

Ecological Factors and the Behavioral and Educational Outcomes of African
American Students in Special Education

by

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ABSTRACT

African American students are one of the historically disadvantaged groups by the public education system. Related to this phenomenon is the overrepresentation of African American children in special education due to disability diagnoses, which has been referred to as disproportionality. It has been hypothesized that disproportionality is due to poverty or a cultural mismatch between primarily white, middle-class teachers and African American students. Using a sample of African American children in special education from Memphis, Tennessee, this secondary data analysis explored the relationship between children's behavioral and educational outcomes and their environment, efficacy beliefs, and the impact of an intervention, the Nurse-Family Partnership. This study also explored differences in children's externalizing and internalizing behaviors by self-report, children's mothers and children's teachers. Using multiple imputation and regression analyses, the results indicated the following: 1) children's self-efficacy and number of hours in special education were associated with children's academic achievement, 2) mothers' and teachers' ratings of children's behaviors differed from children's self-report of their behaviors, 3) African American boys are more likely to experience acting-out behaviors, while African American girls are more likely to experience anxiety and depression, 4) children were less likely to experience anxiety and depression if their mother believed that she had control over circumstances in her life. These findings are discussed in light of Bronfenbrenner's ecological systems theory and Bandura's social cognitive theory.

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Chapter 1

INTRODUCTION

Statement of the Problem

African American students have historically been disadvantaged by the public education system (Artiles, Kozleski, Trent, Osher & Ortiz, 2010). African American students have been segregated in public education for multiple reasons over time in spite of various attempts to desegregate schools. Disproportionality, the overrepresentation of African American students diagnosed with a disability and/or placed in a restrictive, special education setting, has been referred to as a form of segregation by researchers and educational specialists (Artiles et al., 2010; Freeman & Alkin, 2000).

Disproportionality of African American Students in Special Education

Definition. Research has found that African American students are more likely to be diagnosed with a disability and placed in special education settings than students of other ethnic groups. This is referred to as disproportionality or overrepresentation of African American students in special education. Two different definitions of disproportionality are used in the literature. Artiles et al. (2010) defined disproportionality as the extent to which membership in a particular group affects the probability of placement of students in a specific disability category. This definition highlights the extent to which African American students are more likely to be diagnosed with a disability. Disabilities include learning, developmental, cognitive disabilities internalizing behavioral disorders, such as anxiety or depression, and externalizing behavioral disorders,

such as hyperactivity and aggression. The second definition refers to a particular group of students that are placed in special education programs at a greater percentage than their percentage in the school population as a whole (Harry & Anderson, 1994). African American students have a higher probability of being placed in special education or self-contained classrooms (Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006). Both aspects of disproportionality are important in understanding and addressing equity in educational opportunities for African American students. Future reference of the term disproportionality will refer to both definitions of disproportionality.

The disproportionality of African American students in special education. The disproportionality of African American students has been documented for many years. Among all U.S. students aged 14-21, African American students were overrepresented in all disability categories and thus, they were more likely to be diagnosed with a disability than other students (Harry & Anderson, 1994). According to a study of national placement data, African American students were overrepresented in high-incidence disability categories, such as communication disorders, learning disabilities, mild/moderate mental retardation, and emotional/behavioral disorders (Artiles et al., 2010). A study of 1,064,240 students in 264 school districts in Indiana found that African American students were 2.36 times more likely than other students to be diagnosed with an emotional disorder, 3.29 times more likely to be diagnosed with mild mental retardation, 1.91 times more likely to be diagnosed with moderate mental retardation, were less likely to be diagnosed with speech and language disorders,

and equally diagnosed with learning disabilities (Skiba et al., 2006). The African American students diagnosed with disabilities were more likely to be placed in restrictive settings, such as special education classrooms, than other students with similar disabilities. For example, the students diagnosed with emotional disorders were half as likely as their peers to be placed in a regular education setting (Skiba et al., 2006).

African American males. In general, male students are more likely to be diagnosed with a disability and/or placed in special education settings. African American males are overrepresented in almost all disability categories (Harry & Anderson, 1994); therefore, African American males are especially vulnerable to experiencing disproportionality. In the Educational Longitudinal Study of 16,000 white, African American, Hispanic, Asian, and American Indian students from 750 schools, a bivariate analysis found that in the overall sample, the odds of a male student identified with a learning disability was almost double that of a comparable female student (Shifrer, Muller, & Callahan, 2011).

Socioeconomic status and disproportionality. As described by Arnold & Doctoroff (2003) “SES and racial and ethnic background are strongly related, and thus are difficult to untangle” (p. 526). For example, minority families tend to live in poorer neighborhoods and go to poorer schools than nonminority families with the same income (Leventhal & Brooks-Gunn, 2004). Children who live in poverty are more likely to have fewer resources at home and at school, which creates a disadvantaged learning environment for children. Some researchers have hypothesized that SES alone is the reason for disproportionality (O’Connor

& Fernandez, 2006; Skiba, Michael, & Nardo, 2000). Skiba et al. (2000) conducted a study of 11,001 students from 19 middle schools in the Midwestern U.S. to assess variables associated with teachers' referrals of students for behavioral problems. The majority of the sample consisted of black (56%) and white (42%) students. Race, gender and socioeconomic status were assessed as independent variables in a two factor analysis of covariance. Effects sizes for race and gender adjusted by socioeconomic status showed a minimal effect of socioeconomic status. For example, the effect size for office referrals was .048 for race and gender, but increased to .050 when adjusted for socioeconomic status. This indicates that socioeconomic status, race, ethnicity, and gender are intertwined and important variables in understanding disproportionality.

Individuals with Disabilities Education Improvement Act. Prior to 1975, students with disabilities who could not successfully accomplish tasks in regular education classrooms were either excluded from public education or did not receive an education that was appropriate to their needs (Katsiyannis, Yell, & Bradley, 2001). The overall perception in the U.S. was that students with disabilities did not have a right to an adapted education to fit their individual needs. The Supreme Court outlawed public school segregation by race with the argument that all children had the right to equal educational opportunities (*Brown v. Board of Education*, 1954). Students with disabilities and their advocates began to frame the exclusion of students with disabilities as a violation of all children's right to equal educational opportunities as well. The Education for all Handicapped Children Act was enacted in 1975 (EHCA), which required public

schools to provide special education classes for students with disabilities and develop an Individualized Education Plan (IEP) for each student with a disability (Katsiyannis et al., 2001). An IEP outlines public school accommodations for individual students, such as special education classroom placement, additional resources, or therapy needs.

Although students with disabilities began to receive public education after the EHCA, students and advocates began to recognize that special education services were segregated and different. The Individuals with Disabilities Education Improvement Act of 2004 (IDEA) was passed to ensure “equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities” (Individuals with Disabilities Education Improvement Act, 2004). The provisions of the law concentrated on three areas: 1) free, appropriate public education, 2) least restrictive environment and 3) reducing disproportionality. The IDEA stated that all students have the right to a free, appropriate public education. This is defined as special education and related services that are provided at a public expense, meet the state’s educational agency requirements, including appropriate preschool, elementary, or secondary school in the state where the student resides, and are provided in conformity with the student’s IEP (Individuals with Disabilities Education Improvement Act, 2004).

The IDEA also states that students with disabilities should be placed in the least restrictive environment possible. It reports that, to the maximum extent possible, students with disabilities should be educated with students without

disabilities. Special classes, separate schools, or the separation of students with disabilities from regular education environments should only occur when the nature or severity of children's disability is such that regular education, even with the use of accompanying aids and services, cannot be satisfactorily achieved. The IDEA also indicates that states should implement policies and procedures to prevent the inappropriate over-identification of disabilities or overrepresentation of students in special education settings by race or ethnicity (Individuals with Disabilities Education Improvement Act, 2004). The IDEA has succeeded in some ways, such as overall increases in placement of students with disabilities in regular education classrooms. On the other hand, the IDEA has not been successful in decreasing disproportionality; African American students remain underrepresented in general education and overrepresented in special education (Skiba, 2006).

Importance of the Problem

The study of African American students in special education is imperative, because African American students as a whole have been historically underserved in education. African American students have been and continue to be segregated in public education (Chemerinsky, 2002; Orfield and Lee, 2006). As a result, African Americans lag behind others in educational achievements, employment, and socioeconomic status (U.S. Census Bureau, 2010). Social workers have an ethical responsibility to advocate for equality in educational opportunities for students (Joseph, Slovack, & Broussard, 2010). Research on the factors or interventions that impact the behavioral and educational outcomes of African

American students in special education is needed in order for social workers to advocate or intervene with children.

Historical Background of African American Students in Education

It is critical to reflect on the historical and current segregation of African American students in public education to understand the experience of African American students in special education. African American students are one of the historically underserved groups who have experienced sustained school failure overtime (Artiles et al., 2010). Prior to 1954, public education in the U.S. legally segregated students by race. Prior to 1954 only 0.001% of African American students in the south attended schools which had a majority of white students (Chemerinsky, 2002).

Desegregation did not begin until several mandates were made by the Supreme Court and federal law. In 1954, the *Brown v. Board of Education* decision declared that it was unconstitutional for state laws to establish separate public schools for white and black students. This decision overturned the previous *Plessy v. Ferguson* decision of 1896, which allowed state sponsored school segregation based on the premise that schools could be separate but equal. The new ruling acknowledged that historical segregation has led to significant inequality (Chemerinsky, 2002). Regardless of the illegality of separate schools for white and black students following the 1954 decision, southern states used every technique imaginable to prevent desegregation from occurring, including attempts to close public schools (Chemerinsky, 2002). A decade later, Title IV of the Civil Rights Act of 1964 not only called for desegregation of public education

but also tied receipt of federal funds to the elimination of segregation. It stated that students should be assigned to public schools regardless of race, color, religion, or national origin (Chemerinsky, 2002). Even after this legislation passed, African American students were not immediately integrated into schools with white children. Although not for long, some public schools literally shut down and closed their doors in response to desegregation. Private schools opened. Because private schools were private businesses, they could control which students attended their schools. This allowed wealthier white students to attend private schools without African American students. Regardless of attempts to prevent desegregation, the integration of white and black students in southern schools rose to 32% by 1968 and 91% by 1973 (Chemerinsky, 2002).

Although schools became integrated by the 1970s, several scholars have reported that resegregation has occurred due to: white flight to suburbs, pervasive inequalities in school funding, and recent Supreme Court decisions. Public school demographics in cities have changed dramatically since the 1960s due to the majority of white families moving to suburbs. In the 1960s, 80% of students in public schools were white. By 1980, white students constituted less than 30% of enrolled students in public schools in many cities including Memphis, Tennessee (Chemerinsky, 2002). The primary funding of public schools is derived from local property taxes, which means that schools in inner-city, lower-income neighborhoods in Memphis would have less funding than public schools in the wealthier suburbs. For example, a public school in the city of Chicago spent \$5,265 per pupil, while a school in a suburb of Chicago spent \$9,371 per pupil

annually. In Chicago, 45.4% of students were white, while in the suburb 91.6% of the students were white (Chemerinsky, 2002). Thus, African American and other minority students are more likely to experience segregation of opportunities due to disparities in funding. Orfield and Lee (2006) reported that the integration of African American and white students ended around 1991 when the Supreme Court began to authorize school districts to segregate by not protecting students from segregation in Supreme Court cases. In several cases the Supreme Court concluded that school systems had achieved a “unitary status and thus federal court desegregation efforts should end” (Chemerinsky, 2002, p.1599). The combination of these threats to desegregation has resulted in segregated public schools and less opportunity for historically underserved groups.

Outcomes of African American Students

African American students have suffered poor outcomes in school retention, employment, and socioeconomic status later in life. Black students are half as likely to receive a high school diploma as white students. While 11.5% of black students attend high school without receiving a diploma, only 5.6% of white students attend high school without receiving a diploma (U.S. Census Bureau, 2010). These statistics may reflect African American students’ historical segregation and current disproportionality in special education. Success in school is important, because it is a strong predictor of economic self-sufficiency later in life (Harry & Anderson, 1994; Matta Oshima, Huang, Jonson-Reid, & Drake, 2010). After high school, African American students (13%) are less likely to receive a Bachelor’s degree than white students (21.4%). African Americans

(16.7%) are half as likely to be unemployed as whites (8.7%). They are also more than twice as likely to live in poverty (U.S. Census Bureau, 2010).

Implications for Social Work

Joseph, Slovack, and Broussard (2010) called for social workers to be involved in working in schools to reform school systems that have historically failed African American students. As advocates for people who are oppressed, social workers have an obligation to question social structures that might impede the growth and development of African American students. School social workers and policy advocates should challenge policies and practices that limit opportunities of African American students. More knowledge about what impacts the outcomes of African American students in special education is needed for social workers to know how to focus intervention and advocacy strategies. This study has assessed how factors that could be affected by policy, practice, and social work education impact children's outcomes.

Policy. African American children in special education are potentially impacted by several policies, including the IDEA. The IDEA mandates social workers to be members of child study teams, which determine children's eligibility for special education services, yet they are not mandated to be members of the IEP team, which decide children's classroom placement (IDEA, 2004). Social workers must be invited by an educator, parent, or a student to be a member of an IEP team. This limits the scope of involvement of social workers, who have unique knowledge of and access to the children's home environment, extended family members, and knowledge of community resources. Research on

the impact of factors external from school and behavioral and academic outcomes may suggest that the IDEA should mandate that social workers be on the IEP team, because they have knowledge of students' home environments.

Practice. There are many potential interventions that social workers could provide while working with African American students in special education, including home-based visitation interventions (Olds, 2006). Social workers may not know which interventions would be most effective to improve the internalizing and externalizing behaviors and academic achievement of children in special education. This study assessed how proximal and distal factors, such as family and community, and a home visitation intervention impacted those outcomes. This knowledge could help social workers focus their interventions on factors that impact important outcomes for African American students in special education.

Social work education. The Council on Social Work Education (2008) Educational Policy and Accreditation Standards specify that social workers should receive education on diversity issues, including disability and race/ethnicity. This study fills a gap in current knowledge about African American students in special education. The social workers most likely to support this population are school social workers. Social workers should receive education about factors that impact the outcomes of African American students in special education so they can make an educated choice on interventions that positively impact the outcomes of African American students in special education.

Future research. A plethora of research studies are needed to fully understand how environmental and cognitive factors impact the outcomes of African American students in special education. This study assessed what environmental and cognitive factors impacted the behavioral and academic outcomes of African American students in special education prior to full-scale implementation of the IDEA. Research following this study will include analysis of the impact of specific factors that are found to be significantly associated with the outcome variables. Mixed-methods research with a sample of African American students in special education, their families, educators and/or social workers may inform not only what factors impact students' outcomes, but also why those factors impact their outcomes.

Theoretical Foundation: Ecological Systems Theory and Social Cognitive Theory

Ecological systems theory and social cognitive theory provide insight into understanding ecological and cognitive factors that impact developmental and educational outcomes of African American children in special education. Ecological systems theory and social cognitive theory highlight the importance of context. Ecological systems theory stresses the significance of proximal processes, or children's regular interactions with people in their environment, and how other distal processes, such as neighborhood safety, can foster or impinge on the impact of those interactions on children's development (Bronfenbrenner, 1979). Bandura's social cognitive theory hypothesizes that children's self-efficacy, or belief about their capabilities of performing tasks, is associated with their

aspirations. Bandura also demonstrated that parental efficacy was associated with children's self-efficacy, which verifies that context impacts development (Bandura et al., 1996).

Ecological Systems Theory

Description. Ecological systems theory posited that children develop and learn as a result of their interactions with their environment (Bronfenbrenner, 1979). Bronfenbrenner is credited for bringing attention to contextual variation in human development, since previous theories of human development focused primarily on the individual (Darling, 2007). Ecological systems theory has also been used throughout social work history and reminds social workers of the importance of their embeddedness in the community and complexity of clients' lives (Ungar, 2002).

The contextual environment referred to in ecological systems theory consists of micro, meso, macro, and exo levels (Bronfenbrenner, 1979). The micro level includes a person's immediate settings, such as home and classroom. The relationships between micro levels, such as the interaction between a child's family and his or her teacher, are meso levels. Ecological systems theory also posits that development is profoundly affected by exo level variables, which occur in settings in which the person is not always present, such as neighborhood (Bronfenbrenner, 1979). Macrosystems differ from the other levels, which are contexts that impact children. Macrosystems are general prototypes, or "blueprints", in society that set a cultural pattern for the structures and activities occurring at each level (Bronfenbrenner, 1977). For example, perspectives about

special education determine what special education services look like.

As ecological systems theory has developed, the interactions between the individual, systems of influence, and processes that impact development have been described. Brofenbrenner and Morris (1998) posited that proximal processes occur when people interact on a regular basis with micro levels in their environment. Proximal processes are people, objects, and symbols that impact a developing child's life on a fairly regular basis over an extended period of time. For example, a proximal process may include children's interactions with their mother. Proximal processes are the primary focus of ecological systems theory, yet other interactions with the environment, sometimes referred to as distal processes, should be considered in order to understand the proximal processes. Distal processes are environments and interactions that a developing child does not interact with regularly, yet indirectly impact the child, such as their parent's employment. Bio-ecological resources of the individual, such as ability, experience, or skill, impact proximal processes. For example, a mother's not graduating high school may impact her belief about her child's ability to graduate high school. Demands from the social environment may also enable or disrupt proximal processes. Demands could include expectations in school and unsafe neighborhoods (Brofenbrenner & Morris, 1998).

Brofenbrenner (1986) also posited that research projects should assess people's chronosystems, or development in a specific environment over time. For example, there are two types of transitions that occur throughout life that can impact developmental change: normative and nonnormative. Normative

transitions are changes that most people experience. Examples are school entry, puberty, and entering the labor force. Nonnormative transitions are changes that are less common and unexpected, such as death or severe illness. Simpler forms of assessments of chronosystems choose to assess development during a normative and nonnormative transition. This study assessed a simpler form of a chronosystem by assessing a sample of African American children from Memphis, Tennessee and their development during early adolescence, or puberty. More advanced assessments of chronosystems examine a cumulative sequence of developmental transition over an extended period of a person's life (Brofenbrenner, 1986).

Ecological systems theory has been used to understand the development of children with disabilities. Algood, Hong, Gourdine and Williams (2011) conducted a literature review on the maltreatment of children with developmental disabilities. They found that sociodemographic characteristics, such as age, gender, and special education, micro systems, such as the parent-child relationship, exo systems, such as area of residence, and macrosystems, such as culturally defined parenting practices, influenced or inhibited maltreatment of children with disabilities. This study demonstrates how the ecological system impacts the development of children with disabilities.

Critique. Ecological systems theory has been critiqued, because it attempts to explain many aspects of human development simultaneously; therefore, only aspects of the theory can be tested at one time. Because the theory is so grand, it is often referred to as a framework or perspective. In order to assess

all aspects of ecological systems theory, one would need to design a large, complex study that would require collecting data on the individual, micro, exo, and macro systems, interactions between the systems, and observations of proximal processes (Tudge, Mokrova, Hatfield, & Karnik, 2009). Brofenbrenner has described the systems that influence development and proximal processes, yet has not demonstrated how he would apply the entire theory. Therefore, it is difficult to design research that assesses all aspects of the theory, because Brofenbrenner has not outlined how he would do so, and it seems as though the research process would be so complex that it is impossible for most researchers to have the resources to complete the study. Therefore, current applications of the theory only include partial aspects of the theory. Brofenbrenner never implied that all aspects of the theory had to be included in analyses, but emphasized that minimal application of the theory should include assessment of proximal processes (Tudge et al., 2009). The impact of the interaction between children and their mothers in addition to other exo systems on the development of children was used in this study.

Research that has been guided by ecological systems theory has been limited to only part of Brofenbrenner's theory. The majority of previous research has focused on the passive individual developing within an environment of interrelated systems impacting the individual's development. Darling (2007) argued that the majority of textbooks describe ecological systems theory by drawing a child with circles surrounding him or her that demonstrate the micro, meso, exo, and macro systems with arrows linking the systems. While a strength

of ecological systems theory is that it not only focuses on the individual's responsibility for personal development, the person remains an active participant in his or her environment. The person can shape, evoke a response to, and react to the environment. Darling (2007) emphasized that, especially during certain transition periods such as adolescence, children begin to have more control of their own development. Therefore, it is not only important to assess how the environmental systems impact children's development, but also how children impact their own development. This study included both individual characteristics as well as ecological factors to understand the development of adolescent students in special education.

Social Cognitive Theory

Description. Social cognitive theory explains how people internalize cultural beliefs about development and educational attainment. Internalization about development and educational experiences occur through the concept of self-efficacy, which are beliefs about one's own ability to produce desired outcomes. Self-efficacy regarding academic achievement is influenced by peers, teachers, school efficacy, and student body characteristics (Bandura, 1993).

Self-efficacy. According to Bandura's social cognitive theory, children develop beliefs about their own abilities to produce desired effects. "Efficacy beliefs influence how people feel, think, motivate themselves, and behave" explained Bandura (1993, p. 118). For example, children have beliefs about their abilities to achieve academic success. They also have beliefs about whether or not they can behave in certain ways that are perceived as appropriate in school.

Their beliefs determine their aspirations in life. If several forces, such as peers, teachers, and parents, implicitly or explicitly inform children that they will not graduate high school, children may develop low self-efficacy about their ability to graduate high school. Based on children's lack of self-efficacy that they can graduate high school, they would not expect to graduate high school. Therefore, they will probably not try very hard to graduate.

Major processes of self-efficacy. Self-efficacy produces effects on four major processes: cognitive, motivational, affective, and selection processes. Cognitive processes include self-appraisal of personal abilities. Self-appraisal can be influenced by other sources such as previous experience with personal abilities or peer or family member's verbal recognition of abilities (Bandura, 1993). For example, students with disabilities may have been told that they have a disability that limits their abilities; therefore, they develop a belief in themselves that they are limited. People form motivation, or beliefs about what they can or cannot do and set goals to realize valued futures that seem realistic to achieve, based on their self-appraisal (Bandura, 1993). Children with disabilities may set goals that are limited, such as satisfactorily completing courses, because they believe that their ability is limited and may not be able to receive excellent grades. Affective processes, such as how much stress or depression a person experiences in threatening or difficult situations, are emotional mediators of self-efficacy beliefs (Bandura, 1993). This indicates that mental health may be a mediator of self-efficacy for children in special education. Personal efficacy impacts life course selection, which include activities and environments in which people participate

(Bandura, 1993). Students in special education will choose the activities that they participate in, such as classes that they take, based on their self-efficacy, which can lead to self-fulfilling outcomes.

Levels of impact of self-efficacy. Children's intellectual development cannot be isolated from the social relations from within which it is embedded. There are three levels in which perceived self-efficacy operates as an important contributor to academic development: parents, teachers, and student body characteristics (Bandura, 1993). Children's self-efficacy is impacted by individual characteristics. Parental efficacy, which is the parents' belief that they can help their child to succeed, is very influential on children's self-efficacy (Bandura et al., 1996). Bandura implied that a child's development must be analyzed from an ecological perspective, which considers a broader context outside of the child's cognition, in order to understand how the child developed his or her self-efficacy. Self-efficacy is developed through consistent interactions with family and important people in children's lives, which is similar to the ecological perspective. Bandura also argued that social factors influence and are influenced by personal and behavioral determinants, which is a concept referred to as "triadic reciprocal determinism" (Tudge & Winterhoff, 1993). This indicates that parents, teachers, and peers are influenced by their interactions with students with disabilities.

