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Transitions to Preschool Special Education: The Relationship of Child, Family, and Early Intervention Characteristics

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Transitions to Preschool Special Education:
The Relationship of Child, Family, and Early Intervention Characteristics

by

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A thesis defense submitted in partial fulfillment
of the requirements for the degree of
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Abstract

Infants and toddlers with developmental disabilities and certain medical conditions are at risk for a variety of adverse outcomes in childhood as well as into adulthood. Early identification and early intervention are essential for improving the trajectories and outcomes of these children. The Individuals with Disabilities Education Act (IDEA) is a federal law that affords protections to children with disabilities and those at risk for developmental delays. IDEA provides guidance and regulations to early intervention programs, schools, and states for identifying and delivering intervention services to children ages birth through 21 years. Although the provision of early intervention services are regulated by the federal government through IDEA, states have autonomy to decide how they define and measure disabilities and developmental delays. As a result, states differ greatly in their eligibility criteria as well as in the percentages of children identified for early intervention (IDEA Part C) and preschool special education (IDEA Part B). Thus, children who receive early intervention services may or may not continue to meet criteria for special education once they reach age 3. Few studies have examined the child, family, and early intervention characteristics that relate to how, when, and if children will transition from Part C to Part B. Those studies that have examined these relationships have not focused specifically on how these transitions occur in Florida. The purpose of the present study was to examine child, family, and early intervention characteristics that increase the likelihood of children transitioning from Part C to Part B in Florida. Participants in this study included infants and toddlers who exited the Bay Area Early Steps Program (one of

Florida's Part C providers) in 2016. Archival data were examined using a combination of descriptive statistics, Chi-squares, independent *t*-tests, and logistic regression analyses. Results of this study indicate that children exiting the Bay Area Early Steps Program were more likely to be eligible for preschool special education (Part B) if they were Black/African American, Hispanic, had an established/diagnosed condition, had a lower socioeconomic status, received speech/language services in Early Steps, received multiple different service types in Early Steps, and/or received Early Steps services in Polk County (as opposed to Hillsborough County). Children were not more likely to be eligible for Part B based on their gender, primary language, length of time in Early Steps, or receipt of occupational therapy, physical therapy, or early intervention services while in Early Steps. The findings of this study provide preliminary information about factors that relate to children's transitions from early intervention to preschool special education in Florida. The findings also offer practical implications for the day-to-day operations of the Bay Area Early Steps program and the local school districts to which these children transition.

Chapter 1: Introduction

It is well documented that infants and toddlers with developmental disabilities and certain medical conditions are at an increased risk for adverse outcomes throughout childhood and even into adulthood (Blackorby et al., 2010; Emerson & Hatton, 2007; McManus et al., 2011). Identification of delays and/or conditions that place children at risk for future academic, social, and health-related challenges can occur as early as infancy and in some cases even prenatally. For example, genetic conditions such as Down Syndrome may be identified before a child is born while other conditions, such as communication and cognitive delays, may not be apparent until the second or third year of life. While the age at which identification is possible may vary by condition, early identification and intervention have proven to be instrumental in improving outcomes for children with developmental delays and medical conditions.

Early Intervention

Participation in comprehensive early intervention beginning in the preschool years has been shown to have positive long-term impacts on a variety of outcomes for youth (Camilli et al., 2010; Reynolds et al., 2001; Reynolds et al., 2011). In a meta-analysis of 123 quasi-experimental and randomized studies of early childhood interventions conducted between 1960 and 2000, Camilli et al. (2010) reported that early childhood education programs had a significant impact on children's cognitive outcomes, school progress, and social skills. Early intervention has also been shown to positively influence children's outcomes into adulthood. Using data from the Chicago Longitudinal Study, Reynolds et al. (2011) found that low-income minority children's participation in publicly funded early intervention was associated with higher

educational attainment and income in adulthood. These children also experienced lower rates of substance abuse and involvement in the criminal justice system in adulthood. Given that young children with disabilities are already at risk for more adverse outcomes than their typical peers, early intervention is especially important for this population. Understanding the early intervention services that are available to infants and toddlers with disabilities and the process by which these youth transition into preschool special education services can help to ensure that those children at greatest risk are identified and receive the critical intervention services that they need.

Individuals with Disabilities Education Act (IDEA)

Recognizing the need for early identification and intervention for infants and children with disabilities, the federal government provides guidelines and regulations for states to follow when providing these services through the Individuals with Disabilities Education Act (IDEA) (IDEA, 2004). Part B of IDEA guides states and schools in determining eligibility and providing services to children ages 3 through 21 years with disabilities, while Part C establishes regulations for early intervention programs serving infants and toddlers ages birth through 2 years with disabilities and/or conditions that place them at risk for developmental delays (U.S. Department of Education, 2007). Hebbeler, Spiker, and Kahn (2011, p. 204) suggest that because of IDEA, “upward of a million young children each year receive some kind of intervention to address their developmental needs.”

While IDEA provides guidance and some regulations regarding eligibility determination and the provision of services, states are afforded great latitude in how they define and measure disabilities and developmental delays. Because of the wide variation in the criteria that states use to define developmental delays under Part C, there also is a great deal of variability in the

numbers and characteristics of youth served by each state. Some estimates suggest that the percentage of infants and toddlers likely to be eligible for Part C services ranges from 2% to 78% across the United States (Rosenberg et al., 2013). For states with very broad eligibility criteria, the proportion of children enrolled is often significantly less than the proportion of infants and toddlers who actually meet criteria (Rosenberg et al., 2013). In Florida, which is considered to have broad criteria, 48,194 children were referred to the Early Steps program (Part C) during fiscal year 2015-2016 and 31,091 (65%) of those were eligible and received services (Danaher, 2011; Florida Department of Health, 2016).

Not only are there differences between states' definitions and criteria for developmental delay, but the criteria for Part C and Part B differ within each state. In fact, developmental delay is just one of the 13 disability categories children may qualify for under Part B, whereas it is the primary disability category under Part C. Because of these variations between Part C and Part B, it can be difficult to predict whether children who receive early intervention services will be eligible for special education services in preschool. In Florida, Part C services are provided by Early Steps through the Department of Health and Part B services are provided by local school districts through the Florida Department of Education. These programs and the differences between them are discussed in detail in Chapter 2.

Rationale/Statement of the Problem

Although many studies have looked at the characteristics of children in special education (Part B), few studies have examined child, family, and early intervention characteristics that relate to how, when, and if children will transition from Part C to Part B. Many of the studies that have looked at these transitions were national studies or were specific to states other than Florida (Blackorby et al., 2010; Markowitz et al., 2006). Given the variation in eligibility criteria among

states, studies examining national data or data from specific states other than Florida may not provide a clear picture of how the transition from Part C occurs for infants and toddlers in Florida. Despite using relatively broad eligibility criteria (which will be discussed in detail in Chapter 2), Florida does not consistently identify higher percentages of children for Part C than the national average. In fact, it was one of only four states (i.e., Delaware, Mississippi, Florida, Ohio), whose percentage of infants and toddlers identified for Part C was not higher in 2006 than in 1997 (Blackorby et al., 2006; Blackorby et al., 2010). This is surprising since states with broad eligibility criteria (e.g. Florida) offer more leeway in terms of the percentages of delay or number of standard deviations from the mean that a child's assessment scores must fall in order for them to meet eligibility requirements. It would seem that more children would become eligible in states with broad criteria than in states with narrow (i.e. stricter) eligibility guidelines, but that does not appear to be the case in Florida. Given these findings, it may be that the transitions from Part C to Part B are different in Florida than in other states. There may be factors unique to the children, families, early intervention services, or eligibility criteria in Florida that relate to whether or not toddlers being served by Part C end up transitioning to preschool special education. Understanding the various factors that relate to transitions to preschool special education in Florida can assist parents, educators, and policymakers with planning for transitions from early intervention, identifying gaps in services and supports for children exiting early intervention, and modifying policies that either over-identify or under-identify preschoolers in need of services.

Purpose

The purpose of this study was to examine factors or characteristics that make children more likely to continue receiving support through special education after receiving early

intervention services in Florida. The study was quantitative and consisted of conducting secondary analyses of data collected through Early Steps on past participants of the program. The study compared two groups of children who received special education services through The Bay Area Early Steps program, but who had differing outcomes in terms of their continued eligibility for special education. This study compared the following groups of children who received Early Steps intervention: (1) those who were eligible for Part B at age 3, and (2) those who were ineligible for Part B at age 3. Children in the “eligible” group included those who were evaluated and became eligible for Part B at age 3, indicating that they still met the requirements for special education under IDEA. Children in the “ineligible” group included those who were either evaluated and no longer met the requirements for special education under IDEA at age 3, or they became ineligible, or declassified, for special education prior to age 3 (indicating that at some point while receiving early intervention services, their delay or condition improved to a level at which they were no longer eligible for special education).

Research Questions

This study attempted to answer the following questions regarding child, family, and early intervention factors within the context of The Bay Area Early Steps program:

Child Characteristics

Research Question 1: To what extent, if any, is there a relationship between child characteristics (gender, race/ethnicity, Part C eligibility category) and preschool transition status (Part B eligible at age 3 vs. Part B ineligible at or prior to age 3)?

Family Characteristics

Research Question 2: To what extent, if any, is there a relationship between family characteristics (primary language spoken in the home, socioeconomic status) and children's preschool transition status (Part B eligible at age 3 vs. Part B ineligible at or prior to age 3)?

Early Steps Factors

Research Question 3: To what extent, if any, is there a relationship between Early Steps intervention factors (type of intervention/support, number of different service types, length of time in Early Steps, and county where services were received) and children's preschool transition status (Part B eligible at age 3 vs. Part B ineligible at or prior to age 3)?

Theoretical Framework

The development of this study and review of literature were undertaken with Bronfenbrenner's ecological framework in mind. According to Urie Bronfenbrenner's (1986) ecological systems theory, a child develops within the context of the system of relationships that form his or her environment. Bronfenbrenner suggests that children's unique biological processes interact with the world around them to guide and steer their development. Bronfenbrenner's theory accounts for factors in a child's immediate environment (microsystem), the connection between the structures in the child's immediate environment (known as the mesosystem), and the broader layers of the child's environment, including the exosystem, macrosystem, and chronosystem. In addition to the various influences surrounding the child, there are factors within the child, such as medical conditions, cognitive abilities, and personality factors that influence a child's development. Bronfenbrenner's model assumes that the various layers of a child's environment interact, and that changes within the child or any aspect of his or her environment affect all other parts of the system. This reciprocal influence between a child

and his or her environment is the hallmark of Bronfenbrenner's theory (Bronfenbrenner, 1977; 1986).

Within the context of this study, child, family, and early intervention characteristics are part of the broad ecological system in which a child exists. A child's medical condition or significant developmental delays, for example, represent factors within the child that may influence whether or not he or she transitions to preschool special education. The services provided under Part C and Part B and the locations where those services are provided constitute part of a child's microsystem, or the settings and environments in which a child spends his or her time. A mesosystem "comprises the interrelations among major settings containing the developing person at a particular point in his or her life" (Bronfenbrenner, 1977, p. 515). For the participants in this study, the mesosystem included interactions among family, preschool, early intervention, and/or church, for example. The exosystem included settings that may influence but not directly impact a child's development, such as their parents' social network and place of employment. Data related to factors within the exosystem were not collected as part of this study. The macrosystem consisted of both implicit and explicit ideologies and customs, including economic, social, educational, legal, and political systems that are part of a culture or subculture. In this study, educational laws, such as IDEA, as well as the importance that our society places on early intervention, were considered part of the macrosystem. The chronosystem refers to influences on a child's development over time, including transitions (such as starting school, entering the work force, marriage, divorce, etc.) and other life events that influence development (Bronfenbrenner, 1986). With respect to this study, the entrance into early intervention services and transition to preschool special education were considered part of a child's chronosystem.

Using Bronfenbrenner's ecological systems theory as a guide, this study examined a broad range of factors that may relate to children's development and progression through early childhood special education. With the assumption that children both influence and are influenced by their environment, factors within children, their families, and the broader systems that surround them were explored in order to better understand children's transitions from early intervention to preschool special education.

Significance of the Study

It was anticipated that answering the research questions outlined above would provide insight into the various factors related to whether or not infants and toddlers with disabilities and established medical conditions were eligible to receive continued support beyond early intervention. This information can help early intervention providers determine which children are most likely to meet state criteria for preschool special education services at age 3 based on data collected at the time the child enters the early intervention program. Although some of the characteristics examined were not targets for intervention (i.e., race/ethnicity, gender), they may serve to alert providers that a child is at greater risk for requiring more long-term intervention. Other characteristics, such as the type and frequency of intervention recommended and the length of time in Early Steps, may be modified in order to decrease a child's likelihood of meeting eligibility for Part B at age 3 (indicating that they are no longer in need of special education services). Understanding how these factors relate to eligibility outcomes can also help providers identify protective factors that exist within these children and families. Although there is a great deal of research describing risk factors that increase the likelihood that children will qualify for early intervention and/or special education services, this study offers information

about those factors that either increase or decrease the likelihood of a child transitioning from early intervention to preschool special education.

Chapter 2: Literature Review

This chapter begins with an overview of the Individuals with Disabilities Education Act (IDEA), which is the federal legislation extending the right to a free appropriate public education to children with disabilities. This overview includes a description of IDEA Part B (which serves children ages 3-21 years), Part C (which serves children birth through age 2 years), and the process of transitioning from Part C to Part B. Included within the discussion of IDEA Parts B and C is an explanation of the criteria for each of the subparts of the law, as well as differences between Parts B and C. Following a description of IDEA Parts B and C, literature regarding risk factors and potential predictors of special education status is examined. Specifically, child characteristics such as gender, race, ethnicity, and Part C eligibility category will be reviewed. Next, the impact of family characteristics, including the caregiver's relationship to the child (i.e. parent, guardian, foster parent, etc.), the primary language spoken in the home, and socioeconomic status (SES) is reviewed. Finally, the relationship between Part B status and early intervention characteristics, such as the type of intervention provided, the length of time in early intervention (Part C), and the frequency of intervention recommended on the Individual Family Support Plan (IFSP), is examined.

Individuals with Disabilities Education Act (IDEA)

The Individuals with Disabilities Education Act (Public Law 94-142) is a federal law that was established in 1975 in order to extend the right of a free appropriate public education (FAPE) to children with disabilities (U.S. Department of Education, 2007). At that time, it was known as the Education for All Handicapped Children Act, but was later amended by Congress

in 1990 and renamed the Individuals with Disabilities Act (IDEA). Since its inception in 1975, the law has been updated and reauthorized many times, with the most recent reauthorization in 2004 (P.L. 108-446) (IDEA, 2004; U.S. Department of Education, 2015). Among other changes, the amendments made in 2004 require that states and local education agencies demonstrate student progress in general education as well as improvements in academic and developmental outcomes (Blackorby et al., 2010). This most recent amendment to the law also addressed the issue of disproportionality, noting that each state should have in effect “policies and procedures, designed to prevent the inappropriate overidentification or disproportionate representation by race and ethnicity of children as children with disabilities” (IDEA, 2004, Stat. 2691).

IDEA is divided into four categories, including Parts A, B, C, and D. Part A defines the terms and definitions used in the law, and also specifies which disorders are to be covered under the law (IDEA, 2004). Part B provides guidelines for states and schools to use in determining eligibility and providing services to school age children (ages 3 to 21 years) with disabilities. Part C, which was added upon reauthorization of the law in 1986, provides regulations for early intervention programs serving infants and toddlers (birth through age 2 years) with disabilities and/or conditions that place them at risk for developmental delays (U.S. Department of Education, 2007). Lastly, Part D provides information and research aimed at improving collaboration with families as well as the provision of services (IDEA, 2004; U.S. Department of Education 2007). The focus of the present study is on Parts B and C of IDEA, which will be described in further detail below.

IDEA Part B. As mentioned previously, Part B of IDEA outlines the federal requirements for serving children ages 3-21 years who have disabilities (Blackorby et al., 2010; IDEA, 2004). A child with a disability, as defined in Part B of IDEA (2004), includes a child:

(ii) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to in this title as 'emotional disturbance'), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and (ii) who, by reason thereof, needs special education and related services.

In addition to defining eligibility categories, IDEA Part B includes rules and regulations that states must follow in order to receive federal funds for the special education services that they provide. More specifically, Part B provides guidance to school districts on how to determine eligibility for special education services and outlines the process of developing an Individual Education Plan (IEP), including requirements such as utilizing a multidisciplinary team, holding meetings with the family to establish goals, and determining the services that will be provided to the child (IDEA, 2004). The IEP is a document that outlines the educational goals for the child, the services that will be provided to help the child reach those goals, and the persons responsible for providing special education services to the child (IDEA, 2004; Rehorn, 2009).

