it should be considered that this one item measure of maternal closeness did not accurately reflect the child's relationship with their mother. For example, children may have answered the question based on their internal belief regarding the expected mother/child relationship or attempted to gauge the examiners expected findings of the mother/child relationship. In either case, a more extensive assessment of maternal closeness would be appropriate in future studies to fully explore this phenomenon.

Another maternal characteristic found to be a significant predictor of one or more of the outcome measures

was maternal depression. Maternal depression was found to be a significant predictor of behavioral adjustment. The more depressed the mother was, the greater the behavioral difficulties expressed by the child.

Age of the mother was not found to be a good predictor of any of the outcome measures.

The child's peer relationships were examined through the peer pressure item. Peer pressure was found to be predictive of the child's overall success in both the bivariate and logistic regression analyses. However, peer pressure drops off as being a significant predictor when the 1988 HOME scores are eliminated from the equation. This may indicate that there is a connection between the HOME scores and peer pressure which disappears when the HOME scores are excluded. For example, it may be that the quality of the home influences the peer experiences which in turn influences the outcome measures. Therefore, by eliminating the effects of the HOME scores, the effects of the peer experiences may be identified. Interestingly, peer pressure was not found to be significantly related to behavioral adjustment or academic achievement following multi variate analyses.

The logistic regression analyses revealed that child's church attendance was a significant predictor of behavioral adjustment. The analyses show that church attendance is a similar strength predictor as other variables within the

model such as quality of the home and family size and the overall prediction rate is good (79%).

Finally, the data revealed no significant relationships or predictive characteristics of school satisfaction and any of the outcome measures. Again, the assessment of school satisfaction is very limited (1 item only) which may have impacted the evaluation of its significance in relation to the outcome measures.

LIMITATIONS

Although support for Bronfenbrenner's model was found in this study, some of the microsystems factors were limited in scope due to the limited data available. For example, child's religiosity was identified based only on a one item response to frequency of church attendance. This item most certainly does not reflect the total of the child's religious affiliation or connectedness. A more comprehensive assessment of religiosity may have revealed more significant relationships with the outcome measures. Similarly, more elaborate assessments of maternal closeness, school satisfaction, and father participation may expose more significant, or expected direction, relationships between these variables and the outcome measures. The significant negative direction of the maternal closeness variable could also be better explored if more in depth data were available.

Further, because the short-form HOME Inventory was used in this study instead of the complete version it is possible

that the relations between the predictor variables and the outcome measures were attenuated (Baharudin, 1992).

Although the HOME scores were found to be significantly related to each of the outcome measures, the strength of those relationships may have been underestimated.

In addition to the limited in scope variables, several other variables that would have been useful to study were not included in the NLSY data set. For example, there were no data regarding social support for the teen mothers. Additionally, there were only two measures of maternal personality, self-esteem and depression. Additional child characteristics such as physical identifiers and personality trait evaluations were not available.

Despite these limitations, the study has provided useful information regarding the influences of various microsystems factors and child characteristics on the academic achievement, behavioral adjustment, and overall success of children of teenage mothers. The study demonstrated the applicability of Bronfenbrenner's model to the study of child outcomes with adolescent parents.

IMPLICATIONS

The results of this study are consistent with findings from earlier studies which suggest that child outcomes are determined by multiple factors within their environment. This study revealed significant relationships between both immutable and modifiable characteristics within the child's environment. Such information is critical for the

development of intervention programs aimed at adolescent parents. Although some factors, such as race, are clearly unchangeable, the vast majority of the identified factors are vulnerable to directed interventions.

The study confirms the notion that providing high quality home environments and neighborhoods are essential for all children. Parents who provided these attributes tended to have children who performed better in academics and behavior.

Findings from this study suggested that factors such as church attendance and peer pressure may also be as important for children of adolescent parents as is family size, quality of the home environment, and maternal depression. Programs geared toward the children which emphasize peer selection and interaction or participation in organized church activities may enhance their outcome as well.

SUGGESTIONS FOR FUTURE RESEARCH

The NLSY data set provides a wealth of material to researchers interested in exploring a wide variety of maternal and child issues. As indicated previously, the NLSY is an on-going data set with mothers assessed annually and children bi-annually. Research opportunities in the area of longitudinal exploration is limitless.

Additionally, this study provided a beginning look at several microsystems factors and selected child characteristics which were thought to influence child outcome. Future research might continue to explore the

identified microsystems through the addition of pertinent variables or may add separate microsystems such as day care settings or extended family member interaction.

In consideration of Bronfenbrenner's model, future researchers may also choose to explore the mesosystem characteristics identified on the model but not addressed within this study.

This study also identified an unexpected connection between maternal closeness and child outcomes. Future researchers may attempt to more fully explore that divergent finding through a careful assessment of other assessment tools contained within the NLSY designed to study maternal/child relationships such as the BPI-Dependent Subscale. This assessment may reveal information which would help to explain the negative relationship between maternal closeness and child achievement.

Finally, the impact of race was not separately examined in this study. Future researchers may wish to explore the microsystems factors in relation to separate racial and ethnic groups given the differences identified clearly in the bivariate analyses.

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APPENDIX A
UCRIHS Approval Letter

MICHIGAN STATE
UNIVERSITY

August 15, 1996

TO: Tom Luster
101 Morrill Hall

RE: IRB#: 96-534
TITLE: PREDICTIVE FACTORS IN THE BEHAVIORAL AND
ACADEMIC ADJUSTMENT OF CHILDREN OF ADOLESCENT
MOTHERS
REVISION REQUESTED: N/A
CATEGORY:
APPROVAL DATE: 08/13/96

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.



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**PROBLEMS/
CHANGES:**

Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517) 355-2180 or FAX (517) 432-1171.

University Committee on
Research Involving
Human Subjects
(UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX 517/432-1171

Sincerely,

David E. Wright
David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Susan Wheeler

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