The Role of Intervention Services and Social Activities on Making and Keeping Friends in Children with Developmental Disabilities: Findings from The National Survey of Children's Health

The Role of Intervention Services and Social Activities on Making and Keeping Friends in Children with Developmental Disabilities:

Findings from The National Survey of Children's Health

by

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ABSTRACT

Children with developmental disabilities face many difficulties surrounding friendships and building lasting relationships (Geisthardt et al., 2002). Children with developmental disabilities are less likely to gain success when initiating a social interaction, have smaller social circles, are less accepted by other children with disabilities and typically developing peers, and have lower quality friendships (Guralnick 1997; Kasari et al., 2011). There is a lack of literature specifically focused on making and keeping friendships among children with developmental disabilities. Of those studies, researchers concentrated on peer status and acceptance of children with developmental disabilities, rather than on their friendships (Webster & Carter, 2007). There were four research aims for this study. Research aims one and two sought to determine if age starting intervention services and/or participation in after school activities were related to better friend-making. Research aim three examined how disability type impacted making and keeping friendships. Research aim four sought to determine what interactions, if any, played a role in making and keeping friendships. Age at the start of intervention services was not a significant predictor of difficulty making and keeping friendships. Participation in activities outside of school was found to decrease the odds of difficulties making friends. The findings of this study illuminate various factors of socialization, as well as barriers, for children with disabilities. These results will serve as a catalyst for larger conversations about accessible spaces and environments to encourage socialization and friendships for children with developmental disabilities.

INDEX WORDS: developmental disabilities, socialization, friendship, intervention services, inclusive education

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DEDICATION

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1 INTRODUCTION

Children with developmental disabilities have long been isolated, institutionalized, and given insufficient care. Our society has made great strides in providing a better, more accessible world for children with disabilities. Academic environments started as a place where children with developmental disabilities were not welcome, but they have changed and evolved over time into inclusive spaces, with the assistance of federal laws and persistent advocates (Stainback & Smith, 2005). However, this type of inclusion rarely extends to environments outside of education. For example, sporting events, clubs, or hobby groups generally do not cater to children with developmental disabilities and do not create accessible spaces (Solish et al., 2003). This poses difficulties for children with developmental disabilities and their families who are then confronted with several obstacles to developing lasting friendships and social bonds (Geisthardt et al., 2002).

Drawing upon insights from previous work surrounding children with developmental disabilities and their social spheres, this study aimed to discover if there was a relationship between several predictor variables and difficulties in making and keeping friends in a population of children with developmental disabilities. More specifically, intervention and special education services, participation in activities outside of school, gender, race, socioeconomic status, family structure, and primary language were explored in relation to making and keeping friends in children with developmental disabilities. The interactions of socio-economic status, and primary language, participation, intervention services, and family structure were also assessed on making and keeping friends.

1.1 Socialization

To understand social skills and language acquisition in children with developmental disabilities, it is helpful to understand typical language acquisition and how that informs socialization and social skills. Children who are typically developing are neurologically primed for vast amounts of learning from the ages of birth through 3 years of age (Romski & Sevcik, 2005). This “golden period” of learning is when children who are typically developing acquire receptive and expressive language. It is also a period when children form attachments to parents and caregivers, which then subsequently develop their socialization skills (Guralnick & Neville, 1997). Guralnick (1999) developed a model that described a typical social interaction, and how that interaction might play out cognitively. He described 5 steps that an individual cycles through in a social interaction; (a) encoding relevant social cues; (b) accurately and meaningfully interpreting cues; (c) generating potential social strategies; (d) evaluating the effectiveness of a particular strategy; and (e) enacting that strategy.

When examining social interactions of children who are typically developing, there are several different explanations for why we see drastic differences in children with developmental disabilities. One theory is that children with disabilities encounter a “block” in the cognitive process of socialization; they might get stuck on one of the steps listed above and cannot complete the social interaction (Guralnick, 1999). A biological perspective for social delays proposes that socialization is located in the frontal and temporal areas of the brain and more specifically, higher-order social skills have been found to correspond with the frontal areas of the brain (Beauchamp & Anderson, 2010). Any damage or lack of development in these areas could hinder socialization or social skills. Environmental and biological theories are both important and both are essential factors in socialization and social interactions. In fact, they have a bi-directional relationship and influence each other (Beauchamp & Anderson, 2010).

1.1.1 Socialization in Children with Autism

Per the World Health Organization, Autism Spectrum Disorder is categorized by "persistent deficits and difficulties in the ability to initiate and to sustain reciprocal social interaction and social communication" (WHO, 2020, pg. 391). Further, children with autism experience difficulties identifying and interpreting social-emotional cues such as facial expressions, body language, and vocal intonation (Uljarevic & Hamilton, 2013). These social-emotional difficulties negatively correlate with social skills and social competence and predict socialization difficulties later in life (Hudepohl et al., 2015; Uljarevic & Hamilton, 2013). Research shows that children with autism have fewer friends than their typically developing peers and also experience increased loneliness (Kasari et al., 2011). However, some children with autism have expressed a motivation for increased contact with others (Kasari & Patterson, 2012; Orsmond et al., 2004). Additionally, it has been shown that, among individuals with autism, those who experience more positive outcomes later in life are those who are more socially competent (Mordre et al., 2012; Szatmari et al., 2003).

1.1.2 Socialization in Children with Developmental Delays

Developmental delay in children is not a diagnosis, but rather an idiopathic indication of a possible developmental disability (Bellman et al., 2013). Children with developmental delays are at risk for later diagnosis of intellectual disabilities, autism, speech and language disorders, and other developmental disabilities. Research shows that children with developmental delays have specific problems with social information processing and emotional regulation, which negatively impact socialization with peers (Guralnick, 1999). Indeed, it has been demonstrated that children with developmental delays rarely establish reciprocal friendships, and those who do form relationships, do not engage in socially interactive play with peers compared to children who are typically developing (Guralnick & Groom, 1988; Guralnick et al., 1996, Guralnick et al., 2007). This body of research indicates that children with developmental delays have difficulties not just in peer-related social competence but in developing and fostering friendships as well.

1.1.3 Socialization in Children with Down Syndrome

Studies have consistently reported that social competence in children with Down syndrome is a strength, with children exhibiting many pro-social behaviors and enjoying interactions with others (Fidler et al., 2006; Fidler & Nadel, 2007; Kasari & Hodapp, 1996). It has been posited that the decreased stigma of Down syndrome, coupled with parental initiatives to have their child participate in social activities, leads to higher peer-related social competence (Seltzer & Ryff, 2019). However, children with Down syndrome encounter other difficulties, such as difficulties in expressive language, and emotion regulation, which can lead to decreased social competence and difficulty forming close bonds with peers (Chapman, 2003; Jahromi et al., 2008). Further, these risk factors become more pronounced, and socialization becomes more difficult when social situations become more complex, or when a skilled partner is not available to help facilitate social interactions (Guralnick et al., 2011). This suggests that children with Down syndrome, while motivated to socialize with peers, might encounter difficulties associated with their social competency and social skills.

1.1.4 Socialization in Children with Cerebral Palsy

It has been shown that physical and communication impairments can hamper an individual’s social environment, which then further influences the individual’s mental health and well-being (Hidecker et al., 2018; Russo et al., 2008). Children with cerebral palsy socialize less with peers and receive less social support from friends compared to children who are typically developing (Colver et al., 2015; Michelsen et al., 2014). More specifically, according to adolescents with cerebral palsy, social support and relationships with peers were ranked as one of the highest concerns in a self-report measure (Colver et al., 2015). The literature makes clear that these children have a desire for greater social support and emotional networks (Vinson et al., 2010). This lack of socialization for children with cerebral palsy has implications for social outcomes and relationships throughout the lifespan.

1.1.5 Socialization in Children with Intellectual Disabilities

Social development is delayed in children with intellectual disabilities (Baurain & Nader-Grosbois, 2013; Kasari & Bauminger, 1998). Specifically, emotion regulation has been cited as one of the primary delays seen in this population (Baurain & Nader-Grosbois, 2012). Indeed, Baurain and Nader-Grosbois (2012) found that children with intellectual disabilities had less socio-extraverted behavior compared to their typically developing peers and used spoken communication less when interacting with others. This is also in alignment with the work completed by Serafica (1990) and Guralnick (2010) who found that children with intellectual disabilities' lower cognitive skills were a risk factor for difficulties related to peer competency (specifically pertaining to encoding and recalling social cues). This difficulty in socialization has broader implications for friendships and peer bonds within this population.

