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**FOSTERING SOCIAL-EMOTIONAL SKILLS: A CROSS-COUNTY
COMPARISON OF THE NEW JERSEY EARLY INTERVENTION SYSTEM**

by
Abigail Alston

A Thesis

Submitted to the
Department of Psychology
College of Science and Mathematics
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at
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Thesis Chair: Roberta Dihoff, Ph.D.

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Dedications

I dedicate this thesis to my father, brother and grandmother who have all demonstrated their unyielding support for me. I am very grateful for your encouragement and assistance throughout my pursuits.

Acknowledgment

I would like to give my thanks to Dr. Roberta Dihoff for her guidance throughout this research project.

Abstract

Abigail Alston

FOSTERING SOCIAL-EMOTIONAL SKILLS: A CROSS-COUNTY COMPARISON OF THE NEW JERSEY EARLY INTERVENTION SYSTEM

2016-2017

Roberta Dihoff, Ph.D.

Master of Arts in School Psychology

The positive influence of early intervention on the future success of infants and toddlers who qualify for these services has been supported by various studies. Social-emotional skills, a targeted outcome of early intervention services, are an essential component of a child's social and academic success. New Jersey County Determination Reports demonstrate a disparity between the percentage of children entering early intervention with social-emotional skills below age expectation and then proceeding to exit early intervention with substantially increased social-emotional skills. The purpose of this study was to understand whether certain variables impacted these percentages. Variables investigated for each county included the number of referrals, number of families receiving Individualized Family Service Plans, county size and median household income. Through statistical analyses of information provided in the 2014 and 2015 fiscal years New Jersey Early Intervention System County Determination Reports, statistical significance revealed a correlation between county size and social-emotional skills growth for both years reviewed. A correlation between median household income and social-emotional skills growth was also found in fiscal year 2015. Further research is necessary to understand why these variables may play a significant role in increasing social-emotional skills within the Early Intervention System.

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Chapter 1

Introduction

Purpose of Study

The purpose of this study was to investigate the possible significance of certain variables on the percentage of infants and toddlers who entered Early Intervention (EI) with social-emotional skills below age expectation and later went on to exit EI with substantially increased rates of growth in their social-emotional skillset. The study utilized the Early Intervention Services county performance reports from the 2014 and 2015 fiscal years in each of New Jersey's twenty-one counties to determine if certain variables positively correlated with the percentage of children that exited EI with substantially increased social-emotional skill development. Variables examined within each county include size, number of referrals received, number of children and families that received Individualized Family Service Plans (IFSPs) and median household income.

The study's aim was to better understand why certain counties performed better than others in achieving increased rates of social-emotional skill growth in children who entered performing below age expectations. It is hypothesized that the number of referrals each county receives and the number of children and families that receive IFSPs will correlate with the differing percentages across counties of children entering EI with social-emotional skills below age expectation and exiting EI with substantially increased rates of growth in their social-emotional skillset. Additionally, it is hypothesized that both county size and median household income will positively correlate with the increased social-emotional skills outcome variable of which this study is concerned.

Significance of Study

Research has demonstrated that EI can have a positive impact on a child's later ability to thrive in the social and academic world (Karoly, Kilburn, & Cannon, 2005). Social-emotional skills are critical components of a child's school readiness (Klein, 2002) and ability to form and maintain positive relationships with others (McKown, Gumbiner, Russo, & Lipton, 2009). Understanding which variables potentially impact the success of EI in improving social-emotional skills is vital in making sure that infants and toddlers with developmental delays and disabilities are receiving the support they require to help ensure their future success.

Counties need to be aware of potential variables that may play a role in either a child's stagnation or increased rate of social-emotional skill's growth upon exiting EI. When these effects are known, counties and their EIS can better tailor the environment and their practices to help children gain the necessary social-emotional skills found essential for their healthy development and future success. This study adds to an existing body of knowledge on early EI and assists in the further development of guidelines and practices within EI to best enhance the social-emotional skills of infants and toddlers with developmental delays and disabilities.

Operational Definitions

The following definitions are adapted from the New Jersey Department of Health website (Early Intervention System, 2016).

Battelle Developmental Inventory – 2nd edition (BDI-2): An early childhood evaluation tool that uses play-based activities, clinical observations and parent responses to questions about their child in order to measure a child's development. The BDI-2 is

used by the New Jersey Early Intervention System to assess children during their evaluation to determine eligibility into the EIS and upon leaving EI to determine their developmental progress.

Child Outcomes: Measures assessed by the BDI-2 to determine a child's progress in the EIS, including their social skills, language development and ability to get their needs met.

County Performance Determination Report: Reports submitted annually as required by the Individuals with Disabilities Education Act (IDEA) that includes listings of the Early Intervention Programs and Targeted Evaluation Teams in each county, number of referrals made and number of children served. Additionally, each child outcome evaluated is measured in relation to the State's target and the State's overall performance.

Developmental Delay: Delays in development as assessed with a designated standard evaluation tool of at least 2.0 standard deviations below the mean in one developmental area, or 1.5 standard deviations below the mean in two or more developmental areas. Developmental areas include physical, cognition, communication, social or emotional, and adaptive. Clinical opinion in all of these domains must be obtained before a conclusion can be made.

Early Intervention (EI): Services designed for both the family and child to address a problem or delay in development as early as possible.

Early Intervention Program providers (EIPs): Public and private agencies responsible for arranging and providing the necessary services to eligible children and families.

Evaluation and Assessment: Process conducted to gather information about a child, determine a child's developmental levels and needs, and eligibilities for early intervention services.