Demographics of children served under Part B. In general, the number of children being served under IDEA Part B has increased over the years, and there have been noticeable trends in terms of the characteristics of those children. For the purposes of this study, information about Part B will be provided for the subset of children ages 3-5 years receiving Part B services. According to a nationwide report on the identification and outcomes for children with disabilities, the percentage of children ages 3-5 years identified for special education increased every year from 1997-2006 (Blackorby et al., 2010). For each of those years, 5-year-olds had the highest percentage identified while 3-year-olds had the lowest percentage identified. Of those identified during this timeframe, 69.3% were male and 30.7% were female. The most

common of the 13 disability categories that children ages 3-5 years were identified under were speech or language impairments (2.73%) and developmental delay (2.06%), followed by Autism (.29%), mental retardation (.19%), other health impairments (.13%), and specific learning disabilities (.12%). Other disability categories, each of which accounted for less than .10% of children identified, include multiple disabilities, orthopedic impairments, hearing impairments, emotional disturbance, vision impairments, traumatic brain injury, and deaf-blindness (Blackorby et al., 2010).

The overall percentages of children ages 3-5 years identified for special education varied by state in 2006, ranging from a low of 3.32% in the District of Columbia to a high of 13.66% in Wyoming. All but two states (Idaho and Texas) had higher identification percentages in 2006 than in 1997. Florida, which is the location of the present study, had the 16th lowest percentage of 3 to 5-year-old children identified for Part B over the years, identifying just under 5% of children in 1997 and just over 5% of children in 2006 (Blackorby et al., 2010).

More recent data, contained in the 36th and 37th Annual Reports to Congress on the Implementation of the Individuals with Disabilities Education Act, indicate that 6.1% of U.S. children ages 3-5 years were served under Part B in 2013. While the overall percentage of students ages 3 to 5 years with disabilities has increased, the types of disabilities that are most common have remained the same over the years (Blackorby et al., 2010; U.S. Department of Education, 2015). Of the 6.1% of children ages 3-5 years who were served under Part B in 2013, the largest percentage (44.2%) were identified as having “speech or language impairments,” followed by “developmental delay” (37.1%) and “autism” (8.4%) (U.S. Department of Education, 2015, p. 26). “Other disabilities combined,” including deaf-blindness, emotional disturbance, hearing impairments, intellectual disabilities, multiple disabilities, orthopedic

impairments, other health impairments, specific learning disabilities, traumatic brain injury, and visual impairments, accounted for the remaining 10.3% of children ages 3-5 with disabilities (U.S. Department of Education, 2015, p. 26). Eligibility criteria for each of these categories will be discussed in further detail later in this chapter.

Children identified as either American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, White, or Multi-racial, were more likely to be served under Part B in 2012 than children of other racial/ethnic groups combined (U.S. Department of Education, 2014). This trend remained similar in 2013, with the exception of multi-racial children, who were no longer more likely to be served by Part B than other racial or ethnic groups (U.S. Department of Education, 2015). In both 2012 and 2013, the next most common racial/ethnic group to be served under Part B was Black or African American and the least likely to be served under Part B were Asian or Hispanic/Latino. These recent trends in percentages of children served by race mirror those of the children served under Part B between 1997-2006, with American Indian children representing the highest percentage identified (ranging from 6.31-8.14% between 1997 and 2006), followed by White (4.86-6.45%), Black (4.43-5.93%), Hispanic (3.10-4.52%), and Asian (2.28-3.59%) (Blackorby et al., 2010).

IDEA Part C. The Individuals with Disabilities Education Act was originally designed to ensure that children ages 3 through 21 years with disabilities would receive a fair and appropriate public education (FAPE); however, the reauthorization of IDEA in 1986 extended coverage to children ages birth through 2 years (U.S. Department of Education, 2007). This marked the first national policy for serving infants and toddlers with disabilities. Although some states did provide early intervention services to infants and toddlers at that time, there was no federal legislation requiring this type of intervention up until that point. Part H of IDEA, which

was later renamed Part C, expanded services to children in states that had not previously provided special education services to infants and toddlers (Blackorby et al., 2010). The Individuals With Disabilities Education Act (2004) defines an infant or toddler with a disability as:

an individual under 3 years of age who needs early intervention services because the individual (i) is experiencing developmental delays, as measured by appropriate diagnostic instruments and procedures in 1 or more of the areas of cognitive development, physical development, communication development, social or emotional development, and adaptive development; or (ii) has a diagnosed physical or mental condition that has a high probability of resulting in developmental delay; and (B) may also include, at a State's discretion— (i) at-risk infants and toddlers; and (ii) children with disabilities who are eligible for services under section 619 and who previously received services under this part until such children enter, or are eligible under State law to enter, kindergarten or elementary school.”

Part C of IDEA assists states in meeting the developmental needs of infants and toddlers with disabilities through “statewide, comprehensive, coordinated, and multidisciplinary interagency system(s)” (U.S. Department of Education, 2014, p. xv). Early intervention services provided under Part C are aimed at meeting children's needs in the areas of physical, cognitive, communication, social/emotional, and adaptive development. While Part B of IDEA focuses on an individual child's needs and relies on school districts to implement services, Part C focuses on both the child and the family. Given this family-centered approach, services are extended to the parents and caregivers of infants and toddlers through the Individualized Family Support Plan (IFSP), which is a central component of Part C (Mackey Andrews & Taylor, 2007). The IFSP is

a strength-based plan of care designed to guide families as they assist their infants and toddlers in achieving developmental goals (Florida Department of Health, 2015). It is developed based on the strengths and needs of each child and family, which are assessed through a multidisciplinary approach. The IFSP outlines goals for the child and family, as well as the services that will be provided in order to help them reach those goals. It also specifies the length and frequency of intervention, as well as the team members who will provide each type of service. The IFSP is developed by a team including the parent(s)/guardian, service coordinator, at least one service provider, and any other individuals that the parent(s) chooses to include. Early intervention services authorized under Part C include, but are not limited to, family training, counseling, home visits, speech-language services, occupational therapy, physical therapy, vision services, psychological services, and social work services (U.S. Department of Education, 2007).

Demographics of children served under Part C. In a national study of infants and toddlers receiving early intervention services, Blackorby et al. (2010) reported that the percentage of children receiving early intervention services across the nation declined from 1997 to 1998 and then increased every year up through data collection in 2006. At that time, 2.4% of the nation's infants and toddlers under 3 years of age were receiving early intervention. Fifty-nine percent of those children were male and 41% were female. The percentage of infants and toddlers identified for early intervention varied by state, ranging from a low of 1.18% in Mississippi to a high of 7.19% in Hawaii (Blackorby et al., 2010). More recent data indicate that as of 2013, 2.8% of infants and toddlers under age 3 years received early intervention services under IDEA Part C (U.S. Department of Education, 2015). These recent data show similar trends to those reported by Blackorby et al. (2010), with percentages of infants and toddlers served under Part C ranging by state, from a low 1.2% in Arkansas to a high of 7.9% in

Massachusetts (U.S. Department of Education, 2015). One possible explanation for this variation between states is that as with preschool special education, states differ in their eligibility criteria for early intervention (Hebbeler et al., 2007). These differences will be discussed in further detail below.

Differences in IDEA Parts B and C

As mentioned previously, Part B and Part C are both designed to support services for children with disabilities; however, they differ in terms of who provides the services, what specific services they provide, which children they serve, and how eligibility is determined under the law. The Department of Education is responsible for providing special education services to school age youth under Part B, whereas each state designates its own lead agency in charge of coordinating special education services for children birth through age 2 under Part C. The services that youth receive through Part B are typically provided in a school setting and are not available to the child's family, whereas Part C serves the entire family and services are typically provided within the home or childcare setting (Florida Department of Education, 2017; Florida Department of Health 2015; IDEA, 2004). Another major difference between Part B and Part C is that under IDEA Part B, there are 13 disability categories under which children may qualify, compared with only one disability category under Part C (Florida Department of Education, 2017; IDEA, 2004). The criteria for each of those 13 categories under Part B is beyond the scope of this paper; however, it should be noted that eligibility under Part B requires proof that there is an educational need. In other words, a medical or mental health diagnosis alone is not sufficient criteria for eligibility. In contrast, there are several ways that infants and toddlers may meet the criteria for developmental delay and each state determines their own criteria for this category (Danaher, 2011). Given that developmental delay is the only disability category

recognized under both Part B and Part C, this category will be discussed in more detail below.

provides a more comprehensive comparison of IDEA Parts B and C in Florida.

Table 1

Comparison between IDEA Part C and Part B in Florida

	Part C	Part B
Age Range	0 to 2 years	3-21 years
Lead Agency	Designated by State: The Florida Department of Health Children's Medical Services (CMS) Early Steps State Office (ESSO)	Florida Department of Education
Eligibility Criteria	<p>1) Developmental Delay in:</p> <ol style="list-style-type: none"> 1) cognitive development 2) physical development 3) communication development 4) social and emotional development 5) adaptive development <p>2) Established Condition: diagnosed physical or medical condition known to have a high probability of resulting in developmental delay or disability</p>	<p>Eligibility criteria differs for each of the disability categories:</p> <ol style="list-style-type: none"> 1) Autism Spectrum Disorder (ASD) 2) Deaf or Hard-of-Hearing (DHH) 3) Developmental Delay (ages 3-5 in FL but varies by state) 4) Dual-Sensory Impairment (DSI): Deaf-Blind 5) Emotional/Behavioral Disability (EBD) 6) Intellectual Disability (InD) 7) Language Impairment (LI) 8) Other Health Impaired (OHI) 9) Orthopedic Impairment (OI) 10) Specific Learning Disability (SLD) 11) Speech Impairment (SI) 12) Traumatic Brain Injury (TBI) 13) Visual Impairment (VI): Blind and Partially Sighted <p>*Eligibility based on student's needs and impact of disability on educational functioning, not the disability category. Students may also qualify for Special Education under the category of Gifted</p>

Table 1 (continued)

		or Homebound or Hospitalized (HH)
Number of Disability categories	1 (Developmental Delays) *In Florida, this applies to ages birth-5	13
Individualized Plan	Individualized Family Support Plan (IFSP): focused on the needs of the family *Services can be provided to family members in order to help them meet the needs of their child	Individualized Education Program (IEP): focused on the individual needs of the child *Services are only provided to the child
Location of Services	Natural environment (i.e. home, child care)	Least restrictive environment (remain with non-disabled peers as much as possible)
Responsible for coordination of services	Service Coordinator	ESE specialist or other designated school staff member
Frequency of Plan Review	At least every 6 months	At least annually
Timeframe for service delivery	Year-round	During the regular school year

(Florida Department of Education, 2017; Florida Department of Health 2015; IDEA, 2004; Parent Information Center, n.d.)

Developmental Delay. Although the original Education for All Handicapped Children Act and Individuals with Disabilities Education Act (IDEA) did not differentiate criteria for preschool and school age children, IDEA was amended in 1991 to provide states with an additional eligibility category for children with developmental delays under Part B (Danaher, 2011). This amendment applies to children aged 3 through 9 years, who are:

- (i) experiencing developmental delays, as defined by the State and as measured by appropriate diagnostic instruments and procedures, in 1 or more of the following areas: physical development; cognitive development; communication development; social or emotional development; or adaptive development; and

(ii) who, by reason thereof, needs special education and related services.

Under this amendment to IDEA, states and local education agencies (LEAs) are responsible for defining developmental delay and the age range to which it applies. States and LEAs also must determine which instruments and procedures will be used to measure delay in each of the developmental categories. Children who meet their state's specific criteria for developmental delay are included within the definition of a "child with disability" (Danaher, 2011; IDEA, 2004). Nearly all states have adopted this option of classifying young children beyond age 2 years as developmentally delayed. However, there is wide variation in the definition of developmental delay, the procedures for measuring delay, and the age range to which this category is applied (Danaher, 2011).

The majority of states (42) use the term "developmental delay (DD)" or a similar term such as "Significant Developmental Delay" to describe children who meet the state's eligibility criteria for a developmental delay (Danaher, 2011, p. 4). Nineteen states, including Florida, apply this category under IDEA Part B to children ages 3-5 years; 13 states apply it to children ages 3-9 years, and other states apply it to varying age ranges (e.g., ages 3-4, ages 3-6, ages 3-7). Some states only consider the developmental delay category after other disability categories have been considered, while other states only allow developmental delay to be used in place of certain Part B categories (Danaher, 2011).

Not only do states differ in the terms they use to describe developmental delay and the ages to which this category can be applied, there is wide variation in how developmental delay is measured (Danaher, 2011). While the majority of states (43) use some type of quantitative criteria, some (39) use standard deviations below the mean while others (21) use percent delay. Those who use standard deviations differ in the number of standard deviations below the mean

required (anywhere from 1 to 3) and the number of developmental areas of delay required (also ranging from 1 to 3). Those states that use percent delay differ in the percent delay required (ranging from 20-25%) as well as the number of areas of delay required. Fourteen states, including Florida, allow professionals to use clinical judgment and team consensus in addition to quantitative measures in order to establish eligibility for delay, and nine states allow early childhood eligibility based on a diagnosis of a condition associated with a disability (Danaher, 2011).

Because each state establishes its own criteria for developmental delay (Danaher, 2011; IDEA, 2004), a child may be considered to have a disability in one state but not in another (McLaughlin, Snyder, & Algina, 2015). As discussed previously, states have discretion to determine (1) the level of developmental delay that constitutes eligibility, (2) whether or not to serve “at-risk” infants and toddlers (individuals “under 3 years of age who would be at risk of experiencing a substantial developmental delay if early intervention services were not provided to the individual”), and (3) whether or not to continue serving children ages 3 years and older until they are eligible for kindergarten (U.S. Department of Education, 2014). Based on the extent of a state’s inclusion criteria, The Office of Special Education Programs (OSEP) categorizes them as having either broad, moderate, or narrow eligibility criteria (Blackorby et al., 2010; Danaher, 2011). For example, states that require a larger standard deviation or percent delay in order for a child to qualify for developmental delay under Part B or Part C would have more narrow criteria than a state that uses a smaller standard deviation or percent delay. Likewise, states that serve children in the “at-risk” category would have more broad criteria than those who do not serve at-risk children. OSEP relies on the description of each state’s eligibility

definition to determine their classification (Blackorby et al., 2010). See Table 2 for examples of states' eligibility criteria within each level of classification (broad, moderate, and narrow).

Table 2

Examples of states' eligibility criteria for Developmental Delay

Broad	Moderate	Narrow
<i>Florida:</i>	<i>New York:</i>	<i>Arizona:</i>
<u>“Developmentally Delayed”:</u>	<u>“Preschool student with a disability”:</u>	<u>“Developmentally Delayed”:</u>
2 SD or 25% delay in one area	2 SD or 33% delay in one area	1.5 to 3.0 SD in two areas
1.5 SD or 20% delay in two areas	1.5 SD or 25% delay in two areas	
<i>or</i>	<i>or</i>	
Established condition that puts the child at risk for a developmental delay	12-month delay in one or more areas	<u>“Preschool severely delayed”:</u>
<i>or</i>	<i>or</i>	More than 3 SD in one area
Informed clinical opinion	Meet the criteria for Autism, Deafness, Deaf-blindness, Hearing Impairment, Orthopedic Impairment, Other health impairment, Traumatic brain injury, Visual impairment	

(Blackorby et al., 2010; Danaher, 2011; Florida Department of Health, 2015)

Note: SD= standard deviation

Florida, the state from which the present study's sample will be drawn, is one of 24 states considered to have broad eligibility criteria (Andrews & Taylor, 2007). Although prior research indicates that states with more lenient criteria have higher eligibility rates than those with narrow criteria, this may not be the case in Florida (McManus et al., 2011). According to Blackorby et al. (2010), the percentage of children identified for early intervention services in Florida was actually lower than the national average in 2006. In fact, only 10 states had a lower percentage of children ages birth through two years who were identified for services under IDEA in 2006

than did Florida. Of those states that served more infants and toddlers, the majority had either broad or moderate eligibility criteria (Blackorby et al., 2010).

In the 36th Annual Report to Congress, the Department of Education reported that 2% of Florida's population of infants and toddler's birth through age 2 years were served under Part C in 2008 (U.S. Department of Education, 2014). Only 12 states served fewer children under Part C than Florida during this time. In 2012, Florida served 1.9% of its population of infants and toddlers under Part C, which was a greater percentage than only 4 other states. For children ages 3-5, Florida served 5.3 percent of this population in 2008 (which was a higher percentage than only 9 other states) and 5.8% in 2013 (which was a higher percentage than 20 states) (U.S. Department of Education, 2015).

Bay Area Early Steps Program (Part C)

As previously discussed, the federal government provides rules and regulations for early intervention services under IDEA, but there is flexibility in terms of how states implement those regulations (U.S. Department of Education, 2007). In Florida, Part C services are provided by the Department of Health through the Early Steps Program. Early Steps is Florida's early intervention system, which provides support to children, ages birth through 2 years, who have significant delays or conditions likely to result in a developmental delay. The current study includes a sample drawn from The Bay Area Early Steps Program, which serves two Florida counties.

In order to be eligible for Florida's Early Steps Program, a child must be less than 3 years old and must meet the qualification for having either (1) a developmental delay, (2) a diagnosed established condition that puts them at risk for a developmental delay, or (3) a developmental

issue that is not captured by the standardized assessment performed but is recognized by the clinician (i.e., informed clinical opinion) (Florida Department of Health, 2015).

