The Effects of Family Race/Ethnicity and Socioeconomic Status on Quality of Services and Family Outcomes for Families Participating in Part C Early Intervention Programs

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THE EFFECTS OF FAMILY RACE/ETHNICITY AND SOCIOECONOMIC STATUS ON QUALITY OF SERVICES AND FAMILY OUTCOMES FOR FAMILIES PARTICIPATING IN PART C EARLY INTERVENTION PROGRAMS

By

Paula S. Lalinde

A DISSERTATION

Submitted to the Faculty of the University of Miami in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Coral Gables, Florida

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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy

THE EFFECTS OF FAMILY RACE/ETHNICITY AND SOCIOECONOMIC STATUS ON QUALITY OF SERVICES AND FAMILY OUTCOMES FOR FAMILIES PARTICIPATING IN PART C EARLY INTERVENTION PROGRAMS

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This study investigated the association between family socioeconomic status, family race/ethnicity, quality of services and the impact of those services on the family for families who had participated in a northeastern state’s IDEA, Part C Early Intervention Program. Data for this study came from 1,108 families who responded to a survey distributed by the state’s Early Intervention Program. The survey contained two Rasch-based measurement scales designed to yield measures of family perceptions of the quality of early intervention services they had received and the impact of those services on their family. Results of the study indicated that measures of quality of services were significantly and positively related to family outcomes. However, neither family race/ethnicity nor socioeconomic status was associated with quality of services. Results related to the strong association between quality of services and positive family outcomes are interpreted in light of previous research on the outcomes of family-centered care models. Results related to the parity of service quality across racial/ethnic and socioeconomic groups are interpreted in relation to two important characteristics of high-quality programs: cultural competency and service coordination.
DEDICATION

My dissertation is dedicated to my daughter Alexandra Louise Lalinde, June 29, 1984 – July 5, 1996. Through Alexandra’s generous and loving spirit, I learned all life’s valuable lessons. These lessons included the importance of employing empowering practices when working with families who have a child with special needs.
ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

Purpose of the Study

The purpose of this study was to evaluate the association between quality of early intervention services and family outcomes for families of children from birth to age 3 participating in a state Individuals with Disabilities Education Improvement Act (IDEA), Part C Early Intervention Program, as well as to investigate the relationship between race/ethnicity, socioeconomic status, and the quality of early intervention services. Under Public Law 108-446, IDEA, Part C, SEC. 632 (C), Early Intervention Services are defined as those services “designed to meet the developmental needs of an infant or toddler with a disability as defined by the individualized family service plan team” (p. 118). SEC. 632(E) specifies 14 categories of services that may be authorized under Part C, including occupational therapy, physical therapy, home visits, family training, social work services, vision services, and assistive technology devices. The service delivery system is to be comprehensive, coordinated, and family-centered. Family-centered practices are defined generally as those practices which include (a) the child’s family in decision-making, planning, assessment and service delivery at family, agency, and systems levels; (b) development of appropriate services for the whole family and not just the child; (c) guidance according to family priorities for goals and services; and (d) respect for family choices in accordance with the level of their participation (Murphy, Lee, Turnbull, & Turbiville, 1995).

The reauthorization of IDEA in 2004 not only reaffirmed the importance of family-centered services but also placed a new emphasis on accountability. Outcomes-
based accountability began with the passage of the Government Performance and Results Act (GPRA) in 1993. Its central purpose was to improve federal program effectiveness and public accountability by promoting a focus on quality of services and program results. This federal legislation has brought about new mandates from the U.S. Office of Special Education (OSEP) requiring states to measure and report on a number of key performance indicators, including three indicators of family outcomes for families participating in IDEA, Part C. The three indicators that states must address in their State Performance Plan address the percentage of families participating in early intervention programs who report that early intervention has helped them to (a) know their rights, (b) effectively communicate their children’s needs, and (c) help their children develop and learn. The indicators related to family perceptions of the impact that services have had on their family are particularly relevant given the continued increase in the number of families served through IDEA, Part C. In 2002, IDEA, Part C served 268,331 infants/toddlers and their families and in 2004 served 282,733 infants/toddlers and their families, representing an increase of 9.5% (U.S. OSEP, Data Analysis System (DANS), 2004).

**Consideration of Race/Ethnicity in the Context of Family-Centered Services**

A key principle of family-centered care practices is cultural competency (Shelton, Jeppson, & Johnson, 1987). Adoption of the values embedded in a family-centered approach, that is, mutual respect, support of individual differences, equal partnerships and focus on informal supports and services, held promise for a paradigm shift in the field of early intervention that would extend to all cultural groups. Cultural competency is particularly relevant for early intervention programs as 40% of the families served
through IDEA, Part C, in 2002, were from minority groups, as defined by a combination of race and ethnicity (U.S. OSEP, DANS, 2004).

Considering a family’s cultural background has been viewed as important both for the design of more effective care and to increase the likelihood of better adherence to a plan of treatment (Garcia Coll & Meyer, 1993). Although there have been efforts over the past 20 years on the policy, institution, and practitioner levels to effectively serve families from diverse backgrounds, evidence suggests that inequities in service delivery may still exist (Harry, Allen, & McLaughlin, 1995; Harry, Kalyanpur, & Day, 1999; Harry & Klingner, 2006; Harry, Klinger, & Hart, 2005; McHatton & Correa, 2005; Sexton, Lobman, Constans, Snyder, & Ernest, 1997; Sontag & Schact, 1994; Zionts, Zionts, Harrison, & Bellinger, 2003).

Multicultural studies have also provided an increased understanding of the institutional biases or cultural mismatches that leave children and families from minority cultures less likely to benefit fully from services and much more vulnerable to poor outcomes than children from the majority culture. Some of the cultural factors described by Garcia Coll and Magnuson (2000) that potentially impact service quality and outcomes include some of the following: (a) differences in perception of what merits intervention, (b) differences in the families’ responses to learning that their child has a developmental delay, (c) communication and language barriers, (d) inclusion or exclusion of extended family members, (e) differences in what constitute outward signs of respect, (f) different perceptions as to the etiology of the problem, and (g) previous experiences with racism and majority culture institutions that lower family expectations and increase
anxiety and resentment. These differences suggest there may be a potential association between race/ethnicity/culture, quality of services, and the outcome of those services.

**Consideration of Family Socioeconomic Status**

The socioeconomic status of families participating in IDEA Part C early intervention programs has not been fully studied. The Office of Special Education Program provides an annual report to Congress documenting the number of children served, their race/ethnicity and the state’s progress in meeting accountability indicators. The socioeconomic status of the families served is not reported. However, there is data to suggest that a large percentage of the families served in early intervention programs are low-income families. In part, this is due to the known relationship between poverty and risk for disability (Fujiura & Yamaki, 2000). According to Fujiura and Yamaki, an estimated 28% of children with disabilities in the United States come from low-income families. This is 12% higher than the figure for families without a member with a disability. The National Early Intervention Longitudinal Study (NEILS) found that a higher proportion of children who enter early intervention services come from low-income homes than from homes with higher income levels (Scarborough et al., 2004).

Medicaid, also known as Title XIX of the Social Security Act, has long been a state-operated and state-administered program that provides medical benefits to certain individuals with low income. Families with dependent children in which one parent is absent, incapacitated, or unemployed, and which meet income criteria, are eligible for Medicaid. Medicaid eligibility in the state in which this study was conducted is set at 185% above the Federal Poverty Line (FPL). The Federal Poverty Lines for 2006 are $16,079, $20,615, and $24,375 for families of three, four, and five, respectively. (Institute
for Research on Poverty, University of Wisconsin-Madison, 2000). In the state where this study was conducted approximately 30% of the families being served in the Part C program were insured through Medicaid.

Several mechanisms have been suggested to explain the relationship between a family’s socioeconomic status and the quality of services they receive. A family’s socioeconomic status may impact the level and nature of family-related needs. For families living in poverty, family-related resource needs are often greater than for families with greater financial resources (Darling & Gallagher, 2004; Halpern, 2000). When families have substantial needs, early intervention programs extend their expertise beyond traditional early intervention services to include a broad knowledge base of services and supports that are available across agencies. Family access to services is also dependent upon the affordances of the broader service system in which the programs operate (Harbin, McWilliam, & Gallagher, 2000). Without the required expertise and available community resources to meet family needs, inequity in service quality and family outcomes may occur.

Poverty may also affect quality of services and subsequent family outcomes through the association between poverty and low parent self-efficacy. The body of self-efficacy literature, as developed by Bandura (1977) and furthered by other cognitive theorists (e.g., Cutrona & Troutman, 1986; Elder, Eccles, Ardelt, & Lord, 1995; Silver, Bauman, & Ireys, 1995), demonstrate how parental efficacy affects the developmental, emotional, and physical well-being of their children. Parents who experience low parent self-efficacy are less likely to be strong advocates for their children when interacting with social institutions (Bandura, 1997). Parents with low self-efficacy may be particularly
vulnerable when interacting with social institutions that have limited or scarce resources. The competition for scarce resources may result in disparities between parents with low self-efficacy and parents who perceive themselves as having the ability to procure the services and supports their child and family need.

**Research Questions Addressed in this Study**

This study addressed three critical questions related to family-centered services and family outcomes for families participating in early intervention:

1. What is the strength of the association between the quality of early intervention services and the impact of these services on the family?

2. Is the quality of early intervention services related to family ethnicity and socioeconomic status?

3. Are family race/ethnicity and socioeconomic status associated with family outcomes when controlling for the quality of service that families have been provided?

The importance of the research questions in this study was underscored by Bailey’s (2001) observation that, “Ultimately, research is needed in which the provision of key aspects of parent involvement and family support programs is linked with outcomes, to determine the extent to which our espoused practices are resulting in the outcomes that families desire” (p. 12). The present study contributes to the research base on the variability in the quality of family-centered services for families with young children with developmental delays and disabilities across race/ethnic and socioeconomic groups and the relationship of this variability to family outcomes.
CHAPTER II
LITERATURE REVIEW

Family-Centered Early Intervention Services

The term *family-centered* was first introduced in the late 1950s by the nursing profession challenging the conventional practices in maternity nursing care with the intent to improve both infant and mother’s well-being (Wiedenbach, 1959). Two decades later, Bronfenbrenner’s (1979) ecological systems theory spurred a renewed interest in family-centered practices and had a profound impact on the field of early intervention. In an ecological systems model, the ecological context in which the child and family live is considered vital to the understanding of the child and the family. Child development, parenting behavior, and family functioning are viewed in the context of relationships and events between individuals, groups, organizations, institutions, and ideological patterns of the culture (Bronfenbrenner). This model considers social supports as a source of information, guidance, and advice that parents need to promote child learning and development, with an emphasis on informal supports, that is, family members, friends, and neighbors. For early interventionists, the family contexts as well as the experiences provided within early intervention is viewed as critical to a child’s development (Dunst, 1999; Guralnick, 1997).