1.2 Making Friends

When defining the term "friendship" it is important to note that the term changes and evolves across the lifespan. Young children develop friendships with peers that they are in proximity to for prolonged periods of time and share similar favorite activities (Slater & Bremner, 2017). This is in contrast to teenagers and adults who refer to "friendship" as a more psychological and emotional bond. Thus, definitions used by researchers throughout the years have varied considerably.

The initiation of “friend-making” requires a set of comprehensive interpersonal skills which include socio-emotional, cognitive, and behavioral skills. In addition to the requirement of skills to develop close peer bonds, friendships themselves have been found to increase empathy, compassion, and skills related to perspective-taking (Buhrmester & Furman, 1986). Developing friendships has also been found to help children gain experience in displaying and regulating their emotions (Parker & Gottman, 1989). Furthermore, developing friendships early in life helps establish a firm foundation for future social relationships (Hartup & Sancilio, 1986). Children who are typically developing use friendships as an opportunity to practice various interpersonal skills that they then hone and refine later in their development. Gottman and Graziano (1983) described the sequential social processes involved when children who are typically developing develop friendships as; (a) communication clarity; (b) information exchange; (c) establishing common ground; (d) self-disclosure of feelings; (e) positive reciprocity, and (d) conflict resolution. When interacting with a peer group, children who are typically developing learn early on how to gain acceptance into peer groups, navigate conflict, and build social ties with peers (Dodge et al., 1986).

While the benefits of friendships among children who are typically developing are well documented, there is a paucity of literature specifically focused on making and keeping friendships among children with disabilities, and of those studies, researchers concentrated on peer status and acceptance of children with disabilities, rather than on their friendships (Webster & Carter, 2007). The literature shows that most social bonds and friendships form between typically developing children and children with developmental disabilities during early elementary years (Carter & Hughes, 2005; Cutts & Sigafoos, 2001). Therefore, it is important for the parent or primary caregiver to help facilitate interactions between children early so they can form those close social bonds that will then persist into later childhood and beyond. The need for an adult or instructor to be present during social interactions has been observed by several studies, with children with developmental disabilities having more social interactions with adults, compared to children who are typically developing (Anderson et al., 2004; Odom et al., 2001).

1.2.1 Challenges to Making Friends

Children with disabilities are less likely to gain success when initiating a social interaction, have smaller social circles, are less accepted by both other children with disabilities and children who are typically developing, and have lower quality friendships (Guralnick 1997; Kasari et al., 2011). Additionally, when children with disabilities initiate interactions with peers, one of the primary reasons for doing so is to develop social closeness (Chung et al., 2012). Further, many children with developmental disabilities enjoy interactions with others and express an interest in socializing with peers (Kasari & Patterson, 2012; Orsmond et al., 2004; Vinson et al., 2010). These findings suggest children with disabilities are eager to socialize and develop bonds with their peers.

Loneliness occurs when children perceive their social connections as unfulfilling or when they do not have accessible peer groups (Bauminger & Kasari, 2000). Regarding children with disabilities, the literature shows that self-concept and social skills are significant predictors of loneliness levels (Küçüker & Tekinarslan, 2015). Improving the social skills of children with developmental disabilities in inclusive classrooms may lead to improved self-concept, which then would decrease loneliness levels and help facilitate positive connections with their peers.

One possible theory to explain a lack of friendships or close peer bonds could be that children with developmental disabilities have fewer opportunities than their typically developing peers to socialize with others outside of a school environment. There is a small body of research that supports the possibility that proximity, similarity, and transcendence of context are important for the development of friendships (Hollingsworth & Buysse, 2009; Moore-Dean. et al., 2016). Children create bonds and relationships with their peers through similar hobbies, interests, and activities, but children with developmental disabilities may not have those same opportunities to create those meaningful relationships with peers. Because of the difficulties children with developmental disabilities experience in making and keeping friends, external supports such as programs dedicated to serving individuals with disabilities (such as Special Olympics) and proactive measures by adult figures (coordinating playdates, enrollment in activities, etc.) are vital to the development of friendships and close relationships.

1.2.2 Gender

Calder and colleagues (2013) found that in their sample, girls with autism were strongly motivated to engage with their peers, while boys were less so. Head et al., (2014) found that girls with autism, specifically in their pre-teen and teenage years, scored similarly to boys *without* autism on the Friendship Questionnaire. This measure was designed to assess friendship quality, understanding, and empathy, which suggests girls with autism demonstrate higher social and emotional skills and have developed certain skills in order to hide or downplay social deficits (Attwood, 2000; Kopp & Gillberg, 1992). Interestingly in children with developmental disabilities, research shows that girls tend to be more social among peers from preschool through the teenage years (Law et al., 2012).

Looking at elementary-aged children with autism and their relationships with their peers, Dean et al., (2014) found that children with autism of both genders experienced greater exclusion than children who are typically developing, however, boys with autism were more overtly excluded and rejected by peers, compared to girls with autism, whose friendships with children who are typically developing mitigated social exclusion. Due to the complex nature of gender roles in society, more research is needed to adequately parse the multifaceted issue of gender differences in children with developmental disabilities and how that contributes to making and keeping friends.

1.2.3 Race

There is a dearth of literature that examines the intersection between children with developmental disabilities, friendships, and race. In one of the few studies looking at these issues, Freeman and Kasari (2002) found that playdates between children who are typically developing and children with Down syndrome occurred mainly between individuals of the same racial group. Other research focuses exclusively on children with autism, leaving out children with other developmental disabilities or co-morbidities.

Among adolescents, Azmi and colleagues (1997) found that South Asian individuals with intellectual disabilities face “double discrimination” when trying to develop friendships and interact with other individuals. Asian parents who have a child with developmental disabilities have been shown to internalize the stigma of disability and blame themselves for their child’s disability, which then leads to poor mental health and psychological well-being for those parents (Mak & Kwok, 2010). This is problematic because informal social support is associated with increased community-based participation in children with developmental disabilities (Khetani et al., 2012). Further, Asian parents of children with developmental disabilities have been shown to rank “friendships” as one of the least important educational outcomes for their children (Ma et al., 2023). As is the case with other variables in this current study, there is a lack of thorough research that examines the relationship between race and making and keeping friends in children with developmental disabilities.

1.2.4 Socioeconomic Status

Socioeconomic status (SES) can be considered in a multitude of ways, but, is often defined as one’s occupation, access to education, and financial status (Bradley & Corwyn, 2002; Ensminger & Fothergill, 2003). Similarly to race, socioeconomic status is often not explored in the context of children with developmental disabilities and friend-making. As it pertains to only socioeconomic status and children with developmental disabilities, research shows that having a higher SES correlates with better and more thorough health care, access to resources, and more inclusive environments (Hogan et al., 2000). Furthermore, children raised in low SES environments are more than twice as likely to experience chronic health issues such as asthma, mental health disorders, and developmental delay (Goodman, 1999; Najman et al., 1992; Ruijsbroek et al., 2011).

Families of children with developmental disabilities also have lower incomes and lower rates of employment compared to the general population (Keskinova et al., 2013; Mihaylov et al., 2004). Furthermore, it has been shown that family income significantly influences opportunities for participation in activities outside of an academic setting for children with developmental disabilities, with income-restricted participation identified as a substantial issue among families with low SES (Law et al., 2012; Soref et al., 2012). It has also been shown that families of children with disabilities have more extraneous costs required for immediate needs, and these immediate concerns may reduce opportunities for the child with disabilities in terms of participation in activities (King et al., 2003). More research is needed in the area of SES and making and keeping friends in children with developmental disabilities.

1.2.5 Family structure

There is a dearth of research focused on children with developmental disabilities and family structure. A small body of research has shown that children with disabilities often grow up in single-parent homes and homes with lower SES (Hogan et al., 2000; Rogers & Hogan, 2003). Hatton and colleagues (2010) also found that children with cognitive delay were more likely to be raised in single-parent households and less likely to live in households with both biological parents. However, Freedman and colleagues (2011) found that children with autism are not at an increased risk of living with single parents. The body of research looking at family makeup and children with developmental disabilities is extremely small, yet this is an area that is important to the well-being of children with developmental disabilities and should be examined further.

1.2.6 Primary language

Among children who are typically developing, a copious amount of literature has been dedicated to examining bilingual children and their later educational and social outcomes. However, among children with developmental disabilities, there is a small body of literature that focuses on the language development and later outcomes of children with developmental disabilities who are bilingual (Pesco et al., 2016; Raining-Bird et al., 2005; Yu, 2016).