Research has demonstrated the impact of the individual, parent, and peer influence on academic achievement. Bandura et al. (1996) assessed how perceived self-efficacy, social, and affective factors were associated with

academic achievement among a sample of 279 Caucasian children aged 11-14 with 155 males and 124 females. They found that the impact of socioeconomic status on children's academic achievement was mediated by parental academic aspirations and children's prosocial behavior. Children's belief in their academic achievement is directly associated with academic achievement through its impact on academic aspirations and prosocial conduct. Prosocial orientation also influenced academic achievement by curtailing depression, moral disengagement, and problem behavior. The full set of social and cognitive factors accounted for 58% of the variance of academic achievement. The factors included: 1) socioeconomic status, 2) parent's academic efficacy and aspirations, and 4) child's academic, self-regulatory and social efficacy, aspiration, prosocial behavior, peer preference, depression, moral disengagement and problem behavior (Bandura et al., 1996).

Efficacy and outcome expectations. Bandura made a distinction between “efficacy expectations” and “outcome expectations”. Efficacy expectations occur prior to behavior, which is prior to outcome expectations, which precedes an outcome. An outcome expectation is that a person's behavior will lead to desired outcomes. Efficacy expectation is the conviction that a person can perform a desired behavior (Eastman & Marzillier, 1984). For example, Vancouver and Kendall (2006) found that self-efficacy was negatively associated with motivation and exam performance among 62 undergraduate students. This finding is different than most study findings, yet provides a distinction between outcome and efficacy expectations. The students who had higher self-efficacy spent less

time preparing to take exams and performed worse on exams than students who had lower self-efficacy two days prior to the exam. The students with higher self-efficacy, or over-confidence, had an efficacy expectation that they were prepared to take the exam. This led the students not to perform the behavior, studying. The students' outcome expectation was that their lack of studying would not impact the outcome. The efficacy expectation and outcome expectation were different on belief and how the belief was associated with the outcome.

Critique. Scholars have critiqued social cognitive theory for its de-emphasis on the environment, lack of distinction between efficacy and outcome expectations, issues with causality of self-efficacy, as well as issues in research based on the theory. The theory focuses on “cognitive determinants of behavior”, which causes focus on the individual (Biglan, 1987, p. 12). Although research on self-efficacy has tended to deemphasize environment; more recent research has demonstrated that environmental manipulations affect behavior (Biglan, 1987). Even though Bandura introduced the potential impact of students, teachers, school efficacy, and peers on self-efficacy, the main construct of self-efficacy is an individual trait associated with academic achievement (Bandura, 1993). This study assessed efficacy as well as environmental factors.

Eastman and Marzillier (1984) proposed that there are conceptual problems with Bandura's distinction between efficacy and outcome expectations. They believe that the definition of efficacy expectations included outcome expectations within the definition. The authors describe an interrelationship between efficacy and outcome expectations. The authors also reported that

Bandura's definition of outcome expectations is problematic. Bandura clarifies that the execution of the behavior pattern or efficacy expectation is a part of the outcome, yet does not define "outcome". The lack of definition of outcome prevents the distinctiveness between efficacy and outcome expectations. Eastman and Marzillier (1984) also mention that in discrete tasks there are a limited number of outcomes, while in more complex behaviors there is a range of potential outcomes. The distinction between efficacy and outcome expectations would matter most for complex behaviors. Researchers must be sure to clarify what type of expectation they are referring to in their research. This study assessed efficacy expectations.

Social cognitive theory is most critiqued for its position that self-efficacy is a cause of behaviors. Hawkins (1992) argued that self-efficacy is a predictor, not a cause, of behaviors. He believed that self-efficacy could lead to predictable changes in certain behaviors, but does not cause them. He reports that Bandura explained social cognitive theory by describing self-efficacy as a cause of action, or behavior. Hawkins believed that self-efficacy is a hypothetical construct. Like any other construct, self-efficacy must be carefully defined, operationalized, and measured. Predicting causation is problematic and especially problematic assessing the relationship between beliefs, or constructs and behavior (Hawkins, 1995). Discourse analysis has shown that words that describe beliefs often represent a moment of insight. For example, if someone says "I think I understand it now," understanding is a belief. It appears that the person who made this statement had a momentary insight, rather than a permanent belief that

might predict or be associated with a behavior (Hawkins, 1995). Hawkins argues that self-efficacy is not a stable construct that could be a cause of behavior. Other critiques about self-efficacy “causing” behavior argue that behavior causes self-efficacy. Self-efficacy ratings could be a consequence, not a cause, of behavior. It is possible that a level of self-efficacy does not suddenly exist, but has existed, determined by prior events (Hawkins, 1992). Williams (2010) suggests that researchers should acknowledge the casual influence of outcome expectancy on self-efficacy.

Current research using social cognitive theory has been critiqued for issues in manipulating and assessing self-efficacy. Biglan (1987) believes that previous research on the causal relationship between self-efficacy and behavior has only tested the correlation between self-efficacy and behavior by manipulating self-efficacy and then testing for a change in behavior. For example, an experiment might include an intervention that impacts self-efficacy. Self-efficacy and behavior are evaluated after the intervention and conclusions are made whether or not self-efficacy is associated with behavior. Biglan (1987) believes that the relationship between self-efficacy and behavior is correlational rather than causal, because they are both responses to the same organism, such as an intervention. Marzillier and Eastman (1984) argue that the assessment of self-efficacy is problematic. The efficacy strength scale is not a probability scale, because it does not have a zero. The scale also makes little theoretical sense. Someone can claim to have the ability to “accomplish a given performance” and can also report their “strength of perceived efficacy” as “quite uncertain”. This is an internally

inconsistent statement (Marzillier & Eastman, 1984). Because of their concern with the measurement of self-efficacy, the Children's Educational Self-Efficacy Scale was developed and tested for reliability and validity (Bandura et al., 1996).

Theoretical Foundation: Ecological Theory and Social Cognitive Theory

Ecological theory and social cognitive theory provide the theoretical foundation for this study, because together they emphasize the importance of assessing individual and ecological factors that impact the developmental and educational outcomes of African American students in special education. There has been minimal research on factors that impact outcomes of African American students in special education; therefore, it is important to assess numerous potential factors that could impact their development. Though the theories have differences, both highlight the important environmental factors to consider in assessing children's behavioral and academic outcomes.

Ecological theory and social cognitive theory have promoted the acknowledgment of context. Bronfenbrenner (1979) posits that micro, exo, and macro systems, as well as the impact of the interaction between systems, impact children's development. Social cognitive theory concentrates on children's cognition as they observe people in their environment (Bandura, 1993). The theories posit that children learn from the contexts in which they live and their observations of and interactions with people.

Both theories consider the multi-directional interactions between children with disabilities and their environment. Bronfenbrenner posited that during certain stages in children's lives, they are active participants in their environment.

Therefore, children interact and impact their environment just as much as the environment impacts the child (Darling, 2007). Social cognitive theory's "triadic reciprocal determinism" concept describes that, while children's self-efficacy is impacted by other people, others are also impacted by children's self-efficacy (Tudge & Winterhoff, 1993).

Ecological systems theory and social cognitive theory are relevant in assessing the impact of proximal and distal factors on the behavioral and educational outcomes of African American students in special education. Rather than just focusing on the student and/or student's disability, the theories emphasize the impact of proximal factors, such as interactions that children have with their family, and distal factors, such as SES and neighborhood safety, on the behavioral and academic outcomes of students (Bandura, 1993; Bronfenbrenner, 1979).

Overview of the Literature on African American Students in Special Education

The behavioral and academic outcomes of African American children in special education have been studied for over 15 years. Some researchers have concluded that the overrepresentation of African American students in special education is a problem, because of potential negative outcomes associated with restrictive classroom placements; others have concluded that it is not, because it is a safety net for students who need it. Some researchers have not addressed disproportionality and have focused on environmental factors external from

school that impact developmental and academic outcomes for African American students (Artiles et al., 2010).

Those who have argued that disproportionality is a problem discuss the potential individual impact on African American students' outcomes and the lack of adherence to special education placement criteria (Brown, Higgins, Pierce, Hong & Thoma, 2003; Harry & Anderson, 1994; Freeman & Alkin, 2000).

Scholars who have posed that disproportionality is not a problem argue that special education is an appropriate placement as a safety net for specific students and that the disproportionality of African American students is not because of race, but poverty (Freeman & Alkin, 2000; Shrifrer, Muller, & Callahan, 2011).

Many researchers have argued that, regardless of the appropriateness of special education placement, it is important to understand the environmental factors associated with the behavioral and educational outcomes of African American students with disabilities, because these outcomes are strong predictors of economic self-sufficiency later in life (Harry & Anderson, 1994; Matta Oshima et al., 2010). Research has demonstrated that environmental factors external from school are critical indicators of internalizing and externalizing behavioral and educational outcomes of African American students in special education (Ceballo & McLody, 2002; Emerson, Hatton, Llewellyn, Blacher, & Graham, 2006; Gross, Garvey, Julion, Fogg, Tucker, & Mokros, 2009).

Disproportionality is a problem.

Impact on student outcomes. The experience of a disability diagnosis and special education classroom placement can have potential negative impacts on

students' academic and behavioral outcomes. Harry and Anderson (1994) explain that stigma is attached to a disability diagnosis alone and removal from mainstream education could cause a loss of opportunity to catch up or return to the regular education classroom. Although special education was designed to provide individualized classroom support for students struggling in regular education environments, even the IDEA prioritizes classroom placement in the least restrictive environment because of potential negative outcomes for students placed in self-contained, special education classrooms. Research studies have demonstrated the negative outcomes associated with restrictive classroom placement (Brown et al., 2003; Freeman & Alkin, 2000). A study of 222 African American and Caucasian students from 9th-12th grade found that students in special education were more likely to experience alienation in school, felt that school did not contribute to their future, and that breaking rules in school was fine as long as they did not get caught (Brown et al., 2003). Freeman and Alkin (2000) reviewed 36 studies published in peer-review journals on educational attainment of school-age children with mental retardation. When comparing students with mental retardation in general education and special education classrooms, students in the general education classrooms performed better on measures of academic achievement and social competence (Freeman & Alkin, 2000).

Adherence to placement criteria. In the school system, identification of a child's disability is first initiated by a teacher. The teacher makes a referral to a school psychologist to assess the child (Skiba et al., 2008). This allows teachers

to have a great deal of discretion on whom to refer for assessments by the school psychologist. The school psychologist then administers evaluations to determine a student's disability status. If the child is assessed and receives a disability diagnosis, then an IEP meeting is held to discuss the student's disability status, classroom placement in a special or regular education classroom, and/or number of resource hours. The meeting includes parents of the student, at least one regular education teacher, special education teacher, local educational agency representative, campus administrator, student with a disability if he or she is at least 14 years old, and other people who are familiar with the student. During this meeting, the teacher makes a recommendation for the student's classroom placement. Classroom placement and/or hours of special education or resource are negotiated during the IEP meeting (Individuals with Disabilities Education Improvement Act, 2004). Because teachers spend the most time educating the student, their recommendation may have immense influence over the final decision of students' classroom placement.

Research indicates that strict adherence to placement criteria does not always occur, thus leaving much discretion about disability status and classroom placement on teachers. Ebersole and Kapp (2007) studied whether or not a school in a Midwestern city adhered to strict district policy on the certification of 1st-5th grade students as mentally retarded by reviewing students' school files. Strict guidelines included: 1) reported IQ of less than 70 and 2) at least two corresponding scores of less than 70 on each of the Vineland Adaptive Behavior Scales. Only 41.8% of special education placements were determined using the

strictest guidelines. Strict guidelines were significantly less likely to be followed for students of color (followed 34.5% of the time) and African American students (followed 24.1% of the time) than White students (followed 52.3% of the time).

Because the majority of teachers are white, there is a potential cultural mismatch between African American students and their teachers, which could increase teachers' likelihood to refer African American children to receive special education services (Skiba et al., 2008). A study of 136 middle school teachers who were primarily European American found that teachers perceived students with African American culture-related movement styles, such as walking styles that invoke fear, as lower in achievement, higher in aggression, and more likely to need special education services (Neal, McCray, Webb-Johnson & Bridgest, 2003). Disciplinary records of 11,001 students in a metropolitan city with a majority of African American students (56%) indicated that African American students were more likely to be referred to the office by teachers for infractions that are less serious and more subjective, such as disrespect and excessive noise, while white students were sent to the office for more serious offenses, such as smoking, leaving without permission, or vandalism (Skiba, 2000).

Criteria for determining a child's disability or classroom placement can be blurry. Kirk (2004) conducted a review of literature on how accurate Diagnostic Statistical Manual diagnoses are for children. He stated that the validity of diagnoses depended upon specificity and sensitivity of diagnostic criteria, which the Diagnostic Statistical Manual does not provide for each diagnosis. A review of the literature found that there are relatively high rates of error in diagnoses of

attention-deficit/hyperactivity disorder, oppositional defiant disorder, and conduct disorder, which are related to children's externalizing behaviors. There is also no prescription available for how to decide students' classroom placements; therefore, IEP teams have flexibility when making decisions on classroom placement.

Disproportionality is not a problem.

Special education is a safety net. Although special education classroom placement has been associated with negative outcomes, it can also be seen as a safety net for students who struggle to fit in or keep up with their peers in mainstream education. In a review of 36 articles on the academic and social attainments of school-age children with mental retardation, Freeman and Alkin (2000) found that a majority of studies showed that children with mental retardation in general education do not attain social acceptance ratings as high as their typically developing peers. Students with mental retardation may have high social acceptance ratings in special education classes where their peers are developing at similar levels. Also, if students have a difficult time being successful in regular education classes, it may be more beneficial for them to receive education in a self-contained classroom that will provide more individualized education. The enactment of the IDEA mandated low teacher-student ratios, individualized education, and high expenditures per pupil in special education. These are desirable features in education, which many parents would want for their child. Artiles et al. (2010) reported that these features are associated with positive outcomes; however, longitudinal data show that students

with disabilities in special education are not improving their outcomes at the same rate as their peers in regular education. While some disability diagnoses may have permanent outcomes and developmental delays, such as mental retardation, students with other diagnoses, such as learning disabilities, have the cognitive ability to adapt their learning techniques and be as successful as their typical peers in school. For example, a study of 40 students with and without learning disabilities attending college performing equally on GPA, reading comprehension, and vocabulary found that students with learning disabilities could compensate for their disability by studying more hours and using adapting their learning strategies (Trainin & Swanson, 2005).

The poverty hypothesis. The correlation between poor school performance and poverty has been cited to justify disproportionality. Historically underserved students are more likely to live in low-income households and experience stressors due to poverty. These experiences may be associated with the students' likelihood to fail or fall behind in regular education. The poverty hypothesis argues that disproportionality is justified, because students from historically underserved groups are more likely to need special education services due to challenges they face in poverty, rather than simply being a part of a racial or ethnic group. For example, the Education Longitudinal Study of 16,000 students in 750 schools was analyzed to assess the odds of diagnosis of a learning disability. Shrifrer, Muller, and Callahan (2011) found that the odds of identification with a learning disability were 1.43 times greater for African Americans compared to Whites. Socioeconomic status, however, was included in

a second logistic regression model. In that model they found that poverty, not race, explained the disparities in diagnosis. After accounting for socioeconomic status, African American students had significantly lower odds of a diagnosis of a learning disability. This does not demonstrate that disproportionality is not a problem, but that ecological aspects of students' lives, such as socioeconomic status, may account for the probability that they will receive a disability diagnosis or be placed in a special education classroom.

Ecological factors associated with outcomes of African American students. There has been extensive research on factors other than school that are associated with the internalizing and externalizing behavior and educational outcomes of African American students in general. Published in the *American Sociological Review* in 2009, Condrón strived to answer the question of whether school or non-school factors explained the white-black achievement gap during the school year. Condrón (2009) compared the impact of school and non-school factors on white and black student gaps in math and reading development during the school year. Using a sample of 6378 students transferring from kindergarten to first grade, Condrón (2009) found that school factors alone primarily fueled 45% of the gap between reading and math scores in white and black children. Condrón's operationalization of non-school factors included resources, such as SES, parental involvement, and number of books in the home. The analysis did not include measures of family beliefs about educational achievement, which Bandura's social cognitive theory posits may be associated with educational outcomes of African American students. McBride Murry, Bynum, Brody,

Willert, and Stephens (2001) conducted a systematic review of literature on African American single mothers and their children, which assessed ecological factors associated with child developmental outcomes. The studies selected for review had to be published in peer reviewed journals and focus on within-group variability among African American families. The systematic review indicated that the following factors impact African American children's developmental outcomes: father's involvement, neighborhood safety, family substance use, church attendance, socioeconomic status, social support, housing density, maternal social capital, parenting styles and strategies, depression, self-esteem, and efficacy (McBride Murry et al., 2001).

Less research has assessed the impact of proximal and distal factors on the internalizing and externalizing behavior and educational outcomes of African American students in special education. Research has shown that maternal efficacy and mastery, child self-efficacy, socioeconomic status, neighborhood safety, and home visitation interventions impact African American children with disabilities' behavioral and educational outcomes. For example, parental efficacy is positively associated with positive behaviors among African American children with disabilities (Ceballo & McLody, 2002; Gross et al., 2009). Living in poverty has been associated with cognitive delay and underachievement among children with disabilities (Matta Oshima et al., 2010; Park, Turnbull & Turnbull, 2002). Lower neighborhood safety has been associated with increased internalizing and externalizing behaviors and decreased attention during school (Daly, Shin, Thakral, Selders, & Vera, 2009; Pachter, Auinger, Palmer, & Weitzman, 2006;

Pettit, Bates, Dodge, & Meece, 1999). Home visitation interventions have been developed to improve parenting skills and outcomes for children; research has demonstrated that these interventions significantly impact outcomes of African American students (Olds, 2006). All of these factors have the potential to impact the academic and developmental outcomes of African American students in special education. Overall, the literature shows that the environment, external from school, has a large impact on the developmental and educational outcomes of African American students in special education.

Efficacy and mastery. Regardless of socioeconomic status, African American mothers of children with disabilities have shown signs of resiliency. Mothers are usually the primary caregiver of children with disabilities. Children with disabilities are more likely to live with their biological, single mothers (Cohen & Petrescu-Prahova, 2006). However challenging, the literature shows that mothers of children with disabilities have found ways to mediate the effects of socioeconomic status on the developmental and educational outcomes of their children with disabilities. Maternal mastery and efficacy have been two concepts that are related to parenting and children's outcomes. Mastery is the conception of self as an instrumental agent of change (DeSocio, 2000). Parental efficacy is the belief that parents can successfully produce desired effects of parenting their children considering self and other factors as agents of change (Bandura, Barbaranelli, Caprara, and Pasotrelli, 1996). Although these two concepts have distinct definitions, there is some overlap and sometimes the concepts are used interchangeably in the literature (Jackson, Choi, & Franke, 2009).

Maternal mastery has been positively associated with African American children's behavioral and developmental outcomes. For example, in a sample of 134 black single mothers who were former or current welfare recipients, Jackson, Choi, and Franke (2009) found that maternal mastery mediated the effects of issues in parenting stress and mother-family relationship on child's language skills and education. DeSocio (2000) also found that mastery was associated with responsive maternal behavior in a sample of 208 African American mothers who participated in the Nurse-Family Partnership intervention in Memphis, Tennessee.

African American mothers' self-efficacy has affected children's behavior and educational achievement. Bandura, Barbanelli, Caprara, and Pasotrelli (1996) conducted a path analysis on 279 children aged 11-14. They found that parental efficacy had a direct correlation of .35 ($p < .05$) with academic achievement and was also correlated with children's efficacy ($r = .30, p < .05$), which was directly correlated with academic achievement ($r = .11, p < .05$). Mothers who believe that they can have a positive impact on the development of their child are usually successful at positively impacting their child's development.

The study of an intervention aimed to increase parental efficacy found that a sample of African American mothers increased their self-efficacy, consistency in discipline, and experienced fewer decreased aversive behaviors, such as noncompliance, destruction, crying, whining and yelling, among their children significantly more than a control group (Gross et al., 2009). Aversive behaviors can have very negative effects on children's development, including violent behaviors. A mixed methods study of four mothers of children with

developmental disabilities found that those who attended a parenting class reported increased satisfaction with their parenting skills and were able to decrease their children's aggressive behavior (Singh et al., 2007). After the training, the parents felt confident, or experienced parental self-efficacy, which impacted the use of their parenting skills and positively impacted their children.

While parental efficacy is associated with educational achievement of typical students, a mother's parental self-efficacy has not been clearly associated with children's educational goals and outcomes in previous literature among African American children. One study found that African American children's educational self-efficacy was associated with their mother's support for educational achievement (Kerpelman, Eryigit, & Stephens, 2008). Another study found that maternal self-efficacy was not strongly correlated with children's language abilities (Harty, Alant, & Uys, 2007). It may be that maternal self-efficacy is not associated with children's language abilities, yet is associated with educational achievement. Language ability might not be a good measure of educational achievement, because it may be associated with a disability. Children can have a disability, yet still have successful academic outcomes. As indicated by research, maternal self-efficacy may only be associated with the child's overall academic achievement, rather than the child's ability or disability, such as language ability. However, Harty et al. (2007) found that language ability was associated with academic achievement. Further research is needed to fully understand the relationship between maternal self-efficacy and educational achievement among African American children with disabilities.

Socioeconomic status. African American children with disabilities are especially vulnerable to living in poverty. The U.S. Census Bureau (2010) reported that families with children with disabilities were more likely to live in poverty. It is unknown whether or not poverty is a predictor of disability or if having a disability is a predictor of poverty. Research has shown that families with children with disabilities are more likely to struggle financially due to the allocation of many resources for children with disabilities. Almost half of families with children with disabilities reported that they experienced financial difficulties (Sen & Yurtsever, 2007). African Americans also disproportionately live in poverty. In 2010, 39.1% of African American children lived in poverty (DeNavas, Proctor, & Smith, 2011). Because African American children with disabilities appear to be especially vulnerable to living in poverty, it is important to know the effect of socioeconomic status on the behavioral and academic outcomes of African American children with disabilities.

Socioeconomic status determines a family's access to resources, thus impacting the development of children. Children with disabilities need more financial and direct support resources, such as health care and individualized education, than children without disabilities. The socioeconomic status of families with children with disabilities has been shown to impact family health, productivity, physical environment, emotional well-being, and family interaction. Park et al. (2002) reported that family health issues may be due to hunger, lack of nutrition, and limited health care access. Impoverished families do not have as much money to spend on healthy foods or health care.

Families with children with disabilities living in poverty experienced delayed cognitive development and underachievement (Matta Oshima et al., 2010; Park et al., 2002). Schools and communities often have more resources in affluent areas, so families living in poverty do not have as many resources in their community to support their children's cognitive development and achievement (Park et al., 2002). Youth with disabilities living in poor households were more likely to participate in delinquent behavior than their peers without disabilities (Matta Oshima et al., 2010). A lack of community resources and support in impoverished neighborhoods may be associated with delinquent behavior of youth with disabilities.

Impoverished neighborhoods are also negatively associated with educational outcomes of African American children. A study showed that mothers who lived with children with disabilities in overcrowded housing had decreased confidence in their parenting abilities (Emerson et al., 2006). Bromley, Hare, Davison, and Emerson (2004) found that mothers were more likely to report psychological distress if they were a single parent, living in poor housing, or were parenting a child with a disability. African American children who grew up in severely impoverished neighborhoods were found to experience a reduction in verbal ability equivalent to missing a year or more of school (Sampson, Sharkey & Raudenbush, 2008). Even students who had equivalent years of education were disadvantaged by the neighborhood in which they went to school. In another study of the effect of impoverished neighborhoods, scholars studied the effect of minority children who moved from impoverished to affluent neighborhoods.

Minority boys' academic achievement scores significantly improved after they moved away from low-poverty neighborhoods, yet still lived with the same family (Leventhal & Brooks-Gunn, 2004). Although families have a substantial impact on children's educational achievements, neighborhood was a stronger force in predicting educational achievement in the study. This further illustrates the effect of neighborhood resources on child development.