Dunst’s (1985, 2000) social support model extended Bronfenbrenner’s (1979) emphasis on social supports to the field of early intervention. Dunst (2000) defines early intervention as “the provision of support and resources to families of young children from members of informal and formal social support networks” (p. 99). A family’s personal social network is viewed as an important source of support and resources for meeting
those needs (Dunst, Trivette, & Deal, 1988; Gottlieb, 1983). Dunst’s model of friends, family, and community members as having an important role in heightening family empowerment and the ability to cope with stressful situations. The resources and supports that strengthened the family were seen as beneficial not only to one child identified as eligible for services but to all family members (Bronfenbrenner; Hobbs et al., 1984).

Family-centered care principles represent a distillation of the complex ecological and social systems theory into a medium that could be embraced and promoted by families in addition to researchers and practitioners. The principles emphasized collaboration between practitioners and families, full disclosure of information, cultural competence, and mutual respect (National Center for Clinical Infant Programs, 1985; Shelton et al., 1987). These principles have maintained their relevance over time and reflect the central characteristics of collaboration as defined by families from culturally and linguistically diverse backgrounds, that is, competence of service provider, equal power in decision-making, understandable communication, commitment to children and families, trust and respect (Blue-Banning, Summers, Frankland, Nelson, & Beegle, 2004).

Ecological and social systems theories and family-centered care principles were the foundation for what is considered one of the most revolutionary pieces of legislation in U.S. history: Part H of Public Law 99-457, Amendments to the Education of All Handicapped Children Act (1986). This legislation authorized states to serve infants and toddlers with an identified delay, established condition and/or at risk. Following congressional reauthorizations, the provisions for infants and toddlers and their families
fall under Part C of the Individuals with Disabilities Education Improvement Act (IDEA, 2004).

The word *family* appears repeatedly throughout this legislation. This represents a public policy shift from child-focused intervention services to services that embrace the family as the focal point of intervention. Part C’s core components also reflect public policy shifts toward an approach that enables and strengthens the family unit. The family assessment process recognizes the importance of information, resources, and formal/informal support needs of the family. A family assessment is voluntary. It provides families a choice of how much information they want to share about their families. This voluntary process supports the need to provide families with a sense of control over this new *environment*, a critical element of self-efficacy (Bandura, 1997).

The Individualized Family Service Plan (IFSP) extends beyond child-focused intervention services to address education, health, and social services for both the child and family. The IFSP section entitled “Family’s Concerns, Priorities and Resources” reflects a family-enabling process whereby the family identifies its own needs and aspirations for the primary targets of intervention. It is also a process that builds upon the family’s resources and capabilities as a way of strengthening the family.

Service coordination, a provision available to all Part C families, at no cost, is an ongoing process that assists and enables families to access the resources and supports as identified during the initial IFSP process and throughout the family’s participation in the program. The service coordinator helps assure family’s rights and procedural safeguards and advocates for the family as needed.
With the 1986 passage of Part H, P.L. 99-457, Surgeon General Everett Koop’s 1987 National Conference on Family-Centered Care held in Washington, D.C. and the publication of what is known as Red Book, the construct of family-centered early intervention, however vaguely defined at the time, became synonymous with best practice and has guided the field to the present (Bailey & Wolery, 1992; Dunst, 2000; Dunst, Trivette, & Deal, 1988, 1994; Harbin, 1993; McWilliam & Strain, 1993; Odom & McLean, 1993; Roush & McWilliam, 1994; Sandall, McLean, & Smith, 2000; Shelton et al., 1987). It was not until the mid-1990s that researchers began to examine the association between family-centered practices and family outcomes.

**Family Outcomes**

*Frameworks for Measuring Family Outcomes*

The expected outcomes of early intervention services have been guided by Section 671 of the legislation, which states that the outcome is “to enhance the family’s capacity to meet their child’s special needs” (PL 99-457, 1986, Sec. 671). However, the vagueness of the stated outcome in the legislation made it difficult for the field of early intervention to agree upon a reasonable and desirable set of outcomes to be expected from participation in early intervention (Bailey et al., 1998). Part C’s family-centered philosophy created difficulty in measuring benefits uniformly across families (Bailey & Bruder, 2005).

The Part C family indicator, as cited earlier, emerged due to the efforts of early intervention researchers, parent advocacy groups, and early intervention leadership organizations. Bailey et al. (1998) described a framework for program evaluation and research on family outcomes in early intervention. Two broad types of family outcomes
were recommended along with questions that serve as a framework for measuring the
degree to which early intervention programs accomplish the goals inherent in a family-
centered approach. The first broad type of family outcomes pertains to perceptions of
families of their early intervention experience. Suggested areas to be assessed include
perceptions of the appropriateness, efficacy, responsiveness, and individualization of
services for both the family and child. The second broad type is family outcomes which
focus on the impact early intervention has on various domains of family life. Suggested
areas to be assessed include parents’ perceived competence as caregivers, ability to work
with professionals, informal support systems, optimism about the future, and the quality
of life. Bailey and Bruder (2005) provided a description of 10 different frameworks for
family outcomes that were conceptualized by researchers, parent advocacy groups, a
leadership council, and federal agencies.

In 2006, the Early Childhood Outcome Center released a set of guidelines for
documenting family outcomes in early intervention. The guidelines include the
following: use of both family outcome and family satisfaction assessments, link survey
data with other databases to examine outcome differences for families from different
income or racial/ethnic groups, implement a variety of strategies to maximize response
rates, use a format that asks the family as a whole rather than about the individual
respondent’s outcomes, use measures that have adequate content validity, and use
instruments that take no more than 20 minutes to complete.

**Empirical Studies: Family-Centered Services and Family Outcomes**

In the research literature, family outcomes of early intervention services are
associated with a family’s knowledge of services and supports, their ability to
communicate a child’s needs with professionals, quality of life, knowledge of family rights, systems level knowledge, and helping their children learn and grow. The existing body of empirical research association between the quality of services inherent in a family-centered approach and family outcomes is limited. A review of this literature follows.

Thompson et al. (1997) examined the relationships between family-centered service delivery, empowerment, support, and stress with 270 families participating in Michigan’s early intervention program. The findings demonstrated a positive relationship between family-centered services and family empowerment. Also in this study, lower income respondents tended to report lower scores on the Family Implementation Scale (FIS), which measured the extent of family-level implementation. Lower income families, however, also reported receiving significantly higher numbers of early intervention services. This may suggest that either the FIS measure included items that were not appropriately understood by these families, services were provided but families did not feel they were adequately involved in the decision-making, or possibly, the abundance of services did not address the family priorities and needs (Thompson et al.).

Trivette et al. (1995) studied the impact of the help-giving practices associated with family-centered care practices on parents’ perceived control appraisals among 280 parents of children under the age of 5 with disabilities or at risk for developmental delay in early intervention programs in two different states. Parent and family characteristics included race/ethnicity, socioeconomic status, parent age and education, and income. Ninety-two percent of the participants were White. The measures used in the study were the Help-giving Practices Scale (Dunst, Trivette, & Hamby, 1996), the Personal Control
Appraisal Scale (Affleck, Tennen, & Rowe, 1991), and the Early Intervention Scale (Boyd & Dunst, 1994). The children were attending early intervention programs classified into four different program models associated with family-centered care practices. Trivette and colleagues found that variation in parents’ assessment of help-giving practices was related to differences in program models, such that the family-centered program models used more help-giving practices. The differences in parents’ personal control appraisals were attributed to a combination of program characteristics and help-giving practices and not associated with any of the parent or family characteristics.

Similarly, Judge (1997) investigated parent assessment of help-giving practices and perceived control appraisals among 69 parents of children between the ages of birth and 5 years with disabilities or at risk for developmental delay in eight different kinds of early intervention programs. Family characteristics in the study included socioeconomic status, parent age and education, child age, and diagnosis. The measures used were the Help-giving Practices Scale (Dunst et al., 1996), the Personal Control Appraisal Scale (Affleck et al., 1991), and the Early Intervention Scale (Boyd & Dunst, 1994). Results indicated that a significant amount of variance on the Personal Control Appraisal Scale was explained by the frequency of contact between the participants and help givers and by help-giving practice measures. Race/ethnicity was not considered in this study.

Other studies examined the impact of family-centered care services on the family’s level of empowerment. Family empowerment is a construct that appeared in the disability literature in the early 1990s to address the complex realities families face when they have a child with a disability. Its dimensions include parents’ sense of control over
family events, service acquisition, and system level of policies that impact child and family services (Koren, DeChillo, & Friesen, 1992).

Dempsey, Foreman, Sharma, Khanna, and Arora (2001) examined the relationship between help-giving practices and family empowerment in Australia and India using the Family Empowerment Scale of Koren et al. (1992). For both groups, help-giving practices were a significant predictor of family empowerment.

Dempsey and Dunst (2004), using the Enabling Practices Scale (Dempsey, 1995) and the Family Empowerment Scale (Koren et al., 1997), conducted a study with two groups of parents who had a preschool child with a disability participating in one of two programs; one in Morgantown, North Carolina, in the United States, and the other in Newcastle, Australia. Family characteristics examined in this study were age, employment, and educational status. Race/ethnicity was not a family characteristic in this study. Families reported their frequency and satisfaction with their contact with the preschools via Lumpkin’s (1985) 6-item locus of control scale to better understand the relationship between locus of control and empowerment. The family characteristics were not significant but enabling practices were significant.

Applequist and Bailey (2000) investigated the relationship between Navajo caregivers’ satisfaction with early intervention services and selected family-related program practices, program providers, and family and child characteristics. Fifty-two participants who identified themselves as Navajo Indians took part in six programs across two states. Caregiver income and education were variables. Caregiver perceptions of services were ascertained using the Client Satisfaction Questionnaire (Larsen, Attkisson, Hargreaves, & Nguyen, 1979) and the Family Orientation of Community and Agency
FOCAS (Bailey, 1991). FOCAS provided a discrepancy score which represented the difference between how caregivers rated their typical level of involvement in early intervention and their reported desired level of involvement. FOCAS served as both the quality of services measure and the satisfaction measure. The amount of perceived family-centered practices was significantly and inversely correlated with the discrepancy between typical and desired practice. Family-centered practices were significantly and positively correlated with overall program satisfaction. Family level of education and income were not statistically related to satisfaction.

Neal (2007), in using two instruments: Family Benefits Inventory (Harbin & Neal’s, 2003), a 4-factor instrument measuring well-being, knowledge, control, and involvement, and Brass Tacks: The Family Report Evaluation Version (McWilliam & McWilliam, 1993), measured the level of importance of five ecological characteristics in predicting family outcomes. The ecological characteristics included child, family, service provider, early intervention system, and community. Child and family characteristics were severity of disability, length of time in the program, race/ethnicity (33% minority families), and socioeconomic status. This study used a state-wide sample of families (N = 296) participating in North Carolina’s early intervention system. Group differences were found in each of the four family outcome dimensions such that families who rated their service provision as more family-centered rated their well-being, knowledge, control and involvement higher.