To determine whether a child is at risk for or has a developmental delay, he or she is screened by Early Steps providers using the Battelle Developmental Inventory-2nd edition (BDI-II) upon the child's entry into and exit from Early Steps (Newborg, 2005). The BDI-II is an individually administered, standardized assessment tool used to measure developmental skills of children ages birth through 7 years, 11 months (Newborg, 2005). The BDI-II assesses children's functional abilities across 5 major developmental domains, including Cognitive, Adaptive, Personal-Social, Motor, and Communication. Each domain is further divided into subdomains. A list of domains and corresponding subdomains are provided in.

Table 3

BDI-2 Domains and Subdomains

Domain/Subdomains	Number of Items
Adaptive (ADP)	60
Self-Care (SC)	35
Personal Responsibility (PR)	25
Personal-Social (P-S)	100
Adult Interaction (AI)	30
Peer Interaction (PI)	25
Self-Concept and Social Role (SR)	45
Communication (COM)	85
Receptive Communication (RC)	40
Expressive Communication (EC)	45
Motor (MOT)	100
Gross Motor (GM)	45
Fine Motor (FM)	30
Perceptual Motor (PM)	25
Cognitive (COG)	105
Attention and Memory (AM)	30
Reasoning and Academic Skills (RA)	35
Perception and Concepts (PC)	40

(Newborg, 2005)

Items within each subdomain are scored on a 3-point scoring system, which assigns levels of functioning to skills the child is able to demonstrate on a regular bases (score=2), skills that are emerging (score=1) or skills the child is unable to demonstrate (score =0) (Newborg, 2005). Total raw scores for each subdomain are then converted to scaled scores, age equivalents, and percentile ranks. Scaled scores from each subdomain are added to obtain each domain sum, which are then added to obtain a total BDI-II score. Domain sums and the BDI-II total score each have a mean of 100 and a standard deviation of 15 (Newborg, 2005). Using Florida's criteria for developmental delay, children are considered eligible for the program if (1) their score in at least 1 domain is at or below 70 (2 *SD*'s below the mean) or (2) their scores in at least 2 domains are at or below 78 (1.5 *SD*'s below the mean) (Danaher, 2011).

In a sample of 252 two and four year-olds, test-retest reliability for the BDI-II ranged from .87 to .92 for domain scores and .93 to .94 for total scores (Newborg, 2005). Internal consistency reliability for the BDI-II total score ranged from .98 to .99 in the standardization sample, and the domain coefficients ranged from .90 to .96. There also is evidence that this measure is valid. BDI-2 scores correlate appropriately with well-established measures of development such as the Bayley Scales of Infant Development (.61 for Cognitive, .75 for Communication, and .64 for Motor domains), the Denver Developmental Screening Test (domain correlations ranged from .83-.90), and the Vineland Social Emotional Early Childhood Scales (.61 for Personal-Social and .71 for Adaptive) (Newborg, 2005).

In order to qualify for Early Steps based on an established condition, the child must have medical documentation showing that they have one of the genetic, neurological, and/or metabolic conditions that are covered under IDEA (e.g., Down Syndrome) (Florida Department of Health, 2015). The list of established conditions is provided in Appendix A. Lastly, if a child does not

meet the criteria for a developmental delay or established condition, clinicians may use their professional judgment to determine eligibility. In the most recent fiscal year (July 2015-June 2016), 76% of the infants and toddlers served by Bay Area Early Steps had a developmental delay, 18% had an established condition, and 6% were made eligible based on informed clinical opinion (E. Shaffer-Hudkins, personal communication, January 12, 2017).

Transition from Part C to Part B

The transition from Part C to Part B occurs when a child is approaching his or her third birthday. It is a voluntary process, chosen by parents or legal guardians who wish for their child to continue receiving special education services beyond the age of 3 years (IDEA, 2004). In the months leading up to the transition, children are evaluated to determine if they meet eligibility criteria for Part B and those who do meet the criteria are then “transitioned” to Part B special education services through their local school district. The Bay Area Early Steps Program, which is the focus of the present study, partners with two local Part B programs, including the School District of Hillsborough County and Polk County School District. Because states vary in terms of eligibility criteria for Part B and Part C, the transitions between these two programs also differ from state to state and possibly from district to district. In the National Early Intervention Longitudinal Study (NEILS) of children who entered early intervention between 1997 and 1998, 49% of parents reported that their children continued receiving special education services when their child turned 3 years of age and 63% reported that their children received special education through the public schools at some point between leaving early intervention and kindergarten (Hebbeler et al., 2007). The majority (52%) of those children received speech therapy and 32% received occupational therapy under Part B. Smaller percentages of children received physical therapy (15%), special education (13%), and behavior therapy (Hebbeler et al., 2007). Of those

children who entered Part C between 1997 and 1998, 18% exited prior to age 36 months due to either losing eligibility (i.e., declassification) or the caregivers choosing to withdraw from services (Hebbeler et al., 2007). Declassification will be discussed in further detail below.

According to a national study of children served under IDEA, 66% of those who exited early intervention at 36 months between 2005 and 2006 were eligible for Part B preschool services (Blackorby et al., 2010). Percentages of children who were eligible for Part B upon exit from Part C varied by state, ranging from 10% in the District of Columbia to 100% in Minnesota. Florida ranked 15th out of 50 states for highest percentage of children who exited Part C and were eligible for Part B at age 36 months (Blackorby et al., 2010).

More recent data on transitions from Part C show similar outcomes to those reported in prior studies (U.S. Department of Education, 2015). Sixty-one percent of 3 year-old children exiting Part C from 2012-2013 transitioned to Part B, making this the most predominant reason for exiting Part C at age 3 nationwide (U.S. Department of Education, 2015). Another 17.7% of 3 year-olds exited Part C between 2012-2013 with “Part B eligibility not determined” (U.S. Department of Education, 2015, p. 18). According to the 37th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, these children may have been referred for Part B evaluation but not had their eligibility determined at the time of their exit for Part C, or their parents may not have consented to their transition to Part B (U.S. Department of Education, 2015). Of those children exiting Part C at age 3 from 2012-2013, 16.1% were determined to be ineligible for Part B services, 61% were determined eligible for Part B, and the remainder had a variety of other exit statuses, which will be explained further in the next section. In Florida, 44.1% of infants and toddlers receiving Part C services exited to Part B (U.S. Department of Education, 2015).

Declassification from IDEA Eligibility. Declassification refers to the loss of eligibility for IDEA special education services and transitioning to Part B is just one of many reasons why children might become declassified from Part C services (Blackorby et al., 2010). Aside from transitioning to Part B, declassification can occur due to a parent(s) choosing to withdraw the child from services or the child becoming ineligible due to no longer meeting the criteria for IDEA, for example.

As mentioned previously, the majority of children who exit Part C at age 3 subsequently transition to Part B special education services. However, a substantial number of children either exit prior to age 3 or do not transition to Part C at age 3. According to national data collected by U.S. states from 2012-2013, the second most common reason infants and toddlers exited Part C (rather than meeting eligibility for Part B) was that they were “no longer eligible for Part C prior to reaching age 3,” meaning that they met their IFSP goals before they reached transition age (U.S. Department of Education, 2015, p. 97). Other common reasons for declassification nationwide include “withdrawal by parent or guardian” (11.9%) and “Part B eligibility not determined” (11.%) (U.S. Department of Education, 2015, p. 16). In Florida, 9.9% of infants and toddlers exited with the “no longer eligible for Part C prior to reaching age 3” status, but more common was the “Part B eligibility not determined” status, which accounted for 19.7% of infants and toddlers served by Part C (U.S. Department of Education, 2015, p. 97). A full list of categories under which children may be declassified from Early Steps is provided in Table 4.

Table 4

Early Steps Closure Reasons

1. Aged out before Part C eligibility determined
2. Attempts to contact unsuccessful
3. *Completion of IFSP prior to age 3
4. Deceased
5. Moved out of state
6. *No longer eligible at Redetermination
7. *Not eligible for Part B- exit with referrals
8. Not eligible for Early Steps Services
9. Part B eligibility not determined (i.e. some type of delay in the process of determining eligibility)
10. *Part B eligible- exiting Part C
11. Screened Out
12. Withdrawal by Parent after IFSP
13. Withdrawal by Parent prior to IFSP

(Bay Area Early Steps Program, 2016)

Note: IFSP=Individual Family Support Plan, *focus of the present study

Although some of the reasons for declassification are self-explanatory, such as the child moving out of state or the parent withdrawing them from services, other reasons for declassification are less clear. The present study attempts to better understand factors related to the declassification of children for reasons listed under numbers 3, 6, 7 highlighted in Table 2, as well as factors related to children's transition to Part B (number 10 in Table 2). Specifically, this study will examine differences among those children in Part C who either

(1) are *ineligible* for Part B due to either reaching their IFSP goals early (indicating they no longer qualify for Part C special education services) or not meeting eligibility criteria for Part B at transition time (indicating they are no longer eligible for special education services beyond Part C), or

(2) are *eligible* for Part B at transition time (indicating they meet criteria for receiving additional special education services beyond Part C).

These particular transitions from Part C to Part B are illustrated in Figure 1.

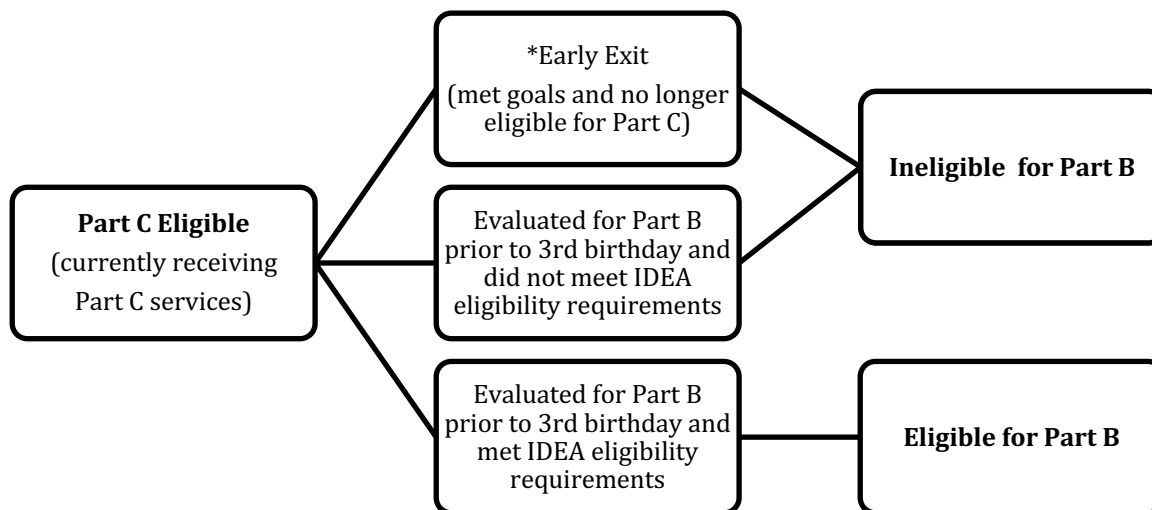


Figure 1: Transitions from Part C to Part B

Note: IDEA= Individuals With Disabilities Education Act

Factors Influencing Transitions from IDEA Part C to Part B

Given that decisions regarding transitions from Part C to Part B are made based on factors both within and outside of the child, it is important to examine how child, family, and early intervention characteristics relate to a child's eligibility for special education. As discussed previously, states' eligibility criteria ultimately determine which children meet requirements for Parts C or B, but there may be certain characteristics of children, their families, or the early intervention services they receive that increase the likelihood of them transitioning to Part B. For example, a child's gender, race/ethnicity, or Part C eligibility category (developmental delay, medical condition, informed clinical opinion) might increase the likelihood that they will transition from Part C to Part B. Similarly, their caregiver's socioeconomic status or primary language spoken in the home may relate to children's likelihood of transitioning. Lastly, characteristics of the early intervention itself (Part C), such as the type of intervention provided,

the number of different service types received, the length of time in early intervention, or the county where services were received, may relate to children's transition to Part B. These child, family and early intervention characteristics are outlined in Table 5. It is important to note that the abovementioned factors are not an exhaustive list but rather a list of those particular factors examined in this study. There are many other factors that may be important for understanding transitions to preschool special education but were not included in this study because the data were either not collected by Early Steps or were unavailable in the database that the researcher had access to. Some of these factors, which are of interest but were not analyzed in this particular study, include low birth weight, number of intervention sessions received, BDI-II scores, whether the child lives in a 1-parent vs. 2-parent household, maternal education level, and training/educational level of the Early Steps provider.

Table 5

Factors Influencing Transitions from IDEA Part C to Part B

Child Characteristics	Family Characteristics	Early Intervention Characteristics
<ul style="list-style-type: none"> • Gender • Race/Ethnicity • Part C IDEA Eligibility Category 	<ul style="list-style-type: none"> • Primary language spoken in home • SES 	<ul style="list-style-type: none"> • Type of intervention • Number of different service types • Length of time in Early Steps • County where services were received

Note: IDEA= Individuals With Disabilities Education Act; IFSP=Individual Family Support Plan, SES=socioeconomic status

Child Characteristics

Gender. Males have historically been overrepresented in special education and according to the most recent data provided by the U.S. Department of Education Office for Civil Rights, males represented approximately 66.7% of youth served in special education from 2012-

2013 despite only accounting for 51.4% of the population of public school students during that time (U.S. Department of Education, Office for Civil Rights, n.d.). These estimates mirror those of several national studies which report that as many as 3 out of 5 special education students are male (Hebbeler, 2007; Blackorby et al., 2010). This trend holds true not only for children served under Part B, but also for infants and toddlers served under Part C. Among a national sample of children entering early intervention between 1997 and 1998 (NEILS), males were overrepresented, accounting for approximately 60% of the infants and toddlers meeting eligibility criteria (Hebbeler et al., 2007; Scarborough et al., 2004). Males also represented 64% of those infants and toddlers who were eligible based on a developmental delay. In this same sample, which followed children from early intervention through kindergarten, 58% of the boys were eligible for special education in kindergarten compared to 50% of girls (Hebbeler et al., 2007). Blackorby et al. (2010) reported similar findings for children served in early intervention nationwide in 2006, with 59% being male. This study was conducted as part of the National Assessment of the implementation of IDEA in order to describe the outcomes of children identified for services under IDEA and also to compare these outcomes with those of nondisabled peers.

Another study, known as The Pre-Elementary Education Longitudinal Study (PEELS), examined the characteristics of children ages 3 to 5 years receiving preschool special education services in the 2003-2004 school year and followed them through 2009 to document their transitions across educational levels and their performance on academic and adaptive assessments (Markowitz et al., 2006). Markowitz et al. (2006) reported that 70% of 3 to 5 year-olds identified for special education between 2003 and 2004 were male. More recent reports on the implementation of IDEA do not report numbers of children served under Part C or Part B by

gender (U.S. Department of Education, 2014, 2015). According to the U.S. Department of Education Office of Special Education, data on the gender of the children served under IDEA is unavailable for many states, including Florida (U.S. Department of Education, 2016).

Race/Ethnicity. Research to date is mixed in terms of how race and ethnicity impact a child's chances of being identified for special education. While minority students have been reportedly overrepresented in school-age special education, this may not be the case for children receiving early intervention services (Guarino et al., 2010). In fact, some minority children may be underrepresented in early childhood special education (Morgan et. al, 2012). Blackorby et al. (2010) analyzed a number of studies from 1998 to 2005 involving children in special education and found that the percentage of infants and toddlers from each of the five federally designated racial/ethnic backgrounds differed for those receiving early intervention (Part C) versus school-age special education services (Part B). During this timeframe, White infants and toddlers were most likely to be identified for special education, followed American Indian, Black, Hispanic, and Asian infants and toddlers, respectively. In 2005, 2.55% of White infants and toddlers were identified, followed by 2.45% of American Indian infants and toddlers, 2.32% of Black infants and toddlers, 2.09 percent of Hispanic infants and toddlers, and 1.95% of Asian infants and toddlers (Blackorby et al., 2010). In contrast to the patterns for infants and toddlers, the highest percentage of children receiving school-age special education services by race/ethnicity was for Black students, followed by American Indian, White, Hispanic, and Asian students respectively. In 2005, 16.7% of Black school-age children were identified for special education services, followed by 15.76% of American Indian children, 14.05% of White Children, 11.83% of Hispanic children, and 6.34% of Asian children (Blackorby et al. (2010).

Guarino et al. (2010) analyzed six years of data collected on all students in California who were served under IDEA Part B from 2001-2006 and found similar discrepancies in terms of the proportion of each race/ethnicity served in school-age special education compared with that of early childhood special education. Although African American children were identified for special education at higher rates than children of other racial ethnic groups, they were less likely to be identified prior to kindergarten. In contrast, Hispanic and Asian students were more likely to be identified for special education prior to kindergarten than were other racial/ethnic groups (Guarino et al, 2010).