The primary language of children with developmental disabilities has been subject to scrutiny. Many parents of children with autism are advised to only speak one language to their child and are commonly told that English should be the primary language used when living in the United States (Yu, 2016). The rationale is commonly explained as the child with developmental disabilities might become confused when confronted with multiple languages, and parents should attempt to solidify familiarity with the language the child will be most exposed to in everyday life (Thordardottir, 2002; Yu, 2016). However, this focus could lessen opportunities for interactions with peers or family members who speak other languages. Indeed, Raining-Bird and colleagues (2005) found no detrimental impact of bilingualism on the language development of children with Down syndrome. Further, Pesco and colleagues (2016) posited that bilingualism might benefit children with developmental disabilities by expanding access to resources and social opportunities.

There is also the emotional toll to consider when asking a bilingual family to only speak one language to their child. Parents reported feeling a personal loss and sadness when told by professionals to speak only one language to their child and reported speaking to their child less due to doubts concerning their own mastery of the target language (Fernandez y Garcia et al., 2012; Yu, 2013). Typically developing bilingual children have been shown to have advantages in social communication skills and social-emotional competence (Halle et al., 2014). It is not known if bilingual children with developmental disabilities have these same competencies. As is the case with the other variables in this current study, more research is needed to examine the complex relationship between primary language and social competency, specifically making friends, among children with developmental disabilities.

1.3 Intervention

Title V of the Social Security Act was enacted in 1935 and emphasized the importance of maternal and child health. Part II of Title V specifically created the first federal program to provide funds for medical services and eventually create a comprehensive service system for children with disabilities (Social Security Act, 1935). The right to an education was not guaranteed to children with disabilities until the 1970s when Public Law 94-142 was enacted (Education for Handicapped Children Act, 1978). This law granted children with disabilities access to free education and special education for students between the ages of 3-21. Before this law was enacted, children with and without disabilities were segregated and those with disabilities were taught only basic living skills (Szymanski & Stark, 1996).

The Education for All Handicapped Children Act of 1975 (PL 94-142) ensured students with a disability are provided free education that is appropriate to their needs. Further amendments to this law (Individuals with Disabilities Education Act) guaranteed special education and related services to those children and their families. With this landmark legislation, attitudes and behaviors surrounding disabilities began to change. Starting in the 1970s and continuing today, one of the goals of early intervention is to screen infants as early as possible, provide services and supports to increase opportunities, and offer children with disabilities skills to succeed academically, socially, and emotionally throughout their lifespan.

By 1986, Congress recognized that enhancing the educational process involves not only supporting the child's learning but also assisting the family from the birth of the child. As a result, Congress amended IDEA to include Part C, which offers states the option to provide support for infants, toddlers, and their families. The term “early intervention” now refers to services that are available to babies and infants at risk for or diagnosed with developmental disabilities or delays (*What Is “Early Intervention” and Is My Child Eligible?*, 2018). Early intervention services are defined by United States federal and state laws as services that occur from birth through 3 years of age (Romski et al., 2015). At age three, children transition to preschool special education services if needed. Early intervention services can include speech-language therapy, occupational therapy, physical therapy, and a variety of other supports and services for children and their families. The U.S. Department of Education recommends that these early intervention services be embedded in natural routines with familiar people, places, and activities (*ECTA Center: Improving Systems, Practices and Outcomes*, 2008).

1.3.1 Intervention Services Today

The idea that society's most vulnerable populations should be provided for, along with the conclusion that early interventions are beneficial for long-term outcomes for children and their families, are two of the pillars upon which early intervention services operate. It is clear that early education services and sociopolitical motivations form a symbiotic relationship. Since the 1970s, researchers have been tracking and compiling data regarding the efficacy of early intervention programs.

Urie Bronfenbrenner, a noted developmental psychologist helped pioneer the "Head Start" program and conducted research on behalf of the U.S. Department of Health, Education and Welfare to determine the longitudinal efficacy of these interventions (Bronfenbrenner, 1974). Bronfenbrenner's findings echo what we now know today: the earlier the intervention the better, parental involvement is critical to program success, and the results of an intervention are cumulative, even after the intervention had concluded (Bronfenbrenner, 1974).

Communication skills (both spoken and non-spoken) are required to interact socially with others (Odom et al., 1992). Specifically, with regard to children with autism, acquiring language before age five has been shown to produce the greatest social outcomes later in life (Billstedt et al., 2005; DeMeyer et al., 1973; Venter et al., 1992). Social functioning in adults with developmental disabilities has been related to speech and communication skills before the age of six (Billstedt et al., 2005; Howlin et al., 2000; Kanner et al., 1972). As discussed previously, children with developmental disabilities are at risk for smaller social circles and fewer opportunities to practice and refine their social skills. This creates a delay in their development in the areas of social and peer competency. If these delays are not addressed, these children are at risk for a lower quality of life and difficulties surrounding friendships and socialization later in life (Guralnick 2010; Williams & Asher, 1992). It has been established that social interventions for children with developmental disabilities need to be individualized for each child and incorporate a multidimensional approach (Guralnick, 2010). This holistic approach has been shown to have positive implications for a child’s long-term development (Guralnick et al., 2007). Early intervention services also undergo a transition during the period a child starts school. These services change from being implemented in the child’s home or in a clinical setting, to being implemented in academic settings (Romski et al., 2015).

1.3.2 Barriers to Intervention Services

Part C of the Individuals with Disabilities Education Act (IDEA; 2004) states that early intervention services should be available to every child and family, free of charge. However, McManus and colleagues (2020) found that only 5% of children eligible for early intervention actually received services. The reasons for this alarming percentage vary. Some parents and caregivers feel overwhelmed trying to navigate the system of early interventions and care and give up in frustration (Jimenez et al., 2012). Jimenez and colleagues also found that some families did not understand what early intervention services entailed and confused them with child protective services or felt like they were being judged as caregivers. In the same study, some parents expressed skepticism when told that their child had a developmental disability.

Additional barriers mentioned by other researchers include difficulty enrolling in the programs offered and delays surrounding the family's preferred primary language (Marshall et al., 2019). Some caregivers reported signing up for early intervention services and being waitlisted for at least six months. Requesting a Spanish therapist and assessment can make the wait even longer (Marshall et al., 2019). Being a part of an ethnic minority also imposes barriers due to the lack of recognition of developmental disabilities (Sapiets et al., 2021). Studies also have shown that a lack of awareness of the signs of developmental delay or disability can hinder children from having access to care, which is more prominent in non-western countries and cultures (Birkin et al., 2008; Hussein et al., 2019). In this current study, intervention services is defined as services offered to families and children with disabilities, which include speech, occupational and/or physical therapies.

1.4 Inclusive Education

Individuals with disabilities were historically denied education in the United States. The general thinking at the time was that individuals with disabilities could not learn or contribute to society and therefore were sent to stay in institutions. The Education for all Handicapped Children Act (now called the Individuals with Disabilities Education Act, or IDEA) was passed in 1975 and enacted in 1978 (Education for Handicapped Children Act, 1978). This law has continually been reauthorized and amended in subsequent years to continue to support education for children with disabilities.

The term “inclusive education” gained traction after the United Nations released the Salamanca Statement, signed by 192 membership countries, which proposed the agenda to work towards “education for all”, specifically identified children with special education needs, and called upon governments to work towards building inclusive environments on the basis of combating prejudice and discriminations against individuals with disabilities (UNESCO, 1994). Put simply, inclusive education refers to the right of any person, regardless of disability, socioeconomic status, or any other hardship, access to quality education.

To further help children who need special assistance in the classroom, IDEA part C states that children that require early intervention services shall be given these services from birth until three years of age. Continuing through the child's development, IDEA Part B requires schools to provide specialized instruction and intervention services to children ages 3-22. These services include speech, occupational, and physical therapy, assessments, screenings, and assistive technology.

One of the main goals of inclusive education is the development of friendships. The Division for Early Childhood (DEC) and the National Association for the Education of Young Children (NAEYC) released a statement noting that one of the desired results of inclusivity in classrooms is the development of positive social relationships and friendships (DEC/NAEYC, 2009). We know that, among children who are typically developing, the development of friendships spurs social, emotional, and cognitive growth (Newcomb & Bagwell, 1996). Furthermore, the development of friendships in early childhood has been linked to beneficial developmental outcomes (Hartup, 1996). Given these beneficial findings, children with disabilities should be granted the same opportunity as their typically developing peers to develop these bonds in an inclusive classroom setting.

However, recent research has shown that inclusive classrooms can have both benefits and risks for children with developmental disabilities. Both children who are typically developing and children with disabilities gain empathy and understanding when learning together in one classroom, however, there is more of a risk of peer rejection for the child with disabilities in inclusive settings (Kasari et al., 2011). Kasari and colleagues also noted that inclusive classrooms may be overstimulating for children with disabilities, which could lead to dependency on adults or paraprofessionals in the room.