Studies Showing No Association between Family-Centered Services and Family Outcomes

The literature points to one study that failed to support the hypothesis that family-centered services have a measurable impact on child and/or family outcomes. Mahoney
and Bella (1998) conducted a study to examine the impact of family-centered early intervention services on parents and their children with a disability. Forty-seven participants attended one of 36 early intervention programs in five different states. Family race/ethnicity and socioeconomic status were not variables in this study. The Family-Focused Intervention Scale (Mahoney, Sullivan, & Dennebaum, 1990), Questionnaire on Resources and Stress (Freidrich, Greenberg, & Crnic, 1983), and other scales were utilized to measure the status of the child’s development, family functioning, and maternal stress. These various measurements were taken at the beginning and the end of the one-year study. Results showed that the family-focused quality of services was not related to children’s developmental functioning, maternal interaction styles, family functioning, or maternal stress.

**Race/Ethnicity**

According to Wayman and Lynch (1991), the components of the family system are strongly influenced by culture as it encompasses all aspects of the family structure and it influences how it defines itself and its relationships with other people, organizations, and society in general. In service delivery settings, these differences can lead to miscommunication and misunderstandings between providers and families. Communication between families and providers is paramount in a family-centered strength-based and individualized model that is built on trust, comfort, mutual respect, and collaboration. America’s continued history of institutionalized racial and ethnic prejudices may also contribute to differences in the quality of services provided to minorities (Wayman & Lynch).
Equity in the quality of services across cultural groups is the intent of Part C and of interest to researchers on early intervention (Bailey, Hebbeler, Scarborough, Spiker, & Mallik, 2004; Sexton et al., 1997; Shapiro & Derrington, 2004) and professional organizations that have provided guidelines for working with families from diverse backgrounds (Association for the Care of Children’s Health, 1987; National Association for the Education of Young Children, 1996).

Studies indicate that the efficacy of early intervention services may be diminished if family and cultural variables are not incorporated into planning and delivering services (Hanson, Lynch, & Wayman, 1990). Several recent studies on school-aged special education demonstrate a negative bias toward minority families (Artiles, 2003; Correa & McHatton, 2005; Harry & Klingner, 2006; Kalyanpur, Harry, & Skrtic, 2000; Knotek, 2003; Zionts et al., 2003).

**Cultural Studies at Family and Systems Levels**

Researchers on early intervention provide numerous descriptive studies examining family-level cross-cultural differences for families that have an infant, toddler, or preschooler at risk for or with a disability. There have also been descriptive studies of systems level issues related to practitioners’ multicultural practices and child find outreach/access.

Research studies have examined cultural differences as a source of developmental vulnerabilities and resources (Garcia Coll & Magnuson, 2000), differences in families’ coping and empowerment (Hanline & Daley, 1992; Harry, 2002; Turnbull, & Turnbull, 2001), and information and support needs (Bailey et al., 1999; Darling & Gallagher, 2004; Harry, 2002; Harry, Rueda, & Kalyanpur, 1999; Sontag & Schacht, 1994). There
are also studies that demonstrate a need to enhance multicultural practices through stronger administrative policies and supports (Hanson, Lynch, & Wayman, 2004; Sexton et al., 1997), and a recent study on equity of access (Shapiro & Derrington, 2004). However, there are only two studies that specifically address race/ethnicity equity discrepancies, as discussed hereinafter.

**Race/Ethnicity Equity Discrepancies in Early Intervention Services**

Only two quantitative studies have specifically addressed equity in quality of early intervention services across race/ethnic groups. The first, the National Early Intervention Longitudinal Study (NEILS) (Bailey & Scarborough, 2003) includes a nationally representative cohort of families who participate in Part C early intervention programs ($N = 3,338$). The NEILS study is of interest to the present study as it was designed to determine initial experiences of families related to determining eligibility, interactions with medical professionals, effort required to obtain services, participation in planning for services, and interactions with professionals. Data were collected primarily through interviews conducted in either English or Spanish based on family language preference. Family race/ethnicity was distributed in the following manner: White, non-Hispanic (53%); Black, non-Hispanic (21%); Hispanic (16%); Asian/Pacific Islander (4%); and mixed race or other (5%). Their findings demonstrate a consistent pattern of lower quality services for minority families during the initial early intervention process.

The NEILS study also provides examples of experiences of minority families that were less positive. The percentage of families that reported that considerable effort was required to find out about early intervention services were as follows: White (8%), Black (13%), and Hispanic (13%). The percentage of families that reported that considerable
effort was required to get services started: White (5%), African American (14%), Hispanic (13%), and Asian or Pacific Islander (12%). The percentage of families that reported that they were aware of the IFSP: White (89%), African American (77%), Hispanic (63%), and Asian or Pacific Islander (80%). The percentage of families that reported they wanted more involvement in decision-making: White (13%), African American (37%), Hispanic (29%), Asian or Pacific Islander (29%), and mixed or other (24%). The percentage of families who strongly agreed or agreed that professionals respect their family values and background: White (64%), African American (56%), Hispanic (55%), and Asian or Pacific Islander (66%). It was observed that families selecting Spanish as the preferential language for interview appeared to have less good feelings about “special needs” professionals (39%) than the English speakers (65%).

The NEILS (2003) study findings are significant for several reasons. First, in this nationally representative cohort, families from minority backgrounds were appropriately represented unlike many other early intervention studies which were majority based. Second, previous early intervention satisfaction studies showed families to be generally satisfied with their experiences. Third, collectively, the NEILS data also suggested a positive and supportive entry into the Part C programs. However, examination of race/ethnic group differences clearly indicated race/ethnic disparities at many points in the initial early intervention process.

Sontag and Schacht (1994) examined ethnic differences in parent participation across race/ethnic groups of families participating in early intervention programs. A survey instrument was administered face-to-face with 536 families. The race/ethnic sample included 75% White, 2% Black, 2% American Indian, 3% Asian and other
minorities. Statistically significant differences across race/ethnic groups were found in four areas with some of the minority groups reporting less involvement in decision-making about their child’s program, less likely to feel that they have been told what could be done for their child, a greater need for one person to coordinate their child’s services, and a greater need for family-friendly language.

**Family Socioeconomic Status**

According to the National Center for Children in Poverty (as cited in Douglas, 2007), an estimated 43% of the 12 million children under the age of 3 in the United States live in low-income families, defined as 200% above the Federal Poverty Level. Twenty-one percent of Americans live at or below the Federal Poverty Level. Of this population, Black and Hispanic/Latino families are disproportionately higher than their White and Asian counterparts: Black (66%), Hispanic/Latino (63%), White (30%), and Asian (26%).

This socioeconomic status factor is particularly relevant for early intervention as poverty is increasingly associated with factors that put children at risk for a developmental delay or disability (Aber, Jones, & Cohen, 2000; Brooks-Gunn, Klebanov, & Liaw, 1995; Fujiura & Yamaki, 2000; Halpern, 2000). In the early intervention literature, the family’s socioeconomic status has been related to service provision discrepancies (Arcia, Keyes, Gallagher, & Herrick, 1993; Ginsberg, 1992; Shapiro & Derrington, 2004), increased family-related needs (Bailey, Blasco, & Simeonsson, 1992), sense of control over services (McWilliam, Tocci, Sideris, & Harbin, 1998), and underutilization of services (Arcia et al., 1993). Other studies, including studies in special education, have provided evidence of a negative bias or prejudice toward families who
live in poverty, particularly, African American families (Harry & Klingner, 2006; Harry et al., 2005).

The NEILS longitudinal study, described in detail earlier, also found equity disparities by a family’s socioeconomic status as it relates to their beginning experiences with early intervention. The variability was greatest between the lowest income group and the highest income groups as described hereinafter. The percentage of families that reported that great effort was required to find out about early intervention services: less than $15,000 (13 %), over $75,000 (9%). The percentage of families that reported that great effort was required to get services started: less than $15,000 (14 %), over $75,000 (5%). The percentage of families that reported that they were aware of the IFSP: less than $15,000 (71 %), over $75,000 (94%). For families interviewed in Spanish, only 35% were aware of the IFSP. The percentage of families that reported they wanted more involvement in decision-making: less than $15,000 (34 %), over $75,000 (6%). Families with more income were more likely to see professionals as respecting their backgrounds, no percentages were provided in the report. These findings demonstrate a consistent pattern of lesser quality of services for low-income families across many aspects of the initial early intervention process.

**Summary**

In summary, researchers and policymakers in the field of early intervention advocate a family-centered approach in providing services to infants and toddlers who are at risk or have a disability. The move toward family-centered services is evidenced in the research literature, in the legislated family-focused components of IDEA, Part C, and in OSEP’s recent adoption of a family outcome indicator. Research studies have shown
equivocal results regarding the impact of family-centered services on family outcomes; relatively few studies have examined the effect of race/ethnicity and socioeconomic status on family outcomes. Only two studies have specifically examined the question of disparities in quality of services across race/ethnic and socioeconomic groups. At the same time, multicultural perspectives suggest that a family’s cultural background may play a role both in the quality of services it receives and in the benefits a family derives from various social services. Additionally, there is growing evidence that children living in poverty are at much greater risk for having a disability than children coming from families with a higher socioeconomic status. Thus, family socioeconomic status and race/ethnicity are variables that warrant attention in any study addressing experiences of families in early intervention programs.
CHAPTER III

METHOD

Participants

The study participants were families who had a child with a developmental delay or disability participating in a northeastern state’s Part C Early Intervention Program. The participants were respondents to a survey sent to them by the state’s Early Intervention Program. Data were obtained from this particular northeastern state because there is evidence that the state holds a commitment to providing quality services as evidenced in their OSEP, State Performance Plan. This northeastern state was one of seven from 60 states and territories whose State Performance Plan had 100% compliance in all 14 Part C quality indicators in 2007 (Office of Special Education Programs, 2007).

The study sample was comprised of two cohorts of survey respondents. The first cohort consisted of families that had responded to the survey in Fiscal Year (FY) 2006; the second cohort responded to the survey in FY 2007. In FY 2006 and FY 2007, the survey was distributed to all families who were in the early intervention program for at least 6 months. A 6-month minimum program participation for both cohorts ensured that families had enough time in the program to provide meaningful responses. In FY 2006, the early intervention program also distributed the survey to families who had exited the program within the previous 6 months.

The data set for FY 2006 contained 712 records, yielding a 27% response rate. The data set for FY 2007 contained 886 records, yielding a 41% response rate. The response rate in 2007 was substantially higher than in 2006 for two primary reasons:
(a) FY 2007 surveys were not distributed to families who had already exited the program, as this group had a very low response rate in FY 2006; and (b) there was a follow-up mailing in summer to all families who had not responded to the survey.