Neighborhood safety. Although poverty may be correlated with neighborhood safety, a literature review found that there have been mixed findings between the correlation of poverty, neighborhood safety, and academic outcomes of African American students (Johnson, 2010). Socioeconomic status and neighborhood safety will be discussed as separate constructs for this study. Neighborhood safety has been associated with the developmental and educational outcomes of African American children with disabilities (Pachter et al., 2006; Pettit et al., 1999). Perceived increased neighborhood safety was associated with decreased externalizing behaviors among African American children. Externalizing behaviors were defined as aggression, hyperactivity and oppositional defiance (Pachter et al., 2006; Pettit et al., 1999). If children believe that their neighborhood is unsafe, they may exhibit externalizing behaviors to defend and protect themselves. Externalizing behaviors can be very harmful, because they can interrupt a child's development with his or her peers. If a child is exhibiting externalizing behaviors, he or she is at risk of engaging in delinquent behaviors. Teachers may be more likely to refer African American students to special education for behavioral issues. These behaviors can lead to interruptions

in education. Hammond and Yung (1991) also perceive externalizing behaviors, such as aggression, as a public health issue. Aggressive behaviors among African American youth have been strongly associated with death and victimization (Hammond & Yung, 1991).

Pachter et al. (2006) found that neighborhood safety also had significant direct effects on African American children's internalizing behaviors. Internalizing behaviors are characterized by depression, anxiety, and frustration. If children feel unsafe, they may learn to deal with it by feelings of fear. Constant fear among adults who live in unsafe neighborhoods has been associated with stress (Pachter et al., 2006). These behaviors could also be considered a public health issue, since internalizing behaviors, such as depression and anxiety are strongly associated with suicide and other health issues (Pachter et al., 2006).

The effects of neighborhood safety among African Americans have been heterogeneous. Studies have found that neighborhood effects were direct and unmediated by parenting for African American children, while neighborhood effects were not direct and mediated by parenting for white and Latino children (Pachter et al., 2006; Pettit et al., 1999). Direct and unmediated effects are direct correlations that are not impacted when parenting is considered as another variable. This indicates that the effect of neighborhood strongly impacts behaviors among African American children. The lack of effect that parenting has on children who live in unsafe neighborhoods may be due to the impact that unsafe neighborhoods have on the parent. Parents who live in unsafe neighborhoods have been shown to be resilient, yet exhibit stress and health

problems due to experiencing anxiety over long periods of time (Pachter et al., 2006; Pettit et al., 1999).

Some studies have found that neighborhood safety impacts African American children's educational outcomes and attainment. If a neighborhood is unsafe, children may spend their time worried and distracted from school work. Adolescents' perceptions of neighborhood incivilities were associated with their lack of school engagement (Daly et al., 2009). This study also found that adolescents' level of social support from their peers, family, and teachers did not change the relationship between neighborhood and school engagement. This may be similar to why parents did not have an effect on children's behavior that lived in unsafe neighborhoods. If the peers, family, and teachers of a child who lives in an unsafe neighborhood are internalizing the experience of living in an unsafe neighborhood, they may not be able to provide adequate social support for the child. African American children's education is strongly associated with their neighborhood safety, even if they have supportive important people in their lives, such as friends, family, and teachers (Pachter et al., 2006; Pettit et al., 1999).

Home visitation interventions. Early childhood home visitation interventions are conducted by social workers, teachers, nurses, and paraprofessionals with the goal of improving parenting skills and ultimately improving the lives of families with children with disabilities. The benefit of home visitation services is that they can be individualized and focus on the needs of the family and children with disabilities (McBride & Peterson, 1997). Goals of home visitation interventions for low-income families have differed from

interventions for higher-income families. Typical early childhood home visitation interventions included goals of improved prenatal health, parenting skills, and child development (McBride & Peterson, 1997; Olds, 2006; Rosenberg, Robinson & Fryer, 2002).

The Nurse-Family Partnership (NFP) is an in-home early intervention that has been researched for over 27 years with white, Hispanic, and African American families who have lower socioeconomic status (Olds, 2006). The NFP is designed for lower-income, first-time mothers. The goals of the intervention are to improve: 1) pregnancy outcomes and prenatal health, 2) child health and development, and 3) family planning for future pregnancies, completing education and finding work. Results from three large-scale randomized controlled trials with different populations in different contexts have resulted in the following outcomes: 1) improvement in prenatal care, 2) improvement in child emotional and language development, and 3) improvement in maternal life course with fewer subsequent pregnancies, greater employment, and reduced dependence on public assistance and food stamps (Olds, 2006).

The NFP intervention was evaluated in a randomized controlled trial of a group of primarily African American, first-time mothers in Memphis, Tennessee. The hypothesis was that the effect of home visiting would be greater for children born to mothers who have few resources to manage living in poverty. Mothers enrolled in the study were less than 29 weeks of gestation, had no previous live births, no specific chronic illness potentially contributing to fetal growth retardation or preterm delivery, and had at least two of the following

sociodemographic factors: unmarried, unemployed, or had less than 12 years of education. Mothers to be followed post-natally ($n = 743$) were randomly assigned to receive nurse home visits ($n = 228$) or comparison (control group) services (Kitzman et al., 2010).

The effects of the Memphis New Mothers Study on outcomes of the children and mothers were assessed when the children were 6 months, 1, 2, 4, 6, 9, and 12 years old. Currently data are being collected at age 17. At the third, sixth and ninth year follow-up assessments, women who received the intervention had fewer subsequent pregnancies, longer intervals between birth of the first and second child, and fewer months of AFDC and food stamps. Through age nine, children who were in the intervention group had clinically significant differences in outcomes compared to the control group. They were more likely to be enrolled in out-of-home care between ages 2 and 4.5 years old, demonstrated higher intellectual functioning and receptive vocabulary scores, had fewer behavioral problems in the borderline or clinical range, had higher GPA and test scores on math and reading, and were less likely to die from potentially preventable causes (Kitzman, et al. 2000; Olds et al., 2004; Olds et al., 2007).

At a follow-up with the families when the children were 12 years old, nurse-visited mothers were more likely to experience less role impairment due to substance use, longer partner relationships, and a greater sense of mastery (Olds et al., 2010). The study found that the intervention decreased children's substance use, internalizing behaviors, and increased children's academic achievement. Academic achievement was measured by the students' grade point average (GPA)

and Peabody Individual Achievement Test (PIAT). The intervention did not demonstrate any difference between grade retention and special education between the children in the intervention and control group. The researchers commented that grade retention and special education are affected by parental awareness and advocacy for their children. The outcome may have been impacted by nurse-visited parents' increased observation of children's developmental needs, which may have caused parents to advocate for their children at lower thresholds of severity than the mothers in the control group (Kitzman et al. 2010). Increased advocacy by parents could increase the likelihood that children received additional services, such as special education.

Literature Review Summary

Many researchers have discussed the issue of disproportionality among African American students in special education (Harry & Anderson, 1994; Skiba et al., 2006). Researchers have shown that there are both positive and negative outcomes that are associated with disability diagnosis and special education placement (Freeman & Alkin, 2000). Scholars have documented the potential cultural mismatch between African American students and their teachers, which may be associated with the disproportionality (Skiba, 2000). Research has also shown that factors outside of the school environment impact the outcomes of African American students with disabilities (Ceballo & McLoyd, 2002; Emerson et al., 2006; Gross et al., 2009). There have been programs, such as the Nurse-Family Partnership, created to address the outcomes of African American students, yet it is unknown whether or not these programs substantially improve

the outcomes of African American students with disabilities. Little research, in general, has been conducted that assesses how ecological factors impact the educational and developmental outcomes for African American students who are in special education. The majority of research has been conducted on white students with disabilities or African American students without disabilities.

Unknown knowledge about the impact of current programs. The IDEA and home visitation services were developed to improve the education and outcomes of students with disabilities. The IDEA (2004) reported a broad objective to improve the economic self-sufficiency of individuals with disabilities. Since the enactment of the IDEA, schools have continued to struggle with disproportionality and provision of education in the least restrictive environment for African American students with disabilities. African American students have been placed in Title I and other remediation programs to improve their educational outcomes, yet they continue to be overrepresented in disability categories (Artiles et al., 2010). The focus on schools may be too narrow in understanding the disproportionality of African American students. IDEA and recent research have focused on schools as the source of intervention to improve the behavioral and educational outcomes of children with disabilities (Individuals with Disabilities Education Improvement Act, 2004; Artiles et al., 2010; Ebersole & Kapp, 2007; Harry & Anderson, 1994). Children's developmental and educational outcomes are impacted by various sources outside of school. Home visitation programs have been developed to address this issue. Although the impact of these interventions has been positive, the research often focuses on

African American students in general (Olds, 2006); therefore, more information is needed about these interventions' specific impact on African American students in special education.

Research Questions

Ecological theory posits that children develop behaviorally and academically by observing and/or participating in environmental factors. The behavioral and educational outcomes of African American students in special education are determined by multiple variables (Skiba et al., 2008). Disproportionality, ecological factors, cultural mismatches between students and teachers, and interventions impact African American students in special education. It is unknown whether or not diagnosis and/or placement in special education has positive or negative impacts on outcomes; therefore, it is important to understand disproportionality as well as other factors that impact outcomes of African American students in special education. Most of the current literature on ecological factors and African American students has assessed behavioral and educational outcomes, because they are associated with students' success in school (Brown et al., 2003; Freeman & Alkin, 2000). Ecological theory posits that proximal factors, such as regular interactions with people, are associated with increases in cognitive development, while distal factors, such as low SES or unsafe neighborhoods, impinge on a child's ability to develop (Bronfenbrenner & Morris, 1998). Social cognitive theory posits that children's efficacy and their parents' efficacy impacts their outcomes (Bandura et al., 1996). In addition, previous research has also found differential ratings of internalizing and

externalizing behaviors among children, mothers, and teachers (Achenbach, McConaughy, & Howell, 1987; Salbach-Andrae, Lenz & Lehmkuhl, 2009). A primary aim of this study was to understand how efficacy, proximal, and distal factors impact the behavioral and educational outcomes of African American students in special education (See Appendix A). This study also sought to understand how teachers, mothers, and African American children in special education rate children's internalizing and externalizing behaviors. The following research questions were assessed in this study:

Research Question 1

Is there a relationship between efficacy, distal, and proximal factors and the educational achievement of African American children in special education?

Hypotheses:

Higher levels of maternal mastery will be associated with higher levels of educational achievement.

Higher levels of maternal efficacy will be associated with higher levels of educational achievement.

Higher levels of child self efficacy will be associated with higher levels of educational achievement.

Higher levels of socioeconomic status will be associated with higher levels of educational achievement.

Higher levels of neighborhood safety will be associated with higher levels of educational achievement.

Treatment group condition will be associated with higher levels of educational achievement.

Rationale. This question incorporates ecological systems theory's position that environmental factors are associated with intellectual development. Children develop their educational goals and academic achievement through observations of and interactions with people and their environment (Bronfenbrenner, 1979). Children also develop their educational aspirations through their and their family members' efficacy, or beliefs about their ability to be successful in education (Bandura et al., 1996).

Research Question 2

Is there a relationship between efficacy, distal, and proximal factors and the internalizing behavior of African American children in special education?

Hypotheses.

Higher levels of maternal mastery will be associated with decreased internalizing behavior.

Higher levels of maternal efficacy will be associated with decreased internalizing behavior.

Higher levels of child self efficacy will be associated with decreased internalizing behavior.

Higher levels of socioeconomic status will be associated with decreased internalizing behavior.

Higher levels of neighborhood safety will be associated with decreased internalizing behavior.

Treatment group condition will be associated with decreased internalizing behavior.

Rationale. This question incorporates ecological system theory's position that environmental factors are associated with behavioral development. Children develop their internalizing behaviors, such as depression or anxiety, through observations of and interactions with people and their environment (Bronfenbrenner, 1979). Internalizing behaviors may also be associated with children's or their family members' efficacy, beliefs that they can be successful in school (Bandura et al., 1996).

Research Question 3

Do teachers, mothers, and African American children in special education rate children's internalizing behaviors differently?

Hypothesis. Children will report higher scores than their teachers' and mothers' ratings of their internalizing behaviors.

Rationale. Previous research has found that teachers, mothers, and children rate children's internalizing behaviors differently. Research among samples of white children has demonstrated that children report higher ratings of their internalizing behaviors than their mothers and teachers (Klaus, Mobilio, & King, 2009; Salbach-Andrae, Lenz, & Lehmkuhl, 2009). This question explored these differences among a sample of African American children.

Research Question 4

Is there a relationship between efficacy, distal, and proximal factors and the externalizing behavior of African American children in special education?

Hypotheses.

Higher levels of maternal mastery will be associated with decreased externalizing behavior.

Higher levels of maternal efficacy will be associated with decreased externalizing behavior.

Higher levels of child self efficacy will be associated with decreased externalizing behavior.

Higher levels of socioeconomic status will be associated with decreased externalizing behavior.

Higher levels of neighborhood safety will be associated with decreased externalizing behavior.

Treatment group condition will be associated with decreased externalizing behavior.

Rationale. This question incorporates ecological systems theory's premise that factors are associated with behavioral development. Children develop their externalizing behaviors, such as hyperactivity or aggression, through observations of, and interactions with, people and their environment over time (Bronfenbrenner, 1979). Externalizing behaviors may also be associated with children's or their family members' efficacy, beliefs that they can be successful in school (Bandura et al., 1996).

Research Question 5

Do teachers, mothers, and African American children in special education rate children's externalizing behaviors differently?

Hypothesis. Teachers will report higher scores than both the children's self-report and the mothers' report of their children's externalizing behaviors

Rationale. Previous research has found that teachers, mothers, and children rate children's externalizing behaviors differently. It is hypothesized that teachers are more likely to diagnose African American children with externalizing behaviors, because they do not understand their culture (Skiba et al., 2008).

Previous research that has tested this hypothesis has had mixed results suggesting that more research is needed to understand how teachers' perceptions of students' behaviors impact behavioral disorders and disproportionality of African American children in special education (Neal, McCray, Webb-Johnson & Bridgest, 2003; Rollins, 2005; Skiba, 2000). This question aimed to examine these differences among a sample of African American children.

Methodology

Quantitative research methodology has been used for this study. A secondary data analysis of a subsample of African American children in special education who participated in the Memphis New Mothers Study has been conducted to answer the study's research questions. One benefit of secondary data analysis is that it offers the opportunity for data to be analyzed from various perspectives (Brooks-Gunn, Phelps & Elder, 1991; Smith, 2008). While research has assessed the impact of the home visitation intervention on the whole sample of African American students, research on the subsample of children in special education from the Memphis New Mother Study had not yet been conducted. Obtaining data of a sample of African American children in special education is

timely and costly. Hofferth (2005) reported the additional benefits to secondary data analysis as: 1) decreased cost, 2) increased access, 2) larger sample size, 3) population representation, 4) timeliness, and 5) availability.

Research Design

Secondary data analysis of a randomized experimental research design has been used for this study. The investigators of the Memphis New Mothers Study conducted a randomized controlled trial of the Nurse-Family Partnership, an in-home nurse visiting intervention, in Memphis, Tennessee. Women recruited to be in the study were primarily African American, less than 29 weeks gestation, had no previous live births, and at least two of the following sociodemographic risk factors: unmarried, less than 12 years of education, and unemployed. Participants were recruited from June 1, 1990 through August 31, 1991 (Kitzman et al., 2010). Baseline interviews were conducted and a computer software program randomized women to one of four treatment conditions. Randomization was conducted with the following stratification factors: maternal race, maternal age, gestational age at enrolment, employment status of head of household, and geographic region of residence (Kitzman et al., 1997).

Women in treatment condition 1 ($n = 166$) received free taxicab service for prenatal visits, but did not receive postpartum services or assessments. Treatment condition 2 ($n = 515$) included free transportation for prenatal visits and developmental services and screening services for the child at age 6, 12 and 24 months of age. Women in treatment condition 3 ($n = 230$) received the same transportation and screening as treatment 2 in addition to home visitation services

during pregnancy, one postpartum visit in the hospital prior to discharge, and one postpartum visit at home. Women in treatment condition 4 ($n = 228$) were provided the same services as those in treatment 3 plus home visitation services through their children's second birthday (Kitzman et al., 1997). Treatment conditions 2 and 4 will be compared for the purposes of this study. Postnatal follow-ups were not conducted with the participants in other treatment conditions. Participant follow-ups, including surveys and interviews with the mothers and their first-born children were conducted through the children's 12th birthday. Follow-ups with the children at age 17 are currently being conducted, but the data were not ready for analysis for this study. At the 12-year follow-up, 126 children, in the overall sample, had received special education or resource services. Data from the surveys and interviews with these 126 children and mothers were used for analysis.

Data Background

The children were chosen for this study if their mother self-reported that the child received special education services at the 12-year follow-up or school record data demonstrated that the child received special education or resource services ($n = 126$). If children received special education services, it meant that they had a disability and needed accommodations in school due to their disability. It should be noted that most of the children in the study sample completed 6th grade prior to the implementation of the IDEA (2004), which prioritized placement in the least restrictive environment and reducing disproportionality.

These analyses will lend support to the disproportionality which existed prior to IDEA.

The sample chosen may be heterogeneous in specific disability diagnoses. However, children who receive special education services and are separated from the general education classroom share the experience of being excluded from typical classroom environments. The sample is also homogeneous in many aspects, since the original sample of mothers were chosen due to their position as first-time mothers and socioeconomic vulnerabilities.

The sample of African American children in special education from the Memphis New Mothers Study is unique. The children attended school in one of the public metropolitan school districts that have been resegregated, Memphis City Schools. In the State of Tennessee, 68% of public school students are white and 25% are African American. While the suburban school district near Memphis, Shelby County Schools, is primarily white (53%) and thirty-seven percent are African American, Memphis City Schools is primarily African American (86%) and seven percent are white (Lotz, 2010). This indicates that students in the sample have little interaction with students of other race or ethnicities in their school environment. While literature demonstrates that teachers are usually white and middle class, about half of Memphis City School teachers are black (51%), which may reduce the chance of cultural mismatch of teachers and students (Memphis City Schools, 2004; Skiba et al., 2008). This limits the generalizability of the study findings only to African American students

in special education who attend school at districts with similar demographics to Memphis City Schools.

Other sampling strategies were considered, including a special education determination. A child is determined to receive special education services after having experienced an in-depth evaluation from a child study team. The determination specifies that the student has an IEP (IDEA, 2004). However, due to unknown issues in data gathering or school record documentation, the data show that students could receive a special education determination and not have any special education/resource hours or have special education/resource hours and not have a special education determination. It is possible that students have advanced academically and are no longer in special education or resource, yet continue to hold a special education determination. Schools are often hesitant to remove student's special education determination until a significant amount of time has passed that they have not needed special education services. However, it is not possible that a student receives special education/resource hours without a special education determination (J. Roebuck, personal communication, June 8, 2011). Due to this ambiguity, the sample consisted of children whose school record data demonstrated that they received hours of special education services or whose mother's reported that they received special education services at the 12-year follow-up.

Original data gathering with mothers and the children in the study occurred during interviews by masked research staff members who did not know the treatment assignment of the participants when the children were 6 months, 1,

2, 4, 6, 9, and 12 years old. Data were collected from interviews with mothers, guardians, and children, as well as measurements of children's sustained attention and academic achievement, children's school records, and teacher's reports of children's behavior (Kitzman et al., 2010). School record data were difficult to obtain. Several different processes were used to obtain the data. Sometimes the masked research staff members would pick up the data from the school's registrar or counseling office. In that case, the registrar or counseling staff would review the student's records and fill out a form that included data, such as hours in special education, GPA, and test scores. Other times the research staff members were asked to review the student's school records to obtain the data themselves (E. Collins, personal communication, June 7, 2011).

Besides school record data collection, the measurement of other variables in the study had minimal measurement issues. The interviews with mothers and children were administered by trained, masked research staff members. The interviews with mothers and children were completed separately. Although the interviews were potentially lengthy, the interviewers reported that children and mothers did not appear bored or distracted. They also reported that, if a parent or child appeared to be unable to answer questions reliably, then they would be requested to complete the interview at another time. Children's interviews often included hands-on assessments on a computer, which provided a break from verbal interviewing (E. Collins, E. Greer, N. Boyd & K. Peck, personal communication, June 7, 2011). The assessment tools used for interviews were demonstrated as reliable and valid in previous research. For example, the

Achenbach Child Behavior Checklist is a common tool that has demonstrated excellent reliability in measuring behavior in children. It has also demonstrated convergent validity. Recent revisions to this tool have yielded the ability to generate DSM-IV diagnoses (Achenbach & Edelbrock, 1983; Hudziak, Copeland, Stanger, & Wadsworth, 2004). The reliability of scales used in the subsample for this study was assessed prior to data analysis.

The generalizability of the findings of this study is limited. Due to using secondary data, not all variables of interest were available. Particularly, the types of disabilities that children in the study experienced would have strengthened this study's findings. The study also included a small sample size that is not representative of the broader population. The children's mothers voluntarily chose to participate in the research study, which indicates that they may be different than those who have chosen not to participate. The findings of this study will provide information about a small, homogenous group of African American students in special education. Future research and multiple studies will be needed to provide generalizations about findings to the broader population of African American students in special education.

Data Analysis Plans

Data analysis began with analysis of descriptive statistics of each dependent and independent variable produced using SPSS. Measures of central tendency and histograms of each variable were produced to assess the distribution of the data. A review of the descriptive statistics for number of hours of special education/resource, revealed 31% missing data. This variable was collected from

student school records. Research team members on the original study reported that it was difficult to coordinate with schools and gather school record data; therefore, this may explain the missing data on this variable (E. Collins & E. Greer, personal communication, June 7, 2011). Analyses of the patterns of missing data indicated that the data were missing at random. The missing data analysis was conducted to assess differences between participants with missing data and those without missing data. Differences were detected in missing data by intervention and control group. Multiple imputation was used to impute missing values for number of hours in special education/resource (Rose & Fraser, 2008). Multiple imputation (10 in each group) was conducted separately for each intervention group using SAS (V9.1). Ten imputations are adequate for most applications if values are missing at random. (Acock, 2005). Pooled estimates of the parameters and standard errors from the combined imputed data set were used in the regression analyses.

Bivariate analyses were conducted between each dependent and independent variable to assess correlations between variables. Bivariate analyses were conducted between the independent variables to assess multicollinearity and the form of relationship between variables. T-tests were conducted to test research questions 3 and 5.

Linear regression. Linear regression was conducted to test research questions 1, 2, and 4. Multiple linear regression can be used to study whether a dependent variable is a function of more than one factor, or independent variables, of interest. It is broadly applicable to research questions or hypotheses that come

from formal theory, previous research, or scientific hunches (Cohen, Cohen, West, & Aiken, 2003). Research questions in this study inquired about the form of the relationship between multiple independent variables and a dependent variable.

Several assumptions must be met in order to use multiple regression analysis. The first assumption is to be sure that the researcher provides a correct specification of the form of the relationship between the dependent and independent variable. In the case of multiple linear regression the relationship should be linear, or a straight line (Cohen, et al., 2003). This was assessed using a correlation analysis and a scatterplot chart. The second assumption is that there is correct specification of the independent variables in the regression model. This implies that all variables identified by theory are included in the regression model (Cohen et al., 2003). Theory was used to assess variables included in the models. Another assumption is that there is no measurement error in the independent variable (Cohen et al., 2003). The reliability of the independent variables was assessed for measurement error. The last three assumptions are about the residuals, which are the difference between an actual, observed values and values predicted by a regression. Assumptions about residuals are: homoscedasticity, independence of residuals, and normality of residuals. Homoscedasticity means that there is conditional variance of the residuals around the regression line. There is normality in residuals when residuals around the regression line have normal distribution (Cohen et al., 2003). Scatterplots of residuals of each of the independent variables and the dependent variable demonstrated the

homoscedasticity of residuals. Index plots were used to assess whether residuals are related to some way in which the data was collected. A histogram of the residuals demonstrated the normality of the residuals (Cohen, et al., 2003).