1.5 Participation

The World Health Organization defines participation as “the nature and extent of a person’s involvement in life situations and categorizes participation in terms of personal maintenance; mobility; information exchange; social relationships; home life; education, work and employment; economic life; and community, social, and civic life” (World Health Organization, 2001, pp.14-15). This broad definition encompasses a swath of personal, professional, and social activities.

Participation in social activities outside of school with typically developing children has been studied extensively and has been shown to provide numerous benefits which include academic achievement, psychosocial development, and emotional development (Felce & Perry, 1992; Rae-Grant et al., 1989; Raphael et al., 1996; Werner, 1989). Bronfenbrenner (1979) posited in his Ecological Theory that skills and behaviors gained in one social context can be transferred and applied in other social settings. This then sets the foundation for typically developing children to learn various social skills and behaviors, as they learn to interact with peers outside of a school setting. Participation in group activities outside of a school setting is important for the social development of children with disabilities. Research demonstrates that children with disabilities become more vulnerable to social isolation and exclusion during periods of time when they are not in school (Knight et al., 2009). The lack of social experiences with peers for a prolonged period of time is only exacerbated by the lack of participation in activities outside of school, given less time to create peer relationships for children with developmental disabilities.

Parents and caregivers of children with disabilities play a huge role in their child’s social networks. Parents act as an entry point for children learning social interactions and also influence their children's development of their peer networks by deciding the extracurricular activities in which their children will participate (Guralnick & Neville, 1997). Because of the difficulties children with developmental disabilities experience in making and keeping friends, external supports are fundamental to the development and fostering of friendships and close relationships.

Enrolling a child with developmental disabilities in social activities can pose difficulties for the child as well as the family as a whole. Furthermore, physical proximity alone does not guarantee the child will be accepted and included socially when participating in group activities outside of a school setting (Solish et al., 2003). Geisthardt and colleagues (2002) found that parents of children with disabilities felt other parents were hesitant to encourage interactions between their child and other children with disabilities. Further, the issue of transportation to and from a social activity presents unique problems for families and children with disabilities, and the lack of accessible spaces is one of many concerns that families and individuals with disabilities face. On many occasions, there need to be adjustments or accommodations made in order to assist the family and the child. These findings demonstrate that children with developmental disabilities are not receiving the same benefits as children who are typically developing, as they are not given the same opportunities for social activities.

Knight and colleagues (2014) interviewed several children with disabilities who were active in various clubs and social activities in their area. They determined that there is a distinct lack of resources devoted to the accommodation of children's disabilities. This poses problems for these children, as they want to increase their social sphere and relationships, but the environment is not accessible for everyone and thus, not conducive to their success. The lack of social and societal supports for families with children with developmental disabilities is of critical importance.

One such environment that accommodates children with disabilities is the Special Olympics. Special Olympics was founded in 1968 to create a better world by fostering acceptance and inclusion. (Special Olympics International, 2005). Special Olympics is unique in that it takes into account the various sensitivities, abilities, and accessibility concerns for each individual child (Goodwin et al., 2006). Goodwin and colleagues also found that parents and caregivers decided to have their children participate in Special Olympics partly due to the social relationships gained from this community (2006). Social support and expanded social networks were frequently cited as important benefits by both caregivers and children who participated in the event (Glidden et al., 2011; Kersh & Siperstein, 2008). Special Olympics not only benefits the child with disabilities, but the family unit as well, with parents and caregivers reporting that the program enhanced levels of understanding, support, and cohesiveness (Weiss et al., 2003). Special Olympics has demonstrated that children with disabilities and their families can participate in extracurricular activities. This type of organization can act as the blueprint for future outreach programs for children with disabilities and their families.

1.6 Current Study

There were four main research aims for this current study. The first aim was to determine if intervention services led to friend-making in children with disabilities later in their development. To explore this aim, I asked: **1. Do intervention services contribute to friend-making in children with developmental disabilities later in their development?** I predicted that access to and enrollment in early-intervention programs would assist in making and keeping friends later in development due to the development of social-emotional skills learned in these programs.

My second aim was to explore if participation in social activities outside of a school setting influenced making and keeping friends in children with disabilities. For this aim, I asked: **2. Does participation in social activities outside of a school setting influence making and keeping friends in children with developmental disabilities?** I predicted that participation in social activities outside of school would increase the opportunities to make friends for children with disabilities, thereby making it easier to make and keep friends.

My third aim was to determine if difficulties in making and keeping friends differed by disability type. For this aim, I asked **3. Do children with different types of disabilities have different difficulties making and keeping friends?** I predicted, based on previously mentioned research, that disability type will have an impact on difficulties making and keeping friends with children diagnosed with developmental delay or intellectual disabilities having the most difficulty making and keeping friends.

Finally, my fourth aim was to determine the interactions and relations present in my predictor variables. More specifically I asked: **4. What interactions, if any, are present between sex, race, family structure, SES, and primary household language on making and keeping friends?** I predicted that several statistically significant moderations would be present in my model, specifically when looking at the relations between SES and participation and SES and early intervention.

I chose to examine the interactions selected due to several factors. I hypothesized that the lowest grouping of socioeconomic status (SES) (0-99% FPL) would be significantly relevant to the family structure, which would then be impacted by making and keeping friends. Less opportunity to make friends based on income and participation in social activities was also an interaction that I examined in my analyses. I hypothesized that income was directly related to participation in social activities, as the majority of social activities chosen (lessons, sports, and clubs) all typically require fees and costs. While there may be free social activities, the cost is still a peripheral concern for families of children with developmental disabilities with regards to transportation, accessibility measures, and caregiving all requiring some form of expense attached. Low SES may mean a family does not have transportation to get their child to a social event, or the venue does not have adequate accessibility to allow their child easy access to the event. These stresses might weigh on the family and the result might be to eschew extracurricular activities altogether.

Furthermore, I hypothesized that SES would also have an important role in early intervention services that tied into primary language. There are social and racial disparities present in receiving early intervention services, which include knowledge about where to receive these services, understanding what these services encompass, and how they will benefit the child and family. If a family is of low socioeconomic status, or if they are looking into services that are not being given in their primary language, there would be significant hurdles to overcome when trying to get early intervention services for their child. These hurdles could impact child friend-making later in life.

2 METHOD

Data for this study were obtained from the 2020 National Survey of Children's Health (NSCH). The project was supported by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) and the National Maternal and Child Health Data Resource Initiative (Child and Adolescent Health Measurement Initiative (CAHMI), 2020). The NSCH has been a national survey completed annually since 2016. Before 2016, these data were collected every four years by HRSA in the aim of better serving children and their families.

2.1 Participants

From this survey data, I chose to specifically focus on children with developmental disabilities for several reasons. One, as mentioned throughout this document, friendships among children with developmental disabilities are understudied and there is still much we don't know. Further, the importance of friendships and close peer bonds among typically developing children has been discussed, and there is a need for more literature looking at the intersection of children with developmental disabilities, participation in social activities, early intervention, and making friends.

The participants were specifically only children with developmental disabilities between the ages of 6-17 (n=2,646). This is a 6% unweighted sub-sample of the original participants (n=42,777). Of the participants I studied, 91 (3%) children had Down syndrome, 1,172 (44%) had Autism, 2,158 (82%) had a developmental delay, 434 (16%) had an intellectual disability, and 110 (4%) had cerebral palsy. These were not unique diagnoses as several of the children sampled had more than one diagnosis. There were more males sampled than females with 1,815 males (69%) and 831 females. The ages of the children sampled in the survey ranged from 0-17, however, my analysis concentrated specifically on children aged 6-17, as 6 is the lowest age participants were asked about social activities. The participants most commonly lived in a two-person household with married parents (n=1,427; 53%) and less commonly, lived in a single-parent household (n=704; 26%). The rest of the participants lived in a household with two unmarried parents (n=121; 4%), a grandparent-only household (n=124; 4%), and other family type (n=63; 2%). Most of the participants spoke English as their primary language (n=2,51; 94%).

The majority of the participants were Caucasian (n=1,994; 75%). The remainder of those surveyed were Hispanic or Latino (n=380; 14%), African American (n=252; 9%), American Indian or Alaskan Native (n=35; 1%), Asian (n=92; 3%), Native Hawaiian or Pacific Islander (n=22; .8%). Several participants indicated that they were bi- or multi-racial (n=251; 9%).

2.2 Procedure and Materials

The National Survey of Children's Health (NSCH) was conducted by the United States Census Bureau for the Health Resources and Services Administration, Maternal and Child Health Bureau, within the United States Department of Health and Human Services.