Individuals with Disabilities Education Act (IDEA): Federal law adhered to in New Jersey that under Part C requires early intervention services to children ages 0-3 and, among many other guidelines, requires an annual report on the progress of all children in the early intervention system.

Individualized Family Service Plan (IFSP): A document that identifies a course of action and details which special services will be provided to eligible children and their families.

New Jersey Early Intervention System (NJEIS): Implements a statewide system of services for children aged birth to three years with developmental delays and disabilities, as well as services for their families.

Referral: Initial contact made to the New Jersey Regional System Point of Entry regarding a child with a suspected developmental delay in order to begin the process of evaluation and assessment to determine eligibility.

Social-Emotional Skills: Child outcome of New Jersey Early Intervention System measuring a child's ability for his or her age to build and maintain relationships with children and adults, begin to control his or her emotions, understand and follow rules, communicate wants and needs effectively and be aware of himself/herself and others.

Limitations of Study

The present study only looked toward some of the possible variables that may impact a county's performance in improving the social-emotional skills of children with

developmental delays and disabilities. Therefore, the potential impact of other variables should be considered in a county's ability to improve their EI programs and foster the growth of social-emotional skills for the children that they serve.

This study assumes that each EI program follows the same guidelines and regulations as required by the Department of Health in the state of New Jersey. Analysis of each EI program provider (EIP) might reveal differences in practices that affect the success of that particular program in improving social-emotional skills. Because this study only considers counties as a whole, differences among EIPs within counties did not reveal themselves in the data.

This study should not be extrapolated to other states. This data is only pertinent to New Jersey during the 2013-2014 and 2014-2015 fiscal years. Additionally, this study only evaluates the social emotional skills of children entering EI below age expectation and significantly increasing their social-emotional skills upon exiting. It does not apply for children entering EI functioning within age expectations with regard to their social-emotional skills.

Chapter 2

Literature Review

Overview of Early Intervention Services

EI provides services to children with disabilities and developmental delays and their families. This allows for a cohesive intervention plan and provides the necessary resources for families to best help their child thrive. Among the most common services received include speech language therapy, occupational therapy, physical therapy, and early childhood education (Raspa, Hebbeler, Bailey, & Scarborough, 2010). EI aims to both offset long-term consequences of disability or developmental delay for children with moderate or severe conditions or intervene and prevent conditions that can be resolved (Hebbeler et al., 2007).

When EI services are provided earlier, intervention is likely more effective and less costly (Center on the Developing Child at Harvard University, 2010). Various studies have found early childhood education as a critical economic investment (Diefendorf & Goode, 2005; Karoly, Kilburn, & Cannon, 2005). In an assessment of one specific EI program, returns ranging from 3-7 percent were found depending on the benefit considered (Masse & Barnett, 2002).

EI developed from various theoretical perspectives. Odom & Wolery (2003) discussed how constructivist theory has served as the framework for today's EI practices. Namely, understanding child development, the importance of how a child interacts with his or her environment, and the role of adults in shaping a child's learning experiences. In addition to this, Odom & Wolery (2003) explained how the behaviorist theories of Skinner and Pavlov and the cognitive-behavioral theory of Bandura also play a central

role in today's EIS. Specifically, the strong empirical base utilized and the attention to individualization and child assessment practices.

Individuals with Disabilities Education Act

Part C of the Individuals with Disabilities Education Act (IDEA, 2004) funds and requires states to provide services to infants and toddlers with developmental delays and disabilities for children from birth to age three. This program was established in 1986 in order to: Enhance the development of infants and toddlers with disabilities, reduce educational costs by minimizing the need for subsequent special education as a result of EI, minimize the likelihood of institutionalization, and maximize independent living, and to enhance the capacity of families to meet their children's needs (Hebbeler et al., 2007).

Part C requires states to develop an Individualized Family Service Plan (IFSP) that specifies both child and family outcomes for all eligible children and families. The IFSP development meeting is required to occur within 45 days of referral, involving both parents and professionals in its development. IFSPs are based on both a multidisciplinary assessment that addresses the child's functioning and an evaluation of priorities and resources identified as important in assisting the family to support their child's development (Rosenberg, Robinson, Shaw, & Ellison, 2013). IDEA (2004) requires services to be provided by qualified personnel, in natural environments and at no cost to the families. However, variations within states exist regarding how eligibility is established, and which services are truly provided free of charge (Grant, 2005). Regarding eligibility, the majority of states use a standard deviation and percent delay scores less restrictive than 1.5 SD below the mean in 1 developmental domain (Rosenberg, Robinson, Shaw, & Ellison, 2013).

Importance of Family Involvement

In an article by McWilliam (2015), great emphases were placed on the importance of EI services being family based and include natural learning environments in order to support a child's growth and development. Recognizing families and teachers, that is, those who spend the most amount of time with the child, as the primary interventionists is paramount in facilitating positive development for children with disabilities (McWilliam, 2015). The Early Childhood Outcomes Center identified five outcomes for families to gauge the effectiveness of EI programs, including the (a) families understanding their child's strengths, abilities and special needs; (b) families knowing their rights and advocate effectively for their child; (c) families help their child develop and learn; (d) families have support systems; and (e) families are able to gain access to desired services and activities in their community (Bailey, et.al., 2006). With this framework in mind, EI has the capacity to transform a child's life by providing the necessary information and support to families with children who have developmental delays. In a study of 2586 parents that investigated children's 36 month outcomes after participation in early intervention programs, 82% of parents felt they were better off as a family due to EI services, feeling more competent in caring for their children, advocating for services, and gaining access to formal and informal supports (Bailey, et.al., 2005).