Some other concerns for the use of multiple regression analysis include causation and multicollinearity. To accurately portray a casual effect, one must already have a casual model almost right (Berk, 2010). It is difficult to find empirical models that are nearly right before they are tested in a regression analysis. Without a model that is nearly right, bias may occur because omitted critical variables may be missing. Ecological theory, social cognitive theory, and previous literature informed the critical variables in include in the study. The linear regression analysis provides the correlations, not causation, between the dependent and independent variables. Multicollinearity, the existence of substantial correlation between two or more independent variables, violates an assumption in multiple regression. Variables may be highly correlated when information is redundant. Multicollinearity can result in increased standard error. It is best to reduce the number of independent variables for conceptual reasons. Adding independent variables may increase R squared, but it may be at the expense of introducing multicollinearity. Solutions to multicollinearity are either omitting the variable that is causing multicollinearity or combining information from two variables into one (Morrow-Howell, 1994). Small correlations were found between independent variables. The variables were kept in the multiple regression models, because substantial correlations were not found.

Proximal and distal factors and academic achievement. To test Research Question 1, linear regression was conducted. The dependent and independent variables for all three research questions are described in Appendix A. The dependent variable, academic achievement, was measured as a latent variable from observed indicators for math and reading GPA, 6th grade achievement test scores, Tennessee Comprehensive Assessment Program test scores, and a nonverbal test of sustained attention (Sidora-Arcoleo, Anson, Cole, Olds, & Kitzman, unpublished). The 6th grade achievement tests were the Peabody Individual Achievement Test in reading and math. The nonverbal test of sustained attention was the Leiter-R of Sustained Attention. Scores on the academic success variable range from 75.92-125.44.

The independent variables of interest were maternal efficacy and mastery, child self-efficacy, socioeconomic status, and neighborhood safety. Control variables were externalizing behavior and number of hours in special education. Treatment group and gender were specified as classification factors in the model. Total average number of hours in special education and/resource is an average of weekly hours that children received in special education or resource services from kindergarten through 6th grade. Child behavior was measured using Achenbach's Child Behavior Checklist (CBCL), which includes scales for internalizing and externalizing behaviors (Achenbach & Edelbrock, 1983). The externalizing behavior scale measured child's delinquent and aggressive symptoms. The internalizing behavior scale measured children's anxiety and depression symptoms. The CBCL was administered with the child, the child's mother and

teacher. A dependent measure of children's behavior was created by calculating the children's standardized mean externalizing CBCL scores using the child, mother and teacher's scores. Maternal efficacy was measured by a parental efficacy scale, with scores ranging from 3 to 5. Mother's mastery was measured using Pearlin's Mastery Scale, which ranged from 1.84 to 4. Child self-efficacy was measured using Bandura's Educational Self-Efficacy Scale, with scores ranging from 3 to 8. The efficacy scales measured the mother and child's outcome expectations, which are beliefs that a child's behavior will lead to a desired outcome. Socioeconomic status was measured by the Index for Environmental Demand, which is the mean of standardized income to needs ratio, housing density, and relationship conflict (DeSocio, 2000). Neighborhood safety was measured using seven questions that created the Neighborhood Safety Scale with responses ranging from 0 to 21.

Proximal and distal factors and internalizing and externalizing behavior. To test research questions 2 and 4, two separate linear regressions were conducted. One linear regression was conducted with internalizing behavior as the dependent variable and another linear regression was conducted with externalizing behavior as the dependent variable. The independent variables of interest and control variables, with the exception of externalizing behavior, are the same as those for research question 1 and have been described previously.

Differential ratings of externalizing and internalizing behaviors. To test research questions 3 and 5, the ratings of CBCL externalizing and internalizing behaviors scales by the child, mother and teacher were compared. T-tests were

conducted between the children's, mothers' and teachers' ratings of internalizing and externalizing behaviors.

Power

Power is the probability of rejecting the null hypothesis given the null hypothesis is false. This study had a small sample size of 126 children; therefore, a power analysis was conducted to assess the number of predictor variables that could be included in each regression analysis to maintain the generally accepted power of 0.80 (Elliot & Woodward, 2007). This means that 80% of the time, we will reject the null hypothesis if the null hypothesis is false. Each original regression model in this study included 8 predictors. According to a power analysis using GPower a sample size of 109 is needed to detect medium effect sizes, which is $f^2 = .15$ (Cohen et al., 2003; Erdfelder, Faul, & Buchner, 1996). A sample size of 759 is needed to detect small effect sizes with 8 predictors. Because this study does not have enough power to detect small effect sizes, the findings are discussed with caution. Model testing was conducted to arrive at the most parsimonious model that balanced explanatory power and theoretical relevance.

Limitations of Proposed Research Design

Secondary data analysis. There are several limitations to using secondary data analysis including measurement, cohort selectivity, lack of fit between the research question and data set, cost of learning a new data set, and reducing data to only a numeric, de-contextualized form. Measurement errors could be potential errors in data collection, failure to use reliable, psychometrically sound

scales, and due to less attention given to the measurement of key concepts related to secondary research questions (Brooks-Gunn et al., 1991; Hofferth, 2005; Smith, 2008). Cohort selectivity often occurs when longitudinal research trades off the depth of data collected for generalizability. Using relatively small data sets for analysis can limit the generalizability of the results of analysis (Brooks-Gunn et al., 1991). Data in secondary analysis may reflect the perspectives and questions asked by the original investigators and may not fit the new investigator's needs (Rew, Koniak-Griffin, Lewis, Miles, & O'Sullivan, 2000). This should be assessed before choosing a data set. Although time is saved in research design preparation and data collection, learning a new data set can also be time consuming (Hofferth, 2005). The major limitation to secondary data analysis is the de-contextualization of data (Brooks-Gunn et al., 1991; Murphy & Schlaerth, 2010; Rew et al., 2000). Research is disembodied, which means that it is "divorced from situational contingencies, cultural dynamics or any conflicts of interest" (Murphy & Schlaerth, 2010, p. 382-383). During the data collection process, the original data investigators are much more likely than a secondary data investigator to learn about the context of the research.

In order to address the limitations in secondary data analysis, investigators of secondary data analysis should become familiar with the nature of the dataset, how variables are operationally defined, and the historical, social, and political context in which the original data were collected (Rew et al., 2000). The data set was chosen because key variables were adequately measured during original data collection. In addition, instruments used in the original study were pretested,

revisions were made, and then pilot tested. Psychometric analyses were also used to ensure reliability and validity of instruments throughout the data collection process. Even though the subsample is small and not generalizable, the study findings will inform future research. Knowledge about the nature of the dataset and receipt of the operational definitions of key variables for the study were obtained by an investigator on the original Memphis New Mothers Study (K. Arcoleo, personal communication, July 7, 2011) who is a member of this dissertation committee. A visit to Memphis, Tennessee, the physical place in which the study participants lived, and interviews with the research team members of the Memphis New Mothers Study and a special education coordinator in Memphis, Tennessee were conducted to gain a sense of the historical, social, and political context in which the study was conducted.

Limitations in contemporary statistical approaches. The majority of contemporary quantitative investigators conduct null hypothesis testing with an emphasis on effect sizes. Most investigators who conduct null hypothesis testing want to reject the null hypothesis and conclude that the null hypothesis is unlikely with a significance level of .05 or .01. Cohen (1994) reports that the "...people who focus on effect size end up with a substantial positive bias in their effect size estimation" (p.1000). For example, Gigerenzer, Krauss, and Vitouch (2004) shared that one of their students found that the means of a variable on both an experimental and control group were the same, yet was tempted to conduct a significance test on the means. The student thought that one should always seek to conduct a null hypothesis test without exception.

There are several methods to prevent bias potentially caused by null hypothesis testing. In many cases the use of descriptive statistics and exploratory data are the only statistical tools that may be needed (Gigerenzer et al., 2004). Exploratory data analysis was used for this study prior to testing research hypotheses. In addition, p-values were reported with information about effect sizes, power or confidence intervals (Cohen, 1994; Gigerenzer et al., 2004). Confidence intervals were reported with effect sizes for this study.

Human Subjects Issues

Protection of human rights and privacy should be protected when conducting research with children and vulnerable populations. The sample of women and children in the Memphis New Mothers Study are potentially vulnerable. The women in the study were chosen due to their sociodemographic vulnerabilities, such as less than 12 years of education. Providing financial incentives to participate in the study may decrease or eliminate the women's choice to participate in the study. If the incentive was too much, then the women may have felt that they could not refuse the opportunity. Institutional review board from the University of Rochester and The University of Tennessee approved the original research methods, including the appropriateness of incentives provided to the women (Kitzman et al., 1997). The women also had to provide informed consent to participate in interviews and obtain their children's school record data prior to participating in the study. The research staff members also reported that they obtained verbal consent from the mothers and verbal assent from children prior to each follow-up interview (E. Collins & E. Greer, personal

communication, June 7, 2011). A letter of support from the superintendent of schools in Memphis City Schools was also obtained. The institutional review board at Arizona State University has approved the analysis of de-identified data on the subsample of children in special education from the Memphis New Mothers Study for this study (Appendix B). Although the data are de-identified, the data were stored in a password-protected file to maintain privacy of study participants and access was limited to the author.

Chapter 2

PAPER 1

Disproportionate Ratings of Acting-Out Behaviors among African American
Children in Special Education: Misdiagnosis or Need for Intervention?

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Abstract

African American children are more likely to be diagnosed with acting-out behavioral disorders, such as aggression or oppositional defiance, and are overrepresented in special education (disproportionality). Disproportionality may be due to misdiagnosis. If diagnoses are accurate, prevention and intervention efforts should be targeted to improve African American children's behavior and long-term outcomes. According to ecological systems theory and social cognitive theory, children's behavioral development is impacted by their environments and efficacy beliefs. This study aimed to see if teachers, mothers, and African American children in special education rate children's externalizing behaviors differently and to understand what factors impact the externalizing behaviors of African American children in special education. A secondary data analysis of a sample of 126 African American children in special education found that teachers' scores were similar to mothers' scores of externalizing behaviors and that mothers' ratings of their children's acting-out behaviors were significantly higher than children's self-report. In addition, this study found that African American boys are more likely to experience acting-out behaviors than girls. Unexpectedly, results indicated that children's environment, efficacy beliefs, and the Nurse-Family Partnership intervention were not significantly associated with acting-out behaviors of African American children in this study.

Introduction

African American children are more likely to be diagnosed with behavioral disorders and are overrepresented in special education (U.S. Department of Education, 2008). Behavioral disorders, such as aggression and oppositional defiance, have been associated with disruptions in learning, separation from typical peers, and may result in incarceration, which can have negative long-term outcomes for children (U.S. Department of Education, 2008; Vaughn, Wallace, Davis, Fernandes, & Howard, 2008). It has been hypothesized that disproportionality, the overrepresentation of African American children diagnosed with behavioral disorders, is due to misdiagnosis of African American children with behavioral disorders by primarily white, middle-class teachers (Skiba et al., 2008). If teachers are making accurate diagnoses and African American children are experiencing higher rates of hyperactivity and aggression, prevention and intervention efforts should be targeted to improve their behavior and long-term outcomes. If teachers' assessments are wrong, then school systems and teachers need to re-evaluate how those assessments are made and whether there is cultural bias. Ecological systems theory and social cognitive theory posit that children's behavioral development is impacted by their environments and efficacy beliefs (Bandura et al., 1996; Brofenbrenner, 1979). Therefore, more information on the accuracy of teacher diagnoses and the impact of children's environments and efficacy beliefs on behavior problems of African American children is needed to diminish disproportionality and improve children's long term outcomes. The Nurse-Family Partnership intervention has been developed

to improve environmental resources and efficacy beliefs of African American children and their mothers and is the source of data for this research (Olds, 2006).

Disproportionality of African American Children

African American children are disproportionality diagnosed with disabilities associated with externalizing behaviors, such as aggression, hyperactivity, and oppositional defiance, and consequently more frequently placed in special education classrooms. According to the Department of Education (2008) African American students were 2.28 times more likely than school-age children in other racial/ethnic categories to be served under special education for behavioral disturbance. African American children with diagnoses associated with externalizing behaviors had the highest rates of removal to an alternative educational setting by school personnel, such as special education. Externalizing behaviors and removal from mainstream education are associated with negative outcomes. Special education placement is associated with stigma and poor educational outcomes (Bussing, Porter, Zima, Mason, Garvan, & Reid, 2010). Students with externalizing behaviors also have an increased likelihood of incarceration (Vaughn, Wallace, Davis, Fernandes, & Howard, 2008). Therefore, understanding the accuracy of ratings of externalizing behavior is of critical importance.

An unsubstantiated hypothesis has been developed to explain disproportionality of African American children placed in special education for externalizing behaviors. The cultural mismatch hypothesis posits that disproportionality is due to a cultural mismatch between primarily white, middle-

class teachers and African American students. It is hypothesized that teachers are more likely to rate African American children as having behavioral disorders, because they do not understand their culture (Skiba et al., 2008). Previous research that has tested this hypothesis has had mixed results suggesting that more research is needed to understand how teachers' perceptions of students' behaviors impact behavioral disorders and disproportionality of African American children in special education (Neal, McCray, Webb-Johnson, & Bridgest, 2003; Rollins, 2005; Skiba, 2000).

If teachers' perceptions of students' behaviors are accurate and African American children do experience more behavioral disorders than other students, then prevention and intervention efforts should be targeted to reduce the disproportionality. Ecological systems theory posits that a holistic approach is needed to understand children's behaviors. Bronfenbrenner (1979) suggests that children's development is impacted by characteristics and resources of their parents, families, social networks, neighborhoods, and communities. In addition, social cognitive theory posits that children's and parental efficacy beliefs in their ability to accomplish their goals are central to children's development (Bandura et al., 1996).

Recognizing the importance of environmental and efficacy beliefs, the Nurse-Family Partnership, a home-based nurse visiting intervention, was designed to improve behavioral outcomes of a sample of African American children. The Nurse-Family Partnership demonstrated efficacy in reducing girl's aggressive behaviors among typically developing African American children (Sidora-

Arcoleo et al., 2010); however, it is unknown whether the intervention impacted behavioral problems among the children in special education. The present study examined the difference in self-reports and the children's mothers' and teachers' ratings of externalizing behaviors among low-income African American children in special education to assess the cultural mismatch hypothesis. This study also examined the relationship between several independent environmental and efficacy variables, including maternal mastery, maternal efficacy, child self-efficacy, socioeconomic status, neighborhood safety, and externalizing behaviors in African American students in special education in order to better target prevention and intervention efforts.

Misperception of Externalizing Behaviors

Research has demonstrated that the cultural mismatch hypothesis may have some validity. Miner and Clarke-Stewart (2008) studied the prevalence of externalizing behaviors among 1,364 children. Their mothers and teachers provided assessments of their children's externalizing behaviors at ages 2,3,4,7, and 9 years old. In the overall sample, externalizing behaviors declined as children aged. However, African American children's externalizing behaviors increased with age according to the teachers and decreased with age according to the mothers (Miner & Clarke-Stewart, 2008). In another study, disciplinary records of 11,001 students in a metropolitan city with a majority of African American students (56%) indicated that black students were more likely to be referred to the office by teachers for infractions that are less serious and more subjective, such as disrespect and excessive noise, while white students were sent

to the office for more serious offenses, such as smoking, leaving without permission, or vandalism (Skiba, 2000). Neal, McGary, Webb-Johnson, and Bridgest (2003) explored why white teachers may perceive African American students as having more externalizing behaviors than other students. Their study of 136 middle school teachers, who were primarily European American, found that teachers perceived students with African American culture-related movement styles, such as walking styles that invoke fear, as lower in achievement, higher in aggression, and more likely to need special education services (Neal, McGary, Webb-Johnson, & Bridgest, 2003). In addition to the cultural mismatch between primarily white teachers and African American students, another study indicated that teachers also may not feel prepared to deal with behavioral problems and do not perceive that special education referrals have negative consequences.

Interviews with 28 classroom teachers found that, overall, the teachers felt there was a lack of resources for managing disruptive behaviors. General education teachers also did not report any negative consequences of referring students to special education services (Skiba, Simmons, Ritter, Kohler, Henderson, & Wu, 2006). Teacher beliefs that there are no negative consequences associated with special education referrals may increase referrals for externalizing behaviors.

Other research has not supported the cultural mismatch hypothesis.

Rollins (2005) found that white teachers have similar responses to student's hyperactive behaviors regardless of the child's ethnicity, gender, or socioeconomic status in a sample of 160 primarily white (79.4%), female (94.4%) teachers. The majority of teachers taught at schools where African American

students were a minority. While no relationship was found between white teachers' perceptions of students' behaviors by race, gender, or socioeconomic status, results indicated that African American teachers were more likely to report that students' behaviors, in general, were more serious and unusual than white teachers. Rollins (2005) also found that there was a relationship between teachers' responses to behaviors, gender, and socioeconomic status. All teachers were significantly more likely to make a referral to seek assistance from a counselor for a female with low socioeconomic status than a student with high socioeconomic status. This indicates the importance of the relationship between externalizing behaviors and children's gender and environment, especially socioeconomic status.

Gender and Externalizing Behaviors

African American boys appear to be more at risk of a behavioral disorder diagnosis and/or receiving an alternative education, such as special education. While Rollins (2005) found that teachers were more likely to refer girls for counseling services, other studies found that males in general are more likely to receive referrals for exhibiting externalizing behaviors. A longitudinal study of 15,932 students from grades 6-9 found that 77.4% of them received referrals for externalizing behaviors. The ratio of males to females referred was approximately 5:1 for externalizing behaviors (Young, Sabbah, Young, Reiser, & Richardson, 2010). In a sample of 663 youth aged 12-18, Barnes, Mitic, Leadbeater, and Dhami (2009) found that males were at higher risk for alcohol consumption and externalizing problems while females were more susceptible to

internalizing problems, such as anxiety or depression. In a study of 27,884 students, African American males had a relative risk ratio of 2.03 to white males for disciplinary referrals. African American males were most likely to receive disciplinary referrals for disobedience, defiance, improper dress, fighting with a student, threat to another student, and profanity than white males. White males in the sample were more likely to receive referrals for truancy (Lewis, Butler, Bonner, & Joubert, 2010). These data indicate that African American males are more likely to receive referrals for their externalizing behaviors than white males. Another study found that teachers were more likely to report gender differences for externalizing behaviors than mothers. Miner and Clarke-Steward (2008) assessed prevalence of externalizing behaviors over time among 1,364 students and found that boys exhibited more frequent externalizing behaviors than girls according to teachers' reports, but no gender differences appeared in mothers' reports. This indicates that mothers and teachers perceptions of children's externalizing behaviors may differ.

SES, Neighborhood Safety, and Externalizing Behaviors

Living in poverty is associated with stress, low self-esteem, and increased externalizing behaviors (Park et. al., 2002; Slopen, Fitzmaurice, Williams, & Gilman, 2010). Poverty is more prevalent for African American children. Twenty-six percent of African American children live in poverty compared to 9.4 percent of white children (DeNavas, Proctor, & Smith, 2011). This disparity has led some researchers to hypothesize that poverty is the reason African American children are disproportionately diagnosed with behavioral disorders. The

“poverty hypothesis” posits that African American students are more likely to have externalizing behaviors and be in special education due to challenges they face living in poverty (Artiles et al., 2010). Living in poverty is associated with decreased neighborhood safety. Studies have demonstrated that neighborhood safety impacts African American children’s externalizing behaviors. Studies of children aged 6-12 found that perceived increased neighborhood safety was associated with decreased externalizing behaviors among African American children (Pachter et al., 2006; Pettit et al., 1999).

Although the poverty hypothesis appears defensible, a study found that poverty did not help to explain behavioral referrals among African American students. A study of 11,001 white (56%) and black (42%) middle-school students from 19 schools assessed variables associated with teacher referrals for student behavioral problems (Skiba et al., 2000). A two-factor analysis of covariance was used to assess the impact of race, gender, and socioeconomic status on teacher referrals. Race and gender adjusted by socioeconomic status showed a minimal effect of socioeconomic status. The effect size for office referrals was .048 for race and gender and increased to .050 when adjusted for by socioeconomic status (Skiba et al., 2000). This study shows that socioeconomic status may not always significantly impact externalizing behaviors.

Efficacy Beliefs and Externalizing Behaviors

Self-agency, including efficacy and mastery constructs, has been associated with children’s externalizing behaviors. Self-mastery is “the extent to which one regards one’s life-chances as being under one’s own control in contrast

to be fatalistically ruled” (Pearlin & Schooler, 1978, p.5). Self-efficacy is a person’s belief that one can successfully produce the desired effects of their actions (Bandura, Barbaranelli, Caprara, & Pasotrelli, 1996). Although mastery and efficacy are two separate constructs, they are similar and have been used interchangeably in the literature. Children’s efficacy and mastery have been associated with their externalizing behaviors. Children’s higher mastery or control was associated with overall fewer externalizing symptoms among a sample of 12-18 year olds (Barnes, Mitic, Leadbeater, & Dhami, 2009). Children’s efficacy in a sample of 279 children ages 12-14 was inversely associated with their problem behaviors (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). Parental self-agency has also been associated with children’s externalizing behaviors. Jackson, Choi, and Franke (2009) found that maternal mastery mediated the impact of parenting adequacy and children’s internalizing and externalizing behaviors. Other studies found that parental efficacy was positively associated with positive behaviors among African American children with disabilities (Ceballo & McLody, 2002; Gross et al., 2009).

Nurse-Family Partnership Intervention and Externalizing Behaviors

The Nurse-Family Partnership, a home-based nurse visiting intervention, has demonstrated its impact on improving behavioral outcomes of African American children. The intervention highlighted the importance of social context and individual’s beliefs, motivations, and emotions in the development of behaviors because of its grounding in theories of human ecology and efficacy (Olds, 2006). A previous report from the Nurse-Family Partnership intervention

found that children had fewer behavioral problems in the borderline or clinical range at the third, sixth, and ninth year follow-up assessments (Kitzman, et al. 2000; Olds et al., 2004; Olds et al., 2007). The 12-year follow-up found no difference between the externalizing behaviors of children in the intervention and control groups (Kitzman et. al., 2010). A study of the differential effects of the intervention on externalizing behaviors found that the intervention was more successful in impacting girls' aggressive behavior at a young age; however, the impact dissipated by ages 6 and 12 (Sidora-Arcoleo et al., 2010). This indicates that the intervention impacts children's externalizing behaviors differently, which is why it is important to assess the impact of the intervention on children in special education.

To prevent disproportionality and improve externalizing behaviors among African American children, understanding what factors impact the externalizing behaviors of African American children in special education is needed. It is also important to explore the cultural mismatch hypothesis to see if teachers, mothers, and African American children in special education rate the children's externalizing behaviors differently. Literature has demonstrated that gender, environment, mother's self-agency, socioeconomic status, neighborhood safety, home visitation interventions, and efficacy are associated with African American children's externalizing behaviors. Previous research has also found mixed results about teachers' perceptions of African American students' externalizing behaviors (Neal, McCray, Webb-Johnson, & Bridgest, 2003; Rollins, 2005; Skiba, 2000). The following two research questions are addressed in this study

using secondary data analysis: 1) Do teachers, mothers, and African American children in special education rate children's externalizing behaviors differently? and 2) Is there a relationship between cognitive and ecological factors and the externalizing behaviors of African American children in special education? The author hypothesized that teachers would report higher scores than the children and the children's mothers. The author also hypothesized that higher levels of maternal mastery, maternal efficacy, child self-efficacy, socioeconomic status, neighborhood safety, and receipt of the Nurse-Family Partnership intervention are associated with decreased externalizing behaviors.