The NSCH used an address-based sample and sampled approximately 240,000 addresses to participate in the survey. The data were collected in phases: phase one was a screener sent to sampling addresses. If the sampled address completed the screener and indicated that children lived at the address, they moved to phase two. Phase two consisted of a more in-depth questionnaire regarding the children and members of the family.

There were several different ways to complete the survey in order to maximize response rates. The respondents had the option of a web-based survey available in English or Spanish, or paper survey also available in English or Spanish. Also available to respondents was telephone questionnaire assistance available in multiple languages and email questionnaire assistance.

The questionnaire is an annual comprehensive measure that asks for participants responses to a variety of different questions about their child and family. Questions asked include information about the physical and emotional health of the child, insurance coverage, community and school activities, family health, neighborhood safety, and demographics. The survey took approximately 36 minutes for the participant to complete.

The survey questions associated with my first aim were “Has this child EVER received special services to meet their developmental needs such as speech, occupational, or behavioral therapy?” if the participant answered in the affirmative, they were then asked, “If yes, how old was this child when they began receiving these services?”. Participants could then manually enter the age their child was when they began receiving intervention services. Participants were asked about their child’s ability to make and keep friends with this survey question: “Compared to other children their age, how much difficulty does this child have making or keeping friends?” the participants could then choose from three answers: “No difficulty, a little difficulty, or a lot of difficulty”.

The associated survey questions for my second aim included the survey question “During the past 12 months, did this child participate in any organized activities or lessons, after school or on weekends, age 6-17 years?” For this question, activities outside of school were defined as “sports teams or lessons, clubs or organizations, or any other activities or lessons such as music, dance, language or other arts”. The participant could then choose to answer “yes” or “no” to several listed activities.

Finally, to be included as having a child with developmental disabilities, the participant would have had to answer in the affirmative to two survey questions: “Has a doctor or other healthcare provider EVER told you that this child has [developmental disability]?” And “If yes, does this child currently have the condition?”

2.3 Data Analyses

An ordinal logistic regression was fit to determine if there were any relations between my predictor variables (intervention services and participation in sports, clubs, lessons, and commmunity service) and my dependent variable (making and keeping friends.). I also examined the demographic information as interactions in my statistical analyses which include sex, race, primary household language, family structure, and household SES.

To address aim 1, **Do intervention services contribute to friend-making in children with developmental disabilities later in their development?** I used an ordinal logistic regression to determine if intervention has an effect on making and keeping friends in children with developmental disabilities. This is demonstrated conceptually in figure 1 below.

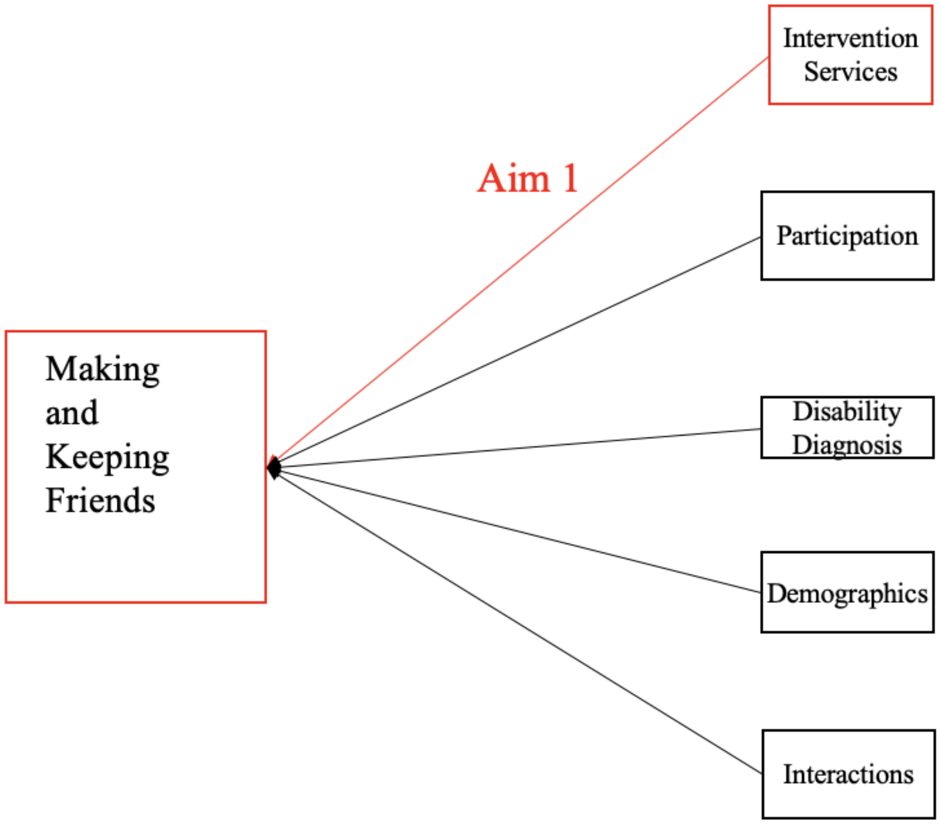

Figure 1: Conceptual Model of Aim 1

To address aim 2, **Will participation in social activities outside of a school setting influence making and keeping friends in children with developmental disabilities?** I used an ordinal logistic regression to determine the impact of participation in social activities outside of school on making and keeping friends in children with developmental disabilities. This can be seen conceptually in figure 2 below.

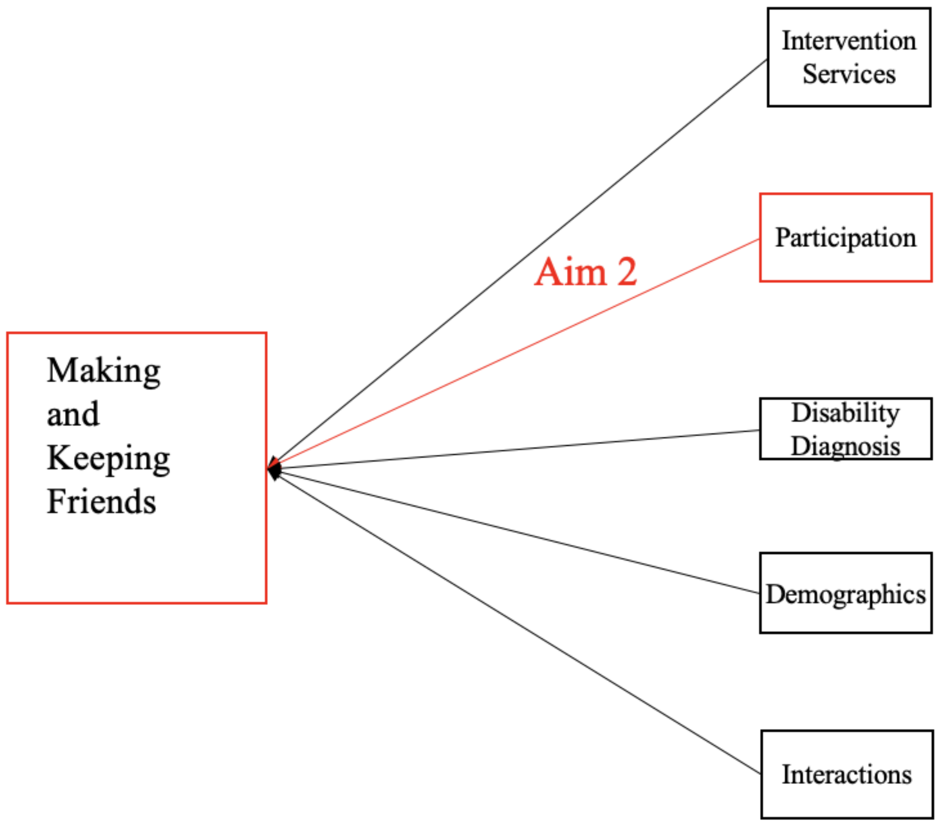

Figure 2: Conceptual Model of Aim 2

To address research aim 3, **Does disability type have an effect on difficulties making and keeping friends?** I used an ordinal logistic regression to determine the impact of disability diagnoses on making and keeping friends in children with developmental disabilities. This can be seen in figure 3 below.