Using data from the Early Childhood Longitudinal Study- Birth Cohort (ECLS-B) of U.S. children born in 2001, Morgan et al. (2012) examined whether any observed disproportionate representation in early intervention/early childhood special education was attributable to children's race/ethnicity. After controlling for confounding variables such gender, SES, birth weight, numeracy and receptive language knowledge, and frequency of behavior problems, the authors found that minority children were disproportionately underrepresented in early intervention. More specifically, minority children were less likely than their White counterparts to be evaluated and diagnosed as having attention, communication, or learning problems (Morgan et al., 2012). Although White children accounted for 56% of the general population of 48 month-old children, they represented 70% of those receiving early intervention services. Black children accounted for 15% of this population but only 7% of those receiving services; Hispanic children constituted 23% of this population but only 17% of those receiving services, and Asian children represented 3% of this population but only 1% of those receiving early intervention services (Morgan et al., 2012).

In addition to differences in identification for special education, children from different racial or ethnic backgrounds may have varying experiences when transitioning from Part C to Part B services. In the PEELS national study, which examined characteristics of children receiving preschool special education services, parents of Hispanic children were significantly more likely than parents of White or Black children to report that they had a “somewhat hard” or “very hard” transition from preschool special education to kindergarten (Carlson et al., 2009, p. 31). It is unclear whether or not the primary language of these families was a factor; however, primary language will be discussed in further detail later in this chapter.

IDEA Part C Eligibility Category. Since infants and toddlers can qualify for Part C under different categories, it may be beneficial to understand which of these categories (Developmental Delay, Established/Diagnosed Condition, or Informed Clinical Opinion) are most common and whether children who qualify under certain categories are more or less likely to receive Part B services. In the NEELS study of children entering early intervention services between 1997 and 1998, the majority (62%) met eligibility requirements based on a developmental delay (Scarborough et al., 2004). Just over one-fifth (22%) were eligible based on a diagnosed medical condition, and a smaller percentage (17%) met eligibility due to a biomedical condition (e.g., prematurity, low birth weight) or environmental factors (i.e., parental substance abuse or developmental disability) that put them at risk for a developmental delay. Of those children who had a developmental delay, at least 41% had speech or communication delays, 17% had motor delays, and 12% percent of those infants and toddlers presented with global developmental delays. For those who entered between ages 24 and 36 months, 75% had a communication delay (Hebbeler et al., 2007).

Of the three ways that children can become eligible for early intervention, having an at-risk condition appears to be associated with earlier declassification from special education (Hebbeler et al., 2007). Of those who entered early intervention due to an at-risk condition, only 31% were eligible for special education in kindergarten. An additional 13% of those with an at-risk condition met criteria for a disability but did not receive special education in kindergarten (Hebbeler et al., 2007).

In contrast, having a diagnosed condition appears to be most strongly associated with receiving Part B services in kindergarten (Hebbeler et al., 2007). Although the percentage of children receiving early intervention due to a diagnosed condition was much smaller than the percentage that had a developmental delay, those children with diagnosed conditions were more likely to require special education in kindergarten (Hebbeler et al., 2007). In fact, 76% of those who entered early intervention based on a diagnosed condition were later served in special education as kindergarteners and another 10% were considered to have a disability (Hebbeler et al., 2007). In comparison, of those children who entered early intervention due to a developmental delay, 54% were eligible for special education in kindergarten and another 10% were considered to have a disability (Hebbeler et al., 2007). One hypothesis for this discrepancy is that many of the conditions diagnosed prior to age three are life-long conditions, requiring long-term intervention.

Guarino et al. (2010) found that children in California were more likely to be identified prior to kindergarten if they had a condition that was observable in the first few years of life, such as an established medical condition, deaf-blindness, orthopedic impairment, or autism. Children with emotional disturbances and/or specific learning disabilities, on the other hand, were less likely to be identified for special education prior to kindergarten (Guarino et al., 2010).

Family Characteristics

Caregiver Relationship to Child. Because a child's participation in Part C is highly influenced by parents'/caregivers' reports of their child's functioning as well their consent to participate in the program, it may be beneficial to better understand how a caregiver's relationship to the child is correlated with the child's special education status. One family factor that has been associated with participation in special education is living in foster care (Hebbeler et al., 2007; Scarborough et al., 2004). In the NEILS longitudinal study, children entering early intervention between 1997 and 1998 were approximately 10 times more likely to live in foster care than children in the general population (Hebbeler et al., 2007; Scarborough et al., 2004). African American children represented half of the infants and toddlers entering early intervention who lived in foster care, which was similar to their overrepresentation in the general population of children in foster care (Scarborough et al., 2004).

In the PEELS study mentioned previously, the majority (67%) of 3 to 5 year-old children with disabilities (in the 2003-2004 school year) lived with both biological parents, approximately 20% lived with just one biological parent, and 5% lived with one biological parent and his/her partner or spouse. Smaller percentages of children lived with either adoptive parent(s) (3.7%) or "other" caregivers, such as grandparents (3.8%) (Markowitz et al., 2006). The composition of these families varied significantly by race and ethnicity. For example, 73% of White children and 65% of Hispanic children lived with two biological parents while only 30% of Black children did (Markowitz et al., 2006). In contrast, Black children were much more likely to live with "other" caregivers than their Hispanic or White counterparts (Markowitz et al., 2006).

Guarino et al. (2010) examined characteristics of youth who entered special education in California from 2005 to 2006 and noted that although less than 2% of these children were living

in foster care, those children living in foster care were more likely to be identified early than were those who lived with a parent (Guarino et al., 2010). The authors hypothesized that this may be due to the fact that children are evaluated by a physician upon entrance into foster care, which may lead to earlier identification.

The Bay Area Early Steps Program collects information from each family who enters their program, including whether the caregiver is a parent, guardian, foster parent, surrogate, or other; however, it is not clear how or if this type of relationship is related to whether or not children receive special education services. In its most recent annual report, Florida's Early Steps program did not differentiate between types of caregivers when reporting on the outcomes of children and families, so this may not be information that is routinely collected and examined at the state level (Florida Department of Health, 2016).

Primary Language Spoken in Home. A child's primary language may have implications for their likelihood of being identified for special education services as well as the timing of their identification. Determining whether a child has a learning disability vs. a language difference can be challenging and may lead to the over-identification of English language learners (ELLs) in special education (Case & Taylor, 2005). Unfortunately, state departments of education often do not collect data about students' language proficiency and therefore, data on the relationship between language proficiency and special education status are limited (Klingner & Artiles, 2003). Consequently, many of the national studies that describe characteristics of children receiving preschool education report on ethnicity of the child/family but not the primary language of the child (Blackorby et al., 2010; McManus et al., 2011; Raspa et al., 2010; Scarborough et al., 2004).

Some of the data that do exist with relation to primary language and special education status suggest that English language learners are disproportionately represented in special education (Sullivan, 2011). More specifically, ELLs are often overrepresented in the categories of specific learning disabilities (SLD), speech-language impairments (SLI), and mild mental retardation (MIMR) (Sullivan, 2011). In a sample of California preschoolers who were identified for special education from 2005-2006, 25% were English language learners and these youth were less likely to be identified early than their non-ELL peers (Guarino et al., 2010). The authors suggested that various factors might influence the later identification of ELLs, including language barriers that interfere with access to or identification of disabilities, as well as a lack of qualified screeners who are fluent in languages other than English (Guarino et al., 2010)

In addition to differences in identification, a child's primary language may have implications for the effectiveness of special education services. Liu, Ortiz, Wilkinson, Robertson, and Kushner (2008) found that Spanish-speaking ELLs who received early intervention and were identified as having a speech or language disorder did not show significant improvements in language proficiency or communication. These children were more likely to be served in Bilingual Special Education classrooms in elementary school, often without an assessment or data indicating that the child had a verifiable reading disability (Liu et al., 2008). These findings suggest that early identification of communication problems in ELLs may unnecessarily influence their identification for special education in school.

Socioeconomic Status (SES). Poverty has been repeatedly linked to a variety of negative outcomes for youth (Duncan, Ziol-Guest, & Kalil, 2010; Fujiura & Yakami, 2000; Hebbeler et al., 2007). Duncan et al. (2010) examined the long-term achievement, health, and behavioral outcomes of youth who were living in poverty between their prenatal year and age 5. By age 30

to 37 years, adults who had lived in poverty before the age of 6 completed 2 fewer years of school, worked 451 fewer hours per year, earned less than half as much income, received over \$800 more in food stamps per year, and were more than twice as likely to report high levels of psychological distress or poor overall health than those whose families had incomes of at least twice the poverty line during their early childhood (Duncan et al., 2010). Adults who had lived in poverty during early childhood were almost 50% more likely to be overweight and those who were male were twice as likely to have been arrested.

Fujiura and Yamaki (2000) examined the relationship between disability and socioeconomic status using 14 annual data sets of the National Health Interview Survey (NHIS) for the years 1983 through 1996. NHIS data include information about the health and health care of Americans and are collected annually through in-home interviews. The sample sizes from 1983 to 1996 ranged from 62,000 individuals living in 25,000 households (1983) to 128,000 individuals in 52,000 households (1992). Fujiura and Yamaki included children ages 3 to 21 who had a long-term chronic condition which limited their ability to engage in play, school, employment, personal care, or household activities. The researchers used the federal poverty level to determine children's socioeconomic status and family status was examined in terms of whether there was a married couple headed household or single-headed household. The sample included Caucasian non-Hispanic, African-American non-Hispanic, and Hispanic children but Asian and Native American children were excluded due to small sample sizes within some of the outcome groups. Fujiura and Yamaki concluded that the proportion of children living in poverty increased significantly between 1983 and 1996. Furthermore, poverty was more prevalent in single-parent households and children who lived both in poverty and in a single-family household were more likely to have a disability. Although this study provides important

information about the relationship between poverty and disability, it is important to note that the definition of disability used in this study was quite broad and may have included children who would not meet IDEA criteria for a disability, or may have excluded children who met IDEA criteria but who were not significantly limited in terms of activity level. Data also relied heavily on parent reports, which may have biased the results.

Several studies have reported on the prevalence of children living in poverty who receive early childhood special education services. In the NEILS study of infants and toddlers who entered early intervention from 1997 to 1998, 32% lived at or below the poverty level, compared with 24% of the infants and toddlers in the general population at that time (Scarborough et al., 2004). Moreover, children entering early intervention were more likely to have been on welfare than those in the general population. They were also more likely to have health insurance, particularly government-assisted health insurance. Children in the NEILS study who were living in poverty were more likely to have had a difficult birth history, to be in fair or poor health, and were more likely to have hearing problems or trouble using their limbs than those who lived above the poverty level (Hebbeler et al., 2007). Children living in poverty also were more likely to have delayed communication, motor, and cognitive skills at 36 months than children living above the poverty level.

In another national sample of preschoolers with disabilities, over one-fourth (27%) of those ages 3-5 who were identified as having disabilities lived in households with income levels of \$20,000 or less (the federal poverty level for a family of four), which was higher than that of the general population (20%) (Markowitz et al., 2006). The percentage of preschoolers with disabilities living in poverty varied by race/ethnicity, with 50% of Black preschoolers, 41% of Hispanic preschooler, and 19% of White preschoolers living at or below the poverty level.

Preschoolers who lived at or below the poverty line scored significantly lower than their counterparts on an a shortened version of Dunn and Dunn's (1997) Peabody Picture Vocabulary Test (PPVT-III), which is a direct measure of receptive vocabulary and is considered to be a strong predictor of language development and cognitive achievement (Markowitz et al., 2006).

Early Intervention Characteristics

Type of intervention/support (Speech, Occupational Therapy, Physical Therapy, Early Intervention). Part C early intervention services are provided by a range of professionals and are individualized to the needs of each child; however, it is possible that the types of services that a child receives may relate to their Part B eligibility status (IDEA, 2004). In the NEILS study of infants and toddlers receiving early intervention services across 20 different states from September 1997 to November 1998, the types of services most frequently provided to families, in addition to service coordination, included speech/language therapy, special instruction, occupational therapy, developmental monitoring, and physical therapy (Hebbeler et al., 2007). The majority of families received a combination of two or more services and approximately one fourth of families received as many as six or more services during their first 6 months of early intervention. Families reported that they received services from service coordinators (63%), speech therapists (53%), a physical therapist (38%), occupational therapist (38%), a child development specialist (32%), or a special educator (29%). The titles and roles of professionals varied by state, so some families received service coordination from a provider other than a service coordinator (e.g., a speech therapist), which may not be reflected in these numbers.

Using a subset of data from the NEILS longitudinal study, Raspa et al. (2010) examined the different combinations of service providers who offer early intervention services to children and families in Texas and Illinois, including how the provision of services differs across types of

providers and how the type of provider varies depending on child and family characteristics. Raspa et al. (2010) found that the vast majority (94%) of the families served through early intervention received services from one of five main types of providers, including speech-language pathologists, occupational therapists, physical therapists, child developmental specialists, and early childhood special educators. The percentages of each provider type were nearly identical in these two states to those reported in the larger NEILS study, with speech pathologists providing services to the largest percentage of families (54%), followed by occupational therapists and physical therapists (39% each), child developmental specialists (33%), and educators (29%) (Raspa et al., 2010).

In the abovementioned study, the children who received speech/language services were more likely to have a developmental delay, to enter early intervention services at age 24 months or older, and to receive an average amount of services per week compared to children and families served by other types of providers (Raspa et al., 2010). Children served by occupational therapists and physical therapists were more likely to have entered early intervention between ages birth through 12 months, to have qualified for Part C based on either a diagnosed condition or being at-risk for a developmental delay, and were more likely to receive fewer hours of service per week. Children and families served by educators were more likely to be African American or Hispanic, to have qualified for services based on being at-risk for a developmental delay, and to receive fewer hours of service per week. Raspa et al. (2010) concluded that the types and intensity of services often appeared to reflect the needs of the children, however; there were also predictable patterns that reflected differences in types of services provided based on ethnicity, income, and maternal education.

Frequency of intervention recommended on IFSP. Few studies have examined whether the number of hours of services provided weekly impact the outcomes of infants and toddlers receiving early intervention. In the NEILS study mentioned previously, the average amount of services that were scheduled for the first six months on children's IFSPs was 2.8 hours per week (Hebbeler et al., 2007). The majority of families (63%) received 2 hours a week or less, including 13% who were scheduled to receive services for less than 30 minutes per week. Of those service hours that were scheduled in the home, providers estimated that families had missed an average of 23% for various reasons such as the child being ill, the family missing an appointment, or the provider canceling due to illness or other reasons. Similar estimates were provided for services missed in centers (23%) and clinics (13%). Providers reported that 44% of families received services primarily focused on the child, rather than incorporating the parent into the intervention. In response to these findings, Hebbeler et al. (2007) noted, "there is little reason to believe that an hour of child-based EI once a week makes a difference, but that appears to be the extent of service that many children were receiving" (Hebbeler et al., 2007, p. 3-3). In order to better understand how the frequency of intervention services impacts preschool special education outcomes, additional research is warranted with regard to the frequency of services that infants and toddlers receive under Part C.

Length of time in Early Steps. Children's age of entry and length of time served in early intervention may influence whether or not they transition to Part B. For example, it may be that children who enter at a later age are more likely to require additional support due to having had less time to benefit from early intervention services. On the other hand, children with the most severe disabilities may be more likely to be identified early for Part C and may also continue to require additional supports through Part B. Although the nationwide studies of early

intervention that do exist sometimes report the ages at which infants and toddlers enter early intervention or the percentages of infants and toddlers served within each year of life, few if any, have analyzed how length of time receiving part C services impacts preschool special education status (Blackorby et al., 2019; Kasprzak et al., 2012; U.S. Department of Education, 2015).

According to Scarborough et al. (2004), infants and toddlers with medical conditions and biomedical risk factors were significantly more likely to enter early intervention at a younger age than children with developmental delays. In this study, the largest percentage of children (38%) entered early intervention services for the first time prior to their first birthday. The smallest percentage (28%) entered between age 1 and 2 years, and another 34% entered in their third year of life (Scarborough et al., 2004).

Blackorby et al. (2010) reported a somewhat different trend, with 3.9% of the overall population of 2 year-olds being found eligible for early intervention in 2006, compared to 2.32 % of infants and toddlers ages 1 to less than 2 years, and only 1.01 percent of infants under age 1 (Blackorby et al., 2010). This trend in the percentage of infants and toddlers served under IDEA was consistent from 1997-2006, with the largest proportion of 2 year-olds being found eligible for early intervention services compared with 1 year-olds and infants less than 1 year old.

Raspa et al. (2010) examined the perceptions of parents whose children were enrolled in Part C early intervention programs in Illinois and Texas and found that while parents of younger children tended to report better outcomes on the Family Outcomes Survey (FOC) than those with older children, this did not hold true when length of time in early intervention was considered. Parents of children who had received intervention services for longer periods of time reported higher outcomes than those who had just recently entered early intervention. The five outcomes measured by the FOC include (1) understanding your child's strengths, needs, and abilities; (2)

knowing your rights and advocating for services; (3) helping your child develop and learn; (4) having support systems; and (5) accessing your community. Although family outcomes were more positive for those who had participated in early intervention, specific child outcomes were not examined in this particular study (Raspa et al., 2010).