Methods

Research Design

To address the study's research questions, a secondary data analysis of a subsample of African American children who received special education services and participated in the Nurse-Family Partnership intervention was conducted. A detailed description of the study design was reported by Kitzman et al. (1997) but is summarized here. In-office and home interviews and assessments were conducted with the mothers in the study at registration in the study and post-partum when the study children were 6 months old, and 1, 2, 4, 6, 9 and 12 years of age. School record data and teacher assessments of study children were also collected at the 12-year follow-up. All enrolled women and children signed consent forms approved by the Research Subjects Review Boards at The University of Rochester and the University of Tennessee.

Sample

Study recruitment from the obstetrical clinic at the Regional Medical Center in Memphis, Tennessee required that women were less than 29 weeks pregnant, had no previous live births, no specific chronic illnesses potentially contributing to fetal growth retardation or preterm delivery, and two of the following characteristics: unmarried, unemployed, or had less than 12 years of education. Eighty-eight percent (1290/1139) of the women recruited at the medical center completed informed consent and were randomized to intervention groups. There were four intervention groups; only groups 2 and 4 were followed postnatally (described below). Women enrolled were primarily African American (92%), unmarried (98%), aged 18 or younger at registration (64%), and came from households with incomes at or below the federal poverty level (85%). Those who agreed to participate compared to those who chose not to participate were more likely to be African American than non-African American (89% vs. 74%, $p < .001$); younger (mean age 18 vs. 19 years, $p = .001$); and non-high school graduates (89% vs. 84%, $p = .01$) (Kitzman et al., 1997). The sample for these analyses consisted of those women and children originally randomized to groups 2 and 4 and who completed the 12 year assessment and whose children received any special education or resource services. Those children whose mothers indicated they had received special education services at the 12-year follow-up or their school records indicated receipt of special education or resource services were chosen for this study ($n = 126$).

Intervention Groups

Women were randomized to intervention conditions by a computer program using methods that are extensions of those given by Soares & Wu (1983). Participants and interviewers were blind to intervention group assignment. Women in intervention group 1 ($N = 166$) were only provided free-roundtrip taxi-cab transportation for scheduled prenatal care appointments. Women in intervention group 2 ($N = 515$) were provided free transportation for scheduled prenatal care and developmental screening and referral services for the study child at ages 6, 12, and 24 months. Women in intervention group 3 ($N = 230$) were provided the same services offered in group 2 in addition to intensive nurse home visitation services during pregnancy, 1 postpartum visit in the hospital before discharge, and 1 postpartum visit in the home. Women in intervention group 4 ($N = 228$) were provided the same services as those in group 3 in addition to nurse visitation services until the child's second birthday. Women assigned to the home visitation groups were subsequently randomly assigned to a nurse home visitor. Intervention group 2 was contrasted with intervention group 4 for evaluation of participant outcomes; only these groups were assessed after delivery of the child.

The NFP intervention consisted of nurse visitation that focused on: 1) prenatal health behaviors to modify risks for poor birth outcomes and child neurodevelopmental impairment, 2) sensitive, competent care of the child to modify risks for child abuse and neglect, 3) early, prenatal life course development, such as subsequent pregnancies, education, work and father

involvement, and 4) modifying risks for early onset of antisocial behavior.

Nurses were used to provide the intervention due to their training in women and children's health and knowledge of complex, clinical situations (Olds, 2006).

Measures

Externalizing Behaviors. Externalizing behaviors are defined as aggression, hyperactivity, and oppositional defiance (Pachter et al., 2006; Pettit et al., 1999). Externalizing behaviors were measured by the child's, mother's, and teacher's completion of the Child Behavior Checklist (CBCL) (Achenbach & Edelbrock, 1983). The child's, mother's, and teacher's scores on the CBCL externalizing behavior scale were compared for research question #1. The externalizing behaviors scale of the CBCL measured children's delinquent and aggressive symptoms. The externalizing behaviors scale requested that participants report if a statement was not true (0), somewhat/sometimes true (1), or very true/often true (2) on 60 items. Examples of statements include: 1) talks too much or 2) threatens people. Higher scores are indicative of greater externalizing behaviors. A standardized mean score of the children's, mothers' and teachers' externalizing behaviors score for each child was used as the dependent variable for Research Question #2. Validity for the CBCL has been assessed by the ability to generate DSM-IV diagnoses by responses on the CBCL (Achenbach & Edelbrock, 1983; Hudziak, Copeland, Stanger, & Wadsworth, 2004).

Independent Variables for Research Question #2.

Number of hours in special education/resource. The average weekly number of hours in special education or resource was abstracted from children's school records. The average weekly number of hours was calculated as the average weekly number of hours of special education/resource received from kindergarten through 6th grade.

Maternal self-efficacy. A scale developed specifically for the study based on Bandura's framework measured mothers' beliefs about talking and reading to their child, being able to understand their child's feelings, providing appropriate play toys, and completing the child's well-child healthcare visits. Ten items were scored 1 (*strongly agree*) to 4 (*strongly disagree*) and the total score computed as the mean. Higher scores are associated with greater efficacy.

Maternal mastery. Mother's mastery was measured using Pearlin's Mastery Scale, a 7-item Likert-type scale scored 1 (*strongly agree*) to 4 (*strongly disagree*) and the total score computed as the mean (Pearlin & Schooler, 1978). Sample questions were, "I have little control over the things that happen to me" or "There is really no way I can solve the problems I have." Higher scores reflect greater mastery.

Child educational self-efficacy. This variable was computed as a mean score of 12 items. Sample items were "I am likely to attend school regularly" and "Finishing high school is not that important for what I want to do with my life." Items were scored 1 (*strongly agree*) to 4 (*strongly disagree*) and higher scores indicate greater efficacy.

Environmental demand. The Index for Environmental Demand (DeSocio, 2000) was used to measure three dimensions of environmental demand on the family. They are: 1) the U.S. Bureau of Census income-to-needs ratio; spatial demand calculated as the ratio of household rooms to number of people living in the household; and 3) relational demand as assessed by items assessing conflict with partner or mother's significant other. The Index is the mean of standardized income to needs ratio, housing density, and relationship conflict. Higher scores reflect greater environmental demand.

Neighborhood safety. Neighborhood safety was measured using seven questions including items such as: "In your neighborhood do people buy, sell and use drugs?"; "People carry around weapons like guns or knives." Items were scored 1 (*none*), 2 (*very little*), 3 (*some*), or 4 (*a great deal*). Higher scores reflect unsafe neighborhood activity.

Statistical Analysis

Power analyses. Power was analyzed for the general regression model used to address the second hypothesis which included 8 independent variables and specification of a medium effect size. A sample size of 109 was needed to detect a medium effect size. $f^2 = .15$ according to a power analysis using GPower (Cohen et al., 2003; Erdfelder, Faul & Buchner, 1996).

Data analyses. Descriptive statistics were generated for each dependent and independent variable (SPSS V 19). Bivariate analyses were conducted between the dependent and independent variables of interest in the second hypothesis to assess associations between the variables. Bivariate analyses were

also conducted between the independent variables to assess multicollinearity and the form of relationship between variables.

Review of the descriptive statistics for the number of hours in special education/resource revealed 31% missing data. This variable was collected from student school records. Research team members on the original study reported that it was difficult to coordinate with schools and gather school record data; therefore, this probably explains the missing data on this variable (E. Collins & E. Greer, personal communication, June 7, 2011). Analyses of the patterns of missing data indicated that the data were missing at random. The missing data analysis was conducted to assess differences between participants with missing data and those without missing data. Differences were detected in missing data between the intervention and control group for the number of hours in special education. Multiple imputation was used to impute missing values for number of hours in special education/resource (Rose & Fraser, 2008). Multiple imputation (10 in each group) was conducted separately for each intervention group using SAS (V9.1). Ten imputations are adequate for most applications if values are missing at random. (Acock, 2005). Pooled estimates of the parameters and standard errors from the combined imputed data set were used.

To test the first research hypothesis, t-tests were conducted between the children's, mothers' and teachers' ratings of the children's externalizing behaviors score on the CBCL. To test the second research hypothesis, multiple linear regression was conducted using SAS (V9.1). This procedure utilizes the

parameter estimates and associated covariance matrix for each imputed dataset and then derives univariate and multivariate inferences for these parameters.

Results

Descriptive Analyses

Participants in the sample were African American, approximately 12 years old, and more than half were male (62.7%). About one third of the sample received the Nurse-Family Partnership intervention (31%). The nurse-visited families were visited by a nurse an average of 37 times with a wide range from 2-72 visits ($M = 37.52$, $SD = 15.81$). Children in the study received an average of 13 hours in special education services per week from kindergarten through 6th grade, which is approximately 40% of their time spent receiving special education in school ($M = 13.51$, $SD = 9.02$). Table 1a shows the descriptive statistics for all of the variables. Socioeconomic status was assessed using an income-to-needs poverty ratio, which is part of the Index for Environmental Demand. The ratio was calculated with family's income as the numerator and family's poverty threshold (total reported household income and number of people in the household) as the denominator. Ratios of 1.33 or less indicate that the family's needs exceed their income, which indicates poverty and high economic demand (Desocio, 2000). Most of the families in the sample lived in poverty, since 72.8% of the sample had an income-to-needs ratio of less than 1.33 (data not shown).

Bivariate Analyses

Paired samples t-tests were conducted between children's, mothers' and teachers' scores on the externalizing CBCL scale. Statistically significant

differences were found between mothers' and children's scores on externalizing behaviors ($t = 2.62, p = .01, df = 116$) indicating that children's scores were significantly lower than mother's scores of children's externalizing behaviors. No statistically significant differences were found between teachers' and children's scores ($t = 1.60, p = .11, df = 110$) and mothers' and teachers' scores ($t = 0.16, p = .87, df = 115$) on externalizing behaviors.

Independent samples t-tests were conducted between the categorical independent variables and externalizing behaviors to assess differences on the full sample. Statistically significant differences were found between gender and externalizing behaviors ($t = 2.12, p < .05, df = 124$), indicating that males experienced more externalizing behaviors than females. No statistically significant differences were found between treatment groups on externalizing behaviors. Correlations were found between neighborhood safety and children's externalizing behaviors ($r = .20, p < .05$), indicating that the more unsafe a neighborhood was, the more a child experienced externalizing behaviors. Statistically significant relationships between independent variables indicated multicollinearity between neighborhood safety and number of hours in special education, mother's mastery, and mother's efficacy. The correlation coefficients between these variables, however, were small, $r < .30$, so they were still included in the regression models.

Multivariate Analysis

The results of the multiple linear regression analysis are displayed in Table 1b. A statistically significant relationship was found between gender and

externalizing behaviors ($\beta = 2.38, p < .05, SE = .52$). The findings show that boys were slightly more likely to experience externalizing behaviors than girls. The R^2 for the final model was 0.09, indicating that the model explained 9% of the variance of the children's externalizing behaviors.

Discussion

This study is consistent with previous research that has found that African American boys are more likely to experience externalizing behaviors than girls (Barnes, Mitic, Leadbeater, and Dhimi, 2009; Young, Sabbah, Young, Reiser, Richardson, 2010). In addition, this study found that teachers' scores were similar to mothers' scores of externalizing behaviors for a sample of African American children in special education, which is not consistent with previous findings. Also, mothers' ratings of the children's externalizing behaviors was significantly higher than children's self-report of their externalizing behaviors. Unexpectedly, results indicated that ecological, cognitive factors, and the Nurse-Family Partnership intervention were not significantly associated with externalizing behaviors among the African American children in this study.

Diagnosis of Externalizing Behaviors

While other studies have found that the cultural mismatch hypothesis may be true and one of the reasons for disproportionality, this study found that teachers and mothers rated children's externalizing behaviors similarly in a sample of African American children receiving special education services in Memphis, Tennessee (Miner & Clarke-Stewart, 2008; Skiba, 2000). This indicates that teachers and mothers had similar perceptions of children's externalizing

behaviors. Although this study does not disprove the cultural mismatch hypothesis, it does provide hope that, even though teachers may not be the same ethnicity or socioeconomic status of their students, teachers may perceive children's behaviors similarly to children's mothers.

This study also found that children rated their own externalizing behaviors as significantly lower than their mothers' ratings of their externalizing behaviors. Consistent with previous findings, African American children rate their externalizing behaviors significantly lower than their parents' report of their externalizing behaviors (Carlston & Ogles, 2009). As reported by Carlston and Ogles (2009) the discrepancy between parent and child ratings of externalizing behaviors can have negative and positive therapeutic outcomes. For example, African American mothers' higher report of externalizing behaviors may lead them to want to refer their children to receive help or treatment. A study of 1939 African American families found that they were less likely to report that children with externalizing behaviors should receive treatment (Pescosolido et al., 2008). Higher reports of their children's externalizing behaviors may motivate mothers to want their children to receive treatment.

Gender, Cognitive, Environmental Factors, and Externalizing Behavior

This study contributed to the literature by assessing the impact of gender on externalizing behaviors among African American children in special education. Many previous studies have looked at the relationship between gender and externalizing behaviors among children in regular education (Barnes, Mitic, Leadbeater & Dhami, 2009; Lewis, Butler, Bonner, & Joubert, 2010; Miner &

Clarke-Steward, 2008; Young, Sabbah, Young, Reiser, & Richardson, 2010).

This study found that boys were more likely to experience externalizing behaviors than girls; this finding suggests that social work interventions should further aim to prevent externalizing behaviors among African American boys in special education.

While the literature and this study demonstrate that interventions are needed to improve externalizing behaviors among African American children, this study also highlighted that little is known about what impacts externalizing behaviors among African American children in special education. This study found that there was no relationship between externalizing behaviors and environmental factors, such as socioeconomic status, and receipt of the Nurse-Family Partnership intervention. More research is needed that examines what impacts African American children's externalizing behaviors to learn about developing prevention and intervention programs.

Limitations

One limitation to this study is generalizability. A small sample size of voluntary participants was used to assess the research questions in this study. Voluntary participation may indicate that study participants may differ from participants who did not choose to participate in the study; however, analyses from the total sample found that those who refused participation were not different (based on sociodemographic characteristics) from those who chose to enroll. The homogeneity of study participants also limits the generalizability.

Using secondary data analysis also creates limitations, including de-contextualized data (Brooks-Gunn et al., 1991; Murphy & Schlaerth, 2010; Rew et al., 2000). Researchers who use secondary data analysis are advised to familiarize themselves with the dataset, how variables were operationalized, and the historical, social, and political context in which the data were collected (Rew et al., 2000). This author became familiar with the dataset and operationalization of variables by communication with an original investigator of the randomized-controlled trial of the Nurse-Family Partnership used for this study (K. Arcoleo, personal communication, July 7, 2011). A visit to Memphis, Tennessee, where the original data were collected, and interviews with research team members and a special education coordinator were conducted to gain knowledge about the context in which the data were collected.

The sample of African American children in special education in this study is unique, which limits the generalizability of this study's findings. The children attended school in one of the public metropolitan school districts that is segregated by race, Memphis City Schools. In the State of Tennessee, 68% of public school students are white and 25% are African American. While the suburban school district near Memphis, Shelby County Schools, is majority white (53%) and thirty-seven percent are African American, Memphis City Schools is primarily African American (86%) and seven percent are white (Lotz, 2010). This indicates that students in the sample have little interaction with students of other race or ethnicities in their school environment. While literature demonstrates that teachers are usually white and middle class, about half of

Memphis City School teachers are black (51%), which may reduce the chance of cultural mismatch of teachers and students (Memphis City Schools, 2004; Skiba et al., 2008). This limits the generalizability of the study findings only to African American students in special education who attend school at districts with similar demographics to Memphis City Schools.

Implications for Research and Practice

This study suggests that more prevention and interventions are needed for African American boys. Solution-focused approaches have demonstrated promise in impacting African American students' externalizing behaviors. Watkins and Kurtz (2001) reported that solution-focused approaches can be used in early intervention with African American young men who are at risk of being placed in special education. Solution-focused approaches involve a social worker listening to a client's concerns and explanations of problems but quickly moving to finding solutions. Although this author could not find an article in which it was assessed for its' specific impact on externalizing behaviors of African American students, solution-focused brief therapy (SFBP) in groups has been documented to be effective for students who are at-risk for academic failure or who have an Individualized Education Plan (IEP). Students can have IEPs for adaptations that they may need in school, including adaptations that they may need for disruptive externalizing behaviors. SFBP groups utilize resources and strengths by group members. A sample of 52 students who were at risk of academic failure or had IEPs participated in an evaluation of a SFBP group therapy (Newsome, 2004). Twenty-six students received SFBP for eight weeks, while a comparison group

did not receive the intervention. The students who received the SFBP intervention significantly increased their GPA during the time that they received the intervention, while the comparison group did not change their GPA during the study time period (Newsome, 2004). It is important for social workers and future research to explore the efficacy of interventions, such as SFBP, to decrease the externalizing behaviors of African American males.

Future research should also explore what environmental factors impact externalizing behaviors of African American children in special education. The homogeneity of the sample in this study may not have provided enough variance to see the impact of environment on externalizing behaviors of the children in this study. Therefore, although this study did not find that environment impacted externalizing behaviors, more research is needed to see if environment impacts externalizing behaviors of other samples of African American children in special education.

In addition, future research should investigate the impact of differential ratings of externalizing behaviors on special education placement. While this study found that teachers did not rate externalizing behaviors significantly different than children's self-reports, it does not disprove the cultural mismatch hypothesis. Due to limited generalizability in the study sample, future research should be conducted on the cultural mismatch hypothesis. This study found that mothers rated their children's externalizing behavior differently than their children's self-report of externalizing behavior. Because higher reports of their children's externalizing behavior may motivate mothers to want their children to

receive treatment, this may be impacting the disproportionality of African American children in special education. Teachers and social workers should be knowledgeable of and refer mothers concerned about their children's externalizing behaviors to community resources that provide support for mothers with children with increased externalizing behaviors. Research should also explore the impact of maternal reports of their children's externalizing behaviors on disproportionality.

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Table 1a

Descriptive Statistics of the Sample

Variable	<i>M (SD)</i>		
	Full Sample	Control Group	Intervention Group
Sample <i>n</i> (%)	126	86 (68.3)	40 (31.7)
Gender			
Male <i>n</i> (%)	79 (62.7)	56 (65.1)	23 (57.5)
Female <i>n</i> (%)	47 (37.3)	30 (34.9)	17 (42.5)
Number of nurse visits	11.91(19.64)	0 (0.0)	37.53 (15.81)
Composite Externalizing Behavior	9.76 (6.65)	9.60 (6.73)	10.09 (6.56)
Children's Score on Self-Report of Externalizing Behavior	10.32 (8.61)	8.77 (6.90)	7.84 (5.98)
Mothers' Score on Children's Externalizing Behavior	8.46 (6.60)	10.15 (8.67)	10.67 (8.57)
Teachers' Score on Children's Externalizing Behavior	10.48 (12.28)	10.00 (11.68)	11.46 (13.51)
Maternal Efficacy	4.18 (0.44)	4.20 (0.48)	4.14 (0.42)
Maternal Mastery	97.44 (9.91)	96.24 (10.14)	99.98 (9.02)
Child Efficacy	6.74 (1.06)	6.63 (1.09)	6.97 (0.99)
Average Weekly # of Hours in Special Education or Resource	13.51 (9.02)	14.26 (9.63)	12.18 (7.82)
Neighborhood Safety	6.39 (5.54)	6.55 (5.71)	6.05 (5.21)
Index for Environmental Demand	100.05 (5.59)	99.68 (5.64)	100.83 (5.49)

Table 1b

Factors Associated with Externalizing Behavior of African American Children in Special Education

Construct	R^2	β	SE	95% <i>CI</i> <i>LL</i>	95% <i>CI</i> <i>UL</i>	p
Intervention group	.09	0.43	0.12	-0.83	1.70	.529
Sex		2.38	0.52	0.01	4.76	.040
# hours in resource and special education		0.11	0.01	-0.05	0.27	.156
Child's self-efficacy		0.09	0.10	-0.09	0.25	.340
Mother's self-efficacy		-0.01	0.30	-0.49	0.45	.930
Mother's mastery		-0.05	0.23	-0.18	0.07	.292
Neighborhood Safety		0.11	0.02	-0.35	0.34	.479
Environment Demand		-0.15	0.02	-0.35	0.06	.148

Note. *CI LL*= lower level confidence interval, *CI UL*= upper level confidence interval

Chapter 3

PAPER 2

Differential Reporting/Rating or Perception of and Maternal Impact on Anxiety
and Depression among African American Children in Special Education

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Abstract

African American children are overrepresented in special education based on diagnoses of internalizing behaviors, such as anxiety and depression. Differential ratings of depression and anxiety between self-report and children's mothers and teachers have caused skepticism around the accuracy of teachers' awareness of signs and symptoms of anxiety and depression among African American children. If African American children are truly suffering from disproportionate rates of anxiety and depression, prevention and intervention efforts should be targeted to improve their mental health. According to ecological systems theory and social cognitive theory, children's mental health development is impacted by their environments and efficacy beliefs. This study aimed to see if teachers, mothers, and African American children in special education rate children's internalizing behaviors differently and to understand what factors impact these behaviors among African American children in special education. A secondary data analysis of a sample of 126 African American children in special education found that mothers' and teachers' ratings of African American children's internalizing behaviors were significantly lower than children's self-report of their internalizing behaviors. Higher reports of mothers' mastery were associated with fewer internalizing behaviors of African American children in special education. In addition, African American girls were more likely to experience anxiety and depression than boys. There was not a statistically significant relationship between children's environment, receipt of the Nurse-Family Partnership intervention, and their internalizing behaviors.

Introduction

African American children are overrepresented in special education based on diagnoses of internalizing behaviors, such as anxiety and depression (Skiba et al., 2006). Disproportionate anxiety and depression diagnoses among African American children is a public health concern, because they are associated with health risks and suicide attempts in adolescence and young adulthood (Ialongo, et al., 2004; Pachter et al., 2006). In-school diagnoses of depression and anxiety begin with a teacher's referral. Differential ratings of depression and anxiety between self-report and children's mothers and teachers have caused skepticism around the accuracy of teacher awareness of signs and symptoms of anxiety and depression among African American children. If African American children are truly suffering from disproportionate rates of anxiety and depression, prevention and intervention efforts should be targeted to improve their mental health. And if, on the other hand, teachers and mothers are misdiagnosing mental health issues among children, then training to detect and diagnose anxiety and depression among children may be needed for teachers, school systems, or mothers.

African American children are disproportionately diagnosed with disabilities associated with internalizing behaviors and placed in special education due to special needs associated with these disabilities. A study of over one million students found that African American children were 2.36 times more likely than other students to be diagnosed with an emotional disorder, such as anxiety or depression (Skiba et al., 2006). African American children's self-reports of depressed mood in 6th grade were associated with suicide attempts in

adolescence and young adulthood ($OR = 3.56, p < .05$) (Ialongo, et al., 2004). Students diagnosed with emotional disorders were half as likely as their peers to be placed in a regular education setting (Skiba et al., 2006). Removal from mainstream education is associated with stigma and poor educational outcomes (Brown et al., 2003; Freeman & Alkin, 2000).

Although statistics demonstrate an overrepresentation of African American students with anxiety and depression, children's self-reports, and mothers' and teachers' ratings of children's anxiety and depression differ. Research has generally found low agreement among multiple raters of internalizing behaviors (Achenbach, McConaughy, & Howell, 1987; Salbach-Andrae, Lenz & Lehmkuhl, 2009). Research that has assessed the differences of multiple raters has found that children are sometimes less and sometimes more likely to report internalizing behaviors than their parents and teachers (Klaus, Mobilio, & King, 2009; Salbach- Andrae, Lenz and Lehmkuhl, 2009). This indicates that parents' and teachers' awareness of children's experiences of internalizing behaviors may be inaccurate.