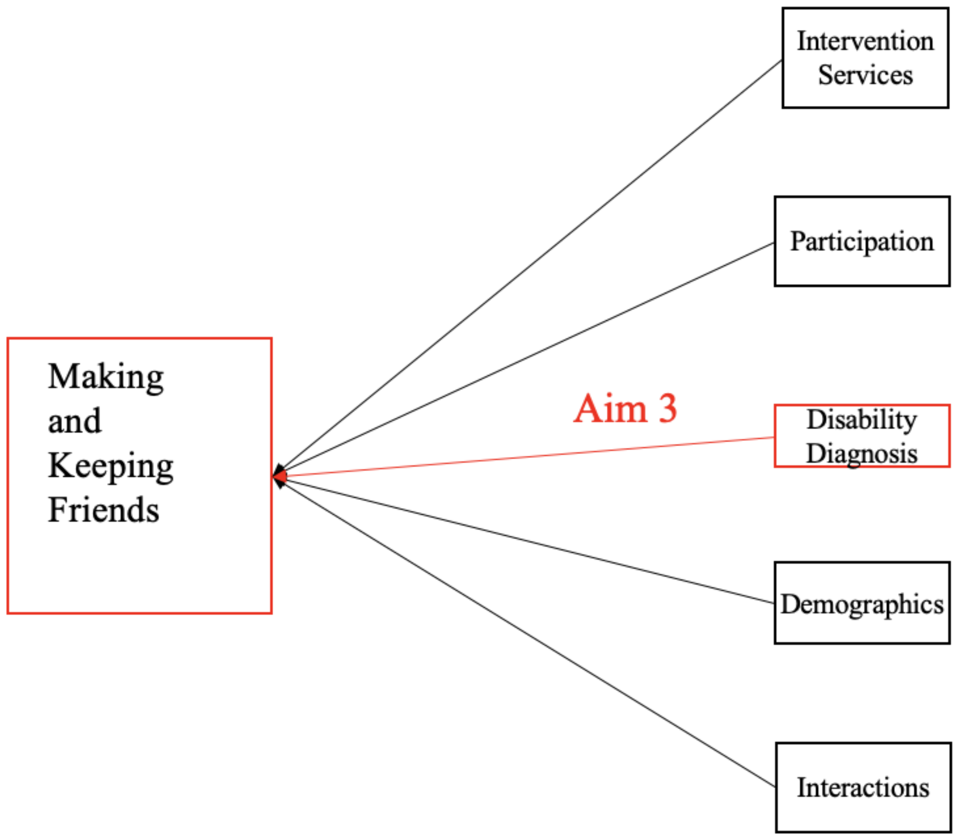

Figure 3: Conceptual Model of Aim 3

To address research aim 4, **What interactions, if any, are present between several of my predictor variables on making and keeping friends?** An ordinal regression was run which included interactions between SES, primary household language, participation in extra-curricular activities, age child started receiving intervention services, and family structure. This can be seen in figure 4 below.

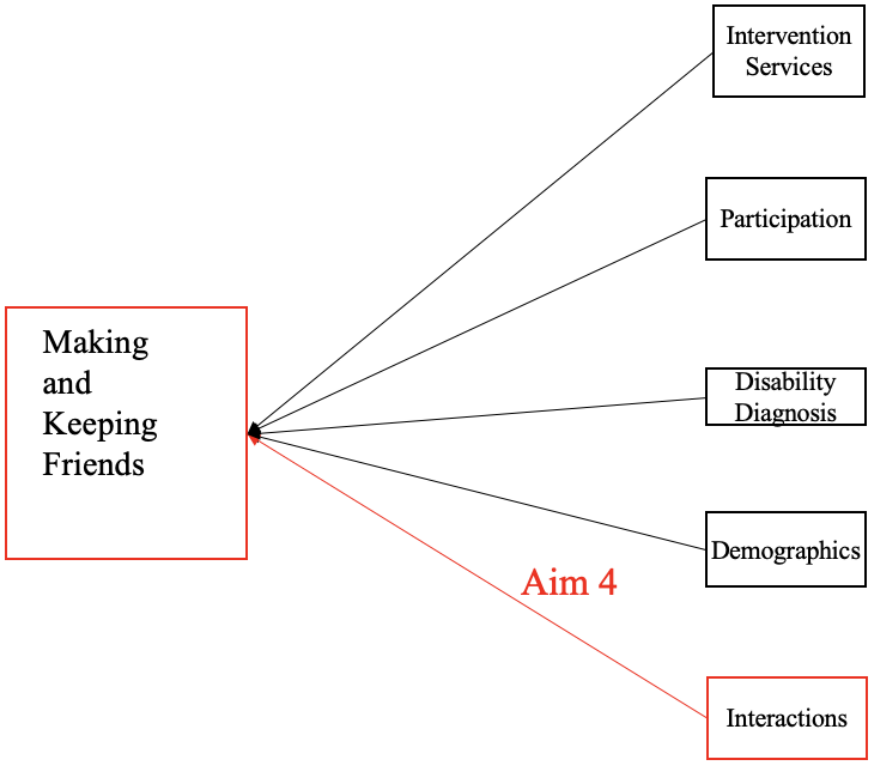

Figure 4: Conceptual Model of Aim 4

For the purpose of this present study, a dataset request was submitted to the Data Resource Center for Adolescent Health. This request was then approved, which granted access to cleaned SPSS, SAS, and STATA datasets with their variables labeled and formatted as well as codebooks and manuals. SPSS Complex Samples add-on was used for the purpose of statistical data analysis in this present study, per the instructions of the Data Resource Center for Adolescent Health. Statistical weights were applied before the analysis and a conversation with a NSCH data analyst confirmed that using a sub-sample would not break the design of the study (Andrew Sherwood, personal communication, May 1, 2023; December 14, 2023).

3 RESULTS

These analyses aimed to discover the nuanced associations and interactions between different elements that influenced children's experiences in making and keeping friends. By focusing on SES, family structures, participation in extracurricular activities, household language, and gender, these analyses provide a multi-faceted understanding of the challenges and opportunities for children with developmental disabilities. To evaluate these elements, I asked (1) **Do intervention services contribute to friend-making in children with developmental disabilities later in their development?** (2) **Does participation in social activities outside of a school setting influence making and keeping friends in children with developmental disabilities?,** (3) **Does disability type have an effect on difficulties making and keeping friends?** and (4) **What interactions, if any, are present between the variables sex, race, family structure, SES, and primary household language on difficulty making and keeping friends?**

Table 1 shows the list of variables used in the regression, the shorthand I will be using in the document, and the coding scheme used for that variable. Next, descriptive statistics were run for this analysis and can be seen in Table 2. Finally, an ordinal regression was run, and the parameter estimates for this regression can be seen in Table 3. The conceptual model of the regression is: Difficulty = Intervention Services + Participation + Autism + Down syndrome + Intellectual Disability + Developmental Delay + Cerebral Palsy + Sex + Race + SES + FamilyStructure + HHLanguage + SES*HHLanguage+ SES*Participation + LowestSES*Services + LowestSES*FamilyStructure.

Table 1: Variable Names and Descriptions

Name	Description	Coding scheme
Difficulties with Friends	Difficulties making and keeping friends	1=No difficulty 2=A little difficulty 3=A lot of difficulty
Sex	Sex of child	0=Female 1=Male
Race	Race and ethnicity distribution of child	1=Hispanic 2=White 3=Black 4=Asian 5=American Indian or Alaska Native 6=Native Hawaiian and other Pacific Islander 7=Multi-Race 8=Other
Disability Type	Type of disability- this includes Autism, Down syndrome, Intellectual Disability, Developmental delay, and Cerebral Palsy	0 = Child does not have disability 1= Child has disability
SES	Income based on federal poverty level status (FPL)	1=0-99% FPL 2=100-199%FPL 3=200-399%FPL 4=400% or greater
Family Structure	Family structure of child's household	1=Two parents, currently married 2=Two parents, not currently married 3=Single parent 4=Grandparent household 5=Other family type
Household language	Primary language spoken in the household	0=English 1=Other than English
Intervention	Age start receiving intervention services to meet child's developmental needs such as speech, occupational or behavioral therapy	0=Never received services 1=At age less than 3 years old 2=At age 3-5 years old 3=At age 6-17 years old

Participation	Number of organized activities child participates in after school (6-17 years)	0=Do not participate in extracurricular activities 1=Participate in one or more extracurricular activities