County where child received services. The county where a child received intervention services may influence the likelihood that they will become eligible for Part B. Although each county within a state should follow the same state guidelines to determine eligibility, it may be that the needs of children differ from county to county or that the specific services available to infants and toddlers differ from county to county. In addition, since Part B eligibility is determined by local school districts, it is possible that the school district in one county uses different procedures or criteria for determining eligibility than those used by another district. For example, one school district might rely on the BDI-2 scores that Early Steps provides upon closure to determine eligibility for Part B, while another district may conduct a separate, independent BDI-II in order to determine Part B eligibility. In this case, the training and experience level of those administering the BDI-II may differ from district to district.

Summary

The Individuals with Disabilities Education Act (IDEA) was designed to ensure that children with disabilities receive a free and appropriate education (IDEA, 2004). Although children ages birth through 21 years are afforded rights under this law, the eligibility criteria, lead agencies, and overall model of services provided for infants and toddlers birth through age 2 (under Part C) is very different than that of children ages 3 through 21 (under Part B). Complicating matters even further is the fact that states differ in their eligibility requirements and definitions for special education categories, such as developmental delay. Given the variations

in Part C and Part B, as well as differences between states, it can be challenging to predict which infants and toddlers receiving early intervention will go on to receive special education services once they reach age 3. The studies referenced in this chapter provide valuable insights into some of the child, family, and early intervention factors that might relate to children's transitions from early intervention to preschool special education across the nation; however, little is known about the transitions of infants and toddlers in Florida. This study examined factors that may relate to transitions to preschool special education for infants and toddlers who are served by the Bay Area Early Steps program, which serves two counties in Florida. Details of this study, including the participants, measures, data collection, and data analyses are provided in the next chapter.

Chapter 3: Methods

Overview

This chapter describes the methods and procedures that were used in this study. The chapter begins with a description of the participants and the inclusion criteria that were used to determine eligibility for the study. Next, demographic data of the participants is provided, including the frequencies and percentages of participants within each level of the dependent and independent variables. Following the description of participants, an explanation of the data collection procedures and the measures that were used in the study is provided. Finally, a list of hypotheses are presented as well as an explanation of the data analyses procedures used to test these hypotheses.

Participants

A convenience sample of infants and toddlers, ages birth through 36 months, was selected from a population of infants and toddlers who exited The Bay Area Early Steps Program between January 1, 2016 and December 31, 2016. All infants and toddlers who exited the Bay Area Early Steps Program during that timeframe and who were either eligible for Part B or ineligible with one of the following closure reasons (Completion of IFSP prior to age 3, No longer eligible at Redetermination, Not eligible for Part B- exit with referrals), were included in the overall sample. Information about each subgroup is provided under Outcome Measures.

The Bay Area Early Steps program serves infants and toddlers throughout Hillsborough and Polk Counties in Florida. These two counties are adjacent to one another and are located in the central western portion of the state. Hillsborough County is the larger of the two counties,

spanning over 1,000 square miles, and has a population of nearly 1.4 million residents. Pasco County, which is just north of Hillsborough County, is less than 750 square miles and has just over 500,000 residents. In Hillsborough County, the majority of residents are White (74.8%), followed by Black/African American (17.7%), Asian (4.2%) and Multiple races (2.7%). Residents in Pasco County are primarily White (88.9%), followed by Black/African American (5.9%) and Asian (2.5%). Over one-fourth (27.6%) of Hillsborough County residents are Hispanic compared with just over 14% of the Pasco County residents. In 2016, the median household income in Hillsborough County was \$51,681 and 15% of the population was living in poverty. During the same year, the median household income in Pasco County was \$46,010 and 13.3% of the population was living in poverty (U.S. Census Bureau, n.d.).

Participants in this study were evaluated using the Battelle Developmental Inventory, 2nd edition (BDI-II) to determine eligibility for the Early Steps program. Participants whose primary language was Spanish were administered the BDI-II Spanish and services were provided in Spanish as well. Children were considered eligible for the program if (1) their score in at least 1 domain was at or below 70 (2 *SD*'s below the mean), (2) their scores in at least 2 domains were at or below 78 (1.5 *SD*'s below the mean), (3) they had a diagnosed medical condition included in the list of established conditions, or (4) they qualified based on informed clinical opinion (Danaher, 2011; E. Shaffer-Hudkins, personal communication, September 2, 2016). The most recently reported demographic characteristics of infants and toddlers in The Bay Area Early Steps Program included a total of 1398 children enrolled in 2014: 52% White, 36% Black, 12% Other/Mixed, and 39% Hispanic (E. Shaffer-Hudkins, personal communication, September 2, 2016). Approximately 74% of the children were enrolled in Medicaid, so it was expected that the sample would be representative of this population.

The total number of infants and toddlers in the current sample was 937, with 762 participants in the Eligible for Part B at age 3 outcome group and 175 participants in the Ineligible for Part B at or before Age 3 outcome group. Participants were primarily male (68%) and Hispanic (43.6%) or White (30.4%) (these two categories were mutually exclusive in the data set). At least 60% of the sample became eligible for the Early Steps program due to a developmental delay (vs. an established condition or informed clinical opinion) and the majority of participants (71%) came from low-income families whose primary language was English (73.6%). The most common types of interventions that participants in this sample received were early intervention (79.2%) and speech/language therapy (19.7%), and most participants (72.6%) received only one type of intervention/service while in Early Steps. The average length of time that participants were served in the Early Steps program was 398 days and the majority (73%) of participants were served in Hillsborough County. A full list of variables with frequencies and percentages of participants within each level of the variable are provided in Table 6.

Table 6

Frequencies and Percentages of Groups of Participants

Variable	Frequency
Part B Eligibility (DV)	
Eligible at or before age 3	762 (81.3)
Ineligible at or before age 3	175 (18.7)
Gender	
Male (%)	637 (68.0)
Female (%)	300 (32.0)
Race/Ethnicity	
Asian (%)	24 (2.6)
Black (%)	174 (18.6)
Hispanic (%)	409 (43.6)
Mixed/Multiple (%)	42 (4.5)
White (%)	284 (30.4)
Eligibility Category	
Developmental Delay (%)	566 (60.4)
Established Condition (%)	178 (19)

Table 6 (continued)

Primary Language	
English (%)	690 (73.6)
Non-English (%)	144 (15.4)
SES	
Enrolled in Medicaid (%)	665 (71.0)
Not enrolled in Medicaid (%)	271(28.9)
Speech/Language (SLP)	
Received SLP(%)	185 (19.7)
Did not receive SLP (%)	682 (72.8)
Occupational Therapy (OT)	
Received OT (%)	30 (3.2)
Did not receive OT (%)	837 (89.3)
Physical Therapy (PT)	
Received PT (%)	60 (6.4)
Did not receive PT (%)	807 (86.1)
Early Intervention (EI)	
Received EI (%)	742 (79.2)
Did not receive EI (%)	125 (13.3)
Service Coordination (SC)	
Received SC (%)	48 (5.1)
Did not receive SC (%)	819 (87.4)
Number of different services types received (SPL, OT, PT, EI)	
<i>M (SD)</i>	1.19 (.563)
0 service types (%)	32 (3.4)
1 service type (%)	680 (72.6)
2 service types (%)	129 (13.8)
3 service types (%)	25 (2.7)
4 service types (%)	1 (.1)
Length of time in Early Steps in days	
<i>M (SD)</i>	398.1 (274.5)
County	
Hillsborough (%)	684 (73.0)
Polk (%)	252 (26.9)

Note: DV= dependent variable

Data Collection

This study involved secondary analyses of data that were collected and maintained for administrative purposes rather than research purposes. This study qualified for expedited review through The University of South Florida's Institutional Review Board (IRB) and following IRB

approval, data were provided to the researcher by The Bay Area Early Steps program. Data consisted of (1) information collected as part of the Individual Family Support Plan (IFSP) during the child's evaluation for the program, (2) information about the types of services children received while in Early Steps, and (3) special education eligibility classification/closure disposition at time of exit from Early Steps. Participants' BDI-II scores were not provided, as this information is housed in a separate data set to which the researcher did not have access. To protect participants' identities, the researcher did not have access to names or other identifying information of participants aside from the county in which they received services.

Early Steps evaluators. Providers who evaluated children for entry into and exit from The Bay Area Early Steps Program had a range of backgrounds and levels of experience. While some may have had a Doctorate or Master's degree and been licensed in their respective disciplines (e.g., Psychology, Physical Therapy, Occupational Therapy), others, such as Infant Toddler Developmental Specialists (ITDS), were only required to hold a bachelor's degree and have five years of experience working with young children (Dickinson, S., 2017; E. Shaffer-Hudkins, personal communication, October 16, 2015).

Approximately 80% of the providers who perform entry evaluations for Early Steps are internally employed while approximately 20% are contracted providers. All internal providers go through a mentorship process to learn how to administer the BDI-II. As part of that process, each provider must observe others administering the assessment and then they must administer it themselves with 80% proficiency. Providers who are not internally employed participate in an all-day training to learn how to administer the BDI-II, but they do not have the same level of oversight as the internal providers. External providers must have their supervisors sign off to attest that they have observed three BDI-II administrations and completed three on their own;

however, there is no oversight in terms of their proficiency with administering the assessment (E. Shaffer-Hudkins, personal communication, October 16, 2015). Although only approximately 20% of providers administering the entry BDI-II are externally employed, 100% of those administering the exit assessments are externally employed. This is a limitation for this study, given that the training and skillsets are likely varied among providers.

Measures

Outcome Measure. The dependent variable was the Children's Eligibility Outcome and consists of two levels including: (1) eligible for Part B at age 3 and (2) ineligible for Part B at or before age 3. These outcome data were collected by Early Steps for each child who exited the program. Upon exit from Part C, each child was assigned one of 13 closure dispositions. Some of these 13 reasons for exiting Part C are unrelated to eligibility for Part B, such as the parent withdrawing the child from services or the child moving out of state. For the purposes of this study, only data for children exiting with four particular closure dispositions were analyzed. These closure dispositions as well as the eligibility outcome that they entail are listed in Figure 2. Three of the closure dispositions, including “completion of IFSP prior to age 3, no longer eligible at redetermination,” and “not eligible for Part B-exit with referrals” were combined to create the outcome category of Ineligible for Part B at or before Age 3. The number of children with each of these three closure dispositions was much smaller than the number of children who were eligible for Part B, so combining them into one outcome group allowed for a more comparable comparison between outcome groups.

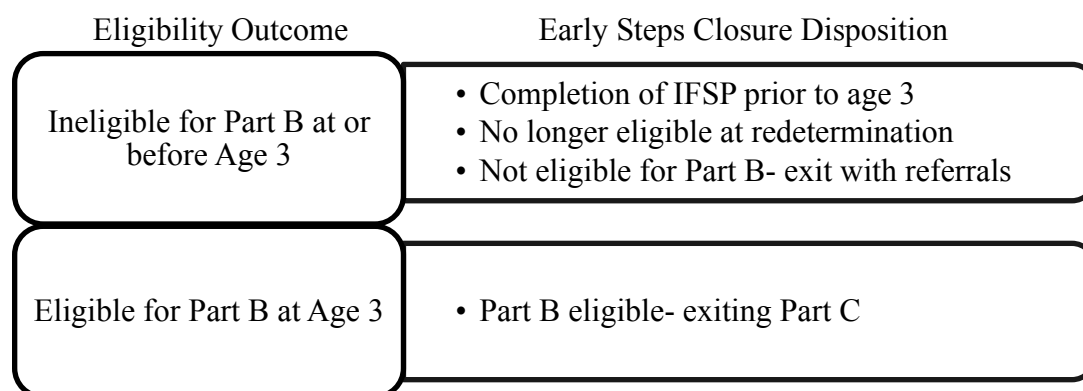


Figure 2: Children's Eligibility Outcomes Upon Exit from Part C

Note: IFSP=Individualized Family Support Plan

Child measures. Child measures included gender, race/ethnicity, and Part C eligibility category. All variables were categorized based on information available in the data set provided by Early Steps. Gender was categorized as male or female. Race and ethnicity were combined within the data set and therefore were analyzed together. The variable Race/Ethnicity was categorized as Asian, Black, Hispanic, Mixed/Multiple, and White. Part C eligibility category was categorized as developmental delay or established condition. These were binary variables indicating whether or not the child was eligible based on developmental delay or established condition. The list of possible established conditions is provided in Appendix A. A third Part C eligibility category (informed clinical opinion) was left out of all analyses due to missing data, which will be discussed further in Chapter 4.

Family measures. Family measures included primary language spoken in the home and socioeconomic status. Primary language was categorized as English and non-English. There were far fewer non-English speakers than English speakers so all of the non-English languages present in the data set (Spanish, Creole, and Vietnamese) were combined to create one category. Socioeconomic status was categorized based on whether or not the child was enrolled in

Medicaid. Since Early Steps participants are not required to report their income level and they do report health insurance information, Medicaid eligibility was chosen as the closest measure of socioeconomic status. The criteria for qualifying for Medicaid include having an income at or below a certain percentage of the federal poverty level. As of April 2016, infants less than 1 year old were eligible for Medicaid if their parent(s)/caregivers(s) income was at or below 200% of the poverty level, while children ages 1 through 5 qualified at 135% of the federal poverty level (Department of Children and Families, 2016). Because every child living at or below the poverty level does not necessarily have Medicaid, this measure may not identify all children in the sample who are actually living in poverty. A third family measure, caregiver's relationship to child, was left out of analyses due to missing data.

Early Intervention measures. Early intervention characteristics included type of intervention/support received, length of time in Early Steps, number of different service types received, and county where services were received. The type of intervention/support a child received was categorized based on service codes entered in the IFSP such as speech therapy, occupational therapy, physical therapy, service coordination, and early intervention. The number of different service types received was measured as a continuous variable from 0 to 4 service types (OT, PT, Speech/Language and/or Early Intervention). Service coordination (i.e., case management) was not included as one of the service types since it was not a service that directly addressed a developmental delay or medical condition, but rather involved coordination of these types of interventions. Length of time in Early Steps was maintained as a continuous variable and was determined by calculating the number of days between the child's entry and exit dates. County was categorized as either Hillsborough County or Polk County, as these are the two counties that the Bay Area Early Steps Program serves.

Hypotheses regarding factors related to Part B eligibility status

Based on the extant literature regarding factors impacting transitions to preschool special education, a number of hypotheses were examined in order to better understand those variables that are related to preschool special education status in Florida. A list of hypotheses regarding the various child, family, and early intervention variables examined in this study are provided in Table 7.

Table 7

Hypotheses Regarding Variables Related to Part B Eligibility Status

Predictor Variable	Hypothesis
Gender	Hypothesis 1 Children who are male are more likely to be eligible for Part B than children who are female.
Race/Ethnicity	Hypothesis 2 Children who are Hispanic or Black/African American are more likely to be eligible for Part B than White children.
IDEA Part C Eligibility Category	Hypothesis 3 Children with an established/diagnosed condition are more likely to be eligible for Part B than children with a developmental delay.
Primary Language	Hypothesis 4 Children whose primary language is anything other than English are more likely to be eligible for Part B.
Socioeconomic Status (SES)	Hypothesis 5 Children whose families have a low SES are more likely to be eligible for Part B than children whose families do not have a low SES.
Speech/Language (SPL)	Hypothesis 6 Children who received SPL are more likely to be eligible for Part B than children who did not receive SPL.
Occupational Therapy (OT)	Hypothesis 7 Children who received OT are not more likely to be eligible for Part B than children who did not receive OT.
Physical Therapy (PT)	Hypothesis 8 Children who received PT are not more likely to be eligible for Part B than children who did not receive

Table 7 (continued)

	PT.
Early Intervention (EI)	Hypothesis 9 Children who received EI are not more likely to be eligible for Part B than children who did not receive EI.
Service Coordination (SC)	Hypothesis 10 Children who received SC are not more likely to be eligible for Part B than children who did not receive SC.
Number of different service types received	Hypothesis 11 The more different types of services a child received in Early Steps, the more likely they are to be eligible for Part B.
Length of Time in Early Steps	Hypothesis 12 Children who were in Early Steps for shorter lengths of time are more likely to be eligible for Part B.
County	Research Question Are children who participated in Early Steps in Hillsborough County equally as likely to be eligible for Part B as children who participated in Early Steps in Polk County?

Note: IDEA=Individuals With Disabilities Education Act

Data Analysis

A combination of descriptive statistics, Chi-squares, independent *t*-tests, and logistic regression analyses were used for this study and all analyses were conducted using SPSS version 24 for Windows. The design was non-experimental and explored the relationships between a number of categorical and continuous variables and children's eligibility outcome. Although this design limits the internal validity of the study and the ability to make causal inferences, it provides a picture of the various child, family, and early intervention characteristics that relate to children's eligibility for preschool special education following receipt of early intervention services.

Descriptive statistics, including frequencies and percentages were calculated to determine the overall representation of each level of the independent variables within the sample (e.g., the

frequency and percentage of males in the sample), as well as the representation of each variable within the two outcome groups of the dependent variable (e.g., the frequency and percentage of males who were eligible for Part B at age 3).