The distribution of the FY 2006 and FY 2007 cohort by race/ethnicity is provided in Table 1. The race/ethnicity categories are those used by federal programs in order to comply with the data collection standards established by the Office of Management and Budget in 1977 (National Center for Health Statistics, 2007). Visual inspection of the data suggested that there were no meaningful differences in the distribution of race/ethnicity in the FY 2006 and FY 2007 cohorts.

Table 1

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>FY 2006</th>
<th>%</th>
<th>FY 2007</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>553</td>
<td>77.7</td>
<td>638</td>
<td>72.0</td>
</tr>
<tr>
<td>Black or African American</td>
<td>41</td>
<td>5.8</td>
<td>69</td>
<td>7.8</td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
<td>0.3</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Asian, Pacific Islander</td>
<td>21</td>
<td>2.9</td>
<td>23</td>
<td>2.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>86</td>
<td>12.1</td>
<td>135</td>
<td>15.2</td>
</tr>
<tr>
<td>Unknown – not Included in study</td>
<td>9</td>
<td>1.3</td>
<td>21</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>712</td>
<td>100%</td>
<td>886</td>
<td>100%</td>
</tr>
</tbody>
</table>

Type of insurance for each family was obtained as a proxy for socioeconomic status. Table 2 displays the distribution of insurance type for the FY 2006 and FY 2007
cohorts. Visual inspection of the data suggested that there were no meaningful
differences in the distribution of insurance type in the FY 2006 and FY 2007 cohorts.

Table 2

<table>
<thead>
<tr>
<th>Type of insurance</th>
<th>FY 2006</th>
<th></th>
<th>FY 2007</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid</td>
<td>178</td>
<td>25.0%</td>
<td>254</td>
<td>28.7%</td>
</tr>
<tr>
<td>Commercial</td>
<td>534</td>
<td>75.0%</td>
<td>632</td>
<td>71.3%</td>
</tr>
<tr>
<td>Total</td>
<td>712</td>
<td>100%</td>
<td>886</td>
<td>100%</td>
</tr>
</tbody>
</table>

The total sample included 1598 records. Sixty-four percent of the children of the
respondents were male. The family characteristics were similar in both cohorts. The
sample had a slight over representation of White families, a slight under representation of
Black and Hispanic families as shown in Appendix A.

Procedures

Procedure for Obtaining Data

The University of Miami’s Institutional Review Board granted exempt status
approval to conduct this study. Approval to conduct the study was also obtained from the
appropriate department of the northeastern state that provides the required data.

Data for the study were collected by means of self-administered surveys
distributed by the state’s Part C Early Intervention Program. Permission to use this state’s
FY 2006 extant survey data was requested in June 2007 and was granted by the Early
Intervention Program Part C State Director. Permission to use the state’s FY 2007 data
was obtained in July 2007. The need for two cohorts was determined after examining the
demographic data from FY 2006, available on this state’s Website in their State Performance Plan, which revealed a limited number of minority family participants.

**Data Collection Procedures Implemented by the State**

The procedures used to collect the survey data were similar for FY 2006 and FY 2007. The description and variation in procedures follows. The early intervention program utilized three survey distribution methods. The survey in two languages, English and Spanish, was hand-delivered in March 2006 and April 2007 to all families where children were receiving services for a period of at least 6 months. For the FY 2006 cohort, the two-language survey was also mailed to all families of children who had exited the Part C early intervention program within the previous 6 months. A letter, in both English and Spanish, from the State Director of the Early Intervention Program accompanied the surveys to all the families. The letter explained that the survey data would be used for accountability purposes only and that all of the responses would be kept confidential. The letter provided the Website address for online survey submission. The name and contact information for this state’s parent advocacy center was provided in the event families had questions or needed help in completing the survey. The letter clarified that there would be no charge for this assistance.

**Instruments**

The family survey administered included two scales: the Family-Centered Services Scale (FCSS) and the Impact on Family Scale (IFS). The scales were developed in five phases over a 2-year period by the National Center for Special Education Accountability Monitoring (NCSEAM). The five phases included the following: (a) review of the empirical research, (b) review of existing instruments, (c) focus group
interviews with constituents, (d) consultation with professional experts, and (e) a national item validation study in partnership with eight Part C lead agencies and numerous parent organizations. Both scales were calibrated using the Rating Scale Model (Wright & Masters, 1982). A full description of the development of the rating scales is available on the NCSEAM Website.

The survey form used for the national item validation study consisted of approximately 160 items addressing multiple aspects of family participation in early intervention, including family perceptions concerning the quality of services and the impact of early intervention on the family. The same set of response choices was used for all items. This was a 6-point Likert scale ranging from very strongly disagree to very strongly agree. The distribution of race/ethnicity and age of child in the sample of 1,760 Part C respondents in the pilot study closely matched the distribution of these characteristics in the national population of families served under Part C of IDEA. Analyses addressing the measurement properties of each scale are available at NCSEAM Website.

**Family Centered Services Scale (FCSS)**

The FCSS measures the overall quality of Part C early intervention services as reflected in family-centered care practices. To complete this scale, the instructions directed responding families to think about their experience with early intervention services over the past year. The scale comprises of family-centered practices in the specific context of IDEA, Part C. To provide some sample scale items: “I was given choices concerning my family’s services and supports.” “I have felt part of the team when meeting to discuss my child.” “I was given information about the rights of parents
regarding Early Intervention services.” “Someone helped me get in touch with other parents for help and support.” “Early intervention service providers are easy for me to talk to about my child and my family.” “Early intervention services providers are good at working with my family.” “Early Intervention services providers are dependable.” “My service coordinator is knowledgeable and professional.” “Written information I receive is written in an understandable way” (FCSS, 2007).

Estimated through the Rasch model, NCSEAM reported person reliability to be .94 for 1755 measured persons (extreme and non-extreme) responding to 170 items. Item reliability was estimated at .99. The NCSEAM pilot study projected that 25 appropriately selected items were sufficient to ensure scale reliabilities of .9 or above. In this study, the northeastern state elected to use a set of 23 appropriate items on their FCSS.

**Impact on Family Scale (IFS)**

The IFS measures family outcomes resulting from family participation in the Part C Early Intervention Program. The scale includes items that reflect the impact of early intervention services on the family. The stem for all items is as follows: *Over the past year, Early Intervention Services have helped me and/or my family* . . . Sample items are: “get the services that my child and family needs,” “get the supports my family needs,” “communicate more effectively with the people who work with my child and family,” “improve my family’s quality of life,” “know about my child’s and family’s rights concerning Early Intervention Services,” “understand how the Early Intervention system works,” and “do things with and for my child that is good for my child’s development.”
Person reliability, estimated through the Rasch model, was reported by NCSEAM to be .97 for 2,628 measured (extreme and non-extreme) persons responding to 28 items. (The larger $n$ for this scale is due to the fact that in the NCSEAM pilot study, the IFS was administered both to families of children ages birth to age 3 participating in early intervention and families of children ages 3-21 receiving special education services.) Item reliability was estimated at .99. The NCSEAM pilot study projected that 22 appropriately selected items were sufficient to ensure scale reliabilities of .9 or above. In this study, the state elected to use 21 items to represent the IFS scale.

**Insurance Type**

In this northeastern state, family insurance coverage is coded into either Medicaid or commercial insurance. The state also uses adjusted gross income levels to document a family’s income for the purpose of determining the family’s co-payments. The lowest income category is less than $45,000; the highest category goes up to $160,000.

**Race/Ethnicity**

The race and ethnicity categories in the study are those used by the state’s early intervention program. The categories are White, Black or African American, American Indian, Asian or Pacific Islander, and Hispanic/Latino.
CHAPTER IV

RESULTS

Preliminary Analyses

The rating scale item responses for each cohort were first analyzed through the Winsteps software program (Linacre, 2007, Version 3.64.2) to derive item and person measures on the FCSS and IFS. Item and person fit statistics, use of response categories, and other output categories were examined to evaluate the extent to which the data conformed to the measurement model and replicated the NCSEAM findings.

Family-Centered Services Scale (FCSS)

Control File Settings

In this study, the control file settings from the NCSEAM pilot study were adopted and are provided in Appendix B. The number of scale units per logit was set at 58.105. The mean item measure was set at 572.10. The category transitions were set such that the scale was shifted so that a match of measure and calibration equals a .95 likelihood of agreement. This means, for example, that for person with a measure of 600, there is 95% likelihood of an agree response in any category of agreement on that item. A more detailed explanation of the use of these parameters is found at the following URL (http://www.monitoringcenter.lsuhsce.edu/parent_family_involvement.htm).

Scale Optimization

NCSEAM’s analysis of pilot data provided support for optimizing the 6-point rating scale (Linacre, 2000, 2004) to three disagree categories combined together, the agree category left intact, and the two extreme agree categories were collapsed into the agree category. The suggested 3-category optimization was applied in these analyses.
**Anchoring Items**

The measurement analysis was conducted in two ways. First, the analysis was conducted anchoring each of the 23 items to its respective item calibration estimated from the NCSEAM sample data. Then, the analysis was conducted without anchoring the item calibrations. The Pearson product-moment correlations of the NCSEAM-derived item calibrations and calibrations estimated based on the current sample were $r = .953$, $p < .001$ for FY 2006 and $r = .965$, $p < .001$ for FY 2007. Given these extremely high positive correlations, indicating consistent rank ordering of the two sets of item calibrations, the NCSEAM-derived calibrations were retained and used in all further analyses in this study (see Appendix C).

**Measurement Characteristics of the FCSS**

Overall, person measurement reliability was 0.87 and item reliability was 1.0. The Item Infit mean squared statistics had values between .63 and 1.96, indicating that the items were generally behaving consistently. Values less than .5 or greater than 2.0 suggest a poor fit (Bond & Fox 2006). The Person Misfit statistics indicated that there were 50 persons whose responses to the items were not a good fit to the model; for example, they provided a disagree response to relatively more agreeable items and agree responses to relatively more disagreeable items. However, the fact that these individuals’ data do not fit the model does not compromise the measurement properties of the scale (Bond & Fox, 2007).

A Principal Components Analysis of the residuals was conducted on the FCSS measures to determine the degree to which the items measure a single dimension. Results of this analysis indicated that 76.4% of the variance was explained by the measures.
According to Fischer’s (2007) quality criteria for instruments, this falls within the very good quality range (70-80%). The 23.6% of unexplained variance was partitioned into five contrasts, each of which accounted for a very small portion of the variance. The first contrast explained 3.5% of the variance, the second explained 2.0%, the third explained 1.5%, and the fourth and fifth each explained 1.4% of the variance. These findings support the assertion that the scale is essentially unidimensional (Schilling, 2007).