Table 2: Descriptive Statistics

		Weighted Count	Weighted Percent
Difficulties making or keeping friends, age 6-17 years[a]	No difficulty	955314	30.7%
	A little difficulty	1189000	38.2%
	A lot of difficulty	967013	31.1%
SES=0-100% FPL	1.00	681249	21.9%
SES=100-199% FPL	1.00	883790	28.4%
SES=200-399% FPL	1.00	909735	29.2%
SES=400% FPL or greater	1.00	636551	20.5%
SpSerAge=At age less than 3 years old	.00	2588083	83.2%
	1.00	523244	16.8%
SpSerAge=At age 3-5 years old	.00	1870490	60.1%
	1.00	1240837	39.9%
SpSerAge=At age 6-17 years old	.00	2427128	78.0%
	1.00	684199	22.0%
sex=Female	.00	2115439	68.0%
	1.00	995888	32.0%
Race=Hispanic	.00	2421937	77.8%
	1.00	689390	22.2%
Race=Black, non-Hispanic	.00	2601324	83.6%
	1.00	510003	16.4%
Race=Asian, non-Hispanic	.00	3040361	97.7%
	1.00	70966	2.3%
Race=American Indian or Alaska Native Non-Hispanic	.00	3098716	99.6%
	1.00	12611	0.4%
Race=Native Hawaiian and Other Pacific Islander Non-Hispanic	.00	3110545	100.0%
	1.00	782	0.0%
Race=Multi-Race Non-Hispanic	.00	2916250	93.7%
	1.00	195077	6.3%
HHLanguage=Other than English	.00	2851942	91.7%
	1.00	259385	8.3%
Familystructure=Two parents, not currently married	.00	2873366	92.4%
	1.00	237961	7.6%

Familystructure=Single parent (mother or father)	.00	2103561	67.6%
	1.00	1007766	32.4%
Familystructure=Grandparent household	.00	2976946	95.7%
	1.00	134381	4.3%
Familystructure=Other family type	.00	3011545	96.8%
	1.00	99782	3.2%
AftSchAct=Participate in one or more extracurricular activities	.00	1279211	41.1%
	1.00	1832116	58.9%
Autism= Has been diagnosed with Autism	.00	1830814	58.8%
	1.00	1280513	41.2%
Downsyd=Has been diagnosed with Down syndrome	.00	3001959	96.5%
	1.00	109368	3.5%
DevDelay=Has been diagnosed with developmental delay	.00	502632	16.2%
	1.00	2608695	83.8%
IntDis=Has been diagnosed with an Intellectual disability	.00	2561608	82.3%
	1.00	549719	17.7%
Palsy=Has been diagnosed with Cerebral Palsy	.00	2952877	94.9%
	1.00	158450	5.1%
Population Size		3111328	100.0%

a. Dependent variable values are sorted in ascending order.

Note. This is a weighted table of the 2,746 children with disabilities.

Table 3: Parameter Estimates

Parameter		B	95% Confidence Interval Lower	95% Confidence Interval Upper
Threshold	No difficulty making friends	.107	-1.106	1.321
	A little difficulty making friends	2.116	.901	3.331
Regression	SES 100-199% FPL	-.529	-1.924	.866
	SES 200-399% FPL	.013	-1.387	1.414
	SES 400% FPL or greater	.067	-1.359	1.494
	SpSerAge less than 3 years old	.655	.035	1.275
	SpSerAge 3-5 years old	.690	.158	1.222
	SpSerAge greater than 6 years old	.971	.434	1.509
	Males	.015	-.321	.351
	Hispanic	-.465	-.951	.022
	Black	-.399	-.981	.183
	Asian	.234	-.434	.902
	American Indian or Alaskan Native	-.499	-2.095	1.097
	Native Hawaiian and other Pacific Islander	-.571	-3.236	2.094
	Multi-race	.171	-.396	.738
	HHLanguage other than English	.291	-.537	1.119
	Two parents not currently married	.211	-.536	.958
	Single parent	-.212	-.669	.245
	Grandparent household	-.580	-1.195	.035
	Other family type	.224	-1.058	1.506
	Participation in one or more activities	-.163	-.558	.232
	Autism	1.351	.898	1.804
	Down syndrome	.144	-.871	1.160
	Developmental delay	.415	-.093	.923
	Intellectual disability	.951	.382	1.521

	Cerebral Palsy	-.663	-2.103	.777
	SpSerAge 0-3 years old* SES 0-99% FPL	-1.111	-2.225	.004
	SpSerAge 3-5 years old * SES 0-99% FPL	-1.001	-2.159	.158
	SpSerAge more than 5 years old * SES 0-99% FPL	-.133	-1.197	.931
	HHLanguage other than English * SES 0-99% FPL	-2.069	-3.751	-.387
	Participation in activities * SES 0-99% FPL	-.160	-1.101	.780
	Two parents not currently married * SES 0-99% FPL	.762	-.536	2.060
	Single parent household * SES 0-99% FPL	.250	-.643	1.142
	Grandparent household * SES 0-99% FPL	-.600	-3.312	2.112
	Other family structure * SES 0-99% FPL	-1.137	-3.362	1.087
	Autism * SES 0-99% FPL	.334	-.606	1.273
	Down syndrome * SES 0-99% FPL	-1.162	-3.667	1.344
	Developmental delay * SES 0-99% FPL	-.001	-1.089	1.088
	Intellectual disability* SES 0-99% FPL	.336	-1.188	1.859
	Cerebral palsy * SES 0-99% FPL	2.260	-.286	4.806

Note. Link function: Logit. This is a weighted regression of the 2,746 children with disabilities.

To answer research question 1, **Do intervention services contribute to friend-making in children with developmental disabilities later in their development?**, The ordinal regression analysis results indicated that children with developmental disabilities or children who received intervention services might have more difficulties making and keeping friends compared to children who did not receive any intervention services (Exp(B)=.655; CI = 690 - .971).

To answer research question 2, **Does participation in social activities outside of a school setting influence making and keeping friends in children with developmental disabilities?** The results of the regression indicate the odds are approximately 16.3% (Exp(B)=.163) lower compared to not participating in extracurricular activities for making and keeping friends. This suggests that children who participate in extracurricular activities are more likely to have difficulty making and keeping friends.

To answer research question 3, **Does disability type have an effect on difficulties making and keeping friends?** The results of the regression indicate that children with autism, Down syndrome, intellectual disabilities and developmental delays have higher odds of difficulties making and keeping friends than children with cerebral palsy. The regression also indicated that children with cerebral palsy had lower odds of difficulties making and keeping friends.

Finally, to answer research question 4, **What interactions, if any, were present between the variables of sex, race, family structure, SES, and primary household language on making and keeping friends?** Interactions of note included individuals in the lowest SES bracket (0-99% FPL) receiving intervention services at any age indicated their children had less difficulty making and keeping friends (Exp(B)=-111%; -100.1%; -13.3% respectively). This suggests different outcomes on difficulties in making and keeping friends depending on the socioeconomic status of the child’s family. Looking at the interaction between SES and household structure, the lowest SES bracket and two, unmarried parent households as well as single-parent households reported the highest odds of difficulties making and keeping friends (76.2% and 25%, respectively). This result suggests that family structure, coupled with low SES increased the chances of children having difficulties making friends. The interaction between SES and disability type suggests that disability type, specifically children who have been diagnosed with autism, cerebral palsy, and intellectual disability, who are also low SES, have more difficulty making and keeping friends (33.4%, 226%, and 33.6% respectively). Children diagnosed with Down syndrome, and a developmental delay, who are also low SES, have less difficulty making and keeping friends (-116.2% and -.1%), respectively.

4 DISCUSSION

4.1 Intervention Services

The effect size for children receiving intervention services at ages less than 3 years old indicated that difficulties making and keeping friends were 65.5% (Exp(B)=.655) higher compared to difficulties making friends among children who did not receive any intervention services. Additionally, children receiving intervention services at ages 3-5 (Exp(B)=.690) as well as children who received intervention services at ages 6 and above (Exp(B)=.971) were more likely to have difficulties making and keeping friends compared to children receiving no intervention services. This could be due to a selection effect where children who did not receive early intervention services might have already developed more advanced social skills, making them more likely to make and keep friends compared to those who received intervention.

4.2 Participation

The main effect of participation in extra-curricular activities was -.163, or -16.3%. This suggests lower odds of experiencing difficulties making and keeping friends in children who participated in one or more extracurricular activities compared to those who do not participate in any extra-curricular activities. However, as indicated by parents of children with developmental disabilities, these children still have difficulties making and keeping friendships, even when participating in social activities outside of a school setting. These findings are consistent with Guralnick's body of work, specifically regarding the type of disability possibly playing a factor in friend-making (Guralnick & Groom, 1988; Guralnick et al., 1996, Guralnick et al., 2007). These findings could also indicate the opportunities, or lack thereof, for these children to create meaningful friendships.

4.3 Disability Type

Children diagnosed with autism exhibited a higher likelihood of experiencing difficulties in making or keeping friends compared to children without autism (135.1%). This finding aligns with previous research highlighting the social communication challenges often associated with autism. The social impairments characteristic of autism, including difficulties in understanding social cues and initiating social interactions, may contribute to the observed difficulties in forming and maintaining friendships (Meyer & Ostrosky, 2014).