After obtaining descriptive statistics, a series of Chi-square tests and independent *t*-tests were performed in order to compare each independent variable across the two outcome groups. For those independent variables that are categorical, Chi-Square tests of independence were conducted in order to determine if significant differences existed among the outcome groups. For example, gender was compared across the two levels of the outcome variable to determine if significant differences existed between the number of males who were eligible for Part B at age 3 and those who became ineligible at, or prior to, age 3. For the two continuous independent variables, length of time in Early Steps and number of types of services received, independent *t*-tests were conducted in order to determine if significant differences existed among the outcome groups.

In order to determine which independent variables were related to each level of the outcome variable, a multiple logistic regression analysis was used. According to Hosmer and Lemeshow (2013), this type of analysis is used “to find the best fitting and most parsimonious, clinically interpretable model to describe the relationship between an outcome (dependent or response) variable and a set of independent (predictor or explanatory) variables” (Hosmer & Lemeshow, 2013, p. 1) when the outcome variable is dichotomous. This analysis used maximum likelihood estimation to evaluate the probability of categorical membership. Using this approach, each variable was assessed to determine its significance within the model that relates the independent variable to the outcome variable variable (in this case, Part B eligibility status) (Hosmer & Lemeshow, 2013). For example, the significance of the variable gender was tested to

determine whether including it in the model tells us more about children's Part B eligibility status than a model that does not include gender. To test for multicollinearity, chi-square tests of independence were conducted to evaluate the overall strength of the relationship of the predictor variables. Most of the independent variables in this study were nominal (or were converted to nominal variables), and were therefore dummy coded using $k-1$ codes, where k is the number of possible values (Hosmer & Lemeshow, 2013). A full list of variables and codes is presented in Appendix B.

Chapter 4: Results

Overview

The purpose of the present study was to examine factors or characteristics that are related to whether children will continue receiving support through special education after receiving early intervention services in Florida. More specifically, this study aimed to determine whether there was a relationship between various child, family, and/or early intervention characteristics and children's preschool transition status (Part B eligible at age 3 vs. Part B ineligible at or prior to age 3). The following chapter provides the results of this study. The chapter begins with an overview of the data source as well as a description of the preliminary data analyses that were conducted in order to describe the variables and the amount of missing data. The chapter continues with descriptive statistics, comparisons of each independent variable across the outcome groups, and results of the logistic regression. The chapter ends with a summary of the results of the hypotheses tests that were conducted in this study.

Preliminary Data Analyses

This study qualified for expedited review through The University of South Florida's Institutional Review Board (IRB). Following approval from the IRB, The Bay Area Early Steps Program provided data for this study in the form of two electronic Excel files. The Excel documents provided by Bay Area Early Steps contained electronic versions of the data that were collected from participants upon entry and exit from the program. Data were provided for all infants and toddlers who exited the Bay Area Early Steps Program between January 1, 2016 and

December 31, 2016. Each data file contained unique information about participants, so the files were merged in order to allow for analysis of each variable in this study. Based on the data provided by the Bay Area Early Steps Program, some of the variables and categories within each variable were modified from the study's original design. Those changes will be discussed in detail in Chapter 5.

Sample size. The sample included 937 infants and toddlers, ages birth through 36 months, who exited The Bay Area Early Steps Program between January 1, 2016 and December 31, 2016. Participants included those who exited and became eligible for Part B or were ineligible for Part B with one of the following closure reasons (Completion of IFSP prior to age 3, No longer eligible at Redetermination, Not eligible for Part B- exit with referrals).

Missing data. Outcome data were available for 937 infants and toddlers, however, there were some data missing from most of the independent variables. As a result, the total sample size varied based on the particular variable being analyzed. Gender and Part B eligibility status were the only variables in which data were available for all 937 participants. SES and county data were missing for 1 (.1 %) participant. Data regarding the length of time in Early Steps as well as race/ethnicity were missing for 4 (.4 %) participants. Data also were missing for the type of intervention received, as 70 (7.5%) participants had no entry in the database under this category. Lastly, language data were missing for 103 (11%) participants and IDEA Part C eligibility data were missing for 193 (20.6%) participants, making these the two variables with the highest percentages of missing data. Table 8 provides a summary of each variable and the missing data within each.

Table 8

Missing Data Across Child, Family, and Early Intervention Variables

Variable	N	Missing Data (%)
Part B Eligibility (outcome)	937	0
Gender	937	0
Race/Ethnicity	933	4 (.4)
Eligibility category	744	193 (20.6)
Language	834	103 (11.0)
Socioeconomic Status (SES)	936	1 (.1)
Number of different service types received	867	70 (7.5)
Speech/Language (SLP)	185	70 (7.5)
Occupational Therapy (OT)	30	70 (7.5)
Physical Therapy (PT)	60	70 (7.5)
Early Intervention (EI)	742	70 (7.5)
Service Coordination (SC)	48	70 (7.5)
Length of time in Early Steps in days	933	4 (.4)
County	936	1 (.1)

Descriptive Statistics

Descriptive statistics were calculated in order to determine the frequencies and percentages of each level of the independent variables as well as the frequencies and percentages of the two levels of the dependent variable. These values were listed in Table 6 within Chapter 3. In addition, the representation of each level of the independent variables within the two levels of the dependent variable was determined. These frequencies and percentages are displayed in Table 9.

Comparison of each IV across the outcome groups

In order to compare each independent variable across the two outcome groups, a series of Chi-square tests of independence were conducted for all categorical variables and independent *t*-tests were conducted for the two continuous variables (i.e., length of time in Early Steps and the

number of different service types received). The results of these tests also are displayed in Table 9.

Table 9

Bivariate Relationships Between Part B Eligibility Status and Child, Family, and Early Intervention Characteristics

Variable	Ineligible for Part B	Eligible for Part B	Test Statistics	<i>p</i> -level
Gender			2.051	.152
Male (%)	111 (63.4)	526 (69.0)		
Female (%)	64 (36.6)	236 (31)		
Race/Ethnicity			21.614	.000**
Asian (%)	6 (3.5)	18 (2.4)		
Black/African American (%)	33 (19.1)	141 (18.6)		
Hispanic (%)	52 (30.1)	357 (47.0)		
Mixed/Multiple (%)	7 (4.0)	35 (4.6)		
White (%)	75 (43.4)	209 (27.5)		
Eligibility Category			5.379	.020*
Developmental Delay (%)	121 (83.4)	445 (74.3)		
Established Condition (%)	24 (16.6)	154 (25.7)		
Primary Language			1.784	.182
English (%)	144 (86.2)	546 (81.9)		
Non-English (%)	23 (13.8)	121 (18.1)		
SES			9.114	.003**
Enrolled in Medicaid (%)	108 (61.7)	557 (73.2)		
Not enrolled in Medicaid (%)	67 (38.3)	204 (26.8)		
Speech/Language (SLP)			3.854	.050
Received SLP (%)	24 (15.5)	161 (22.6)		
Did not receive SLP (%)	131 (84.5)	551 (77.4)		
Occupational Therapy (OT)			4.477	.034*
Received OT (%)	1 (0.6)	29 (4.1)		
Did not receive OT (%)	154 (99.4)	683 (95.9)		
Physical Therapy (PT)			.907	.341
Received PT (%)	8 (5.2)	52 (7.3)		
Did not receive PT (%)	147 (94.8)	660 (92.7)		
Early Intervention (E)			1.203	.273
Received EI (%)	137 (88.4)	605 (85.0)		
Did not receive EI (%)	18 (11.6)	107 (15.0)		
Service Coordination (SC)			4.679	.031*
Received SC (%)	3 (1.9)	45 (6.3)		
Did not receive SC (%)	152 (98.1)	667 (93.7)		
Number of different service types received			35.74	.048*
<i>M</i> (SD)	1.096	1.190		

Table 9 (continued)

	(.3376)	(.5630)		
Length of time in Early Steps in days ^a			41.437	.331
<i>M (SD)</i>	416.53 (204.7)	393.93 (287.86)		
County			10.465	.001**
Hillsborough (%)	145 (82.9)	539 (70.82)		
Polk (%)	30 (17.1)	222 (29.2)		

Note: *M*=mean, *SD*=standard deviation. Languages of Spanish, Creole, and Other were grouped into other. ** $p < .01$, * $p < .05$, ^aIndependent t-tests were used for number of different service types received and length of time in early steps. Chi-square tests were used for all other variables.

Analysis of normality and outliers

Normality of the distribution is not an assumption of multiple logistic regression and therefore was not assessed.

Test for Multicollinearity

After comparing all the possible bivariate relationships between independent variables, it was determined that none were strongly related to one another, therefore multicollinearity was not a concern. The strongest correlation (-.51) was between length of time in Early Steps and having a developmental delay. The next strongest correlation (.46) was between being Hispanic and speaking a language other than English.

Multiple Logistic Regression

In order to determine which independent variables were related to the outcome variable, a multiple logistic regression was conducted. This type of analysis made it possible to test the significance of each variable within the model that relates to Part B eligibility. According to Peng, Lee, and Ingersoll (2002), logistic regression calculates a logit, which is the natural logarithm of an odds ratio (probability/[1-probability]). This logit can be transferred to the probability scale to predict the odds of membership in a particular class (in this case, Part B

eligibility). Since multiple logistic regression uses list-wise deletion, participants who were missing data on at least one variable were eliminated from the analysis, which resulted in a sample size of 606 in the logistic regression analysis as compared the total sample of 937.

Results of the logistic regression, including the logit, the odds ratio, and the significance of each independent variable are presented in Table 10.

Table 10

Coefficients from Logistic Regression Predicting Part B Eligibility from Child, Family, and Early Intervention Factors

Predictor	B (logit)	SE	Wald's χ^2	df	Odds Ratio
Male	.306	.235	1.694	1	1.359
Asian ^a	-.136	.656	.043	1	.872
African American ^a	.921	.336	7.534**	1	2.512
Hispanic ^a	1.330	.307	18.805***	1	3.780
Mixed/Multiple Races ^a	.497	.525	.895	1	1.644
Developmental Delay	-.856	.361	5.629*	1	.425
Language Other Than English	-.189	.353	.288	1	.828
Enrolled in Medicaid	.561	.264	4.528*	1	1.752
Received Speech/Language (SLP)	1.220	.362	11.325**	1	3.386
Received Occupational Therapy (OT)	1.922	1.081	3.160	1	6.837
Received Physical Therapy (PT)	.326	.495	.433	1	1.385
Received Early Intervention (E)	.606	.432	1.962	1	1.832
Received Service Coordination (SC)	1.339	.845	2.513	1	3.816
Length of time in Early Steps in days	-.001	.001	1.572	1	.999
Received services in Polk County	.717*	.309	5.382*	1	2.049
Constant	.106	.681	.024	1	1.112
-2 log likelihood	533.790				
Nagelkerke R ²	.172				
N	606				

Note: Table 10 includes the results from multiple logistic regression models predicting the odds that a participant would be eligible for Part B. *** $p < .001$, ** $p < .01$, * $p < .05$.

^aWhite was the reference group

Hypotheses of child factors influencing Part B eligibility status

Gender. It was hypothesized that children who are male would be more likely to be eligible for Part B than children who are female. This hypothesis was not supported. There were

higher percentages of males in the overall sample (68% male, 32% female) and these ratios were fairly consistent across the eligible for Part B group (69% male, 31% female) and the ineligible for Part B group (63.4% male, 36.6% female), however; these differences were not significant. Although 83% of males and only 79% of females were eligible for Part B, males were not significantly more likely to be in the eligible for Part B group than were females. This also held true when controlling for all other independent variables in the logistic regression.

Race and Ethnicity. It was hypothesized that children who are Hispanic or Black/African American would be more likely to be eligible for Part B than White children. When looking at the bivariate relationship between race/ethnicity and Part B eligibility status, there were significant differences in eligibility status based on race/ethnicity. Eighty-eight percent of Hispanic children were eligible for Part B, followed by 83% of children with a Mixed/Other race designation, 81% of Black/African American children, 75% of Asian children, and 74% of White children. In the logistic regression, when controlling for all other variables, the only races that were related to Part B eligibility were Black/African American and Hispanic. Black/African American children were 2.5 times as likely to be eligible for Part B than were White children and Hispanic children were more than 3.5 times as likely to be eligible for Part B than White children. The hypothesis that Black and Hispanic children would be more likely to be eligible for Part B than White children was supported.

IDEA Part C eligibility category. It was hypothesized that children with an established/diagnosed condition would be more likely to be eligible for Part B than children who had a developmental delay. Results of both the bivariate analysis and the logistic regression supported this hypothesis. Although a higher percentage of children in the Bay Area Early Steps Program had a developmental delay (60.4%) than an established condition (19%), 80% of those

with a developmental delay were eligible for Part B as compared to 87% of those with an established condition. When looking at the bivariate relationship between having an established condition and being eligible for Part B, having an established condition was significant at $p < .05$. Having an established condition was a significant factor in the logistic regression model as well. When controlling for other independent variables, children who had an established condition were more than twice as likely to be eligible for Part B than children who had a developmental delay.

Hypotheses of family factors influencing Part B eligibility status

Primary language. It was hypothesized that children whose parent(s)' primary language is anything other than English would be more likely to be eligible for Part B. This hypothesis was not supported. Although 84% of children whose parent(s) had a primary language other than English were eligible for Part B compared with only 79% of children whose parent(s)' primarily spoke English, this difference was not statistically significant based on chi-square analysis or the logistic regression.

SES. It was hypothesized that children whose families had low SES would be more likely to be eligible for Part B than children whose families did not have low SES. This hypothesis was supported by both the chi-square and the logistic regression. Eighty-four percent of children whose families had a low SES were eligible for Part B compared to only 75% of those whose families did not have a low SES. This difference was significant at $p < .05$ in the bivariate analysis as well as in the logistic regression. When controlling for all other independent variables, children who came from families with a low SES were nearly twice as likely as their counterparts to be eligible for Part B.

Hypotheses of early intervention factors influencing Part B eligibility status

Type of intervention/support. It was hypothesized that children who received speech/language services would be more likely to be eligible for Part B than children who did not receive speech/language. It also was hypothesized that children who received OT, PT, early intervention, or service coordination would not be more likely to be eligible for Part B than children who did not receive those services. Receiving speech/language services was not significant in the chi-square analysis, but it was significant at $p < .01$ when controlling for other variables in the logistic regression. Children who received speech/language services were more than 3 times as likely to be eligible for Part B than were children who did not receive speech/language services. In contrast, receiving occupational therapy was significant at $p < .05$ in the chi-square, but it was not significant in the logistic regression, when controlling for other variables. Similarly, receiving service coordination (i.e., case management) was significant at $p < .05$ in the chi-square analysis, but it was not significant in the logistic regression. Receiving early intervention services was not significant in the chi-square or the logistic regression analyses.

Number of different service types received. It was hypothesized that the greater the number of different types of services a child received in Early Steps, the more likely that they would be eligible for Part B. The bivariate relationship between number of services received and Part B eligibility was slightly significant ($p = .048$). However, when conducting the logistic regression, it was not possible to include this variable in the same model with each individual service type (i.e. speech, OT, PT, early intervention, service coordination) because the data were overlapping. For this reason, number of different types of services was not included in the logistic model with Part B eligibility as the outcome. It should be noted that the logistic

regression model was rerun using the total number of services received (after removing individual service types) and the total number of services received was significant in this model. This finding should be interpreted with caution, however, as the data for the numbers of different service types received were not normally distributed. Within both the eligible for Part B and ineligible for Part B groups, the skewness and kurtosis for number of types of services received were outside of normal limits and each of these groups contained outliers ($z=5.02$, $z=-5.6$).

Length of time in Early Steps. It was hypothesized that children who were in Early Steps for shorter lengths of time would be more likely to be eligible for Part B. The average amount of time spent in the Bay Area Early Steps program was 394 days for children in the eligible for Part B group, compared with 417 days for ineligible group. However, this difference was not significant. The range of days spent in Early Steps was large for both groups (between 8 and 1063 days for children in the eligible group and between 13 and 1049 days for children in the ineligible group). The standard deviation was large as well ($SD=287.9$ for the eligible group and $SD=204.6$ for the ineligible group). Despite these ranges and standard deviations, data for length of time in Early Steps were approximately normally distributed based on measures of skewness and kurtosis, and there were no obvious outliers. The hypothesis that children who were in Early Steps for shorter amounts of time would be more likely to be eligible for Part B was not supported, as length of time was not a significant variable in the independent t -test or in the logistic regression.

County where child received services. Since prior research had not examined whether children who participated in Early Steps in Hillsborough County would be equally as likely to be eligible for Part B as children who participated in Early Steps in Polk County, this study sought to answer this question. Eighty-eight percent of children who received Early Steps services in

Polk County were found eligible for Part B compared with 79% of children who were served in Hillsborough County. This difference was significant at $p < .01$ in the chi-square analysis. The county where services were received was significant in the logistic regression as well. When controlling for other independent variables, children who received Early Steps services in Polk County were twice as likely to be found eligible for Part B as children who received Early Steps services in Hillsborough County. It is important to note that only 252 children in the sample received services in Polk County compared to 684 in Hillsborough County, which may have affected this outcome.