Impact of Early Intervention on Future Success

The Center on the Developing Child at Harvard University (2010) emphasized early childhood as a period of great significance for the course of a person's future development and health. That is, by cultivating positive early experiences, forming stable relationships and interacting in safe and supportive environments, a child's brain

development can be positively influenced. Through high quality EI services, the developmental trajectory of a child can be altered, fostering brighter outcomes for their future (Center on the Developing Child at Harvard University, 2010).

Furthermore, The National Scientific Council on the Developing Child (2008/2012) found that a child's environment and early childhood experiences can contribute to mental health outcomes throughout their lives. This is applicable even for children with neurodevelopmental disorders with a strong genetic component such as Down syndrome. As emotional well-being is closely linked with family life and relationships with other caregivers, EI should be specifically tailored to children's environments and their relationships (The National Scientific Council on the Developing Child, 2008/2012).

Research has revealed how important a child's early life is for the future of their brain development. As summarized by the Center on the Developing Child at Harvard University (2010), neural circuits are most flexible within the first three years of life. Experiences during that time are of critical importance for a child's growth. Various developmental domains can be positively impacted as a result of early intervention for children with delays, including health, language and communication, cognitive development, and social-emotional development (Nectac, 2011).

Social-Emotional Skills

The Collaborative for Academic, Social, and Emotional Learning (2005) highlighted five core competencies to social-emotional learning: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Jones, Greenberg, & Crowley (2015) found that strong social-emotional skills in

kindergarten were strongly associated with positive outcomes as a young adult in education, employment, criminal activity, substance use, and mental health. Furthermore, a meta-analysis that examined 75 studies on social-emotional skills teaching found that participating children had positive outcomes in the following seven categories: social skills, antisocial behavior, substance abuse, positive self-image, academic achievement, mental health, and prosocial behavior (Sklad, Diekstra, Ritter, Ben, & Gravesteyjn, 2012).

Various studies have demonstrated that social-emotional learning can pave the path for a child's academic success (Ashdown & Bernard, 2012; Fink, 2016; Bagdi & Vacca, 2005; Davis, Solberg, Gore, & de Baca, 2014). In a meta-analysis of 213 studies involving more than 270,000 students, children who participated in evidence-based social-emotional learning programs showed an 11 percentile-point gain in academic achievement compared to students who did not participate (Durlak, Dymnicki, Taylor, Schellinger, & Weissberg, 2011). In one study by Denham, Bassett, Zinsser, & Wyatt (2014) direct assessment and observation of 101 preschoolers was used to find most social-emotional learning skills predictive of teacher evaluations of later classroom adjustment and kindergarten academic readiness.

Furthermore, research has demonstrated a relationship between the social-emotional skillset and reading ability (Medford & McGeown, 2016). A study by Curby, Brown, Bassett, & Denham (2015) found a positive relationship between social-emotional competence and the preliteracy skills of 91 preschoolers. Moreover, in a study of 340 elementary students, McKown, Russo-Ponsaran, Allen, Johnson, & Warren-Khot (2016) found strong social-emotional comprehension from students to be positively associated with children's reading skills.

Social-emotional skills are critical to the development and retention children's relationships. McKown, Gumbiner, Russo, and Lipton (2009) found the social-emotional skillset to include awareness of nonverbal cues, the ability to interpret social meaning through theory of mind, empathy, and pragmatic language, and the ability to reason about social problems. Through these skills, their study found that children that were better able to regulate their behavior had more competent social interactions.

Social-emotional skills have also been found to positively benefit children with externalizing behavior problems. One study provided preschool students with behavior problems entering kindergarten with three types of 8-week training programs in the summer. The program that included social-emotional and self-regulation training yielded the most positive benefits across multiple aspects of school readiness (Graziano & Hart, 2016).

Social and behavioral problems were only indicated for 4% of children as the reason children were eligible for EI (Hebbeler et al., 2007). However, identifying and addressing social-emotional issues early is paramount in assisting parents care for their child and providing their children with the fundamentals for success within school. The National Early Intervention Longitudinal Study (NEILS) undertaken by Hebbeler et al. (2007) found that of the families in their longitudinal studies, 32% reported a difficult time in identifying how to appropriately handle their child's behavior. Behavioral differences emerge early on and can present challenges for the family units, child care centers and other relationships. NEILS data found that of children who present social-emotional challenges, a consistent predictor was troubles with communication.

Assessment and Early Intervention in New Jersey

Though current practices in EI were fostered by the United States Department of State, the responsibility of implementing EI programs falls upon the state (Odom & Wolery, 2003). In New Jersey, qualifications to be found eligible for services include a child either demonstrating a developmental delay, or falling within New Jersey's standards for conditions with high probability (Early Intervention System, 2016). A developmental delay is defined by New Jersey as the following:

Must be measured with the NJEIS designated standard evaluation tool, appropriate diagnostic instruments and procedures, including clinical opinion in all of the following areas of development: Physical (gross motor, fine motor, vision and hearing); Cognition; Communication; Social or emotional; and Adaptive. To be eligible, a child must demonstrate measured delays in development of at least 2.0 standard deviations below the mean in one developmental area; or 1.5 standard deviations below the mean in two or more of the developmental areas (Early Intervention System, 2016).