Children diagnosed with Down syndrome, developmental delay, and intellectual disability also were shown to have a higher likelihood of experiencing difficulties making and keeping friends compared to children not diagnosed with those disabilities (14.4%, 12.4.%, and 95.1% respectively). Conversely, children diagnosed with cerebral palsy were less likely to have difficulties making friendships (-66.3%). These findings are consistent with previous work, indicating that children with developmental disabilities have a harder time making friendships and developing bonds with peers (Guralnick 1999; Guralnick 2010; Guralnick et al., 2011).

4.4 Interactions

Individuals in the lowest SES bracket (0-99% FPL) receiving intervention services indicated their children had less difficulty making and keeping friends (-111.1%, -100.1%, and -13.3% respectively) compared to the highest income bracket, also receiving intervention services. This contrasts with the available literature on friendships among children with disabilities. Hogan et al. (2000) found that children in lower income brackets had fewer opportunities for socialization and less access to healthcare resources. The findings in this current study could be indicative of an increase in access to healthcare services among lower SES families, or more access to avenues for socializing and developing friendships over time.

In the interaction between SES and household structure, the lowest SES bracket and two, unmarried parent households as well as single-parent households reported the highest odds of difficulties making and keeping friends (76% and 25% respectively). This result suggests that family structure, coupled with low SES, increased the chances of children having difficulties making friends. These findings might indicate a trend in the self-report measure, with two unmarried parents and single-parents more concerned over their child's ability to develop and keep friendships. As mentioned previously, the body of literature surrounding family structure and friend-making among children with developmental disabilities is small, and more research on this topic is needed.

The interaction between SES and disability type suggests that disability type, specifically children who have been diagnosed with autism, cerebral palsy, and intellectual disability, who are also low SES, have higher difficulties making and keeping friends (33%, 226%, and 33%, respectively). Children diagnosed with Down syndrome, and a developmental delay, who are also low SES, have less difficulties making and keeping friends (-116% and -.1%), respectively. These findings are consistent with what we know about autism, as it is a disability that is characterized by difficulties with social interactions among peers. Previous findings among children with cerebral palsy and intellectual disability also confirm the difficulties these groups of children have establishing friendships (Kang et al., 2012; Tipton et al., 2013). Further, children diagnosed with Down syndrome exhibit pro-social and friendly behavior toward peers, which is consistent with these findings. Previous research has also shown that children with developmental delays have trouble making and keeping close friendships, which contradicts these findings. However, there is a dearth of studies specifically focusing on friendships in children with developmental delays and their friendships with peers and more research should be conducted focusing on the effect of SES and disability type on friendships (Meyer & Ostrosky, 2014).

5 IMPLICATIONS

This is the first study to examine the impact of intervention services and extra-curricular activities on friendships in children with developmental disabilities. The results of this study demonstrate the need for more social skill interventions or opportunities for children with disabilities to develop bonds with their peers. While there is no direct link between extra-curricular activities and intervention services in forming friendships, parents of children with disabilities indicated on the NSCH that their children were finding it harder to make friends when compared to children who are typically developing.

More parents of children with developmental disabilities indicated on the NSCH that their children participated in one or more extra-curricular activities compared to participating in no extra-curricular activities and indicated that the majority of the children studied had “a little” or “a lot” of difficulty making friends. This finding is interesting to note for several reasons. It allows us to identify a major challenging area for children with developmental disabilities, and, moving forward with findings from this study, start to narrow our focus concentrating on helping these children make and keep friends. Allocating resources such as more funding for interventions or other services that emphasize building friendships and social relationships may provide one approach. Finally, these findings highlight how intervention services primarily focus on the development of specific skills, including motor, sensory, and communication abilities. These skills are crucial for overall development, however, while these early skills are essential, they may not fully address the complexities of friend-making and developing peer bonds. Other types of services, supports, and programming in the years beyond early intervention, such as social skills training, peer-mediated interventions, and inclusive extracurricular activities, may provide a more direct and substantial impact on children's ability to form and maintain friendships. Therefore, interventions that continue to support children through targeted social development as they grow older is important to foster meaningful and lasting peer relationships.

6 CONSTRAINTS AND LIMITATIONS

One of the limitations of this study is the lack of operational definitions provided by the survey during data collection. The terms “friend” and “participation” were not defined on the materials used for data collection. This omission could result in confusion by the respondents when filling out the national survey. However, in order to mitigate any possible confusion, the NSCH offered questionnaire assistance offered in multiple formats and languages. Additionally, because of the nature of a self-report survey, medical and disability status could not be confirmed.

The analyses concentrated on children aged 6-17, as those were the children asked about extra-curricular activities. As such, the findings from this study cannot be applied to children under 6 years old. Additionally, because the survey was only offered in English and Spanish, potential participants may have chosen to forgo responding to the survey because they did not have access to it in their primary spoken language. Further, this survey was only accessible through contact with the U.S Census Bureau. If a family was not able to be contacted by the census bureau, and/or did not want to participate in the study, that could have implications for these data and restrict the data that was collected.

Another limitation would be the concentration on only the lowest SES group, which may limit the generalizability of the findings, as the experiences of children in higher SES groups was not modeled in the present study. By excluding higher SES groups, this study might not capture how socioeconomic advantages interact with other variables, potentially providing a more nuanced understanding of developmental outcomes. Looking into different socioeconomic status groupings, specifically how they relate to social outcomes of children with developmental disabilities, could be a fruitful area of research.

Finally, the 2020 Child and Maternal Health Survey was the most recent dataset at the time this study began. 2020 was the beginning of the COVID-19 global pandemic and because of this novel event, children and their families might have deviated from their normal routines, which may have involved ceasing participation in extra-curricular activities due to safety concerns. Due to that, further research should focus on different time periods in order to obtain a more complex and thorough sample.

National surveys, while extremely important due to the large sample size and diversity of the participants, are limited in the type of data they supply. However, this form of data collection is a valuable tool to begin to explore the lives of children with developmental disabilities, and can serve as a catalyst for collecting deeper, richer data in the future.

7 FUTURE DIRECTIONS AND CONCLUSIONS

This study serves as a foundation to further examine the complex topic of friendships within the population of children with developmental disabilities. According to the NSCH results, many parents of children with disabilities indicated that their children had either 'some' or 'a lot of' difficulties making and keeping friends. There is a dearth of research about what we can do to help children with disabilities improve their social skills and relationships with their peers. Future research directions can explore how we can aid these children develop social skills or assist with building friendships.

This study fills a critical gap in the literature in several ways. First, these data were gathered across the country and as such, allow us to explore a large sample size of children with developmental disabilities. Furthermore, as mentioned previously, earlier research has demonstrated that children with developmental disabilities have difficulty making friends and close bonds with their peers, but most of this literature focuses on children in classroom settings, not social settings outside of school. In addition, there have been extremely few studies that have studied the impact of early intervention and looked at the relation to making friends among children with disabilities. This study is also the first to examine the intersection of race, gender, SES, primary language, and family structure in relation to children with developmental disabilities and making friends. Finally, this study aids in exploring the relations between the predictors mentioned, as well as facilitating important conversations about inclusivity and accessibility not just in classroom environments, but in social environments as well.

The NSCH, while an invaluable tool in determining the health and well-being of children and their families, asks limited questions concerning children's social lives. To gather richer data in the future, more investigation is warranted to probe the complexities surrounding friendships and difficulties in making friends among children with developmental disabilities. The use of mixed methods research studies involving children with disabilities and their families may provide an important source of rich data that can be used to explore this area. The use of qualitative research studies would provide in-depth analysis of intervention programs as well as contextual factors that surround social relationships within this population. Qualitative research can also foster relationships that could potentially be used to examine this area from a longitudinal perspective in complementary studies.

Further research is warranted regarding looking at the different activities in which these children participate. An in-depth, qualitative study could be helpful in determining the types of activities these children enjoy and what kinds of activities help with social interactions and skill building. Potential studies could also look longitudinally at friendships over the course of several years and address the depth and emotional connections within these friendships.

In addition, looking into other variables such as the severity of a child's disability, community infrastructure, or family support systems can also be used to help identify risk factors or can be used to help develop intervention strategies surrounding these issues. Following that, community buildings and accessible spaces can then be modified or built to accommodate children and their families, if it is shown to be significant to their social development.

In conclusion, research about children with developmental disabilities and their social interactions with peers is an important avenue for further study. This study addressed the potential socialization barriers found among this population and offers insight into the needs of families who have a child with a disability. The findings also highlight the importance of considering intersections between demographic, socioeconomic, and contextual variables when addressing the social relationships of children with developmental disabilities, specifically concerning their ability and opportunities to make and keep friends. This study adds to the body of literature and underscores the significance of friendships and social interactions among children with developmental disabilities.

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