Table 11

Results of Hypotheses Tests

Predictor Variable	Hypothesis	Outcome
Gender	Hypothesis 1 Children who are male are more likely to be eligible for Part B than children who are female.	Not supported
Race/Ethnicity	Hypothesis 2 Children who are Hispanic or Black/African American are more likely to be eligible for Part B than White children.	Supported
IDEA Part C Eligibility Category	Hypothesis 3 Children with an established/diagnosed condition are more likely to be eligible for Part B than children with a developmental delay.	Supported
Primary Language	Hypothesis 4 Children whose primary language is anything other than English are more likely to be eligible for Part B.	Not supported
Socioeconomic Status (SES)	Hypothesis 5 Children with low SES are more likely to be eligible for Part B than children with higher SES.	Supported
Speech/Language (SPL)	Hypothesis 6 Children who received SPL are more likely to be eligible for Part B than children who did	Supported

Table 11 (continued)

	not receive SPL.	
Occupational Therapy (OT)	Hypothesis 7 Children who received OT are not more likely to be eligible for Part B than children who did not receive OT.	Supported
Physical Therapy (PT)	Hypothesis 8 Children who received PT are not more likely to be eligible for Part B than children who did not receive PT.	Supported
Early Intervention (EI)	Hypothesis 9 Children who received EI are not more likely to be eligible for Part B than children who did not receive EI.	Supported
Service Coordination (SC)	Hypothesis 10 Children who received SC as an intervention are not more likely to be eligible for Part B than children who did not receive SC.	Supported
Number of different types of services received	Hypothesis 11 The greater the number of different types of services a child received in Early Steps, the more likely they are to be eligible for Part B.	Supported
Length of Time in Early Steps	Hypothesis 12 Children who were in Early Steps for shorter lengths of time are more likely to be eligible for Part B.	Not supported
County	Research Question Are children who participated in Early Steps in Hillsborough County equally as likely to be eligible for Part B as children who participated in Early Steps in Polk County?	Not supported

Note: IDEA=Individuals With Disabilities Education Act

Chapter 5: Discussion

Overview of the Study

The current sample consisted of 937 infants and toddlers, ages birth through 36 months, who exited The Bay Area Early Steps Program between January 1, 2016 and December 31, 2016. All participants had previously been evaluated by the Bay Area Early Steps Program using the Battelle Developmental Inventory, 2nd edition (BDI-II) or the BDI-II Spanish to determine eligibility. Children were considered eligible for the program if (1) their score in at least 1 domain was at or below 70 (2 SD's below the mean), (2) their scores in at least 2 domains were at or below 78 (1.5 SD's below the mean), (3) they had a diagnosed medical condition included in the list of established conditions, or (4) they qualified based on informed clinical opinion (Danaher, 2011; E. Shaffer-Hudkins, personal communication, September 2, 2016).

Review of Procedures and Measures

Information regarding child, family, and early intervention characteristics of participants was provided by the Bay Area Early Steps Program following IRB approval and consisted of archival data that were collected as part of the day-to-day operations of the program. Early Steps providers entered these data into various databases upon each participant's entry into and exit from the Bay Area Early Steps Program. The dependent variable was Children's Eligibility Outcome and the two levels of the outcome were eligible for Part B at age 3 and ineligible for Part B at or before age 3. The independent variables included a variety of child, family, and early intervention measures. Child measures included gender, race/ethnicity, and Part C

eligibility category. Family measures included primary language spoken in the home and socioeconomic status. Early intervention characteristics included type of intervention/support received, length of time in Early Steps, number of different types of interventions received, and county where services were received.

The goal of the present study was to determine which child, family, and Early Steps intervention factors were related to children's preschool special education eligibility status. In order to answer the research questions, a combination of descriptive statistics, Chi-squares, independent t-tests, and logistic regression analyses were conducted. The findings of these analyses are discussed below.

Discussion of Research Questions and Hypotheses

Child Characteristics

Research Question 1: To what extent, if any, is there a relationship between child characteristics (gender, race/ethnicity, Part C eligibility category) and preschool transition status (Part B eligible at age 3 vs. Part B ineligible at or prior to age 3)?

Gender. Prior research has suggested that males are overrepresented in special education as a whole (Blackorby et al., 2010; Hebbeler, 2007; U.S. Department of Education, Office for Civil Rights, n.d.), as well as in Part C (Hebbeler et al., 2007; Scarborough et al., 2004). In the current study, however, being male was not related to Part B eligibility status. Although this was not the expected outcome, it may be that the percentages alone do not provide a full picture of how gender relates to eligibility status. The studies referenced above provide comparisons between the percentages of eligible males and females, but do not provide a test of the significance of these differences. In the present study, a larger percentage of males were eligible for Part B than were females, but this difference was not statistically significant. Furthermore,

when controlling for other independent variables in the logistic regression, being male was not related to eligibility status. The results of this study indicate that for children in the Bay Area Early Steps Program, there is not a significant relationship between gender and whether or not they will be found eligible for special education upon exit from Part C.

Race/Ethnicity. In contrast to gender, the race/ethnicity of participants in the Bay Area Early Steps program does appear to be related to Part B eligibility. Children who are Black/African American were more than twice as likely to be eligible for Part B than White children, and children who are Hispanic were more than three times as likely to be eligible for Part B than White children. In recent years, there has been much attention and research on the disproportionate placement of minority children in special education; however, studies have reported different percentages by race for children served in Part C vs. Part B. After examining 7 years worth of data using a national sample of children in special education, Blackorby et al. (2010) reported that the highest percentage of children receiving Part B services by race was for Black students. In contrast, Black and Hispanic children had some of the lowest percentages of infants and toddlers identified for Part C. Similarly, Morgan et al. (2012) found that after controlling for other variables, minority children were actually underrepresented in early intervention.

Although research to date is mixed in terms of whether minority children are underrepresented or overrepresented in special education at the preschool level (Blackorby et al., 2010; Guarino et al., 2010; Morgan et al., 2012), it appears that Black/African American and Hispanic children are more likely to transition from Bay Area Early Steps to Part B than White children. It is important to note that the percentages of children (by race) in the current sample (43% Hispanic children, 30.4% White, 18.6% Black/African American) are not reflective of

national samples of children served in early intervention (Morgan et al., 2012). It also is not know whether the current sample is representative of the overall population of infants/toddlers in the two counties served by the Bay Area Early Steps program. Additional information is needed regarding the population of preschool children in Hillsborough County and Pasco County in order to determine if minority children are disproportionately represented in Bay Area Early Steps and/or in preschool special education (Part B) within these two counties.

IDEA Part C eligibility category. As expected, those children in the Bay Area Early Steps Program who had an established/diagnosed condition were more likely to be eligible for Part B than were children who had a developmental delay. As Hebbeler et al. (2007) suggested, many of the diagnosed/established conditions that meet eligibility requirements are chronic conditions requiring long-term intervention. For this reason, it is plausible that children with these conditions would be more likely to remain in special education than children with developmental delays, as developmental delays may be ameliorated over a shorter period of time. Although children with an established/diagnosed conditions were more than twice as likely to be eligible for Part B than children with a developmental delay, it is important to note that data regarding participants' Part C eligibility category were missing for nearly 21% of participants. It is not clear how many of those participants became eligible based on informed clinical opinion, as there were no participants with this designation in the data set. In order to better understand the relationship between Part C eligibility category and Part B eligibility status, additional information is needed about those children whose Part C eligibility status was not recorded in the database.

Family Characteristics

Research Question 2: To what extent, if any, is there a relationship between family characteristics (primary language spoken in the home, socioeconomic status) and children's preschool transition status (Part B eligible at age 3 vs. Part B ineligible at or prior to age 3)?

Caregiver relationship to child. As stated previously, this variable was not included in the electronic data set and therefore was not analyzed for the present study. It is unknown whether the caregiver's relationship to the child is captured electronically in a separate database or whether it is only collected on the written IFSP. Recording this information electronically along with other demographic information would allow the Bay Area Early Steps Program to include this variable in future analyses.

Primary language spoken in home. In the present study, the primary language spoken in the home was not related to whether children would transition from the Bay Area Early Steps Program to Part B. Children whose parents primarily spoke a language other than English were not more likely to be eligible for Part B than children whose parents primarily spoke English. This was somewhat surprising based on prior studies suggesting that English language learners are overrepresented in special education (Case & Taylor, 2005; Sullivan, 2011). According to Guarino et al. (2010), however, ELLs tend to be identified for special education later than their peers, so it is possible that some of the children in the present study who were not found eligible for Part B may still become eligible in the future. It also not clear what percentage of children in the present study are actually English language learners since primary language spoken in the home is not a direct measure of children's English language proficiency. Although Hispanic children were more likely to be eligible for Part B than were children of all other races/ethnicities, there was not a strong relationship ($r=.46$) between being Hispanic and

speaking a language other than English. In other words, having a designation of Hispanic was not a good indication that the primary language spoken in the home was something other than English.

Another hypothesis is that the primary language spoken in the home did not have as much of an impact on Part B eligibility in this study since Spanish was the most common non-English language of participants and Early Steps provides assessments and services in Spanish. It also is important to note that 690 (73.6%) children in the current sample were from households where the primary language spoken was English, compared to only 144 (15.4%) children from households where English was not the primary language. It also is not known how many children from each category (English vs. non-English) were excluded from the logistic regression due to other missing data. Given these limitations, the present sample may not provide a complete picture of how language impacts preschool transitions to Part B.

SES. Children in the present study who came from low-SES families (as measured by Medicaid status) were more than twice as likely to be eligible for Part B as children who were not from low-SES families. This finding is consistent with national studies that have linked poverty with early intervention/preschool special education status (Markowitz et al., 2006; Scarborough et al., 2004). Prior research also has suggested that children living in poverty are more likely to have medical issues and developmental delays, each of which would increase their likelihood of being eligible for special education (Hebbeler, 2007). For those infants and toddlers who participate in the Bay Area Early Steps program, living in a low-income household appears to be related to Part B eligibility status.

Early Intervention Factors

Research Question 3: What Early Steps intervention factors (type of intervention/support, number of different service types, length of time in Early Steps, and county where services were received), if any, are related to children's preschool transition status (Part B eligible at age 3 vs. Part B ineligible at or prior to age 3)?

Type of intervention. In terms of the type of intervention received, speech/language therapy was most strongly related to Part B eligibility status for children participating in the Bay Area Early Steps Program. Children who had received speech/language services were over 3 times as likely to be eligible for Part B than children who had not received speech/language services. No other type of service was significant in the model when controlling for other independent variables. This outcome supports prior research and demographic data, which have consistently identified speech/language as the most common disability category for children ages 3-5 years who are being served under IDEA Part B (Blackorby et al., 2010; U.S. Department of Education, 2015). Although children who received speech/language services in Part C were more likely to be eligible for Part B, this does not necessarily indicate that those children have more severe disabilities or delays than other children. Part B serves children with a wide range of disabilities, however; many of the children who received speech/language services in Early Steps may only be eligible for speech and/or language services under Part B.

Number of different service types received. As mentioned previously, it was not possible to include the number of different service types received in the overall regression model because these data overlapped with the individual service types (speech/language, OT, PT, EI) and the model would not allow inclusion of duplicate data. Interestingly, when the individual service types were excluded from the model, the number of different types of services a child

received was in fact related to Part B eligibility. This finding suggests that for children who participate in the Bay Area Early Steps Program, the greater the number of different service types they receive, the more likely they are to be eligible for Part B, regardless of the particular service type(s). These results should be interpreted with caution, however, since the data for this variable were not normally distributed. For participants in the present study, the relationship between the number of types of services received and Part B eligibility is unclear.

Length of time in Early Steps. With limited prior research on the relationship between length of time in Part C and likelihood of becoming eligible for Part B, it was predicted that children who spent less time in Early Steps would be less likely to have met their goals and would therefore be more likely to continue to meet eligibility for special education beyond Part C. This was not the case for children in the present study, as length of time that they spent in the Bay Area Early Steps program was not related to Part B eligibility status. The length of time participants spent in Early Steps ranged from 8 to 1063 days, with a median of 333 days. Despite this variability, the length of time in Early Steps was not associated with later eligibility for Part B. Thus, when anticipating which children are likely to qualify for Part B after participating in the Bay Area Early Steps Program, it may be more important to look at the type of disability/condition they have and the type of services they receive, rather than the amount of time that they spent in the program.

County where child received services. For children in the present study, the county where they received services was strongly related to whether or not they were found eligible for Part B. Children in Polk County were 2 times as likely to be found eligible for Part B than children in Hillsborough County. There are many potential reasons for this finding, which warrant further investigation. For example, it may be that the procedures used to determine

eligibility or the experience level of the evaluators differ between the two school districts responsible for Part B eligibility determination. It also is possible that the needs of the children or that the types and/or quality of available services differ between the two counties. These are just a few possible explanations as to why children served in Polk County are more likely to be eligible for Part B based upon the results of this study. It may be helpful for future research to examine some of the differences between the children, families, and providers in these two counties in order to better understand this relationship. It would also be beneficial to examine transitions to Part B in other counties that are served by other local Early Steps providers to determine if there are differences by county within those agencies as well.

Summary of Hypotheses and Findings

The present study sought to determine what child, family, and Early Steps intervention factors, if any, were related to children's transitions from early intervention to preschool special education. For children in the Bay Area Early Steps program, there were several child factors that were related to Part B eligibility, including being Black/African American, being Hispanic, and having an established/diagnosed condition. In contrast, being female, White, Asian, Mixed/Multiple races, or having a developmental delay did not increase children's likelihood of being found eligible for Part B.

The one family factor that was related to Part B eligibility was low socioeconomic status. Children who came from families with lower incomes were more likely to be eligible for Part B. Coming from a home where English was not the primary language spoken, however, did not significantly increase a child's chances of being eligible for Part B.

The Early Steps intervention factors that were related to Part B eligibility status were: receiving speech/language services, receiving multiple different service types, and receiving

services in Polk County. Receiving OT, PT, or early intervention services, however, did not increase children's likelihood of being found eligible for Part B. Receiving Early Steps services in Hillsborough county also did not increase the likelihood that a children would be found eligible for Part B. Several other factors, such as receiving occupational therapy and receiving service coordination, were significant when assessed independently, but were no longer significant when controlling for other variables.

Limitations of the Present Study

There are several limitations to this study, which should be considered when interpreting the results. Limitations to the design and methodology, as well as implications for the present study and future research, are examined below.

Sample. First and foremost, the current sample was a convenience sample of infants and toddlers from the Bay Area Early Steps program and may not be representative of infants and toddlers nationally or even statewide. Since states and districts vary in terms of eligibility requirements for Part B and Part C, this study cannot be generalized to other districts in Florida or to states outside of Florida.

Data. In addition, the data used for this study were not collected for research purposes, but rather were gathered in a clinic setting as part of the day-to-day operations of the Bay Area Early Steps Program. As such, fidelity of data collection and assessment administration could not be verified. The data were collected and entered into various databases by multiple employees and consequently may have included inaccuracies as a result of human error. It is possible that inaccuracies in the data and/or missing data may have impacted the results of this study.

Measures. There also are limitations to the measures that were used. The Bay Area Early Steps Program utilizes a statewide data reporting system, which reflects particular data that are designated by the state. As such, the variables analyzed in this study were limited to those for which data were available and may not provide the most accurate measure of each construct. For example, the only data available regarding participants' household income was their Medicaid status and this is not a direct measure of income level. Additionally, participants' race and ethnicity could not be analyzed separately since these categories were combined within the database. As such, participants who had a designation of Hispanic, for example, may have also been Black or White, but this was not reflected in the data. Similarly, a participant designated as Black or White may have also been of Hispanic origin, but this also was not reflected in the dataset.

There also may be other factors that influence transitions from Part C to Part B that may not be captured in the data collected by Early Steps. For example, children living in single parent households may have different outcomes than children living with two parents; however, the Bay Area Early Steps data tracking system does not allow for these data to be aggregated and therefore this variable could not be analyzed for purposes of this study. There also were several variables for which Bay Area Steps typically does collect data, but that were not available in electronic format. For example, The Bay Area Early Steps Program collects information about a caregiver's relationship to their child (i.e., parent, guardian, foster parent, surrogate parent, or other) at the time of their entry into their program. However, this information was not available electronically. It was not feasible to inspect the paper files of all participants for the present study, so information about the caregiver's relationship to the child was excluded from all analyses.

Other measures were limited due to the significant amounts of missing data. For example, there are three IDEA Part C eligibility categories that are relevant to this study (Developmental Delay, Established Condition, and Informed Clinical Opinion); however, only Developmental Delay and Established Condition were listed in the data set. After further investigation, it was determined that when Early Steps case managers enter the eligibility category into the database, “Informed Clinical Opinion” is often left out because the data reporting system does not have a designator for this category. For this reason, it is impossible to determine from the missing data which ones were left blank by error versus those that should have had the designation of Informed Clinical Opinion (E. Shaffer-Hudkins, personal communication, October 10, 2017). Consequently, only Developmental Delay and Established Condition were analyzed within this category.