**Impact on Family Scale (IFS)**

**Control File Settings**

In this study, the control file settings from the NCSEAM pilot study were adopted and provided in Appendix B. For the IFS scale, the number of scale units per logit was set at 58.91. The mean item measure was set at 568.3. The category transitions were set such that a match of measure and calibration equals a .95 likelihood of an agree response in any category of agreement on that item.

**Scale Optimization**

NCSEAM’s analysis of pilot data provided support for optimizing the 6-point rating scale (Linacre, 2000, 2004) to five categories, with the very strongly disagree and strongly disagree categories combined together and the disagree category and three agree categories left intact. The suggested 5-category optimization was applied in these analyses.

**Measurement Characteristics of the IFS**

Overall, person measurement reliability was 0.94 and item reliability was 1.0. The Item Infit mean squared statistics had values between 0.77 and 2.11, which indicate the items were primarily behaving consistently. The Person Misfit statistics indicated that
there were 46 persons whose responses to the items were not a good fit to the model. As explained earlier, the presence of misfitting persons does not compromise the model. There was one misfitting item, “Over the past year, early intervention services have helped me and/or my family participates in typical activities for children and families in my community.”

A Principal Components Analysis of the residuals was conducted on the IFS measures to determine the degree to which the items were measuring a single dimension. This analysis showed that 82.1% of the variance was explained by the measures. The unexplained variance (17.9%) was accounted for by five contrasts, each of which explained a very small percent of the residual variance. The first contrast explained 3.0% of the variance, the second explained 2.1%, the third explained 1.3%, the fourth explained 1.2%, and the fifth contrast explained 1.1%. As discussed earlier, these findings suggest that the instrument is essentially unidimensional (Schilling, 2007).

**Anchoring Items**

The measurement analysis was conducted in two ways. First, the analysis was conducted anchoring each of the 21 items to its respective item calibration derived from analysis of the large NCSEAM sample. Second, the same analysis was conducted without anchoring the 21 items to their previously derived calibrations. The item and person measures were calculated. The Pearson product-moment correlations of the NCSEAM-derived item calibrations and calibrations estimated based on the current sample yielded an almost perfect correlation, $r = .975$, $p < .001$ for FY 2006 and $r = .987$, $p < .001$ for FY 2007. Given these high positive correlations, indicating consistent rank ordering of
the two sets of item calibrations, the NCSEAM-derived calibrations were retained and used in this study (see Appendix C for item calibrations).

In sum, person measures for respondents to the FCSS and IFS in this data set were estimated using a 5-category response structure and item calibrations anchored to the values derived from NCSEAM’s pilot data analyses. The person measures estimated through Winsteps were exported to SPSS Version 15.0 for data analysis.

**Data Cleaning**

Several steps were taken to attain the appropriate final data set. These steps were related to (a) duplicate records, (b) incomplete records, (c) appropriateness of merging data from the two cohorts, (d) appropriateness of the use of two categories (majority vs. minority) for the race/ethnicity variable, and (e) extreme scores.

**Duplicate Records**

The data set was first examined to identify any duplicate records. There were nine child identification numbers that had more than one record; the duplicated cases were deleted.  

**Records with Incomplete Data**

Next, the data were examined to ensure that all cases had valid data for each of the variables of interest (FCSS measure, IFS measure, race/ethnicity, insurance type). Cases that did not have a valid value for each variable in the analysis \( n = 50 \) were eliminated from the working data file. Examination of the deleted cases revealed that 22

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1The deleted duplicate records were as follows: (a) a Hispanic family respondent with Medicaid insurance had 4 surveys and 3 surveys were deleted. Two of the deleted surveys had no item responses and the two remaining surveys were identical. (b) One White family respondent with Medicaid insurance had 4 survey submissions with two different set of responses. The first of the 4 surveys was retained. (c) One Hispanic family with commercial insurance had 4 survey submissions and 3 surveys were deleted. Two of the surveys had no item responses and the two completed surveys were identical.
respondents had a missing IFS measure. The race/ethnicity of these 22 respondents were White = 14, Black = 2, Hispanic = 3, Asian = 2, and Unknown = 1. Sixteen of these respondents had commercial insurance and 6 had Medicaid insurance. The deleted cases also included 28 respondents with missing race/ethnicity values. The absence of no missing insurance values may be attributed to the importance of this information for billing purposes.

Comparability of the FY 2006 and FY 2007 Cohorts

Descriptives on the two cohorts were examined to determine whether merging records from the two samples was appropriate. As indicated in Table 1, the distribution of race/ethnicity was very similar in FY 06 and FY 07. As indicated in Table 2, the distribution of insurance type was also very similar in FY 06 and FY 07. As indicated in Table 3, the means and standard deviations on the FCSS and IFS were also very similar for the two cohorts.

Consideration was also given to the possibility that some historical event, occurring between the FY 06 and FY 07 data collections, could have made a meaningful difference in the composition of the sample or in family responses to the rating scales. According to the State Director of the Part C Early Intervention Program, there was no known event such as a statewide training initiative on cultural competency, a significant decrease in program funds, or any other system-wide policy or funding change that would warrant separate consideration of the two samples (personal communication, January, 2008). Consequently, records from the FY 06 and FY 07 cohorts were combined for purposes of all subsequent analyses.
**Appropriateness of Dichotomizing the Race/Ethnicity Variable**

To determine the appropriateness of using two categories (majority vs. minority) for the analyses by race/ethnicity, an analysis of variance was conducted to determine whether there were differences in FCSS measures across subcategories of the minority category. The categories of the independent variable in this analysis were White, Black, Hispanic, and Asian. The American Indian group was not included in this analysis owing to its extremely small size ($n = 2$). Table 3 displays the means and standard deviations for each of the three minority groups on the FCSS measure. The ANOVA reveals that differences on the FCSS measure were statistically significant, $F(2, 350) = 8.502, p < .001$. Consequently, the decision was made to conduct the primary analyses using four racial/ethnic groups, namely, White, Black, Hispanic, and Asian.

**Table 3**

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Mean</th>
<th>$n$</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>736.9073</td>
<td>108</td>
<td>128.12078</td>
</tr>
<tr>
<td>Hispanic</td>
<td>754.9545</td>
<td>212</td>
<td>135.38318</td>
</tr>
<tr>
<td>Asian</td>
<td>672.2509</td>
<td>42</td>
<td>155.62205</td>
</tr>
<tr>
<td>Total</td>
<td>739.9748</td>
<td>362</td>
<td>137.82945</td>
</tr>
</tbody>
</table>

**Extreme Scores**

According to Wright (1998), extreme scores in the Rasch model are indefinitely located measures. Extreme scores occur when responses to all rated items are either on the negative or positive extreme end of the response scale. In the case of the FCSS or IFS, the score of any respondent who rates each and every item as a 1, or as a 6, would be
extreme. Figure 1 displays the distribution of measures on the FCSS. A total of 349 respondents (23% of the sample) had extreme measures on the FCSS. Figure 2 displays the distribution of measures on the IFS. A total of 312 respondents (20% of the sample) had extreme measures on the IFS.

As seen in the following Figures 1 and 2, the distributions display significant deviation from normality, with an unexpectedly high number of persons at the extreme positive end of each scale, and a smaller but still unexpectedly high number of cases at the extreme negative end of the scale. The deviation from normality not only compromises the planned data analyses but suggests that a significant portion of respondents did not engage with the items in such a way as to produce differentiated responses, even to items of very different levels of agreeability. Therefore, the decision was made to eliminate cases with extreme measures on one or both of the scales (\( n = 430 \), representing 27% of the respondents).

The characteristics of respondents with extreme and non-extreme measures were examined in order to determine whether the distribution of race/ethnicity and insurance type differed across the extreme and non-extreme groups. The distribution of race/ethnicity across respondents with and without extreme measure on the FCSS is displayed in Table 4; analogous distributions for the IFS are displayed in Table 5.

Chi-square tests of the four distributions revealed no statistically significant differences in the distribution of race/ethnicity across extreme and non-extreme measures for the FCSS and IFS (FCSS, \( n = 1536 \), \( \chi^2(3) = 6.37, p = .095 \) and IFS, \( n = 1536 \), \( \chi^2(3) = 5.17, p = .160 \)).
Figure 1. Distribution of Measures on the Family Centered Services Scale (FCSS).

Figure 2. Distribution of Measures on the Impact on Family Scale (IFS).
Table 4

Distribution of Race/Ethnicity for Persons with Non-Extreme and Extreme Measures on the Family Centered Services Scale (FCSS)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Measures</th>
<th>Count</th>
<th>Asian/Pacific Islander</th>
<th>Black/African</th>
<th>Hispanic/Latin</th>
<th>White/Caucasian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-extreme measures</td>
<td>Count</td>
<td>34</td>
<td>86</td>
<td>150</td>
<td>918</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>32.5</td>
<td>83.5</td>
<td>164.0</td>
<td>908.0</td>
<td>1188.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within FCSS</td>
<td>2.9%</td>
<td>7.2%</td>
<td>12.6%</td>
<td>77.3%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Extreme measures</td>
<td>Count</td>
<td>8</td>
<td>22</td>
<td>62</td>
<td>256</td>
<td>348</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected count</td>
<td>9.5</td>
<td>24.5</td>
<td>48.0</td>
<td>266.0</td>
<td>348.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within FCSS extreme</td>
<td>2.3%</td>
<td>6.3%</td>
<td>17.8%</td>
<td>73.6%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Table 5

Distribution of Race/Ethnicity for Persons with Non-Extreme and Extreme Measures on the Impact on Family Scale (IFS)

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Measures</th>
<th>Count</th>
<th>Asian/Pacific Islander</th>
<th>Black/African</th>
<th>Hispanic/Latin</th>
<th>White/Caucasian</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-extreme measures</td>
<td>Count</td>
<td>34</td>
<td>89</td>
<td>157</td>
<td>945</td>
<td>1225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>33.5</td>
<td>86.1</td>
<td>169.1</td>
<td>936.3</td>
<td>1225.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within IFS</td>
<td>2.8%</td>
<td>7.3%</td>
<td>12.8%</td>
<td>77.1%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Extreme measures</td>
<td>Count</td>
<td>8</td>
<td>19</td>
<td>55</td>
<td>229</td>
<td>311</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected count</td>
<td>8.5</td>
<td>21.9</td>
<td>42.9</td>
<td>237.7</td>
<td>311.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% within IFS extreme</td>
<td>2.6%</td>
<td>6.1%</td>
<td>17.7%</td>
<td>73.6%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>
The distribution of insurance types across respondents with and without extreme measures on the FCSS is displayed in Table 6 and on the IFS in Table 7. The analyses revealed a higher than expected percentage of Medicaid families with extreme measures on the FCSS and the IFS.