Conditions with High Probability are defined as:

...children who have identified conditions but who may not be exhibiting delays in development at the time of eligibility. Children are eligible who have a diagnosed physical or mental condition that has a high probability of resulting in developmental delay. The high probability diagnosis must be confirmed in a signed statement or report from a physician; advanced practice nurse; or licensed clinical psychologist in the child's record including a statement that the diagnosed

condition for the child has a high probability of developmental delay (Early Intervention System, 2016).

Children with diagnosed conditions and risk conditions usually begin receiving services by the age of 6 months, however children with developmental delays begin much later (Hebbeler et al., 2007).

The NJEIS utilizes the Battelle Developmental Inventory-2nd edition (BDI-2) to evaluate child outcomes. Children are measured using this scale when they are referred to EI, annually and upon exiting the EIS. The BDI-2 combines play-based activities, clinical observations, and parent responses to questions about their child (Early Intervention System, 2016). This test has been found to have high reliability and validity, as well as acceptable sensitivity, specificity, and overall classification accuracy (Elbaum, Gattamorta, & Penfield, 2010).

As in accordance with Part C of IDEA (2004), New Jersey requires the process of referral to eligibility determination to be completed within 45 days. Qualified practitioners trained in the appropriate methods and procedures must conduct all child and family evaluations and assessments. A Targeted Evaluation Teams (TET) is responsible for performing initial evaluations and determines eligibility of a child. (Early Intervention System, 2016).

Primary referral sources of children for NJEIS include hospitals, physicians, parents, child care programs, local educational agencies, public health facilities, other social service agencies, and other health care providers. In order for the referral to be made written documentation from the child's parents must be maintained either agreeing to or denying the request to refer. Explanations of services and consequences for not

receiving the services are given to parents and families who request a referral not be made and follow-up contacts are made (Early Intervention Services in New Jersey Frequently Asked Questions, 2015). Despite increasing awareness to the importance of EI, it is found that many children do not receive the support they need early on because they are not referred to EI (Tang, Feldman, Huffman, Kagawa, & Gould, 2012).

Not all children referred to EI are found eligible for services. That is, they are not found to demonstrate a developmental delay or within New Jersey's standards for conditions with high probability. Additionally, not all of the families with children found eligible for services choose to pursue those services. Rosenberg, Robinson, Shaw, & Ellison (2013) found the percentage of infants and toddlers likely to be eligible for Part C services ranged from 2% to 78% across the United States. However, the percentage children actually enrolled in Part C ranges from 1.48% to 6.96% nationwide. This suggests a discrepancy between those eligible and the prevalence of developmental delays with the rate of participation in Part C. In a nationally representative study of 10700 infants, Feinberg, Silverstein, Donahue, & Bliss (2011) found that 1000 children were found eligible for early intervention services. However, only 9% of those children received services at 9 months of age. By 24 months of age this number increased to 12%.

Areas of Concern in Early Intervention

Hebbeler et. al. (2007) outlined various risk factors for families found eligible for EI services including living in foster care, living in a single-parent household, living in poverty, and having a caregiver with less than a high school education. Using the risk index, they found that 25% of children had no risk factors, 50% had more than one risk factor, and 20% experienced more than four risk factors. It is possible that these risk

factors contribute to additional stressors causing the reception of services challenging. A study by Marshall, Kirb, & Gorski (2016) found that families of multiple race or black race, non-English home language, low income, and private or no insurance were associated with lower odds of services enrollment. Reviewing the 2007 National Survey of Children's Health, the study (2016) found that although nearly 40% of parents reported one or more concerns, and only 5% of children were enrolled in public intervention or therapy

Child welfare. IDEA (2004) requires the referral of children under the age of 3 involved in substantiated case of child abuse or neglect for EI services. The U. S. Department of Health and Human Services (2014) found that over one quarter of child abuse victims were under the age of 3, with the highest rates for children under 1 year of age. Goldson (2001) found children with disabilities more likely to be victims of maltreatment than children without disabilities. A national study completed in 2012 found that 42.3 percent of children ages 1 to 5 that were part of a maltreatment investigation had a developmental need that may have qualified them for services under Part C (Casanueva et al., 2012). Children in child welfare have an increased likelihood of eligibility for Part C services due to higher rates of social, emotional and behavioral conditions (Rosenberg & Robinson, 2003).

Despite this, within the child welfare system children with developmental delays are under identified (Rosenberg, Smith, & Levinson, 2007; Scarborough & McCrae, 2008). Reasons for this under identification and subsequent under enrollment include children not having a consistent caregiver, the complexity of the policies surrounding early intervention, lack of training in personnel for identifying delays and working with

families, parents who are unavailable to provide consent, and lack of personnel to provide Part C services (Child Welfare Information Gateway, 2013). Rosenberg, et al. (2007) found that caseworkers were able to identify only 23 percent of the children with developmental problems.

Foster care. A 2007 national study found that 1 in 7 children receiving EI services are in foster care (Hebbeler, et. al., 2007). These numbers are greater than national averages and important to understanding the needs for EI and its results. Children with developmental delays in particular are found at higher rates for children in foster care (Takayama, Wolfe, & Coulter, 1998). Alternatively, homeless children are greatly underrepresented, though they more likely to experience behavioral or emotional problems (The National Scientific Council on the Developing Child, 2008/2012).

Race/ethnicity. Feinberg, et. al. (2011) found that of 1000 children found eligible for services no differences in race were apparent among infants at nine months of age, however by 24 months of age black children were five times less likely to receive services than white children. These findings were found more consistent with children who displayed developmental delays rather than with children with established medical conditions. Feinberg, et. al. (2011) concluded that this disparity might be the result of differences in clinicians being less likely to identify delays in black children or due to differences in family's belief systems and culture.