Additionally, there were variables that may influence transitions from IDEA Part C to IDEA Part B that were not analyzed due to the manner in which data were collected and reported. An example of this is the frequency of intervention recommended on the IFSP. Although the frequency of intervention recommended on the IFSP was originally included as one of the independent variables, it became clear after examining the data that examining the number of different service types received would provide more valuable information than the frequency of intervention recommended. Many participants were included in the data set multiple times with different service types associated with each entry. For example, one participant might appear four different times in the data set with three entries for PT and one for OT. Furthermore, the frequency of each service was often different for each service type. Since there were multiple entries for each participant and the categories of services were not mutually exclusive,

the number of different types of services a participant received was examined rather than the frequency of intervention recommended on the IFSP.

Methodological issues. As mentioned previously, the present study consisted of analyses of existing data, which limited the researcher's ability to control the measures that were used or the manner in which data were collected. Because this was not an experimental design, there was no random assignment, manipulation of the independent variables, or comparison to a control group, which would have assisted with controlling extraneous variables. In addition, 331 (35%) of the 937 total participants were excluded from the logistic regression model due to missing data. It is possible that including those participants would have resulted in a different set of variables related to Part B eligibility.

Another limitation to this study is that the researcher did not have control over the evaluations that were used to determine children's eligibility for Early Steps and preschool special education or the type or level of training and experience that each Early Steps provider has received. These training levels may range from a bachelor's degree with no license to a Doctorate degree with licensure. All providers who administer the BDI-2 do go through a fidelity process before they begin evaluating children; however, there still may have been variability among evaluators and even between different counties in terms of the administration and interpretation of the BDI-2.

Finally, the data used in this study do not reflect the reasons why children may or may not have been eligible for Part B. Local school districts, rather than Early Steps (Part C), make the final determination for Part B eligibility and since the data analyzed in this study came solely from the Bay Area Early Steps Program, information about each child's Part B eligibility status only reflected whether or not they were eligible, rather than how eligibility was determined (E.

Shaffer-Hudkins, personal communication, January 12, 2017). For those children who did not meet Part B eligibility criteria, it may be helpful to know which specific criteria they did not meet; however, this information was beyond the scope of the present study.

Practical Implications

Despite these limitations, this study provides valuable information regarding the transitions of infants and toddlers in the Bay Area Early Steps Program. While those factors that were related to Part B eligibility should not be considered causal in nature and also should not be generalized to other populations, they can serve as a first step in understanding the preschool transitions of children in these two counties. In addition to identifying factors that are related to whether or not children will transition to preschool special education, the results of this study may provide the Bay Area Early Steps Program with important information about their current operations and procedures, which ultimately could be used to improve their day-to-day practices. For example, based on the results of this study, The Bay Area Early Steps Program may choose to conduct a root cause analysis to determine what has led to differences in transitions to Part B between counties. The results of this type of analysis could potentially lead to programmatic changes.

The results of this study may also be used to help anticipate and plan transitions for toddlers exiting the program based on information gathered at the time of their entry into Early Steps. This information may also be valuable to the local school districts to which these children transition. Being able to anticipate how many children may transition to Part B each year based on data collected at the time of their entrance to Part C could allow school districts to plan ahead and secure necessary funding and resources in advance.

In addition to providing insight into the factors that influence preschool transitions and potentially assisting with planning for these transitions, the limitations of this study that are related to the data may be used by the Bay Area Early Steps Program as a reference for modifying their data collection procedures. Although the Bay Area Early Steps Program does not collect and maintain data for research purposes, the results of this study could be useful for identifying ways to increase the accuracy of the data that is collected. It may also alert the program to specific types of data that they do not currently collect but that would be beneficial to collect moving forward. For example, should they have questions about how a caregiver's relationship to their child relates to the child's transition to Part B (or some other question related to children's outcomes), the Bay Area Early Steps Program may choose to start including these data in their electronic database. In sum, the limitations listed are important to consider when interpreting the results of the present study and should also be considered when designing future research and/or when determining procedures for data collection and program evaluation purposes within the Bay Area Early Steps Program.

Directions for Future Research

Although the present study adds to the literature regarding factors that relate to preschool transitions to special education and provides practical contributions to the Bay Area Early Steps program and local school districts, future research is needed in order to better understand the transitions of the children in this program. Considering that this is the first known study to examine factors that are related to Part B eligibility for children in the Bay Area Early Steps program, future research should examine additional potentially related factors or characteristics, such as birth weight, specific types of disabilities/diagnoses, BDI-II domain scores, parental education level, etc. In addition, future research would benefit from incorporating data from both

Part C and Part B in order to provide a better picture of how transitions from Part C to Part B occur. Finally, future research is needed in order to better understand *why* the particular factors that were related to Part B eligibility in this study were significant. For example, understanding why children served in Polk County are more likely to be eligible for Part B than children served in Hillsborough County could have implications for service implementation in those two counties. Future researchers may consider conducting a case study or a qualitative review of participant files, for example, in order to provide additional insight into some the variables that were examined in this study as well as those that could not be analyzed in the present study.

Summary and Contributions to the Literature

The importance of providing intervention services and supports for children with disabilities has long been recognized in the United States and was first addressed through federal legislation in 1975 (Public Law 94-142) (U.S. Department of Education, 2007). In 1986, this law was amended to include requirements for early intervention services for infants and toddlers (ages birth through 2) with disabilities. Although early intervention services are mandated across the country, there is a great deal of variation by state in terms of the identification of infants and toddlers with disabilities and their subsequent transitions to preschool special education. Few studies, if any, have examined the various child, family, and early intervention characteristics that influence which infants and toddlers with disabilities will transition to preschool special education in Florida. This study aimed to contribute to the literature by examining how various child, family, and early intervention factors influence the transitions of infants and toddlers to preschool special education from the Bay Area Early Steps Program, which serves two large counties in Florida.

There were numerous significant findings in the present study. Overall, children exiting the Bay Area Early Steps program in 2016 were more likely to be eligible for preschool special education (Part B) if they were Black/African American, Hispanic, had an established/diagnosed condition, had a lower socioeconomic status, received speech/language services in Early Steps, received multiple types of services in Early Steps, and/or received Early Steps services in Polk County. Although many of these findings were anticipated based on the extant research, there were several unexpected findings. For example, it was not anticipated that children who participated in Early Steps in Polk County would be twice as likely to be eligible for Part B than children who were served in Hillsborough County. In contrast, it was expected that males, as well as children who came from households where the primary language was something other than English would be more likely to be eligible for Part B, but these hypotheses were not confirmed.

In sum, present study serves as a first step in understanding the child, family, and early intervention factors that increase the likelihood of children transitioning from the Bay Area Early Steps program to preschool special education. The limitations of this study highlight the challenges of analyzing existing data that were not intended for research purposes, and these challenges, along with the overall findings of the study, provide practical implications for the day-to-day operations of the Bay Area Early Steps program as well as local school districts (Part B). Future research that addresses the limitations and gaps identified in the present study could provide further insight into the factors that are related to whether children who receive early intervention services in Florida will later qualify for preschool special education.

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Appendix A:

IDEA Part C Established Conditions

Genetic and Metabolic Disorders

Albinism

Albright Hereditary

Angelman Syndrome (Happy Puppet Syndrome)

Achondroplasia (dwarfism)

Acrocallosal Syndrome, Schinzel Type (Absence of Corpus Callosum, Schinzel Type, ACS
Hallux Duplication, Postaxial Polydactyly, Absence of Corpus Callosum, Schinzel Acrocallosal
Syndrome, ACLS)

Adrenoleukodystrophy

Amelia

Antley-Bixler Syndrome (Multisynostotic Osteodysgenesis, Craniosynostosis, Choanal Atresia,
Radial Humeral Synostosis, Trapezoidocephaly-Multiple Synostosis Syndrome, ABS,
Multisynostotic Osteodysgenesis with Long Bone Fractures)

Apert Syndrome (Acrocephalosyndactyly)

Arthrogyrosis Multiplex Congenita

Ataxia

Ataxia-Telangiectasia Syndrome (Louis-Bar Syndrome)

Beals Syndrome (Congenital Contractural Arachnodactyly, Hecht-Beals Syndrome)

Beckwith-Wiedemann Syndrome

Canavan Disease

Cardio-Facio-Cutaneo Syndrome

Cerebral Lipdosis

Cerebro-Oculo-Facio-Skeletal (COFS) Syndrome

CHARGE Syndrome/Association

Chromosome 10p+, 11p-, 12p-, 13q-, 13q+, 18q-, 21q-, 22q-, 3q+, 4q-, 4Q+, 5p- Syndromes

Coffin-Lowry Syndrome

Coffin-Siris Syndrome

Cornelia de Lange Syndrome (Brachmann de Lange

Cri-du-chat Syndrome (Deletion 5p Syndrome)

Cystic Fibrosis

Dandy Walker Syndrome

Down Syndrome (Trisomy 21)

Duchenne Muscular Dystrophy

Dyggve-Melchior-Clausen Syndrome (DMC Disease, DMC Syndrome, Smith-McCort Dysplasia)

Fanconi Syndrome

Fragile X Syndrome

Fraser Syndrome (Cryptophthalmos Syndrome, Meyer-Schwickerath's syndrome, Fraser-Francois syndrome, Ullrich-Feichtiger syndrome)
 Galactosemia
 Gaucher Syndrome (Glucosylceramide storage disease; GSDI)
 Glutaric Aciduria Type I & Type II
 Glyocen Storage Disease
 Hypothyroidism (congenital) Jeune Syndrome
 Joubert Syndrome Klinefelter Syndrome Krabbe's disease Lesch-Nyhan Syndrome
 Lissencephaly Syndrome (Miller-Dieker Syndrome, Agyria)
 Maple Syrup Urine
 Mucopolipidosis II, III
 Noonan Syndrome
 Organic Acidemias
 Pelizaeus-Merzbacher disease
 Peroxisomal Disorders
 Phenylketonuria (PKU)
 Phelan-McDermid syndrome
 Rubenstein-Taybi Syndrome
 Schwartz-Jampel Syndrome
 Prader-Willi Syndrome
 Steinert Myotonic Dystrophy Syndrome (Curschmann-Batten-Steinert syndrome)
 Tay-Sachs disease (Sandhoff)
 Treacher-Collins Syndrome
 Trisomy 8
 Trisomy 9
 Tetrasomy 12p
 Trisomy 13 (Patau Syndrome)
 Trisomy 18 (Edward's Syndrome)
 Tuberous Sclerosis Complex
 Urea Cycle Defect
 Very long chain fatty acid storage diseases
 Waardenburg Syndrome, Types I and II
 Walker-Warburg Syndrome (XO)
 Williams Syndrome
 Zellweger Syndrome (Cerebro-Hepato-Renal Syndrome)

Neurological Disorders

Agyria (Miller-Dieker lissencephaly syndrome (MDLS), agyria syndrome, agyria-pachygyria syndrome, classical lissencephaly)
 Aicardi Syndrome
 Alpers Syndrome/Disease
 Apert Syndrome (Acrocephalosyndactyly)
 Aphasia
 Arachnoid cyst with neuro-developmental delay Arhinencephaly (Holprosencephaly)
 Arnold-Chiari syndrome, type II (Malformation d'Arnold-Chiari) Ataxia

Cerebral Palsy
 CNS Aneurysm with Neuro-Developmental Delay
 CNS Tumor with Neuro- Developmental Delay Encephalopathy, congenital only
 Encephalopathy, Static
 Erb's Palsy (Brachial Plexus Injury, Perinatal Origin)
 Holoprosencephaly
 Hypertonia (persistent only) Hypophosphotasia-Infantile Lennox-Gastaut Syndrome
 Intraventricular hemorrhage (III or IV)
 Meningocele (cervical)
 Miller-Dieker Syndrome
 Mitochondrial Disorder
 Multiple anomalies of the brain Myopathy
 Neural Tube Defect
 Spinocerebellar Disorders
 TAR (Thrombocytopenia-Absent Radii syndrome)
 Traumatic Brain Injury (Head Trauma)

Severe Attachment Disorders

Anxiety Disorders of Infancy and Early Childhood
 Depression of Infancy and Early Childhood
 Infantile Anorexia

Autism Spectrum Disorders

Asperger's Disorder
 Autism Spectrum Disorder
 Childhood Disintegrative Disorder
 Pervasive Developmental Disorder
 Rett's Syndrome

Significant Sensory Impairment

Auditory Neuropathy
 Blindness ("legal" blindness or 20/200 best acuity with correction)
 Cataracts (congenital only)
 Glaucoma
 Optic Nerve Hypoplasia (DeMorsier's Syndrome, Septo Optic Dysplasia)
 Progressive hearing loss as related to syndromes such as neurofibromatosis, osteopetrosis, and Usher's
 Sensorineural hearing loss in excess of 25 dB HL

Other

Hydrocephalus (congenital or acquired)
 Low Birth Weight (<1,200 grams at birth)

Retrieved from http://www.floridahealth.gov/AlternateSites/CMS-Kids/home/resources/es_policy_0710/Attachments/3_Established_Conditions_list.pdf on July 14, 20

Appendix B:

Variables and codes used in the logistic regression analysis

Variable	Codes	Recodes
1. Eligibility Outcome	0= Part B ineligible 1= Part B eligible	
2. Gender	0= female 1= male	
3. Race	1= A 2= AA 3= H 4= M 5= White	V1 Asian 1= Asian 0= White V2 African American/Black 1= African American 0= White V3 Hispanic 1= Hispanic 0= White V4 Multiple/mixed 1= Multiple/mixed 0= White V5 White 1= White 0= not White
4. Eligibility Category	0= Not Developmental Delay (i.e.Established Condition) 1= Developmental Delay	

Appendix B (continued)

5. Primary Language Spoken in home	0= Non-English (Spanish, Creole, Vietnamese) 1= English	n/a
6. SES	0= not Medicaid 1= Medicaid	n/a
7. Type of Intervention: Speech	0= not SP 1= SP	n/a
8. Type of Intervention: Occupational Therapy	0= not OT 1= OT	n/a
9. Type of Intervention: Physical Therapy	0= not PT 1= PT	n/a
10. Type of Intervention: Early Intervention	0= not EI 1= EI	n/a
11. Type of Intervention: Service Coordination Only	0= not SC Only 1= SC Only	n/a
12. Number of different types of services received	0= 0 services 1= 1 service types 2= 2 service types 3= 3 service types 4= 4 service types	n/a
13. Length of time in Early Steps	Disposition date – Initial IFSP date (# of days)	n/a
14. County	0=Hillsborough 1=Polk	n/a

Appendix C:

Institutional Review Board Approval Letter



RESEARCH INTEGRITY AND COMPLIANCE
 Institutional Review Boards, FWA No. 00001669
 12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
 (813) 974-5638 • FAX (813) 974-7091

3/7/2018

This letter supersedes the letter dated 7/18/2017

Tara Delach, M.A.
 Educational and Psychological Studies
 Tampa, FL 33612

RE: Expedited Approval for Initial Review

IRB#: Pro00030931

Title: Transitions to Preschool Special Education: The Relationship of Child, Family, and Early Intervention Characteristics

Study Approval Period: 7/18/2017 to 7/18/2018

Dear Mrs. Delach:

On 7/18/2017, the Institutional Review Board (IRB) reviewed and **APPROVED** the above application and all documents contained within, including those outlined below.

Approved Item(s):

Protocol Document(s):

[IRB Protocol- Transitions to Preschool Special Education.docx](#)

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(5) Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis).

Your study qualifies for a waiver of the requirements for the informed consent process for this retrospective review as outlined in the federal regulations at 45CFR46.116 (d) which states that an IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent, or waive the requirements to obtain informed consent provided the IRB finds and documents that (1) the research involves no more than minimal risk

Appendix C (continued)

to the subjects; (2) the waiver or alteration will not adversely affect the rights and welfare of the subjects; (3) the research could not practicably be carried out without the waiver or alteration; and (4) whenever appropriate, the subjects will be provided with additional pertinent information after participation.

Your study qualifies for a waiver of the requirement for signed authorization as outlined in the HIPAA Privacy Rule regulations at 45CFR164.512(i) which states that an IRB may approve a waiver or alteration of the authorization requirement provided that the following criteria are met (1) the PHI use or disclosure involves no more than a minimal risk to the privacy of individuals; (2) the research could not practicably be conducted without the requested waiver or alteration; and (3) the research could not practicably be conducted without access to and use of the PHI. A waiver of HIPAA Authorization is granted for this retrospective chart review of children who participated in the Bay Area Early Steps program and exited the program between January 1, 2016 and December 31, 2016. This waiver allows the study team members and/or their honest broker to obtain PHI of children in this cohort from the University of Florida Data System.

This study involving child participants falls under the minimal risk category 45 CFR 46.404: Research not involving greater than minimal risk.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval via an amendment. Additionally, all unanticipated problems must be reported to the USF IRB within five (5) calendar days.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



John Schinka, Ph.D., Chairperson
USF Institutional Review Board