If teacher ratings are accurate and African American children are experiencing more depression and anxiety than other children, knowledge of those aspects of children's lives that impact their mental health is necessary to target prevention efforts and interventions. Ecological systems theory and social cognitive theory take a holistic approach and posit that the development of internalizing behaviors is a result of many environmental and cognitive factors (Bandura et al., 1996; Brofenbrenner, 1979). An intervention, the Nurse-Family

Partnership, was developed and implemented to increase children's and their mothers' environmental resources and efficacy to ultimately improve children's behavior. Previous research has found that the intervention improved internalizing behaviors among an overall sample of African American children, but it is unknown if the intervention was effective for children in special education (Kitzman et al. 2010). This paper is an examination of the differences between children's self-reports, the mothers', and teachers' ratings of internalizing behaviors among low-income, African American children in special education. In addition, the present study examined the relationship between environmental and efficacy variables, such as maternal mastery, maternal efficacy, child self-efficacy, socioeconomic status, neighborhood safety, and internalizing behaviors to gain insight into how best to target preventions and interventions.

Differential Diagnoses of Depression and Anxiety

Research has generally found low agreement among children's, parents' and teachers' ratings of children's internalizing behaviors. One of the first studies of rating agreement of children's internalizing behaviors found the mean intraclass correlation coefficients between the ratings of parents and their children was .25, between parents and teachers was .27, and between children and their teachers was .20 (Achenbach, McConaughy, & Howell, 1987). A recent study of reports of children's internalizing behaviors between children, their parents, and teachers found that intraclass correlation coefficients between the reports were low, ranging from 0.24 between children's and their teachers' ratings and 0.39

between children's and their mothers' ratings (Salbach-Andrae, Lenz & Lehmkuhl, 2009).

While research demonstrates that there is disagreement between raters of internalizing behaviors, studies that have assessed the types of differences of multiple ratings have had mixed results. Salbach-Andrae, Lenz, and Lehmkuhl (2009) found that children's self-report of their internalizing behaviors ($M = 51.5$, $SD = 11.2$) was significantly lower than their mothers' ($M = 61.4$, $SD = 61.4$) and teachers' ratings ($M = 59.2$, $SD = 10.0$). However, a study of 448 primarily white (84%) adolescents aged 13-17 demonstrated that the adolescents were significantly more likely to report that they had suicidal thoughts, plans, and attempts than their parents reported (Klaus, Mobilio, & King, 2009). This indicates that little is known about whether teachers, parents, or children report children's internalizing behaviors most frequently. In addition, studies on differential diagnoses of anxiety and depression have used primarily white samples; therefore, more information is needed on differential ratings of internalizing behaviors among African American children. Differences in stigma may exist between white and African American children. For example, in a nationally representative sample of 1,939 adults, African American adults were less likely than other adults to report that their children should receive treatment for depression (Pescosolido et al., 2008). This may indicate that African American mothers may be more hesitant to report depression among their children due to stigma.

Gender and Internalizing Behaviors

Research has shown that African American males are more likely than females to exhibit internalizing behaviors until they reach adolescence. A study of fifth grade African American students found that males were more likely to be diagnosed with emotional disorders than females (Milam et al., 2011). Another study found that females are also more likely than males to exhibit internalizing behaviors after puberty (Kaess et al., 2011). Research has also shown that the impact of gender on internalizing behaviors depends on other variables. Among a sample of 425 third through fifth graders, females were two times more likely than males to exhibit internalizing behaviors if they perceived that their neighborhood was unsafe (Milam et al., 2011).

SES, Neighborhood Safety, and Internalizing Behaviors

Socioeconomic status and neighborhood safety have been correlated with internalizing behaviors among African American children. Socioeconomic status is inversely associated with internalizing behaviors as well as lack of treatment for mental health issues (Alegria, Vallas, & Pumariega, 2010; Park et al., 2002; Slopen, Fitzmaurice, Williams & Gilman, 2010). Although poverty may be correlated with neighborhood safety, both socioeconomic status and neighborhood safety have a differential effect on outcomes of African American children (Johnson, 2010). Pachter et al. (2006) explored the relationship between neighborhood and its effect on African American children's internalizing behaviors. Neighborhood effects were defined as employment, respecting rules, and childrearing. They found that the effect of chronic poverty on depression,

anxiety, and frustration was mediated by neighborhood, maternal depression, and parenting. The full model explained 9-10% of the variance of children's internalizing and externalizing behaviors. Pachter et. al. (2009) concluded that, if children feel unsafe, they may learn to deal with it by feeling fear. Constant fear among people who live in unsafe neighborhoods may be associated with anxiety and depression. Therefore, it is important to separately assess the impacts of socioeconomic status and neighborhood safety on children's depression and anxiety.

Efficacy Beliefs and Internalizing Behaviors

Mastery and efficacy have both been associated with children's internalizing behaviors. Mastery and efficacy have been used interchangeably in the literature; however, they are two separate constructs. Mastery is defined as "the extent to which one regards one's life-chances as being under one's own control in contrast to be fatalistically ruled" (Pearlin & Schooler, 1978, p. 5). Efficacy is the belief that people can successfully produce desired effects of their actions considering self and other factors as agents of change (Bandura, Barbarelli, Caprara, & Pasotrelli, 1996). The concept of mastery focuses on a person's sense of control over outcomes in life in the face of difficulties, while efficacy encompasses a person's perception of one's ability to produce desired effects.

Research has shown that, among African American children, self-agency, including efficacy and mastery beliefs, may be associated with internalizing behaviors. Barnes, Mitic, Leadbeater, and Dhimi (2009) found that children's

higher mastery or control was associated with better mental health, higher body satisfaction, and overall fewer internalizing symptoms among a sample with a mean age of 15. In addition children's efficacy was inversely associated with problem behaviors in a sample of 279 white children aged 12-14 (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). Other cognitive characteristics, such as self-esteem and ethnic identity, have also been associated with internalizing behaviors among African American children. Gaylord-Harden, Ragsdale, Mandara, Richards, and Peterson (2006) found that self-esteem and ethnic identity were associated with reduced symptoms of anxiety and depression among a sample of African American adolescences with a mean age of 12.

Maternal efficacy and mastery have been directly and indirectly associated with children's internalizing behaviors. For example, a study of 286 primarily Caucasian children with seizure disorder and their families found that families with low mastery were positively associated with children's internalizing behaviors. Family mastery was defined as family emotion, sense of control over events, level of cooperation among family members, and family organization. This study demonstrated a direct impact of mastery on internalizing behaviors (Baum et al., 2007). Other studies have found that mastery is strongly associated with parenting behavior and mediates the relationship between parenting behavior and children's internalizing behaviors. DeSocio (2000) found that mastery was associated with responsive maternal behavior in a sample of 208 African American mothers who participated in the Nurse-Family Partnership intervention. Jackson, Choi, and Franke (2009) referred to mastery as perceived self-efficacy.

They found that maternal mastery mediated the impact of parenting adequacy and children's internalizing behavior problems in a sample of single, African American women and their children. Another study found that mothers of young children with developmental delays had slightly lower mastery than mothers without children with developmental delays (Paczkowski & Baker, 2007). In addition, the study found that mothers with more mastery were more likely to exhibit supportive parenting behaviors, such as emotion-focused reactions, problem-focused reactions, and expressive encouragement (Paczkowski & Baker, 2007).

Nurse-Family Partnership Intervention and Internalizing Behaviors

Interventions, such as the Nurse-Family Partnership, have been designed to impact behavioral outcomes of at risk children. The Nurse-Family Partnership is a nurse home-visitation intervention that has been researched for over 27 years with white, Hispanic, and African American families who have lower socioeconomic status (Olds, 2006). A randomized controlled trial of the Nurse-Family Partnership found that African American children had fewer behavioral problems in the borderline or clinical range at the third, sixth and ninth year follow-up assessments (Kitzman, et al. 2000; Olds et al., 2004; Olds et al., 2007). At the twelve year follow-up, the study found that the intervention decreased children's internalizing behaviors (Kitzman et al. 2010). This demonstrates that the Nurse-Family Partnership was effective in impacting the internalizing behaviors of African American children.

To prevent disproportionality and improve internalizing behaviors among African American children, understanding what factors impact the internalizing behaviors of African American children in special education is needed. It is also important to see if teachers, mothers, and African American children in special education rate children's internalizing behaviors differently. Literature has demonstrated that African American children's internalizing behaviors are impacted by their gender, efficacy, mothers' self-agency, home visitation interventions and environment, such as socioeconomic status, neighborhood safety. Previous research has also found differential ratings of internalizing behaviors among children, mothers, and teachers (Achenbach, McConaughy, & Howell, 1987; Salbach-Andrae, Lenz & Lehmkuhl, 2009). The following two research questions are addressed in this study using a secondary data analysis: 1) Do teachers, mothers, and African American children in special education rate children's internalizing behaviors differently? and 2) Is there a relationship between cognitive and environmental factors and the internalizing behaviors of African American children in special education? The author hypothesized that children would report higher internalizing behavior scores than their teachers and mothers. The author also hypothesized that higher levels of maternal mastery, maternal efficacy, child self-efficacy, socioeconomic status, neighborhood safety and receipt of the Nurse-Family Partnership intervention were associated with decreased internalizing behaviors.

Methods

Research Design

A secondary data analysis of a subsample of children who participated in the Nurse-Family Partnership intervention was conducted. A description of the original study design was reported earlier, but a summary is provided here (Kitzman et al., 1997). Mothers who were in the study participated in home and in-office interviews and assessments at registration and post-partum when the study children were ages 6 months, and 1, 2, 4, 6, 9 and 12 years. Teachers participated in assessments of the study children at the 6, 9, and 12-year follow-ups. Data were also collected from study children's school records at the 12-year follow-up. All enrolled women and children signed consent forms to participate, which were approved by the Research Subjects Review Boards at The University of Rochester and the University of Tennessee.

Sample

Original study recruitment occurred at the Regional Medical Center obstetrical clinic in Memphis, Tennessee. Women were recruited who were less than 29 weeks pregnant, had no specific chronic illness that could potentially contribute to fetal growth retardation or preterm delivery, had no previous live births, and two of the following sociodemographic risk characteristics: unmarried, unemployed, or had less than 12 years of education. Recruited women who completed informed consent (1290/1139; 88%) were randomized to four interventions groups. Only groups 2 and 4 were followed postnatally (described below). Enrolled women were primarily African American (92%), unmarried (98%), age 18 or younger at registration (64%), and came from households with incomes at or below the federal poverty level (85%). Compared to those who did

not choose to participate, those who agreed to participate in the study were more likely to be African American than non-African American (89% vs. 64%, $p < .001$), younger (mean age 18 vs. 19 years, $p = .001$), and non-high school graduates (89% vs. 84%, $p = .01$) (Kitzman et al., 1997). The women and children originally randomized to groups 2 and 4, who completed a 12-year follow-up assessment, and who had received any special education or resource services were eligible for these analyses. At the 12-year follow-up, 126 children were identified, either through maternal report or school record data to have received special education or resource services.

Intervention Groups

Randomization to intervention groups was conducted by a computer program using methods that are extensions of those given by Soares and Wu (1983). It was a double-blind study; group assignment was blind to participants and interviewers. Intervention group 1 included free-roundtrip taxi-cab transportation for scheduled prenatal care appointments for 166 women. Intervention group 2 ($n = 515$ women) were provided free transportation for scheduled prenatal care and developmental screening and referral services for the study child at ages 6, 12, and 24 months. Group 3 ($n = 230$) received the same services offered to group 2, with the addition of intensive nurse home visitation services during pregnancy, 1 postpartum visit in the hospital before discharge, and 1 postpartum visit after discharge. Intervention group 4 ($n = 228$) consisted of the same services as those in group 3, with the addition of nurse visitation services until the child's second birthday. Random assignment of nurse home visitors

occurred for women assigned to intervention groups with home visitation. Only groups 2 and 4 were assessed after delivery of the child.

The Nurse-Family Partnership consisted of nurse visitation that focused on education and empowering mothers to improve prenatal and parenting behaviors as well as increase family resources. Due to their knowledge and training in children's health and complex, clinical situations, nurses were chosen to provide the intervention. Nurses educated mothers on prenatal health behaviors to modify risks for poor birth outcomes and child neurodevelopmental impairment. The intervention included education on sensitive, competent care of a child to modify risks for child abuse and neglect. Nurses also collaborated with mothers to plan early, prenatal life course development such as subsequent pregnancies, education, work, and father involvement. Nurses also educated mothers on parenting skills and other resources that would modify risks for early onset of antisocial behavior. (Olds, 2006).

Measures

Internalizing Behaviors. Internalizing behaviors were measured by the children's self-report, mothers', and teachers' completion of the Child Behavior Checklist (CBCL) internalizing behaviors scale (Achenbach & Edelbrock, 1983). The children's, mothers', and teachers' scores on the CBCL internalizing behaviors scale were compared for research question #1. The internalizing behaviors scale measured children's withdrawn somatic complaints, anxiety, and depression symptoms. The internalizing behaviors scale requested that participants report if a statement was not true (0), somewhat/sometimes true (1),

or very true/often true (2) on 60 items. Examples of statements include: 1) sudden changes in mood or feelings and 2) talks about killing self. Higher scores are indicative of greater internalizing behavior. A standardized mean score of the children's, mothers', and teachers' internalizing behaviors scores for each child was used as the dependent variable for research question #2. Recent revisions to this tool have yielded the ability to generate DSM-IV diagnoses (Achenbach & Edelbrock, 1983; Hudziak, Copeland, Stanger, & Wadsworth, 2004).

Independent Variables for Research Question #2.

Number of hours in special education/resource. Children's total number of hours in special education or resource was abstracted from their school records. The average weekly number of hours was calculated as the average weekly number of hours from kindergarten through 6th grade.

Maternal self-efficacy. A 10-item scale measured each mother's beliefs about talking and reading to her child, being able to understand her child's feelings, providing appropriate play toys, and completing the child's well-child healthcare visits. Items were scored 1 (*strongly agree*) to 4 (*strongly disagree*) and the total score computed as the mean. Higher scores are associated with greater efficacy.

Maternal mastery. The Pearlin's Mastery Scale, a 7-item Likert-type scale, scored 1 (*strongly agree*) to 4 (*strongly disagree*), was used. The total score was computed as the mean (Pearlin & Schooler, 1978). The questions included, "I have little control over the things that happen to me" and "There is really no way I can solve the problems I have." Higher scores reflect greater mastery.

Child educational self-efficacy. This variable was computed as a mean score of 12 items. Examples of the items include “I am likely to attend school regularly” and “Finishing high school is not that important for what I want to do with my life.” Items were scored 1 (*strongly agree*) to 4 (*strongly disagree*) and higher scores indicate greater efficacy.

Environmental demand. The following three dimensions of environmental demand on the family created the Index for Environmental Demand: 1) the U.S. Bureau of Census Income-to-Needs ratio; spatial demand calculated as the ratio of household rooms to number of people living in the household; and 3) relational demand as assessed by items assessing conflict with partner or mother’s own other (DeSocio, 2000). The Index is the mean of standardized income to needs ratio, housing density, and relationship conflict. Higher scores reflect greater environmental demand.

Neighborhood safety. Neighborhood safety was measured using a 7-item scale. Examples of items are: “In your neighborhood do people buy, sell and use drugs?” and “People carry around weapons like guns or knives.” Items were scored 1 (*none*), 2 (*very little*), 3 (*some*), or 4 (*a great deal*). Higher scores reflect unsafe neighborhood activity.

Statistical Analysis

Power analyses. For the linear regression model used to address the second hypothesis, which included 8 independent variables and specification of a medium effect size, power was analyzed. According to a power analysis using

GPower, a sample size of 109 was needed to detect a medium effect size ($f^2 = .15$) (Cohen et al., 2003; Erdfelder, Faul, & Buchner, 1996).

Data analyses. Descriptive statistics and bivariate analyses were generated for variables used in the analyses. Descriptive statistics were generated for each variable using SPSS V 19. To assess associations between variables, bivariate analyses were conducted between dependent and independent variables of interest in the second hypothesis. To assess multicollinearity and the form of relationship between variables, bivariate analyses were also conducted between the independent variables.

Missing data (31%) for the number of hours in special education/resource was found in a review of the descriptive statistics. This variable was collected from student school records and research team members from the original study reported that it was difficult to gain school record data for all study participants. This difficulty probably explains the missing data (E. Collins & E. Greer, personal communication, June 7, 2011). Missing data pattern analyses indicate that the data were missing at random. To assess differences between participants with missing data and those without missing data, missing data analyses were conducted. Differences between missing data on this variable by intervention and control groups were found. Missing values for number of housings in special education/resource were imputed using multiple imputation (Rose & Fraser, 2008). Because of the differences found in missing data by intervention group, multiple imputation (10 in each group) was conducted separately for each intervention group using SAS (V9.1). Ten imputations are typically adequate if

values are missing at random (Acock, 2005). The imputed datasets for intervention groups were combined. Pooled estimates of the parameters and standard errors from the combined data set were used.

Paired t-tests were conducted between the children's, mothers' and teachers' ratings of the children's internalizing behaviors scores on the CBCL to test the first research hypothesis. Multiple linear regression was conducted using SAS (V9.1) to test the second research hypothesis. The parameter estimates and associated covariance matrix for each imputed dataset are pooled and the univariate and multivariate inferences for these parameters are utilized.

Results

Descriptive Analyses

Children in the sample were African American, approximately 12 years old and more than half were male (62.7%). Thirty-one percent of the sample received the Nurse-Family Partnership intervention. The families in treatment group 4 were visited by a nurse an average of 37 times with a wide range from 2-27 visits ($M = 37.52$, $SD = 15.81$). Children in the study received an average of 13 hours in special education services per week from kindergarten through 6th grade, which is approximately 40% of their time spent receiving special education in school ($M = 13.51$, $SD = 9.02$). The descriptive statistics for all variables are displayed in Table 2a. A majority of families lived in poverty (72.8%) with income-to-needs ratios of less than 1.33. The income-to-needs ratio was calculated with family's income as the numerator and family's poverty threshold (total reported household income and number of people in the household) as the

denominator. A ratio is 1.33 or less between a family's need and income indicates poverty and high economic demand (data not shown) (Desocio, 2000).

Bivariate Analyses

Paired samples t-tests were conducted between children's, mothers' and teachers' scores on the CBCL internalizing scale. Statistically significant differences were found between mothers' and children's scores on internalizing behaviors ($t = -7.67, p = .000, df = 116$). There were also statistically significant differences found between teachers' and children's scores ($t = 8.45, p = .000, df = 110$). No statistically significant differences were found between mothers' and teachers' scores of children's' internalizing behaviors ($t = -1.89, p = .06, df = 115$).

Relationships between categorical independent variables and internalizing behaviors were assessed using independent t-tests. Differences were found between gender and internalizing behaviors ($t = 2.18, p < .05, df = 124$), indicating that females experienced more internalizing behaviors than males. No statistically significant differences were found between children's internalizing behaviors in the treatment and control groups. Correlation analyses were conducted between dependent and independent variables. A statistically significant correlation was found between maternal mastery and children's internalizing behaviors ($r = -.23, p < .05$). Correlations were also conducted between independent variables to assess for multicollinearity. Correlations were found between neighborhood safety and number of hours in special education, mother's mastery, and mother's efficacy. These variables were still included in

the regression model because the correlations between the variables were small, $r < .30$.

Multivariate Analysis

The results of the multiple linear regression analysis are displayed in Table 2b. Gender ($\beta = -2.03, p < .05, SE = 0.23$) and mother's mastery ($\beta = -0.11, p < .05, SE = 0.23$) were statistically significant in the final model. Males were less likely to experience internalizing behaviors than females. The findings also indicate that higher maternal mastery is associated with less internalizing behaviors among the children in the study. The R^2 for the model was 0.09, indicating that the model explained 9% of the variance of the children's internalizing behaviors.

Discussion

This study found that mothers' and teachers' ratings of African American children's internalizing behaviors were significantly lower than children's self-report of their internalizing behaviors. This indicates that the mothers and teachers may not have been aware of the feelings of anxiety and depression that the children were experiencing. In addition, girls were more likely to experience anxiety and depression than boys. Children with mothers who felt that their life was under their control experienced less anxiety and depression. The lack of statistically significant relationship between the Nurse-Family Partnership, children's environment, and children's internalizing behaviors was unanticipated.

Differential Perception of Internalizing Behaviors

This study found that children had higher ratings of internalizing behaviors than their teachers and mothers, which is consistent with previous research among white children (Salbach-Andrae, Lenz &, Lehmkuhl, 2009). Because there were no statistically significant differences between the teachers' and mothers' report of internalizing behaviors, this indicates that mothers and teachers had similar perceptions of children's internalizing behaviors. It is concerning that children had significantly higher reports of experiencing depression and anxiety than their mothers and teachers reported. These findings indicate that while African American children may not be disproportionately diagnosed with depression and anxiety or placed in special education due to misdiagnosis, their teachers and mothers were not aware of their feelings of anxiety and depression.

Gender, Cognitive and Environmental Factors and Internalizing Behaviors

As demonstrated in previous research and this study, African American boys tend to experience more internalizing behaviors than girls prior to puberty, but girls experience more internalizing behaviors after puberty (Kaess et al., 2011; Milam et al., 2011). The average age of puberty onset is 12.1 for African American girls (Bordini & Rosenfield, 2011). The children in the sample were approximately 12 years old, so the majority of girls were likely to have begun to experience puberty. This study supports other findings that African American girls who are at the age of puberty onset are more likely than African American boys to exhibit internalizing behaviors.

Higher reports of mother's mastery were associated with fewer internalizing behaviors among the African American children in this study. As discussed earlier, it is important to differentiate between mastery and efficacy. If mothers reported higher mastery, it indicated that they felt that life circumstances were under their own control (Pearlin & Schooler, 1978). Mother's efficacy, which was not found to be significantly associated with the children's internalizing behaviors, is the belief that they can produce desired effects of parenting their child (Bandura, Barbarelli, Caprara, and Pasotrelli, 1996). While other studies have found that maternal mastery mediated the effects of parenting, which has impacted the extent of internalizing behaviors among African Americans, this study contributes to the literature by finding a direct effect of maternal mastery on African American children's internalizing behaviors (DeSocio, 2000; Jackson, Choi, & Franke, 2009). Studies have also found that mothers of children with disabilities had lower reports of mastery than mothers with typically developing children (Paczkowski & Baker, 2007).

This study found that there was no relationship between children's internalizing behaviors and environmental factors, such as socioeconomic status and neighborhood safety. Previous research has found that lower socioeconomic status and unsafe neighborhoods exacerbate internalizing behaviors of African American children (Alegria, Vallas, & Pumariega, 2010; Pachter et al., 2006; Park et. al., 2002; Slopen, Fitzmaurice, Williams, & Gilman, 2010). Due to the homogeneity of the study sample in socioeconomic status, the impact of environmental variables may not have been detected. Future research should

continue to explore the impact of environmental variables on internalizing behaviors of African American children in special education.

Limitations

One limitation to this study is generalizability. This study assessed factors associated with internalizing behaviors among a small sample size of children whose mothers voluntarily chose to participate in the study. The sample's voluntary participation indicates that the study sample may be different than other people who did not choose to participate. Analyses from the total sample revealed that those who refused participation were not different (based on sociodemographic characteristics) from those who chose to enroll. In addition, the children in the study were somewhat homogeneous, as they were all African American with parents who were either unmarried, unemployed, or had less than 12 years of education. Future research and multiple studies will be needed to provide generalizations about findings to the broader population of African American students in special education.