Income. Poverty is associated with an increased risk of disability and need for EI services. Hebbeler, et. al. (2007) found that even when receiving services, children from impoverished families are more likely than non-poor children to be at high risk for poor development. These children are found to be less likely to receive services for only a

speech and language delay, more likely to have a difficult birth history, more likely to have been in fair or poor health, and more likely to have hearing problems and trouble using their limbs (Hebbeler, et. al., 2007). Additionally, Hebbeler, et. al (2007) found impoverished children at 36 months of age were less likely to have near age-level communication, motor, and cognitive skills at 36 months than non poor children in early intervention services. In addition, their rates of being in fair or poor health were much higher than non-poor children, with about one in five fitting the description (Hebbeler, et. al., 2007). Hebbeler, et. al. (2007) found that impoverished children receiving EI services were more likely to be African-American (41%) or Hispanic (22%).

Corr, Santos, & Fowler (2016) described how poverty affects a family's economic, health and social dimensions, as well as contributes to increased stressors in their lives. These environmental stressors often play a role in the trajectory of a child's development (Peterson, Mayer, Summers, & Luze, 2010). Peterson, et.al. (2010) described how EI services can help with certain stressors when specifically recognized and targeted by programs. Limited resources and social disorganization among impoverished neighborhoods can be barriers for a child's development (Shonkoff & Phillips, 2000). Because of the importance EI places on family involvement and natural learning environments, understanding from professionals regarding a family's circumstances is necessary when designing and implementing an IFSP.

In a longitudinal study of Part C services, Hebbeler, et. al. (2007) found that 43% of families receiving services had an annual income at or below US \$25,000. There are various factors that contribute to the possible reasons why families living in poverty have children who are more often found eligible for services. Brooks-Gunn & Duncan (1997)

outlined various disadvantages children from poor families might face that could affect their cognitive abilities including low birth weight, nutritional deficits, lead exposure, decreased parental interactions, a lacking home life, poor neighborhood conditions, and parental mental health problems. Additionally, children from poor families have behavioral problems more frequently than non-poor children do (Brooks-Gunn & Duncan, 1997).

Alternatively, IDEA (2004) requires only Child Find services, evaluations and assessments, IFSP development, service coordination, and procedural safeguards to be provided to families for free. States vary according to which specialized services they provide for free or at what cost. However, within New Jersey, many of these services are provided on a sliding scale (Children's Hospital of Philadelphia, 2014). New Jersey requires families with an annual income at or above 300% of the federal poverty level to participate in the costs of NJEIS services provided to them. That is, families falling within this range will be charged a co-payment per hour of service and the costs associated with assistive technology devices that are identified as needed on their IFSP (Early Intervention System, 2012). Therefore, costs for families with higher incomes are greater than families who do not earn as much, potentially impacting a higher earning family's decision to participate in certain programs or not.

Future Considerations for Early Intervention

Though Part C of IDEA (2004) imparts essential obligations for states to maintain effective EI services, there are unmet needs that must be addressed moving forward for the future success of early intervention (Nectac, 2011). The divide between children eligible for receiving early intervention services and those receiving services is

substantial. According to Rosenberg, Zhang, & Robinson (2008) as many as 13% of children from birth to 3 years with developmental delays could qualify for services as detailed by criteria used by states to determine eligibility. However, they found that in order to serve the estimated 13% of children qualifying for services, Part C would need to enroll 6 times the number of children currently being served. Identifying and serving all qualifying children would require numerous resources to overcome barriers currently in place. Additionally, Rosenberg, Zhang, & Robinson (2008) found certain groups of children less likely to be served, in particular young black children.

One such barrier is correctly identifying children as early as possible. One national survey of children's health found that only 21.1% of parents to children aged 10-47 months were asked to fill out a questionnaire regarding their child's developmental, communication, or social behaviors in the past 12 months (Rice, Van Naarden Braun, Kogan, Smith, Kavanagh, Strickland, & Blumberg, 2014). More likely, attributing to 52.3% of participating families, was the doctor's use of informal questions relating to the development of their child's learning, development or behavior. These findings suggest that the majority of children are not screened for developmental delays by validated screening tools, and are more likely to be assessed using informal monitoring which is less likely to identify developmental delays. Matters of eligibility are complicated due to the spectrum based nature of of qualifying for developmental delays. Certain children only barely qualify, whereas some children with developmental delays do not qualify because they are found to function slightly above the eligibility cut-off (Hebbeler et al., 2007). Additionally, because states determine their own criteria, those eligible in one state may not be eligible in another.

In order to serve the large number of children that do qualify for EI, trained professionals are needed to serve as experts for children with behavioral or emotional problems. In particular, Osofsky & Lieberman (2011) find a scarcity of culturally competent intervention approaches and shortage of psychologists with the knowledge necessary to serve effectively serve minority populations. Often those who provide direct services to the children are underqualified due to the shortage of EI and special education personnel that are fully and appropriately trained (Killoran, Templeman, Peters, & Udell, 2001). Additionally, it is found that as infant mental health is a relatively new field, EI lacks well-trained personnel with the necessary background to identify or provide services related to issues in social emotional behavior of very young children (Hebbeler et al., 2007). If lacking specific clinical experience, providers may be unable to identify these problems, and even less likely if they are not using the latest assessment tools in infant mental health.