Table 6

*Distribution of Insurance Types for Persons with Non-Extreme and Extreme Measures on the Family Centered Services Scale (FCSS)*

<table>
<thead>
<tr>
<th>Measures</th>
<th>n</th>
<th>Medicaid insurance</th>
<th>Commercial insurance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-extreme</td>
<td>Count</td>
<td>288</td>
<td>900</td>
<td>1188</td>
</tr>
<tr>
<td>measures</td>
<td>Expected count</td>
<td>315.6</td>
<td>872.4</td>
<td>1188.0</td>
</tr>
<tr>
<td></td>
<td>% within FCSS</td>
<td>24.2%</td>
<td>75.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Extreme</td>
<td>Count</td>
<td>120</td>
<td>228</td>
<td>348</td>
</tr>
<tr>
<td>measures</td>
<td>Expected count</td>
<td>92.4</td>
<td>255.6</td>
<td>348.0</td>
</tr>
<tr>
<td></td>
<td>% within FCSS</td>
<td>34.5%</td>
<td>65.5%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 7

*Distribution of Insurance Types for Persons with Non-Extreme and Extreme Measures on the Impact on Family Scale (IFS)*

<table>
<thead>
<tr>
<th>Measures</th>
<th>n</th>
<th>Medicaid insurance</th>
<th>Commercial insurance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-extreme</td>
<td>Count</td>
<td>312</td>
<td>913</td>
<td>1225</td>
</tr>
<tr>
<td>measures</td>
<td>Expected count</td>
<td>325.4</td>
<td>899.6</td>
<td>1225.0</td>
</tr>
<tr>
<td></td>
<td>% within IFS</td>
<td>25.5%</td>
<td>74.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Extreme</td>
<td>Count</td>
<td>96</td>
<td>215</td>
<td>311</td>
</tr>
<tr>
<td>measures</td>
<td>Expected count</td>
<td>82.6</td>
<td>228.4</td>
<td>311.0</td>
</tr>
<tr>
<td></td>
<td>% within IFS</td>
<td>30.9%</td>
<td>69.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
The distribution of insurance types across extreme and non-extreme measures for the FCSS was different: \( n = 1536, \chi^2(1) = 14.47, p = .000 \). The distribution of insurance types across extreme and non-extreme measures for the IFS was not different: \( n = 1536, \chi^2(1) = 3.70, p = .054 \).

The final data set for the main analyses included 1108 family respondents. Table 8 displays the overall distribution of the sample by race/ethnicity and insurance type.

**Table 8**

**Distribution of the Sample by Race/Ethnicity and Insurance Type**

<table>
<thead>
<tr>
<th>Insurance type</th>
<th>Medicaid</th>
<th>Commercial</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( N )</td>
<td>( n )</td>
<td>( n )</td>
</tr>
<tr>
<td>White</td>
<td>125</td>
<td>730</td>
<td>855</td>
</tr>
<tr>
<td>Black</td>
<td>56</td>
<td>25</td>
<td>81</td>
</tr>
<tr>
<td>Hispanic</td>
<td>86</td>
<td>53</td>
<td>139</td>
</tr>
<tr>
<td>Asian</td>
<td>3</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>270</td>
<td>838</td>
<td>1108</td>
</tr>
</tbody>
</table>

Table 9 displays the means and standard deviations for the FCSS and IFS by race/ethnicity and insurance type. In terms of race/ethnicity, Blacks had the highest FCSS mean and Hispanics had the highest IFS mean. Asians had the lowest mean for both measures. There are data to suggest that a subgroup of the Asian families is White parents who have adopted girls from China. The child gender distribution for Asian families is 65% girls and 35% boys, which is converse to the overall gender distribution in the
sample. Relative to insurance types, Medicaid families had a higher mean on both the FCSS and IFS scales.

Table 9

Means and Standard Deviations on the Family Centered Services Scale (FCSS) and Impact on Family Scale (IFS) by Race/Ethnicity and Insurance Type

<table>
<thead>
<tr>
<th>Group</th>
<th>FCSS</th>
<th>IFS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race/ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>666.86</td>
<td>652.66</td>
</tr>
<tr>
<td>Black</td>
<td>685.86</td>
<td>676.46</td>
</tr>
<tr>
<td>Hispanic</td>
<td>682.97</td>
<td>678.30</td>
</tr>
<tr>
<td>Asian</td>
<td>654.78</td>
<td>624.62</td>
</tr>
<tr>
<td><strong>Insurance type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicaid</td>
<td>682.14</td>
<td>674.97</td>
</tr>
<tr>
<td>Commercial</td>
<td>665.97</td>
<td>650.92</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>669.91</td>
<td>656.78</td>
</tr>
</tbody>
</table>

Primary Analyses

**Research Question 1**

What is the strength of the association between the quality of early intervention services and the impact of these services on the family? The Pearson product-moment correlation of the FCSS and IFS person measures was $r = .76, p < 0.01$.

**Research Question 2**

Is the quality of early intervention services related to family ethnicity and socioeconomic status? First, a test for homogeneity of variance was conducted to determine if the variance in FCSS measures was equal across racial/ethnic groups and
groups defined by insurance type. Results of the Brown-Forsythe test for racial/ethnic groups, $F(3, 182.09) = 2.19, p = .09$, indicated that the within-group variances were not reliably different from one another. In contrast, the Brown-Forsythe Test for insurance types was statistically significant, $F(1, 430.36) = 6.25, p = .01$, indicating a statistically significant difference in the within-group variances for the Medicaid vs. commercial insurance groups. The $p$ value for the insurance groups is slightly below the desired .05 level; however, as displayed in Table 8, the groups’ standard deviations are similar and inspection of the distribution of the measures revealed a normal distribution, indicating that the standards for homogeneity of variance have been met (Keppel & Wickens, 2004).

To examine the effects of race/ethnicity and insurance type on quality of services, a 4 (race/ethnicity) x 2 (insurance type) ANOVA was conducted. Figure 3 provides a visual display of the group differences tested in this analysis.

Results of the analysis revealed that there were no statistically significant main effects of race/ethnicity, $F(3, 1100) = 1.46, p = .224, \eta^2 = .004$, or insurance type, $F(1, 1100) = .03, p = .863, \eta^2 = .000$, nor was there a statistically significant interaction effect, $F(3, 1100) = 1.72, p = .162$. The very small amount of variance accounted for by the independent variables, Adjusted $R^2 = .007$, indicates that none of the variability in the quality of services can be attributed to race/ethnicity, insurance type, nor their interaction.

Mean difference effect sizes were calculated using Cohen’s $d$ to assess the magnitude of between-group differences on the FCSS. The effect size difference between the two insurance types was $d \approx .08$. Effect sizes for the difference between the White group and each of the minority racial/ethnic groups were: White/Black, $d \approx .21$;
White/Hispanic, $d \approx .18$; and White/Asian, $d \approx .14$. All the effect sizes are small based on standards for interpreting effect sizes (Cohen, 1988).

Figure 3. Family Centered Services Scale (FCSS) means by race/ethnicity and insurance type.
Research Question 3

Are family race/ethnicity and socioeconomic status associated with the impact of early intervention services on the family after adjusting for the differences in the quality of service that families have been provided? To examine the effects of race/ethnicity and insurance type on the impact of early intervention services after adjusting for the differences in the quality of services, a 4 (race/ethnicity) x 2 (insurance type) ANCOVA was conducted using the measures on the FCSS as the covariate.

As expected, the ANCOVA results revealed that there were no statistically significant main effects of race/ethnicity $F(3, 1099) = .489, p = .690, \eta^2 = .001$ or insurance type, $F(1, 1099) = .000, p = .997, \eta^2 = .000$, nor was there a statistically significant interaction effect, $F(3, 1099) = 1.41, p = .240$. As expected, given the positive correlation between quality and family outcomes, quality had a significant effect on family outcomes $F(1, 1099) = 1493.197, p = .000, \eta^2 = .576$. The adjusted $R^2 = .578$. 
CHAPTER V
DISCUSSION

The purpose of this study was to evaluate the association between quality of early intervention services and family outcomes for families participating in a state Part C Early Intervention Program, as well as to investigate the relationship between two family characteristics, race/ethnicity and socioeconomic status, and the quality of early intervention services. Results of the study showed that quality of services bore a strong, positive relationship to family outcomes. The study also revealed that in this sample, neither family race/ethnicity nor socioeconomic status (captured by insurance type) was associated with quality of services.

The research questions in this study were addressed using data from 1,108 responses to a survey distributed by one state’s early intervention program to families receiving services. The survey included the FCSS and the IFS rating scales. These scales were designed to measure family perceptions of the quality of early intervention services and the impact of the services on the families.

Association between Quality of Early Intervention Services and Family Outcomes

The study found a strong association ($r = .76, p < 0.01$) between family perceptions of the quality of services provided to their family and their perceptions of the outcomes their family experienced. The results of the study support previous research findings that have demonstrated family-centered practices as a predictor of positive family outcomes. The comparability of findings is supported by the similarity of samples and instruments used.
The sample of families who provided responses to the state survey is similar to samples in other studies in that the family respondents were participants in Part C early intervention programs. The rating scales used by the state to measure quality of services and family outcomes are conceptually slightly different than instruments used in other studies. However, it appears that regardless of the specific instruments used to measure family-centered services and family outcomes, there exists a strong association between these two variables.

The association between quality of services and family outcomes found in this study \((r = .76\) corresponds to an \(R^2 = .58\)) is higher in magnitude compared to other studies investigating the relationship between family-centered services and family outcomes; for example, Dempsey (2004) \(R^2 = .36\). However, the higher magnitude may be due in part to the effects of method variance. Marsh and Hocevar (1988) describe using the same source for measuring relationships between variables as a source of method variance. Tepper and Tepper (1993) advise caution in interpreting findings that “examine linkages between perceptual variables measured from a single source” (p. 293). Kerlinger (1986) suggests that method variance may be more pronounced when the items share the same response format. Homogeneous methods, that is, paper-and-pencil measures may also contribute to method variance (Kerlinger). The precise degree to which the effects of method variance impact the correlation between quality and family outcomes cannot be determined.

**Effects of Family Race/Ethnicity and Socioeconomic Status on Quality of Early Intervention Services**

As described in the results section, none of the variability in the quality of services was explained by the main effect of race/ethnicity, the main effect of insurance
types or the interaction effects (Adjusted $R^2 = .007$). Also, the effect size differences between the race/ethnicity groups and between the two insurance types were small, ranging from $d = .14$ to $d = .21$.

Although, as expected, there was variability in the FCSS person measures, the variability was not explained by family characteristics. These results suggest that there is parity in quality of services across race/ethnic and socioeconomic groups. In a family-centered and culturally competent program, the expected service provision outcome is for culturally and linguistically diverse families and families with low incomes to report their experiences with the early intervention program to be similar to those of families from the majority culture and from higher income groups.