Another limitation to the study is the use of secondary data analysis, which can often de-contextualize the data (Brooks-Gunn et al., 1991; Murphy & Schlaerth, 2010; Rew et al., 2000). As directed by Rew et al. (2000) researchers using secondary data analysis should become familiar with the dataset, the operationalization of variables and the historical, social, and political content in which the data collection occurred. To address the limitations of using secondary data analysis, knowledge about the dataset and operationalization of variables was obtained through communication with an investigator of the original Memphis

New Mothers Study (K. Arcoleo, personal communication, July 7, 2011) who was part of the research team. This author also visited Memphis, Tennessee, where the original data collection at baseline and follow-ups have been conducted. Interviews with the research team members and a special education coordinator were conducted to gain more information about the original data collection and historical, social, and political context of the study.

Implications for Research and Practice

Educating teachers and parents on ways to detect signs and symptoms of internalizing behaviors is needed. This study found that children self-reported experiencing feelings of anxiety and depression, while their mothers and teachers reported observing significantly less feelings of anxiety and depression among the children. It is important that schools provide education for teachers and parents on signs and symptoms of internalizing behaviors among children. Teachers and social workers should contextualize and demystify internalizing behaviors to overcome stigma among the African American community prior to providing trainings on signs and symptoms (Pescosolido et al., 2008).

Interventions for internalizing behaviors should target African American girls before or at the early onset of puberty to prevent the development of internalizing behaviors. This study found that girls are more likely to experience internalizing behaviors than boys at age 12, which reinforces previous research findings that have found that girls experienced more internalizing behaviors than boys after puberty (Kaess et al., 2011; Milam et al., 2011). Previous research has also found that neighborhood safety impacts girls' internalizing behaviors more

than boys' (Milam et al., 2011). Future research should explore the interaction effect of neighborhood safety on the internalizing behaviors of African American boys and girls in special education.

School social workers may have the opportunity to indirectly impact internalizing behaviors among African American children through interventions that improve maternal mastery. The Nurse-Family Partnership aimed to impact maternal mastery. Although the intervention was not significantly associated with children's internalizing behaviors, a *t*-test of differences of maternal mastery between treatment groups among the mothers in the subsample of this study found that there was a moderate increase of mastery among those who received the intervention ($t = -1.93, p = 0.05, df = 122$). The Nurse-Family Partnership empowered women by teaching them parenting skills and encouraging them to set goals and solve problems associated with many aspects of life, including education, finding work, and planning future pregnancies. Because maternal mastery is associated with having control over one's life, learning new skills that empowered women to be able to take control of their lives and be able to take better care of their children improved the mastery of women with children in special education in the Memphis New Mothers Study. More than half of the mothers were the only adult in the household in this sample (53.6%); therefore, the mothers' sense of control over family life may have had a strong influence over the children's well-being.

More research is needed to parse out the specific interventions that increase mastery among African American parents of children with disabilities.

In the meantime, school social workers should focus their energies on how to increase the mastery, or sense of control, of African American mothers with children in special education. Interventions similar to those used in the Nurse-Family Partnership, which empower African American mothers by teaching them parenting skills, encouraging goal setting, problem solving, and personal development, could increase mothers' mastery and decrease children's internalizing behaviors.

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Table 2a

Descriptive Statistics of the Sample

Variable	<i>M (SD)</i>		
	Full Sample	Control Group	Intervention Group
Sample <i>n</i> (%)	126	86 (68.3)	40 (31.7)
Gender			
Male <i>n</i> (%)	79 (62.7)	56 (65.1)	23 (57.5)
Female <i>n</i> (%)	47 (37.3)	30 (34.9)	17 (42.5)
Number of nurse visits	11.91(19.64)	0 (0.0)	37.53 (15.81)
Composite Internalizing Behavior	8.66 (4.54)	8.85 (4.71)	8.24 (4.19)
Children's Score on Self-Report of Internalizing Behavior	13.37 (7.88)	13.54 (8.04)	13.02 (7.63)
Mothers' Score on Children's Internalizing Behavior	7.07 (5.95)	7.25 (6.20)	6.67 (5.42)
Teachers' Score on Children's Internalizing Behavior	5.49 (6.00)	5.70 (6.09)	5.07 (5.87)
Maternal Efficacy	4.18 (0.44)	4.20 (0.48)	4.14 (0.42)
Maternal Mastery	97.44 (9.91)	96.24 (10.14)	99.98 (9.02)
Child Efficacy	6.74 (1.06)	6.63 (1.09)	6.97 (0.99)
# of Average Hours per week in Special Education or Resource	13.51 (9.02)	14.26 (9.63)	12.18 (7.81)
Neighborhood Safety	6.39 (5.54)	6.55 (5.71)	6.05 (5.21)
Index for Environmental Demand	100.05 (5.59)	99.68 (5.64)	100.83 (5.49)

Table 2b.
Ecological Factors Associated with Internalizing Behavior of African American Children in Special Education

Construct	R^2	β	SE	95% <i>CI</i> <i>LL</i>	95% <i>CI</i> <i>UL</i>	p -Value
Intervention group	.09	-0.06	0.12	-0.92	0.81	.746
Sex		-2.03	0.23	-3.65	-0.41	.018
# hours in resource and special education		-0.02	0.01	-0.13	0.09	.600
Child's self-efficacy		-0.52	0.10	-1.31	0.27	.348
Mother's self-efficacy		0.18	0.39	-1.71	2.08	.946
Mother's mastery		-0.11	0.23	-0.19	-0.02	.009
Neighborhood Safety		0.07	0.02	-0.13	0.15	.573
Environment Demand		0.01	0.02	-0.13	0.15	.571

Note. *CI LL*= lower level confidence interval, *CI UL*= upper level confidence interval

Chapter 4

PAPER 3

The Relationship between Environment, Efficacy Beliefs, and Academic
Achievement of Low-Income, African American Children in Special Education

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Abstract

African American students are overrepresented in special education. Ecological systems theory, social cognitive theory, and a review of relevant literature demonstrate that children's environment, particularly school, and self-efficacy impact the educational outcomes of African American children. This raises the question of how these environmental factors may affect the tendency toward disproportionality for African American children. Interventions, such as the Nurse-Family Partnership, have aimed to improve children's environmental resources and efficacy. This study aimed to assess the impact of environment, efficacy beliefs, and the Nurse-Family Partnership on the educational achievements of African American children in special education. A secondary data analysis of 126 African American children in special education found that self-efficacy and number of hours in special education were associated with their academic achievement. Unexpectedly, environmental factors, such as socioeconomic status and neighborhood safety, did not contribute to understanding the variable of academic achievement among the sample in this study.

Introduction

African American students are one of the historically underserved groups who have experienced sustained school failure over time. Related to this phenomenon, is the overrepresentation of African American children in special education, which has been referred to as disproportionality, seen as a new form of segregation by researchers and educational specialists (Artiles et al., 2010; Freeman & Alkin, 2000). Ecological systems theory, social cognitive theory, and a review of relevant literature demonstrate that children's environment, particularly school, and self-efficacy impact the educational outcomes of African American children (Bandura et al., 1996; Bronfenbrenner's, 1979; Liew, McTigue, Barrois, & Hughes, 2008; Matta Oshima et al., 2010; Park et al., 2002; Tabassam & Grainger, 2002). This raises the question of how these environmental factors may affect the tendency toward disproportionality for African American children. Interventions, such as the Nurse-Family Partnership, have aimed to improve children's environmental resources and efficacy (Olds, 2006). Knowledge of the impact of environment, efficacy beliefs, and interventions on the educational achievements of African American children in special education is necessary to improve their outcomes and potentially decrease disproportionality.

Disproportionality in Special Education Services

Special education serves as a safety net for those who may be falling behind in regular education classrooms. The enactment of the Individuals with Disabilities Education Act (2004) mandated low teacher-student ratios, individualized education, and higher expenditures per pupil in special education.

The Individuals with Disabilities Education Act (IDEA) of 2004 was created with an assumption that mainstream education was the best option for all students. It mandated that students should be placed in the least restrictive environment possible. The IDEA also mandated that states should implement policies and procedures to prevent the inappropriate over-identification of disabilities or overrepresentation of students in special education settings by race or ethnicity. While the IDEA has succeeded for the majority of students with overall increases in students with disabilities placed in regular education classrooms, data over time demonstrates that the IDEA has not prevented disproportionality from continuing to occur (Artiles et al., 2010; Harry & Anderson, 1994; Skiba et al., 2006).

Artiles et al. (2010) reported that policies enacted by the IDEA are associated with some positive outcomes; however, longitudinal data show that students with disabilities in special education are not improving their outcomes at the same rate as their peers in regular education. Some disability diagnoses may have permanent outcomes and developmental delays, such as mental retardation. Students with other diagnoses, such as learning disabilities or ADHD, have the cognitive ability to adapt their learning techniques and be as successful as their typical peers in school. For example, a study of forty students with and without learning disabilities attending college found that students performed equally on grade point average, reading comprehension, and vocabulary. The students with learning disabilities compensated for their disability by studying more hours and adapting their learning strategies (Trainin & Swanson, 2005).

Negative consequences of disproportionality include poor educational outcomes for African American students and stigma. Because special education placements are designed for students who may be falling behind in regular education classrooms, the education received in special education classrooms may be less rigorous. The impact of such classroom placements was assessed in a longitudinal study of students with Attention-Deficit Hyperactivity Disorder (ADHD) ($n = 87$), subclinical ADHD ($n = 23$), and matched comparisons with ADHD and exceptional student status ($n = 112$) (Bussing, Porter, Zima, Mason, Garvan, & Reid, 2010). Students with ADHD in special education consistently achieved lower academic achievement scores than peers in the comparison group in regular education or exceptional student status, but showed comparable learning gains, or slopes, over time. Results suggest that, although students in special education make learning gains over time, special education placement is a driving factor in underachievement among students with ADHD (Bussing, Porter, Zima, Mason, Garvan, & Reid, 2010). In addition, a review of 36 studies published in peer-reviewed journals on academic attainment of school-age children with mental retardation concluded that, when comparing students with mental retardation in general education and special education classrooms, students in general education classrooms performed better on measures of academic achievement (Freeman & Alkin, 2000).

Poverty and Disproportionality

African American students are twice as likely as whites to live in poverty, which may worsen their educational outcomes (U.S. Census Bureau, 2010). In

2010, 25.8% of African American children lived in poverty compared to 9.4% of white children (DeNavas, Proctor, & Smith, 2011). Two studies found that children with disabilities living in poverty experienced delayed cognitive development and underachievement (Matta Oshima et al., 2010; Park et al., 2002). In addition, impoverished neighborhoods are also negatively associated with educational outcomes of African American children. African American children who grew up in severely impoverished neighborhoods experienced a reduction in verbal ability equivalent to missing a year or more of school (Sampson, Sharkey, & Raudenbush, 2008). Even students who had equivalent years of education were disadvantaged by the neighborhood in which they went to school. In another study on the effect of impoverished neighborhoods, scholars studied the effect of minority children who moved from impoverished to affluent neighborhoods. Minority boys' academic achievement scores significantly improved after they moved away from low-poverty neighborhoods, yet still lived with the same family (Leventhal & Brooks-Gunn, 2004). This demonstrates the significance of socioeconomic status and neighborhood effects on children's educational achievement.

African American students have suffered poor outcomes in school retention and employment which may be exacerbated by disproportionality. The U.S. Census Bureau (2010) found that 11.5% of black students attend high school without receiving a diploma compared to only 5.6% of white students (U.S. Census Bureau, 2010). Success in high school is correlated with success in college. After high school, African American students (13%) are less likely to

receive a Bachelor's degree than white students (21.4%) (U.S. Census Bureau, 2010). Success in school is important, because it is a strong predictor of economic self-sufficiency later in life (Harry & Anderson, 1994; Matta Oshima, Huang, Jonson-Reid, & Drake, 2010). African Americans (16.7%) are twice as likely to be unemployed as whites (8.7%) (U.S. Census Bureau, 2010).

Child Efficacy

Self-efficacy is the belief that children can successfully produce the desired effects of their actions (Bandura, Barbarelli, Caprara, & Pasotrelli, 1996). This construct has been positively correlated with children's educational outcomes. Bandura, Barbarelli, Caprara, and Pastorelli (1996) found that children's self-efficacy, in addition to parental academic efficacy controlling for socioeconomic status, explained 58% of the variance of children's academic achievement in a sample of 258 children with a mean age of 12 years. Recent research has demonstrated that self-efficacy beliefs were associated with African American children's academic achievement in a sample of 190 African American high school students. Self-efficacy and cultural identity explained 14% of the variance of academic achievement (Rust, Jackson, Ponterotto, & Blumberg, 2011). Research has also demonstrated that self-efficacy is important in the academic achievement of children with disabilities. A longitudinal study of 733 children who were struggling with literacy found that academic self-efficacy was positively correlated with reading and math (Liew, McTigue, Barrois, & Hughes, 2008). Tabassam and Grainger (2002) conducted a study of 86 students with learning disabilities and ADHD and 86 matched students without disabilities and

found that academic self-efficacy of students with disabilities was significantly lower than typically developing students.

Specific Aims

The theoretical foundation and literature review for this study indicate that environmental and cognitive factors are associated with the academic achievement of African American children. To improve the academic achievement among African American children in special education and prevent future disproportionality, understanding the factors in and outside the school environment that impact their outcomes is critical. The following research question is addressed in this study: Is there a relationship between cognitive and environmental factors and the academic achievement of African American children in special education? The authors hypothesize that the number of hours in special education, higher levels of maternal mastery, maternal self-efficacy, child self-efficacy, socioeconomic status, neighborhood safety, and the receipt of a nurse home visiting intervention are associated with increased academic achievement.

Nurse-Family Partnership Intervention

Interventions in and outside the school environment focused on increasing educational outcomes of African American children in special education have met with limited success. Because the IDEA and school interventions have not improved disproportionality, family interventions have been developed to improve outcomes for African American children. The Nurse-Family Partnership is a nurse home visiting intervention designed for at risk, low income, first-time

mothers and their children. The intervention was designed to focus on: 1) prenatal health behaviors to modify risks for poor birth outcomes and child neurodevelopmental impairment, 2) sensitive, competent care of the child to modify risks for child abuse and neglect, 3) early, prenatal life course development, such as subsequent pregnancies, education, work, and father involvement, and 4) modifying risks for early onset of antisocial behavior (Olds, 2006). The efficacy of the intervention has been studied over 27 years with three randomized controlled trials with different populations in different geographic regions in the U.S (Kitzman, et al. 2000; Olds et al., 2004; Olds et al., 2007; Kitman et al. 2010). Investigation and analysis of the research question was done with a sample drawn from participants in the Nurse-Family Partnership intervention in Memphis, TN.

Theoretical Framework for Analytical Model

Brofenbrenner's ecological systems theory and Bandura's social cognitive theory provided a theoretical framework for understanding the ecological and cognitive factors that impact the educational achievement of African American students in special education. Bandura et al. (1996) posited that self-efficacy, a child's belief about his or her ability to perform tasks, is associated with aspirations, goal-setting, and ultimately success in education. Additionally, social cognitive theory explains that parental efficacy is associated with children's efficacy, which begins to demonstrate the impact of context on a child's development (Bandura et al., 1996). Ecological systems theory widens the concept of context by positing that a child's environment can foster or impinge on

development (Bronfenbrenner, 1979). To improve the academic achievement among African American children in special education and prevent future disproportionality, understanding the factors inside and outside the school environment that impact their outcomes is critical (Figure 1).

Methods

Design

The data for these secondary analyses were derived from a longitudinal randomized, controlled trial evaluating the impact of the Nurse-Family Partnership intervention on pregnancy outcomes, parenting, and a wide array of maternal and child life course outcomes. A full description of the study design has been reported earlier but is summarized here (Kitzman, et al., 1997). Office and home interviews and assessments were conducted at registration and post-partum when the target child was 6 months old, and 1, 2, 4, 6, 9 and 12 years of age. School record reviews and interviews with teachers were also completed at the 12 year follow-up. All women and children who were enrolled signed consent forms approved by the Research Subjects Review Boards at The University of Rochester and the University of Tennessee.

Sample

Women less than 29 weeks pregnant were recruited from the obstetrical clinic at the Regional Medical Center in Memphis, Tennessee if they had no previous live births, no specific chronic illnesses potentially contributing to fetal growth retardation or preterm delivery, and at least 2 of the following sociodemographic risk conditions: unmarried, less than 12 years of education, and

unemployed. Eighty-eight percent (1139/1290) of the women completed informed consent and were randomized to 1 of 4 intervention groups described below. Ninety-two percent of the women enrolled were African American, 98% were unmarried, 64% were aged 18 or younger at registration, and 85% came from households with incomes at or below the federal poverty level. Compared with women who refused, those who agreed to participate were more likely to be African American than non-African American (89% vs. 74%, $p < .001$); younger (mean age 18 vs. 19 years, $p = .001$); and non-high school graduates (89% vs. 84%, $p = .01$). The sample for these analyses consisted of those African American women and children originally randomized to groups 2 and 4, who completed the 12 year assessment, and whose children received any special education or resource services from kindergarten through 6th grade. This yielded a final sample size of 126.

Intervention Groups

Women were randomized to one of four intervention groups by a computer program using methods that are extensions of those given by Soares and Wu (1983). Women assigned to the home visitation groups were subsequently randomly assigned to a nurse home visitor. Participants and interviewers were blind to group assignment. Women in intervention group 1 ($N = 166$) were provided free-roundtrip taxi-cab transportation for scheduled prenatal care appointments; they did not receive any postpartum services or assessments. Women in intervention group 2 ($N = 515$) were provided free transportation for scheduled prenatal care and developmental screening and referral services for the

child at ages 6, 12, and 24 months. Women in intervention group 3 ($N = 230$) were provided the free transportation and screening services offered in group 2 and also intensive nurse home visitation services during pregnancy, 1 postpartum visit in the hospital before discharge, and 1 postpartum visit in the home. Women in intervention group 4 ($N = 228$) were provided the same services as those in group 3 but also were visited by nurses until the child's second birthday. For the evaluation of postnatal outcomes, intervention group 2 was contrasted with intervention group 4, since only these groups were assessed after delivery of the child.

Measures

Dependent Variable

Academic Success at Age 12. A latent variable for academic success was created from observed indicators for 6th grade math and reading GPA, 6th grade achievement test scores (Tennessee Comprehensive Assessment Program and Peabody Individual Achievement Test – Revised; reading and math), and the Leiter nonverbal test of sustained attention (Sidora-Arcoleo, Anson, Cole, Olds, & Kitzman, unpublished).

Independent Variables

Number of hours in special education/resource. The average weekly number of hours in special education/resource was abstracted from children's school records and calculated as the average weekly number of hours from kindergarten through 6th grade.

Externalizing behavior. Externalizing behavior is defined as aggression, hyperactivity, and oppositional defiance (Pachter et al., 2006; Pettit et al., 1999). Studies have demonstrated that externalizing behavior is a significant predictor of grade retentions, suspensions, and poor academic outcomes and thus, this variable was included as a covariate (Loveland, J. M., Lounsbury, J. W., Welsh, D., & Buboltz, W. C.; Hawkins et al., 2000; Leschied, Cummings, Van Brunschot, & Cunningham, 2004; Kupersmidt & Coie, 1990; Fontaine et al., 2008; Lounsbury, Sundstrom, Loveland, & Gibson, 2002). Externalizing behavior was measured by the Achenbach Child Behavior Checklist (CBCL) which was completed by the child, child's mother, and child's teacher at the 12 year follow-up period (Achenbach & Edelbrock, 1983). The externalizing behavior scale of the CBCL measured children's delinquent and aggressive behaviors. The externalizing behavior items ($N = 35$) are scored 0 (*not true*), 1 (*somewhat/sometimes true*), or 2 (*very true/often true*). A standardized mean score of the children's, mothers' and teachers' externalizing behavior score was computed. Higher values are indicative of greater externalizing behaviors.

Maternal Self-Efficacy. The development of children's self-efficacy is influenced by parental efficacy (Bandura, Barbanelli, Caprara and Pasotrelli, 1996). Parental efficacy, one of the targets of the nurse home visiting intervention, has been associated with children's academic achievement and thus, is included as a covariate in these analyses (Desocio, 2000; Jackson, Choi & Franke, 2009; Bandura, Barbanelli, Caprara, and Pasotrelli, 1996). Maternal self-efficacy regarding her parenting abilities was assessed at the 2 year follow-up period using

an instrument designed for the original study based on Bandura's social cognitive theory. Ten items measured mother's beliefs around talking and reading to her child, being able to understand her child's feelings, providing appropriate play toys, and completing the child's well-child healthcare visits. Items were scored 1 (*strongly agree*) to 4 (*strongly disagree*) and the total score computed as the mean. Higher scores are associated with greater efficacy.

Maternal Mastery. Mother's mastery was measured using Pearlin's Mastery Scale, a 7-item Likert-type scale scored 1 (*strongly agree*) to 4 (*strongly disagree*) and the total score computed as the mean (Pearlin & Schooler, 1978). Sample questions were, "I have little control over the things that happen to me" or "There is really no way I can solve the problems I have." Higher scores reflect greater mastery.

Child Educational Self-Efficacy. Children's educational self-efficacy was measured using a scale created for the original study based on Bandura's theory. This variable was computed as a mean score of 12 items. Sample items were "I am likely to attend school regularly" and "Finishing high school is not that important for what I want to do with my life." Items were scored 1 (*strongly agree*) to 4 (*strongly disagree*). Selected items were reverse scored prior to aggregation and higher scores indicate greater efficacy.

Environmental Demand. The Index for Environmental Demand was used to measure three dimensions of environmental demand on the family: 1) the U.S. Bureau of Census Income-to-Needs ratio; 2) spatial demand calculated as the ratio of household rooms to number of people living in the household; and 3) relational demand as assessed by items assessing conflict with partner or mother's own

mother (DeSocio, 2000). The Index is the mean of standardized income to needs ratio, housing density, and relationship conflict. Higher scores reflect greater environmental demand.

Neighborhood Safety. Studies have found that neighborhood safety impacts educational outcomes and attainment for African American children and is strongly associated with socioeconomic status and thus, is included as a covariate (Daly et al, 2009; Pachter et al., 2006; Pettit et al., 1999). Neighborhood safety was measured using seven questions including items such as: “In your neighborhood do people buy, sell and use drugs?”; “People carry around weapons like guns or knives.” Items were scored 0 (*none*), 1 (*very little*), 2 (*some*), or 3 (*a great deal*). Items were summed and higher scores were indicative of less safe neighborhoods.

Moderating Variable

Males are especially vulnerable to experience disproportionality, which can impact their educational achievement. Male students are more likely to be diagnosed with a disability and/or placed in special education settings and African American males are overrepresented in almost all disability categories (Harry & Anderson, 1994; Shifrer, Muller, & Callahan, 2011). Thus, child sex is included as a moderating variable in these analyses.

Statistical Analysis

Power Analyses

Power was analyzed for the general regression model which included 8 independent variables and specification of a medium effect size. According to a

power analysis using GPower, a sample size of 109 was needed to detect a medium effect size. $f^2 = .15$ (Cohen et al., 2003; Erdfelder, Faul, & Buchner, 1996).

Data Analyses

Descriptive statistics were generated for each dependent and independent variable (SPSS V 9.1). Bivariate analyses were conducted between the dependent and independent variables to assess associations between the variables. Bivariate analyses were also conducted between the independent variables to assess multicollinearity and the form of relationship between variables.

Review of the descriptive statistics for the number of hours of special education/resource revealed 31% missing data. Analyses of the patterns of missing data indicated that the data were missing at random. The missing data analysis was conducted to assess differences between participants with missing data and those without missing data. Differences were detected between the missing data on this variable by intervention and control group. Multiple imputation was used to impute missing values for number of hours in special education/resource (Rose & Fraser, 2008). Multiple imputation (10 in each group) was conducted separately for each intervention group using SAS (V9.1). If values are missing at random, ten imputations are adequate for most applications (Acock, 2005). Pooled estimates of the parameters and standard errors from the combined imputed data set were used.