Though required by Part C of IDEA, many children affected by substance abuse and involved in substantiated cases of child abuse or neglect do not receive the services needed to ensure their wellbeing. The National Center on Substance Abuse and Child Welfare (2009) found that while approximately 10-11% of all newborns have prenatal substance exposure, 90-95% are sent home without being identified or referred for services. Additionally, in 2009, of all children involved in cases of substantiated abuse or neglect, 40% received no post-investigation services.

Summary

EI is a powerful system in place to help provide support and services to infants and toddlers with disabilities and developmental delays. These services also extend to

family and place great emphases on the importance of family involvement. Social-emotional skills are a targeted outcome that EI measures due to the great importance of positive social-emotional functioning on a child's life and development. IDEA states to provide EI services. However, the ways in which states choose to screen for EI eligibility and provide funding for services differs. In New Jersey a child must either demonstrating a developmental delay as evaluated by a designated standard evaluation tool, or fall within New Jersey's standards for conditions with high probability.

Many children with disabilities and developmental delays struggle with their social-emotional functioning. Unfortunately, not all children receive the EI services for which they would qualify if referred or if their families chose to pursue the reception of these services. Demographic information such as race and income play a role in this disparity. Additionally, it is often difficult to identify children with developmental delays early enough, so they are receiving these services later than they could be had they been identified earlier.

Chapter 3

Methods

Sample

The current study accumulated data from each of New Jersey's 21 counties regarding the percentage of individuals entering EI with social-emotional skill performance below age expectation and exiting with substantially improved social-emotional skills. Information contained with the New Jersey County Performance and Determination Reports from fiscal years 2014 and 2015 was compared.

A paired samples t-test was utilized to evaluate the difference between referrals made for EI services and number of families receiving IFSPs for both 2014 and 2015 fiscal years. This revealed no statistically significant differences between 2014 ($M = 56.56$, $SD = 9.11$) and 2015 ($M = 59.84$, $SD = 7.68$) time points, $t(20) = -1.87$, $p = .076$ (See Figure 1). That is, no statistical significance was found and rates remained steady between counties in both the 2014 or 2015 fiscal years for the number of individuals referred into EI and those receiving IFSPs.

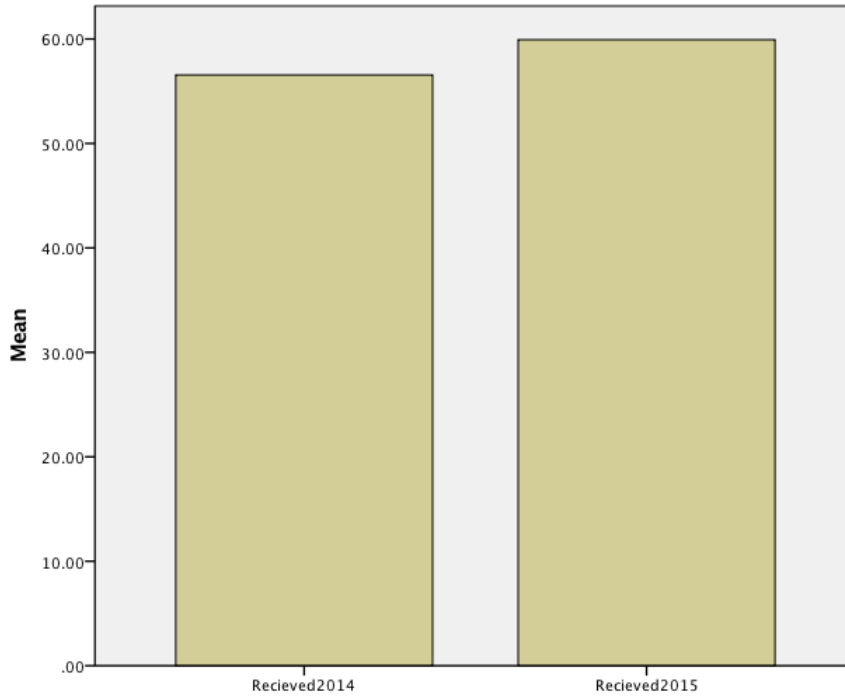


Figure 1. Comparison of Child Referrals and Families Receiving IFSPs

Instrumentation

The current study utilized county percentage of individuals entering EI with social-emotional skills below age expectation and exiting Early intervention with substantially improved the emotional skills as published by the 2014 and 2015 fiscal year EIS County Performance and Determination Reports. The County Performance and Determination Reports are published in accordance with IDEA that requires EI indicators to be made public. The NJ EIS must make annual determinations on the performance of counties in meeting federal EI requirements. The NJEIS utilizes the Battelle Developmental Inventory -2nd edition (BDI-2) to evaluate children as they being EI, annually and upon exit. The information conveyed by the BDI-2 serves to determine the

percentage of individuals exiting EI with substantially improved the social-emotional skills

The current study used additional information conveyed within the 2014 and 2015 EIS County Performance and Determination Report to determine the number of referrals, number children and families with Individualized Family Service Plans, county size and social emotional growth upon exiting the program. Information determining median household income for each county was drawn from the 2010 U.S. Census Bureau.

Procedures

To conduct this research, data was gathered from the New Jersey Department of Health website. Due to the archival and public nature of the data that was used, there was no risk to human subjects within this study.

The percentage of children entering EI with social-emotional skill performance below age expectation that substantially increased their rate of growth by the time they exited the EIS were collected for each NJ county using the 2013-2014 and 2014-2015 fiscal years NJEIS County Performance and Determination Reports. Specific dates for which these reports collected data were July 1, 2013 to June 2014 and July 1, 2014 to June 30, 2015.