The results of this study support the assertion that services in this state adhered to family-centered practices. In addition to the high state mean for the FCSS scale, this state’s publicly available policies and practices were accessed to support linkages between high quality services and these state-level policies and practices. Available information was gathered regarding policies and practices related to cultural competency to address the question of parity across race/ethnic groups. Another characteristic of this state’s policies and practices that may account for high quality and parity of service provision is service coordination. Service coordination activities are most closely associated with the theoretical underpinnings of a family empowerment service delivery model. Service coordination has been viewed as the critical pathway for families to access the services, resources, and supports identified in the family’s IFSP (Thompson et al., 1999).
With regard to cultural competency, which is posited to be a necessary condition of equitable and effective family-centered service delivery models, the state in this study integrated cultural competency into their program’s policies, in-service personnel preparation and practices in several ways. Some examples include state level participation in a train-the-trainer conference on working with families from diverse cultures and a subsequent state-wide conference on this topic for practitioners throughout the state. This content has been incorporated into their mandatory 4-day service coordination training. These efforts led to the development of program guidelines pertaining to culturally and linguistically diverse families that is under review at the cabinet level as guidelines for all early childhood programs. Informational materials in English and Spanish are available on their bilingual Website and in family workbooks and accompanying DVD that describe the early intervention process. Availability of translators and interpreters for parents who are deaf or hard of hearing is transparently posted as a provision on the Website.

In this state, the service coordinator to family ratio is exceptionally low: 1:7. In 1997 this state began to implement a blended service coordinator model in where the interventionist acts as the service coordinator. Dunst and Bruder (2006) found that a blended service coordination model results in a significantly higher frequency of contact with families than in the two other state models.

Low service coordinator to family ratio and a blended service coordination model may have contributed to families overall strong agreement with all items on the FCSS related to service coordination activities. Examples of these items include the two items that ask families to report their experiences specifically with their service coordinator:
“My service coordinator is/was available to speak with me on a regular basis” and “My service coordinator is/was knowledgeable and professional.” Several other items relate to the provision of information about community supports, parent rights and advocacy, for example, information on the rights of parents, community programs, organizations that offer support, how to advocate for one’s child and family, and who to call if a parent is not satisfied with the services.

In summary, the results of this study suggest that parity in quality of services can be achieved across different racial/ethnic as well as socioeconomic groups. Two characteristics of this state’s early intervention program may have contributed to their high quality program.

**Implications for Policy and Practice**

The present study, in line with, previous studies substantiates the positive impact of family-centered practices on family outcomes. One clear implication of these findings is that in order to achieve the desired family outcomes of early intervention services, state early intervention programs must implement family-centered practices. However, given the substantiated fact that there is a large gap between family-centered research and practice (Bruder, 2000; McBride et al., 1993; Turnball et al., 2000), the mechanisms for states to ensure family-centered practices may either not be clear or were very difficult for some states and communities to implement.

This study suggested two possible contributors of a program’s high level of family-centered services. The first was related to cultural competency and the second was related to efficacy of service coordination. Both of these have implications for policy and practice.
To begin to overcome these barriers, states should conduct a thorough examination of state level policies, personnel preparation trainings on cultural competency and associated practices. This is particularly relevant given recent statistics from the United States Census Bureau. Approximately, one in three United States residents is a minority. Hispanics are the largest minority group, comprising 15% of the population in the United States, and Hispanics and Asians comprise the two fastest growing minority groups in the United States (U.S. Census Bureau News, 2007).

Specific state guidelines should be developed and continually updated. State guidelines provide the necessary framework to ensure the implementation of culturally competent practices at all levels. Hanson et al. (1990) state that the effectiveness of programs often depends on the adoption of policies that address the importance of cultural diversity and cultural competence. In addition to state guidelines, in-service training is critical. Harry (2007) states that in order to improve collaboration between culturally and linguistically diverse families of children with disabilities and service providers “both in-service and pre-service personnel preparation programs must be revised to place cross-cultural education at the highest priority” (p. 382). Recommended aspects of cross-cultural education that are related to in-service training are personal values clarification regarding diversity and preparation and processes needed in cross-cultural situations (Harry). Specific to family involvement, McCubbin, Thompson, Thompson, McCubbin, and Kaston (1993) identify the sensitivity and competence of the professional in working with families from diverse backgrounds as a determinant of parent involvement.
Although family-centered practices incorporate the culturally competent practices, the literature suggests that adopting family-centered practices without cultural sensitivity training may not be adequate to appropriately serve families that are culturally and linguistically different from the practitioner. Given the United States growing minority population, it appears that in order for early intervention services to be measured as high quality, they must be perceived by families from diverse cultural and linguistics backgrounds as services meeting their individual family needs.

The second suggested determinant of high quality of services is the efficacy of service coordination activities. Service coordination is impacted by state policies, in-service training and funding. As such, state early intervention programs should thoroughly examine each of these to determine the relationship between their quality of services and the policies, training and funding levels for service coordination activities. The importance of a state’s thorough examination of the efficacy of their service coordination efforts lies in service coordination association with enhanced provider/family relationships (Summers et al., 2001), and improved parent and family quality of life (Dunst, Trivette, Gordon, & Starnes, 1993). As pertaining to parity in quality of early intervention services, service coordination is particularly important for families living in poverty that have a greater need for resources, support, and services across programs and agencies than families with higher incomes (Darling & Gallagher, 2004; Halpern, 2000) and who may be less prepared to advocate for their children (Bandura, 1997). For low-income families, a blended service coordination model may increase the likelihood that the broad range of needed resources and supports are
accessed. For linguistically diverse families, frequent face-to-face communication may enhance the family’s ability to effectively communicate their needs and concerns.

In summary, there are significant policy and training implications as a result of this study’s findings. In order to narrow the gap between family-centered research and practice, states are encouraged to review their policies and personnel preparation standards as they relate to working with culturally and socioeconomically diverse families and service coordination practices.

**Implications for Research**

Findings from this study result in a number of research implications for the measurement of quality of services and family outcomes, particularly in the context of accountability. The strong positive association between family-centered services and family outcomes support previous research findings (Applequist & Bailey, 2000; Dempsey & Dunst, 2004; Dempsey et al., 2001; Judge, 1997; Neal, 2007; Thompson et al., 1997; Trivette et al., 1995; Trivette et al., 1996). This study’s findings, however, may represent an end to the era of proving the effectiveness of family-centered practices. As states address their family outcome accountability indicators, there will be a likely and positive shift from what works to what makes it work, which is further discussed.

The finding that suggests there is parity in quality of services across race/ethnic and socioeconomic groups provokes interesting research questions. One of these is whether parity across racial/ethnic and socioeconomic groups exists in communities and/or states with a low mean FCSS measure. Is there a minimum level of quality associated with parity in quality of services across these groups? Future research that
addresses these questions would be informative to state early intervention programs responsible for ensuring that all families receive the same high level of services.

This study’s findings which suggest this state’s early intervention program is high quality and is meeting the needs of culturally and socioeconomically diverse families, raises the interesting question of what makes it work. One way to investigate what makes quality work is to contrast low and high performing states on key variables such as service coordination. This state’s model of blended service coordination, a low service coordinator/family ratio, and program policies and personnel preparation related to culturally diverse families were some of the factors proposed as contributors to quality. Although there is likely to be a strong link between quality and the proposed characteristics, a more complete and in-depth analyses would extend this cursory probe and more thoroughly answer the question, what makes quality work?

In terms of the research design of what makes it work, the method variance limitation in this study can inform future research. A mixed research method approach collecting observational data that examines the interactions between providers and families would provide “the reasons or the processes by which the respondents came to these views” (Harry, 2007, p. 382). Focus groups and semi-structured interviews could also yield this information.

A what makes it work research study is important to the field of early intervention and is timely for several reasons. OSEP’s recent adoption of family outcome indicators is an impetus for the field to move from a what works to a what makes it work research agenda. The family outcome indicators provided state early intervention programs with a
grounding of purpose informing states as to the expected outcomes of their early intervention programs.

In addition, what gets measured and reported to OSEP counts in the eyes of those responsible for implementing state early intervention programs. Family outcome data of states are now publicly available and there is substantial variability across states. Investigating a state’s policies and practices at various levels, for example, state, community, provider/family to understand the variability in service quality within and across states may provide much needed guidance to low-performing states. This study suggested some of the system level components that may substantially impact quality of services.

A what makes it work research program is timely for other reasons. Fourteen states have adopted the NCSEAM IFS scale to address their family outcome indicators and many of those states also measure quality of services using the FCSS scale. Access to comparable data across states is now feasible. The NCSEAM scales are particularly helpful as they relate to individual state quality improvement efforts and cross-state comparisons. As described in earlier sections, the scales have a strong theoretical underpinning congruent with family-centered and culturally competent practices; they also demonstrate high person and item reliability. Equally important are the attributes of the Rasch measurement model. In a Rasch measurement analysis, a state’s mean is put on the same metric as the item measures. Thus, state programs can be differentiated on relevant measures in order to target resources and technical assistance. The large data bank of items with their associated measures provides additional information for targeted improvement efforts.
Improvement efforts that are evidence-based, strategic, and targeted are more important now than ever before. As pointed out by Greer, Taylor, Mackey, and Andrews (2007), “states face increasing numbers of children who are eligible for Part C services, recent downturns in state fiscal affairs and, for many states, the erosion of partnerships that were intended to be part of the interagency coordinated effort” (p. 3). This reality suggests that states need to invest their limited resources wisely. Research findings that can provide guidance to states as to how to best invest these limited resources is timely and beneficial not only to state program administrators but more importantly to the families served through IDEA, Part C.

Finally, a participatory research design may indirectly help resolve the gap between early intervention research and practice. Participatory research is founded on the belief that consumers are the most optimally suited to design, implement, and evaluate solutions that would be the most effective for the situation. In a what makes it work study, state level early intervention program personnel are the primary consumers. This collaborative process between researchers and state program personnel would increase the likelihood that researchers’ hypotheses of what makes it work or not are on target.

Limitations of the Study

The use of paper-and-pencil survey method to collect data on both the quality and outcome measures may have limited the study’s ability to find existing race/ethnic and socioeconomic differences. A paper-and-pencil survey method as a possible limitation is supported by the findings in two studies where differences across race/ethnic and socioeconomic groups did exist (Bailey & Scarborough, 2003; Sontag & Schacht, 1994). These two quantitative early intervention studies used a semi-structured interview method.
and found differences in quality such that minority families and families with low incomes reported more challenges than families from the majority culture; that is, accessing services and family involvement in decision-making. Possibly, minority families are less positive about their early intervention experiences when being interviewed. Possibly, a one-on-one dialogue can lead people to be more reflective, take more time in their responses or be more discriminatory in their responses.