Multiple linear regression was conducted to test the research question using PROC MIANALYZE in SAS. This procedure utilizes the parameter

estimates and associated covariance matrix for each imputed dataset and then derives univariate and multivariate inferences for these parameters. Model trimming was carried out to yield the most parsimonious model. As a result of these intermediate analyses, the final model included child's sex, number of hours in special education/resource, child's educational efficacy, maternal self-efficacy, and child's externalizing behaviors.

Results

Descriptive Analysis

Table 3a shows descriptive statistics for all of the variables. The participants were African American, approximately 12 years old at the time of follow-up, and 62.7% were male. Thirty-two percent of the sample received the Nurse-Family Partnership intervention. Children received an average of 14 weekly hours of special education services from kindergarten through 6th grade, which is approximately 40% of school time spent receiving special education. An income-to-needs poverty ratio was used to assess children's experience of poverty. A ratio of 1.33 or less indicates that the family's needs are greater than their income, thus indicating poverty and high economic demand (DeSocio, 2000). A majority of this sample struggled economically, because 72.8% of the sample had an income-to-needs poverty ratio of less than 1.33 (data not shown).

T-tests were conducted between the categorical independent variables and academic success variable to assess differences by intervention group and child sex. No statistically significant differences were found between treatment condition or sex on the academic success of children in the sample. Significant

correlations were found between child self-efficacy ($r = .39, p = < .05$) and number of hours in special education ($r = -.54, p < .01$) and children's academic success.

Multivariate Analysis

An initial linear regression model included all of the independent variables (number of hours in special education, externalizing behavior, maternal self-efficacy, maternal mastery, child educational self-efficacy, environmental demand, neighborhood safety, and gender). Model trimming was then conducted to arrive at a model that balanced theoretical importance with significant contributions to the proportion of variance explained in academic achievement. Variable inclusion and exclusion decisions were made based on model R^2 , the standardized regression coefficient and associated standard errors and 95% confidence intervals, and the resultant p -value. The final model consisted of: intervention group, child sex, number of hours in special education, child's self-efficacy, mother's self-efficacy, and child's externalizing behavior. Table 3b shows the multiple linear regression results associated with academic achievement of African American children in special education. This model explained 44% of the variance of the children's academic success. Children's self-efficacy ($\beta = 3.41, SE=.74, p < .01$) and number of hours in special education ($\beta = -.42, SE=.02, p < .01$) were statistically significant predictors in the final model.

Discussion

This study has contributed to the literature by reinforcing previous findings that self-efficacy is associated with academic success among African American children in special education. (Bandura, Barbanelli, Caprara, & Pasotrelli, 1996; Liew, McTigue, Barrois, & Hughes, 2008; Rust, Jackson, Ponterotto, & Blumberg, 2011). As Tabassam and Grainger (2002) demonstrated, the self-efficacy of children with disabilities is generally lower than typically developing children. Therefore, it is especially important for school social workers and educators to boost the self-efficacy of African American children in special education. Interventions that show children that their actions can lead to desired outcomes may potentially increase their self-efficacy.

Previous evidence demonstrated that students in special education tend to lag behind students in regular education on long-term educational outcomes (Bussing, Porter, Zima, Mason, Garvan, & Reid, 2010; Freeman & Alkin, 2000). The findings from this study support these conclusions. Since the enactment of the IDEA, inclusion and placement of students with disabilities in regular education is encouraged and has become more common. For example, students in 6th grade may only receive special education for math, but not any other courses. These analyses not only assessed the impact of special education placement, but the impact of number of hours in special education. This study found that, the less time that African American students spent in special education, the more successful the student would be in educational achievement.

While the findings for number of hours in special education and child self-efficacy were hypothesized, the lack of impact of socioeconomic status, neighborhood safety, and the Nurse-Family Partnership intervention on academic achievement was surprising. Socioeconomic status and neighborhood safety have been associated with academic success among African American children in other studies (Matta Oshima et al., 2010; Pachter et al., 2006; Park et al., 2002; Pettit et al., 1999). As noted previously, the sample in this study was relatively homogenous, because 73% of the sample lived in poverty. Therefore, there may not have been enough variability of socioeconomic status among the sample to demonstrate the influence of socioeconomic status on academic success.

The Nurse-Family Partnership was designed for and demonstrated effectiveness in improving educational outcomes for the overall sample of low-income, primarily African American children in the Memphis New Mothers Study (Olds et al., 2010). However, this study found that the intervention was not effective in impacting the educational success of the subsample of children in special education in the Memphis New Mothers Study. Although the intervention focused on improving parents' behaviors and skills to promote healthy birth outcomes and neurodevelopment (Olds, 2006), the intervention content may not have been specific enough to adequately prepare mothers for parenting children with disabilities. Many studies have documented the exceptional needs and skills of parenting children with disabilities (Ludlow, Skelly, & Rohleder, 2011; Resch, Mireles, Benz, Grenwelge, Peterson, & Zhang, 2010). Interviews of parents of children with disabilities found that they have unique experiences including:

dealing with challenging behavior, a lack of access to available information services for their child, financial strain due to having a child with a disability, inclusion of their child in school and in their community, and stress due to parenting and advocating for a child with a disability (Ludlow, Skelly, & Rohleder, 2011; Resch, Mireles, Benz, Grenwelge, Peterson, & Zhang, 2010). Interventions designed for parents of typically developing children may not fulfill the exceptional needs of parents and their children with disabilities.

Limitations

There are several limitations to this study. A small sample size that is not representative of the broader population precludes broader generalization of the findings. The children's mothers voluntarily chose to participate in the research study, which indicates that they may have been different than those who chose not to participate. Analyses from the total sample revealed that those who refused participation were not different (based on sociodemographic characteristics) from those who chose to enroll. The findings of the study provide information about a small, homogenous group of low-income African American children in special education. Future research and multiple studies will be needed to provide generalizations about findings to the broader population of African American students in special education.

A major limitation of secondary data analysis is the de-contextualization of data (Brooks-Gunn et al., 1991; Murphy & Schlaerth, 2010; Rew et al., 2000). To address the limitations in secondary data analysis, Rew et al. (2000) reported that investigators of secondary data analysis should become familiar with the

nature of the dataset, how variables are operationally defined, and the historical, social, and political context in which the original data were collected. This data set was chosen because key variables were adequately measured during original data collection. In addition, instruments used in the original study were pretested, revisions were made, and then pilot tested. Psychometric analyses were also conducted to ensure reliability and validity of instruments throughout the data collection process. Knowledge about the nature of the dataset and receipt of the operational definitions of key variables for the study were obtained by an investigator on the original Memphis New Mothers Study (K. Arcoleo, personal communication, July 7, 2011). A visit to Memphis, Tennessee, the physical place in which the study participants lived, and interviews with the research team members of the Memphis New Mothers Study and a special education coordinator in Memphis, Tennessee were conducted to gain a sense of the historical, social and political context in which the study was conducted.

Implications for Research and Practice

This study's finding that the number of hours a child spends in special education was associated with worse educational outcomes suggests that social workers could play a critical role in reducing the disproportionality of African American children in special education. Future research should examine the efficacy of expanded utilization of social workers in schools with a focus on communicating cultural differences, evaluating children for special education, conducting home visits, and creating a school culture of acceptance of difference. School social workers may be able to reduce the placement of African American

students in special education by: 1) ruling out the impact of culture by learning about the student's culture and communicating with teachers about cultural differences, 2) attending Individualized Educational Plan meetings, 3) conducting home visits and biopsychosocial evaluations of children being assessed for special education services, 4) offering to evaluate and conduct home visits for students deemed "at-risk" by teachers, 5) creating a school culture of acceptance of difference, and 6) reflecting on how their daily actions may foster disproportionality (Bean, 2011; Mills, 2003).

This study assessed the impact of environmental factors on the academic achievement of African American children in special education who have special needs. While previous research has found that environmental factors, such as socioeconomic status and neighborhood safety impact children's academic outcomes, it could be that environment impacts children with disabilities differently than children without disabilities. Further research should assess the impact of environmental effects on academic achievement across larger and more diverse samples of African American children with disabilities.

Interventions designed for parents of typically developing children may not fulfill the exceptional needs of parents and their children with disabilities. Future research should explore the unique needs of African American parents of children with disabilities. School social workers should be conscious of the unique needs of parents of children with disabilities. Interventions for parents should be adapted to meet the needs of parents of children with disabilities. Future research should also explore the efficacy of interventions designed to

improve children with disabilities' academic outcomes. Interventions should be developed specifically for families and children with disabilities to meet their unique needs.

African American children with disabilities may have specific needs related to their ethnicity. For example, ethnic identity was an additional construct associated with African American children's academic achievement (Rust, Jackson, Ponterotto, & Blumberg, 2011). Ethnic identity is the extent to which a person identifies with a particular ethnic group. Future research should also examine the impact of self-efficacy and ethnic identity on the academic achievement of African American children in special education.

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Table 3a

Descriptive Statistics of the Sample

Variable	Full Sample	Control Group	Intervention Group
	<i>N</i> = 126	<i>N</i> = 86 (68.3%)	<i>N</i> = 40 (31.7%)
Gender			
Male	79 (62.7)	56 (65.1)	23 (57.5)
Female	47 (37.3)	30 (34.9)	17 (42.5)
	Mean (SD)	Mean (SD)	Mean (SD)
Academic Success	100.00 (10.00)	100.09 (10.06)	99.79 (9.99)
Externalizing Behavior	9.76 (6.65)	9.60 (6.73)	10.09 (6.56)
Maternal Efficacy	4.18 (0.44)	4.20 (0.48)	4.14 (0.42)
Maternal Mastery	97.44 (9.91)	96.24 (10.14)	99.98 (9.02)
Child Efficacy	6.74 (1.06)	6.63 (1.09)	6.97 (0.99)
# of Hours Receiving Special Education Services	13.51 (9.02)	14.26 (9.63)	12.18 (7.81)
Neighborhood Safety Index for Environmental Demand	6.39 (5.54)	6.55 (5.71)	6.05 (5.21)
	100.05 (5.59)	99.68 (5.64)	100.83 (5.49)

Table 3b

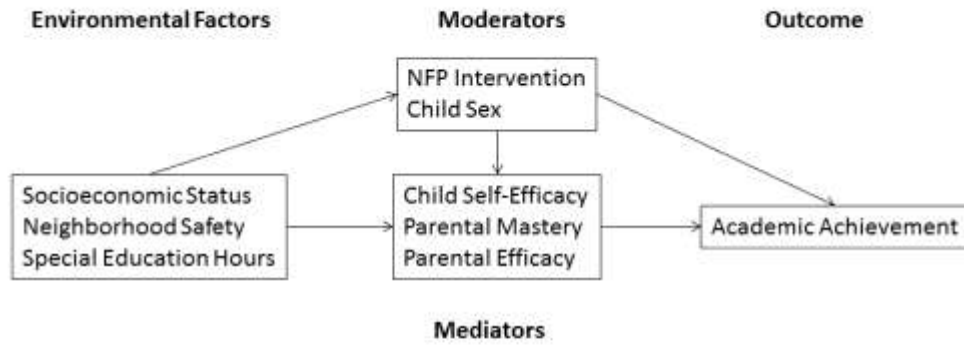
Ecological Factors Associated with Academic Achievement of African American Children in Special Education

Construct	R^2	β	SE	95% CI LL	95% CI UL	p -Value
Intervention group	.44	-0.81	0.82	-2.44	0.82	.38
Sex		-1.21	1.67	-4.64	2.23	.60
Average # hours/week in resource and special education		-0.42*	0.02	-0.65	-0.20	.004
Child's self-efficacy		3.41**	0.74	1.72	5.10	<.0001
Mother's self-efficacy		1.63	1.82	-1.73	5.00	.80
Average standardized externalizing		-2.36*	0.82	-3.98	-0.74	.003

* $p < .05$, ** $p < .01$

Figure 1.

Conceptual Model of Influences on Academic Outcomes of African American Children



Chapter 5

CONCLUSION

Major Findings

Each of the papers included in this document provide new information that enhances our understanding of behavioral and educational outcomes of African American students in special education. The first paper aimed to understand if teachers, mothers and African American children in special education rate children's externalizing behaviors differently and if there was a relationship between cognitive and ecological factors and the externalizing behaviors of African American children in special education. The findings indicated that teachers' scores were similar to mothers' scores of externalizing behaviors for a sample of African American children in special education. Also, mothers' ratings of the children's externalizing behaviors was significantly higher than children's self-report of their externalizing behaviors. These findings were not consistent with the study's hypothesis or previous findings. As hypothesized, African American boys were more likely to experience externalizing behaviors than girls. Unexpectedly, results indicated that cognitive factors, socioeconomic status, neighborhood safety and the Nurse-Family Partnership intervention were not significantly associated with externalizing behaviors the African American children in this study.

The second paper sought to understand if teachers, mothers, and African American children in special education rate children's internalizing behaviors differently and the relationship between cognitive and environmental factors and

the internalizing behaviors of African American children in special education. As hypothesized, the findings indicated that mothers' and teachers' ratings of African American children's internalizing behaviors were significantly lower than children's self-report of their internalizing behaviors. This indicates that the mothers and teachers were not aware of the feelings of anxiety and depression that the children were experiencing. In addition, female gender and mother's mastery were positively associated with the internalizing behavior of African American children in special education. The finding that the Nurse-Family Partnership and children's environment were not significantly associated with children's internalizing behaviors was unanticipated.

The aim of the third paper was to understand the relationship between cognitive and environmental factors and the academic achievement of African American children in special education. The findings indicated that self-efficacy and number of hours in special education were associated with the academic achievement of African American children in special education in this study. While these findings were expected, the lack of impact of socioeconomic status, neighborhood safety, and the Nurse-Family Partnership intervention on children's educational achievement was surprising.

There were commonalities among the studies' findings. The findings indicate that mothers and teachers had similar ratings of children's internalizing and externalizing behaviors, which is contradictory to the cultural mismatch hypothesis. Gender was a common factor associated with behavior. Consistent with previous research findings, girls were more likely to experience internalizing

behaviors and boys were more likely to experience externalizing behaviors. Cognitive factors, such as children's self-efficacy and mothers' mastery, were associated with internalizing behavior and academic achievement. The lack of impact of socioeconomic status, neighborhood safety and the Nurse-Family Partnerships on African American children's behavior and academic achievement was also common among the studies' findings and not consistent with previous research findings. This indicates that socioeconomic status and neighborhood safety were not important factors associated with the behavior and educational achievement in these studies; however, this finding may be due to the homogeneity of the sample. Because the Nurse-Family Partnership was not developed specifically for families of children with disabilities, these findings may indicate that interventions should be designed specifically for these families in order to have a greater impact on these children's behavioral and academic outcomes. The results of these studies indicate that gender and cognitive factors are important considerations in the behavioral and educational achievement of African American children in special educations.

Implications for Practice and Policy

The results of the three papers contribute to discussions about improving school social work practice and educational policy. The first implication is that interventions aimed at improving behavioral and educational outcomes of African American children in special education should be sensitive to specific needs based on gender and disability status. This study found that females are more likely to experience internalizing behaviors than males, so interventions designed at

improving internalizing behaviors are more likely to be needed among girls. In addition, this study found that males are more likely to experience externalizing behaviors than females, so interventions that seek to improve externalizing behaviors are more likely to be needed among males. While the Nurse-Family Partnership intervention demonstrated efficacy impacting African American children's behavioral and educational outcomes for the overall sample, it did not demonstrate efficacy impacting the behavioral and educational outcomes of African American children in special education. This demonstrates that interventions need to be adapted for children with disabilities and their families.

Cognitive factors, such as children's efficacy and mother's mastery, were associated with children's internalizing behavior and educational outcomes, which indicates that strengthening children with disabilities' and their families' mastery can improve children's behavioral and educational outcomes. Although school curricula may not provide opportunities to improve children's efficacy and families' mastery, school social workers may be able to offer efficacy building group or individual interventions for students. Social workers also have more opportunities to intervene with families and build family mastery by, teaching them parenting skills and encouraging them to set goals and solve problems associated with many aspects of life, including education, finding work and planning future pregnancies.

These studies found differential ratings among children, their teachers and mothers on children's internalizing and externalizing behaviors. The mothers and teachers had similar ratings of children's internalizing and externalizing

behaviors. The findings indicated that mothers and teachers were not aware of feelings of anxiety and depression that the children in the study were experiencing. More education on identifying internalizing behaviors should be provided for teachers and mothers to increase their awareness of children's experiences of internalizing behaviors. This study also found that mothers rated children's externalizing behaviors as significantly higher than children's self-report. This indicates that mothers and children perceive their externalizing behaviors very differently. Because the children in this study were 12 and at an appropriate developmental level to communicate about their behaviors, school social workers may be able to facilitate a communication between children and their mothers about children's behavior. Social workers should encourage self-awareness among children and their mothers about the children's behaviors. The children may realize that they experience more externalizing behaviors after hearing their mothers' points of view, while the mothers may realize their children experience less externalizing behaviors after hearing their children's points of view. The discussion may increase consistency in diagnosis among children and their mothers. The agreement in diagnosis among children and their mothers may increase the use of appropriate interventions for externalizing behaviors as needed.

As hypothesized and found in previous research, this study found that more hours in special education were associated with poorer educational outcomes. This indicates that children should be placed in the least restrictive classroom possible, which the IDEA already mandates. However, because African

American children are disproportionality placed in special education classrooms, this study's finding indicate that it is necessary for school social workers and educators to develop methods to minimize and prevent placement of African American children in special education. While teachers may not have time to learn about children's families and home environments, they should refer students to school social workers if they feel as though students are struggling in school. School social workers should get to know the children as much as possible to rule out environmental factors that could be impacting children's academic achievement, such as poverty and domestic violence. Social workers should provide children with resources within the school or at home to increase their academic achievement prior to children's removal from mainstream education.

Future Research

These studies' unique focus on African American children in special education provides a strong foundation from which future research projects can build. This study found that teachers' reports of children's behaviors did not significantly differ from mothers' reports of children's behaviors. While these studies did not support the cultural mismatch hypothesis, 51% of teachers in the school district in which the study children attended school were black, which is atypical and may prevent or lessen cultural mismatch between teachers and students. The limitations in this study indicate that more research is needed to test the cultural mismatch hypothesis. Future research should also explore the impact of mothers' significantly different ratings than their children's ratings of internalizing and externalizing behaviors.

More research is needed on the impact of socioeconomic status, neighborhood safety and behavioral and educational outcomes of African American children in special education. This study found that socioeconomic status and neighborhood safety were not associated with the behavioral and education outcomes of African American children in special education. Previous research has found that socioeconomic status and neighborhood safety are associated with behavioral and educational outcomes of African American (Matta Oshima et al., 2010; Park et al., 2002). It is possible that these environmental factors impact children with disabilities differently than typically developing children.

More research is needed on the impact of interventions designed for children with disabilities on the behavioral and educational outcomes of African American children. The Nurse-Family Partnership was efficacious in improving behavioral and educational outcomes of an overall sample of primarily African American children, yet the receipt of the intervention did not have a statistically significant relationship with behavioral and educational outcomes of African American children in special education (Kitzman, et al. 2000; Olds et al., 2004; Olds et al., 2007; Kitzman et al. 2010). Children with disabilities and their families have unique needs (Ludlow, Skelly, & Rohleder, 2011; Resch, Mireles, Benz, Grenwelge, Peterson, & Zhang, 2010). This study indicates that interventions designed for typically developing children may need to be adapted to address the special needs of children with disabilities and their families.

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APPENDIX A
OPERATIONALIZATION OF VARIABLES

Dependent Variables/Constructs	Operationalized/Measure d	Example Items from Measures
Academic achievement	Academic Success Latent Variable was created using a combined score of the student's Grade 6 Grade Point Average, Peabody Individual Achievement Test (PIAT) Reading Score, PIAT Math Scores, Leiter Sustained Attention Score, Tennessee Comprehensive Assessment Program Test Scores.	
Internalizing behavior	Achenbach's Child Behavior Checklist's Scale for Internalizing Behavior, which includes items that assess for withdrawn somatic complaints, anxiety or depression symptoms. The child's mean score on the scale completed by the child, child's mother and child's teacher will be used to measure internalizing behavior.	60 Items: 1) Sudden changes in mood of feelings, 2) Talks about killing self. Response options: Not true, somewhat/sometimes true, very true/often true
Externalizing behavior	Achenbach's Child Behavior Checklist's for Externalizing Behavior, which includes items that assess for child's delinquent and aggressive symptoms. The child's mean score on the scale completed by the child, child's mother and child's teacher will be used to measure externalizing behavior.	60 Items: 1) Talks too much, 2) Threatens people. Response options: Not true, somewhat/sometimes true, very true/often true
Independent Variables/Constructs		
Gender	Male or female	
Treatment Condition	Treatment Group 2	

	(control) or Treatment Group 4 (intervention; received two years of home visitation intervention)	
<i>Proximal</i>		
Maternal efficacy	Parental Efficacy Scale	10 Items: measured mother's beliefs around talking and reading to her child, being able to understand child's feelings, providing appropriate play toys, and completing child's well-child healthcare visits
Maternal mastery	Pearlin's Mastery Scale	7 Items: 1) I have little control over the things that happen to me, 2) There is really no way I can solve the problems I have. Response options: Strongly agree, agree, disagree, strongly disagree
Child educational self-efficacy	Bandura's Children's Educational Self-Efficacy Scale, which assesses student's beliefs in their capability to learn nine areas of course work from mathematics to foreign language	12 Items: 1) I am likely to attend school regularly, 2) Finishing high school is not that important for what I want to do with my life
Number of hours in special education	Average weekly hours in special education and/or resource grades K-6	
<i>Distal</i>		
Neighborhood safety	Neighborhood Safety Scale	7 Items: I'd like to ask you some questions about

		<p>activity in your neighborhood. 1) Do people buy, sell or use drugs? 2) You hear gun shots. Response options: None, very little, some, or a great deal.</p>
Socioeconomic status	<p>Index for Environmental Demand, which is the mean of standardized income to needs ratio, housing density and relationship conflict. Housing density is measured by calculating a ratio of how many people live in the home versus how many rooms there are in the home. Relationship conflict is measured using a 4-item scale.</p>	<p>Relationship conflict scale. 4 Items: Now I'd like you to tell me how often you and your spouse/partner experience each of the following situations. Items: 1) Little arguments turn into ugly fights with criticisms, name calling, or bringing up past hurts. Response options: never/almost never, once in a while, or frequently</p>

APPENDIX B
ASU IRB PERMISSIONS



Office of Research Integrity and Assurance

To: Kimberly Aroleo
NHI

for **From:** Mark Roosa, Chair *SM*
Soc Beh IRB

Date: 04/04/2011

Committee Action: Expedited Approval

Approval Date: 04/04/2011

Review Type: Expedited F7

IRB Protocol #: 1103008261

Study Title: Sociocultural Factors Associated with the Developmental and Educational Outcomes for African American Students in Special Education

Expiration Date: 04/03/2012

The above-referenced protocol was approved following expedited review by the Institutional Review Board.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date. You may not continue any research activity beyond the expiration date without approval by the Institutional Review Board.

Adverse Reactions: If any untoward incidents or severe reactions should develop as a result of this study, you are required to notify the Soc Beh IRB immediately. If necessary a member of the IRB will be assigned to look into the matter. If the problem is serious, approval may be withdrawn pending IRB review.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, or the investigators, please communicate your requested changes to the Soc Beh IRB. The new procedure is not to be initiated until the IRB approval has been given.

Please retain a copy of this letter with your approved protocol.