Additionally, the number of referrals for each county and the number of families with Individualized Family Service Plans (IFSPs) was also gathered from the NJEIS Determination Reports. The percentage of referrals that became IFSPs for each county was calculated into percentages, and these rates were found to remain constant over both observed years as demonstrated in Figure 1.

New Jersey's 21 counties were divided into either small, medium and large categories using information provided in the EIS county determination reports. These reports found 7 counties grouped as small including Hunterdon County, Sussex County, Cape May County, Warren County, Salem County, Atlantic County and Cumberland County. The report grouped 8 counties as medium sized including Morris County, Somerset County, Mercer County, Burlington County, Union County, Gloucester County, Hudson County, and Passaic County. The reports found 6 counties grouped as large including Bergen County, Monmouth County, Middlesex County, Essex County, Ocean County and Camden County.

Data was entered into SPSS for statistical analysis.

Statistical Analysis

A paired samples t-test was conducted to evaluate the difference between referrals made for EI services and number of families receiving IFSPs for the 2014 and 2015 fiscal years. Non-parametric correlation coefficients between all observed variables were investigated to determine if statistical significance was present in relation to social-emotional growth. Additionally, a two-way mixed ANOVA was conducted to test the relationship between county size and the percentage of children performing below age expectation and significantly increase their social emotional skills upon exiting EI.

Chapter 4

Results

The hypothesis addressed whether a correlation between referral rate, families receiving IFSPs, county size and median household income will correlate with the differing percentages across counties of children entering EI with social-emotional skills below age expectation and exiting EI with substantially increased rates of growth in their social-emotional skillset

Table 1 presents the zero order non-parametric correlation coefficients between all observed variables. The results in part supported the studies hypothesis, indicating that in 2014 county size ($\tau_b=.461$, $p=.010$) was a significant variable. In addition, median income in fiscal year 2015 was also found significant ($\tau_b=.400$, $p=.011$).

Table 1

Zero-order Non-Parametric Correlations between Observed Variables

	1.	2.	3.	4.	5.
1. Median Household Income	--	.101	.137	-.038	.400*
2. Increase in Social Emotional Skill (%)	.327*	--	.299	.254	.149
3. County Size	.137	.461**	--	.765**	.411
4. Referrals for EI	-.048	.308	.765**	--	.276
5. Received EI Services (%)	.333	.029	.263	.105	--

* denotes $p < .05$

** denotes $p < .01$

Note. Numbers above diagonal relate to the 2015 fiscal year and numbers below the diagonal relate to the 2014 fiscal year.

Figure 2 reveals a mixed two-way ANOVA that was conducted to further test the hypothesis of the relationship between county size and the percentage of children performing below age expectation upon EI entrance and significantly increasing their social-emotional skills upon exiting EI. Significant statistical differences supporting this hypothesis were indicated as a function of county size, with the effect was most pronounced and significant for 2014 data. Results from the 2014 fiscal year ANOVA found $F(2,18) = 9.47$, $p = .002$ and 2015 fiscal year ANOVA found $F(2,18) = 1.468$ $p = .257$.

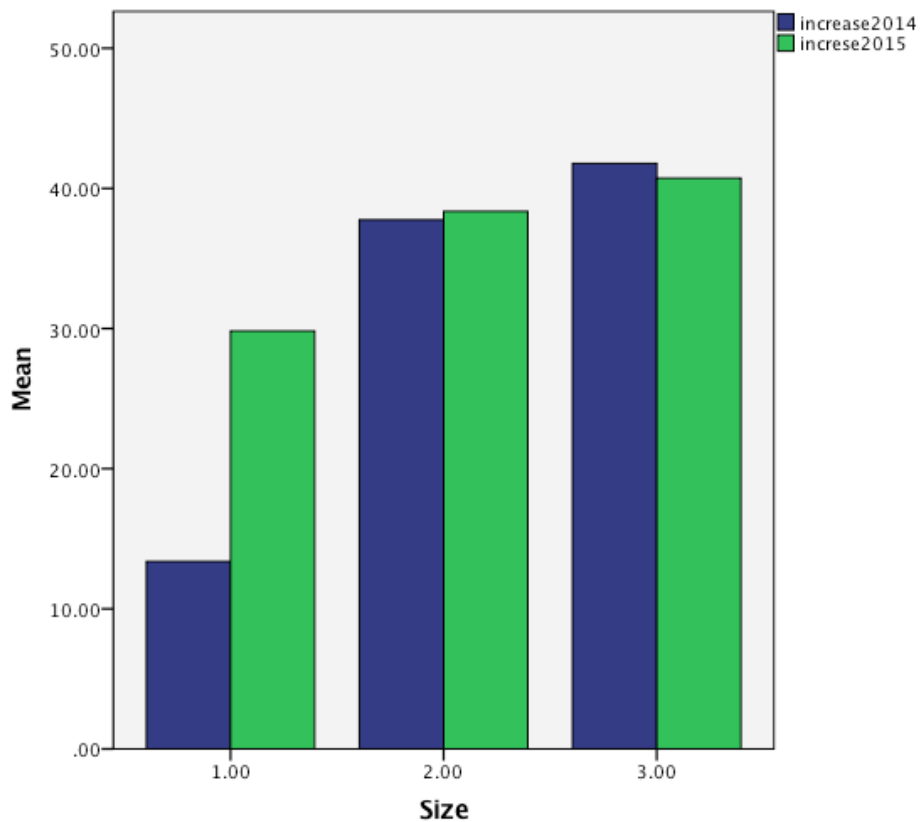


Figure 2. Two-Way Mixed ANOVA County Size and Social-Emotional Increase

Chapter 5

Discussion

Summary

The present study was designed to determine if there were any significant variables which influenced county performance for increasing social-emotional skills of children entering EI with social-emotional skills performing below age expectation and exiting with substantial rates of social-emotional skills growth. More specifically, this study investigated whether EI referral rate, families receiving IFSPs, county size and median household income correlated with counties demonstrated a significant relationship with the percentage of social-emotional skills growth among counties.