Another interpretation is that these two study samples may have included a higher percentage of families that are typically less likely to respond to a paper-and-pencil survey. According to Harry (2007), surveys are a barrier for culturally and linguistically diverse family participation in research for several reasons, “logistical challenges, level of education, English language literacy and the same issues of mistrust and misunderstanding that occur in the provision of services” (p. 382).

This study’s use of insurance types as a proxy for socioeconomic status had limitations in that each insurance type had a broad range of family incomes. A finer differentiation of income groups may have yielded different results; for example, there may have been little representation of families living in severe poverty whose perceptions may have been different from families with greater financial resources.

The categories used to identify family race/ethnicity only pertained to the child. The parent’s race/ethnicity should also be identified. In this study, a percentage of the parents of Asian children were adoptive parents and were most likely White.

**Conclusion**

In conclusion, 20 years of literature on family-centered practices underscores the importance of full implementation of these practices in early intervention programs.
Families participating in early intervention bring their expectations, hopes, dreams, and willingness to engage with practitioners so their child and family may benefit from the support they receive. The early intervention practitioner who is knowledgeable about cross-cultural differences and empowering practices makes the greatest contributions toward family well-being.

Practitioners, however, also work within a context much broader than their work with the individual families they serve. The larger context tells much of the story as to whether the practitioner will fully develop her/his capacities to work collaboratively with all families. State level policies, efficacy of service coordination activities, and personnel preparation confluence to determine practitioner effectiveness and ultimate family outcomes.

State early intervention programs have diminished resources but at the same time are seeking program improvement strategies leading toward enhanced family outcomes. Rigorous research is needed to examine state models, policies, and practices to understand how and in what manner key characteristics of state early intervention programs are likely to have on different family outcomes. How these characteristics impact culturally and socioeconomically diverse families must be a focus of such research. The practitioners who are hoping to make a positive difference in the lives of families and the families who are hoping they will, would be the greatest beneficiaries of this research effort.
References


Appendix A

Infants and Toddlers Receiving Early Intervention Services
Under IDEA, Part C, by Race/Ethnicity for the State in this Study,
Fall 2006

<table>
<thead>
<tr>
<th>Race/ethnicity total</th>
<th>American Indian/ Alaska Native</th>
<th>Asian/ Pacific Islander</th>
<th>Black (not Hispanic)</th>
<th>Hispanic</th>
<th>White (not Hispanic)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>11.40</td>
<td>20.06</td>
<td>65.51</td>
</tr>
</tbody>
</table>

*Note. Source: [https://www.ideadata.org/tables30th/ar_7-10.xls](https://www.ideadata.org/tables30th/ar_7-10.xls)*
Appendix B

Winsteps Control File for FCSS and IFS Scales

Control File for FCSS Measure

SPSS Variables processed = 64
ITEM1 = 1 ; Starting column of item responses
NI = 44 ; Number of items
CFILE=*  
1 VSSDisag
2 Agree
3 SVSAgree
*
RESCOR=2
NEWSCR=111233
UDECIM=1
UIMEAN=572.1
USCALE=58.105

IAFILE=* (Item Anchors)
1 587.2
2 648.6
3 562.5
4 533.0
5 511.7
6 545.9
7 532.1
8 622.7
9 644.6
10 641.1
11 625.0
12 601.2
13 661.0
14 583.5
15 774.3
16 511.8
17 493.3
18 498.1
19 546.6
20 519.1
21 552.4
22 575.5
SAFILE=*  
2 = -128.28  
3 = 14.28  
IDFILE=*  
1-44  
+1-23  
REALSE=Y  
TABLES=1110000001001100000000100011

Control File for IFS

ITEM1=1  
RESCOR=2  
NEWSCR="112345"  
LCONV=0.0001  
RCONV=0.001  
PRCOMP=S  
UDECIM=1  
UMEAN=568.3  
USCALE=58.91

IAFILE=* ( Item Anchors)  
24 677.5  
25 656.0  
26 608.8  
27 639.8  
29 559.3  
30 576.1  
31 583.5  
34 564.5  
35 552.9  
37 534.4  
38 559.1  
39 555.9  
40 545.5  
41 538.9  
42 497.8  
43 516.1  
44 498.1  
*
SAFILE=*  
2 = -220.93  
3 = -147.88  
4 = 55.95  
5 = 128.99  
*  
IDFILE=*  
1-44  
+24-44  
*  

IFILE=ItemStats.sav;  
PFILE=PersonStats.sav;  
RFILE=ReadData.txt;  
REALSE=Y  
TABLES=1110000001001100000000100011
## Appendix C

**Family-Centered Services Scale (FCSS) and Impact on Family (IFS) Item Calibrations**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item Calibration</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>774.0</td>
<td>Someone from the Early Intervention program went out into the community with me and my child to help us get involved in community activities and services.</td>
</tr>
<tr>
<td>13</td>
<td>661.0</td>
<td>My family was given information about where to go for help or support if I feel worried or stressed.</td>
</tr>
<tr>
<td>2</td>
<td>648.6</td>
<td>I was asked whether I wanted help in dealing with stressful situations.</td>
</tr>
<tr>
<td>9</td>
<td>636.4</td>
<td>My family was given information about organizations that offer support for parents of children with disabilities.</td>
</tr>
<tr>
<td>10</td>
<td>641.1</td>
<td>My family was given information about opportunities for my child to play with other children.</td>
</tr>
<tr>
<td>11</td>
<td>625.0</td>
<td>My family was given information about how to advocate for my child and my family.</td>
</tr>
<tr>
<td>23</td>
<td>624.8</td>
<td>I was given information about the public school system's programs and services for children age three and older.</td>
</tr>
<tr>
<td>8</td>
<td>622.7</td>
<td>My family was given information about community programs that are open to all children.</td>
</tr>
<tr>
<td>12</td>
<td>601.2</td>
<td>My family was given information about who to call if I am not satisfied with the services my child receives.</td>
</tr>
<tr>
<td>1</td>
<td>587.2</td>
<td>My family was given information about how most children develop and learn.</td>
</tr>
<tr>
<td>14</td>
<td>583.5</td>
<td>Someone from the Early Intervention program asked whether the services my family was receiving were meeting our needs.</td>
</tr>
<tr>
<td>22</td>
<td>575.5</td>
<td>I was given information to help me prepare for my child's transition.</td>
</tr>
<tr>
<td>3</td>
<td>562.5</td>
<td>I was given choices concerning my family's services and supports.</td>
</tr>
<tr>
<td>21</td>
<td>552.4</td>
<td>My family was given information about activities that I could do with my child in our everyday lives.</td>
</tr>
<tr>
<td>19</td>
<td>546.6</td>
<td>My service coordinator is available to speak with me on a regular basis.</td>
</tr>
<tr>
<td>6</td>
<td>545.9</td>
<td>The services on our IFSP have been provided in a timely way.</td>
</tr>
<tr>
<td>4</td>
<td>533.0</td>
<td>My family's daily routines were considered when planning for my child's services.</td>
</tr>
<tr>
<td>7</td>
<td>532.1</td>
<td>My family was given information about the rights of parents regarding Early Intervention services.</td>
</tr>
<tr>
<td>20</td>
<td>519.1</td>
<td>My service coordinator is knowledgeable and professional.</td>
</tr>
<tr>
<td>16</td>
<td>511.8</td>
<td>The Early Intervention service provider(s) that work with my child are dependable.</td>
</tr>
<tr>
<td>5</td>
<td>511.7</td>
<td>I have felt part of the team when meeting to discuss my child.</td>
</tr>
<tr>
<td>18</td>
<td>498.1</td>
<td>The Early Intervention service provider(s) that work with my child are good at working with my family.</td>
</tr>
<tr>
<td>17</td>
<td>493.3</td>
<td>The Early Intervention service provider(s) that work with my child are easy for me to talk to about my child and my family.</td>
</tr>
</tbody>
</table>
### Table C2. Impact on Family (IFS), Item Calibrations

<table>
<thead>
<tr>
<th>Item #</th>
<th>NCSEAM Item Calibration</th>
<th>Item Calibration</th>
<th><em>Item: Over the past year, Early Intervention services have helped me and/or my family:</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>678</td>
<td>677.50</td>
<td>Participate in typical activities for children and families in my community.</td>
</tr>
<tr>
<td>25</td>
<td>656</td>
<td>656.00</td>
<td>Know about services in the community.</td>
</tr>
<tr>
<td>27</td>
<td>640</td>
<td>639.80</td>
<td>Know where to go for support to meet my family's needs.</td>
</tr>
<tr>
<td>26</td>
<td>609</td>
<td>608.80</td>
<td>Know where to go for support to meet my child's needs.</td>
</tr>
<tr>
<td>33</td>
<td>584</td>
<td>606.09</td>
<td>Cope with stressful situations.</td>
</tr>
<tr>
<td>31</td>
<td>576</td>
<td>583.50</td>
<td>Be more effective in managing my child’s behavior.</td>
</tr>
<tr>
<td>30</td>
<td>576</td>
<td>576.10</td>
<td>Make changes in family routines that will benefit my child with special needs.</td>
</tr>
<tr>
<td>36</td>
<td>570</td>
<td>573.58</td>
<td>Find information I need.</td>
</tr>
<tr>
<td>28</td>
<td>565</td>
<td>570.22</td>
<td>Feel that I can handle the challenges of parenting a child with special needs.</td>
</tr>
<tr>
<td>34</td>
<td>563</td>
<td>564.50</td>
<td>Feel that I can get the services and supports that my child and family need.</td>
</tr>
<tr>
<td>32</td>
<td>562</td>
<td>561.32</td>
<td>Figure out solutions to problems as they come up.</td>
</tr>
<tr>
<td>29</td>
<td>559</td>
<td>559.30</td>
<td>Feel more confident in my skills as a parent.</td>
</tr>
<tr>
<td>38</td>
<td>559</td>
<td>559.10</td>
<td>Feel that my child will be accepted and welcomed in the community.</td>
</tr>
<tr>
<td>39</td>
<td>556</td>
<td>555.90</td>
<td>Communicate more effectively with the people who work with my child and family.</td>
</tr>
<tr>
<td>35</td>
<td>553</td>
<td>552.90</td>
<td>Understand how the Early Intervention system works.</td>
</tr>
<tr>
<td>40</td>
<td>546</td>
<td>545.50</td>
<td>Understand the roles of the people who work with my child and family.</td>
</tr>
<tr>
<td>41</td>
<td>539</td>
<td>538.90</td>
<td>Know about my child's and family's rights concerning Early Intervention services.</td>
</tr>
<tr>
<td>37</td>
<td>534</td>
<td>534.40</td>
<td>Be able to evaluate how much progress my child is making.</td>
</tr>
<tr>
<td>43</td>
<td>516</td>
<td>516.10</td>
<td>Understand my child's special needs.</td>
</tr>
<tr>
<td>44</td>
<td>498</td>
<td>498.10</td>
<td>Feel that my efforts are helping my child.</td>
</tr>
</tbody>
</table>