The study revealed that the number of referrals for EI and the numbers of families participating in EI (receiving IFSPs) remained steady for the 2014 and 2015 fiscal years in all of New Jersey's 21 counties. Through the zero-order non-parametric correlations between observed conducted found that county size in the 2014 fiscal year to be significant, as well as median household income within the 2015 fiscal year.

More pronounced were the results revealed by the two way-mixed ANOVA which demonstrates county size as a significant variable in affecting social-emotional skills growth in the domains in which this study was concerned. That is, larger counties seemed to increase social-emotional skills of children entering EI with below age expectation levels and exiting with substantially improved social-emotional skills more often than smaller counties did. This occurred independently from other variables examined in this study such as median household income for each county, referral rate and families receiving IFSPs.

Implications

The current study found that rates of referrals and reception of IFSPs remained consistent between counties and fiscal years 2014 and 2015. Although there are many elements involved in the process of referrals until IFSP obtainment, it is positive that these rates remained consistent and that the majority of individuals referred into EI went on to receive IFSPs.

Correlation analyses indicate that county size and e income may play a role in increased social-emotional skills growth. Though income was only found significant in fiscal year 2015, it is important to consider the possible impact of income disparity on children who require EI services.

The study aimed to understand if such a large array of county sizes within NJ may play a role in the effectiveness of EI providers in increasing social-emotional skills of EI participants. The findings imply that EI services in smaller counties may lack a variable that larger counties do not. Data reveals that this divide in increased social-emotional skills growth and county size does not relate to household income.

Limitations

A large divide exists within New Jersey exists among county size. According to U.S. Census Bureau's Population Division (2016) the smallest county in New Jersey is Salem County with a population size of 64,180 residents and the largest is Bergen County with a population size of 938,506 residents. With this divide also comes demographic information not analyzed within this study. Information from the NJ Department of Health website did not make it immediately obvious as to whether size referred to geographic land area or population density of the counties.

The study was only concerned with two fiscal years. Several counties in fiscal year 2014 presented 0% of EI participants entering EI with social-emotional skills below age expectation and significantly increasing this rate by the time they exit. Further information to better understand this 0% publication would need to be obtained to understand these numbers and their significance.

Future Directions

Further research should be conducted investigating why small counties show less increase than large counties in increasing social emotional skills. Possible reasons for this divide might involve families not having as many opportunities to practice social-emotional skills with others due to less resources or the distance needed to travel in smaller counties. That is, perhaps larger counties size are more conveniently located to cities and other opportunities to increase social-emotional skills.

It is also necessary to consider the possibility that a limited number of children may fit within the criteria of this study within counties deemed small; therefore, it is possible a large enough sample size was not utilized. Future studies may choose to consider raw numbers instead of percentages converted by counties to understand differences among counties in increasing social-emotional skills. Further research would need to be conducted to confirm or negate these hypotheses.

Because children with developmental delays often receive services later than children with conditions of high concern, they might not be receiving the services for a long enough time for it to really make an impact on their social-emotional function before turning three and leaving the EIS. It is imperative for research to be conducted in order to

aid in the detection of developmental delays earlier and to ensure that these children are receiving the appropriate services as soon as they can.

Understanding whether families coming from poverty are more or less successful in increasing social-emotional skills through their experiences in EI is imperative. Research demonstrates that this may be the case, though more affluent families may pay not receive any funding for EI services. Though the present study did find household income significant in 2015, the study did not reveal a more detailed understanding of this significance.

Additionally, future studies may wish to consider the implication of racial and ethnic demographic information by county and the role of this information may play on social emotional skills growth. Research has demonstrated disparities in the number of children within EI based on race and ethnicity. Understanding whether this plays a role in counties increasing social-emotional skills as published within EI performance reports is critical in guiding future research and EI guidelines.

Finally, it is critical that longitudinal studies are conducted which address the questions raised within this study. It is important for states to understand long-term impacts of EI and social emotional skills growth and recognize trends among county's and their performance.

Conclusion

Understanding factors which influence EI county performance is imperative for the future of EI development. Social-emotional skills are a critical component of a child's development and recognizing that county size and income may play a part of county performance is critical for states to recognize and address. Understanding that these

variables may play a role in social-emotional skills development can help the EIS within the state of NJ tailor its environment and develop its practices to help children gain better opportunities to develop these skills despite demographic or geographic differences.

Overall, findings from this study proved positive. Though disparity exists among NJ counties in increasing social-emotional skills, most counties, particularly those of medium and large size, do an efficient job in increasing these skills. Additionally, income disparity does not seem to play a very prominent role in the divide between children in regards to increasing their social-emotional skills functioning within the domains of which this study was concerned, despite research to the contrary. Despite the many forces which limit the breadth of EI effectiveness, many infants and toddlers are receiving support that will aid them well into their futures. Additionally, within EI, families are provided with supports they need to help navigate their child's developmental needs.

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