

BULLY VICTIMIZATION AMONG CHILDREN WITH ATTENTION-
DEFICIT/HYPERACTIVITY DISORDER: THE LONGITUDINAL INFLUENCE OF
BEHAVIORAL PHENOTYPES

A Dissertation

by

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ABSTRACT

Studies reveal that youth with Attention-Deficit/Hyperactivity Disorder (ADHD) are at high risk of experiencing bully victimization in comparison to peers with and without disabilities. Yet, the association between ADHD subtypes and bully victimization is not well understood. The current study was undertaken to discover which set of behaviors related to ADHD subtypes is influential in determining whether students are victimized. Using a latent class growth analysis, students with ADHD in a nationally representative sample ($n = 354$) were grouped by victimization trajectory.

Latent class analysis revealed four profiles. The majority of youth (45%) fell into a low victimization profile that remained stable over time. Approximately one-fourth of youth (26%) fell into a moderately high victimization profile that increased slightly over time. Nearly one-fifth (18%) experienced a moderately high level of victimization that decreased steeply across waves. The remainder (12%) were characterized by a low victimization profile that increased steeply over time. Hyperactivity/impulsivity and inattention were examined as covariates in the latent class model. Students' hyperactive-impulsive behaviors predicted latent class assignment. A secondary analysis examined English language proficiency as a predictor of victimization among youth with ADHD. English language learners were significantly less likely to experience victimization. This information may be used to reduce bully victimization among children with ADHD.

DEDICATION

This manuscript is dedicated to my siblings and the countless other children that I have interacted with who are diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD). Over the years, I have learned much about your strengths, your weaknesses, and the struggles that you encounter on a daily basis. To my youngest brother, Luke: your funny, sweet, and spirited personality has been a blessing to me since the day you were born. I have been especially touched by your strength when facing the ridicule of peers and teachers who do not understand the many functional impairments associated with your symptoms. You have fueled my desire to be an advocate for all children with ADHD. It is my hope that this manuscript, along with the work of other researchers in the field, can bring to light the victimization you face and initiate discussion of interventions to alleviate your suffering.

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CHAPTER I

INTRODUCTION

Research exploring victimization in schools has surged over the past decade due to increased awareness of its prevalence and effects on youth. Bully victimization, in particular, has garnered attention because it represents a form of aggression in which harmful actions are repeated over time and perpetrated by one or more individuals who are more physically or socially powerful than the victim (Nansel et al., 2001; Olweus, 1993). Such actions may include physical, verbal, or relational attacks with the intention of gaining or maintaining social status (Byers, Caltabiano, & Caltabiano, 2011; Fanti & Henrich, 2014; Whitted & Dupper, 2005). Bully victimization encompasses both direct and indirect forms of harm. Indirect forms of bullying, such as those involving technology (cyberbullying) have gained increasing appeal in recent years due to their potential for anonymity and greater physical distance from the victim (Casas, Del Rey, & Ortega-Ruiz, 2013).

International studies have found that despite intervention efforts in schools and communities, a high number of children and adolescents continue to be at risk of experiencing bully victimization. Within the United States, prevalence rates of occasional victimization may be as high as 30%, while chronic victimization has been reported by over 10% of students (Molcho et al., 2009; NCES, 2015). Prevalence rates typically tend to increase during the late elementary and middle school years, peak during the transition to high school, and then decrease later in high school as youth

mature (Nansel et al., 2001; Pellegrini & Long, 2002; Sawyer, Bradshaw, & O'Brennan, 2008). This peak during late middle school and early high school coincides with a number of developmental transitions, in which increased emphasis is placed on peer groups and new social hierarchies are established. Thus, bully victimization may be utilized to assert physical and/or social dominance over others (Long & Pellegrini, 2003; Smith & Gross, 2006).

Numerous studies have examined the potential effects of bully victimization on youth for all parties involved, including the victims, bystanders, and bullies themselves. Victims may experience a variety of short and long-term effects, including internalizing symptoms (Gini & Pozzoli, 2013; Hawker & Boulton, 2000), externalizing symptoms (Berger, Karimpour, & Rodkin, 2008; Hanish & Guerra, 2002; Hoggins & Hosan, 2012), and poor academic outcomes (Nakamoto & Schwartz, 2010; Schwartz, Gorman, Nakamoto, & Toblin, 2005). Bystanders of bully victimization likewise report effects, as they perceive their school climate to be less safe, less conducive to learning, and less supportive of positive growth (Eisenberg, Neumark-Sztainer, & Perry, 2003; Espelage, Bosworth, and Simon, 2000). Outcomes for students who bully others are rather bleak as well, as they often exhibit internalizing and/or externalizing difficulties that impact their ability to succeed in school and in adulthood (Klein, 2006; Ttofi, Farrington, Losel, & Loeber, 2011). Therefore, although trends in bullying prevalence appear to be decreasing (Rigby & Smith, 2011), it is essential that researchers further explore how this victimization occurs and who is involved to facilitate development of effective prevention measures.

Characteristics of Victims of Bullying

General Characteristics

A key element to understanding bully victimization is gaining knowledge regarding individual characteristics that may lead students to be targeted. Two types of victims are most commonly described within the literature: the “passive” or “submissive” victims, who present with internalizing symptoms, and the more “aggressive” or “bully/victim” type that also exhibits aggression as they react to the actions of bullies (Veenstra et al., 2005). The description of the latter type of victim has evolved over the years in the literature, however. Students classified as exhibiting externalizing characteristics were first described as “provocative” victims, who unwittingly make themselves the target of bully victimization by annoying, irritating, and being disruptive to those around them (Olweus, 1994). Yet, these students, who were also described as having difficulty with concentration and hyperactivity, are seldom acknowledged within current investigations examining bully victimization.

Ethnic Minority Youth

While research on bully victimization has expanded in breadth and depth, few studies have examined the unique experiences of ethnic minority students (Rosenbloom & Way, 2004). Those including a large number of ethnic minority youth have found prevalence rates that vary based on a variety of factors, such as methodology and location. Across studies, between 6-15% of Hispanic and African American students report moderate to frequent bully victimization (Peskin, Tortolero, & Markham, 2006; Spriggs, Iannotti, Nansel, & Haynie, 2007). When compared to majority group peers,

rates of bully victimization have been inconsistent, with some studies reporting higher levels among ethnic minority youth (Bellmore, Witkow, Graham, & Juvonen, 2004; Graham, & Juvonen, 2002; Verkuyten & Thijs, 2002; Mouttapa, Valente, Gallaher, Rohrbach, & Unger, 2004), others reporting lower rates (Juvonen, Graham, & Schuster, 2003; Nansel et al., 2001), and still others finding no differences at all (Seals & Young, 2003; Siann, Callaghan, Glissoy, Lockhart, & Rawson, 1994). Those studies comparing prevalence among minority groups have also yielded mixed results (Spriggs et al., 2007; Peskin et al., 2006). Despite unclear trends, researchers continue to explore this area among ethnic minority youth due to the potential link between ethnicity and social status in schools, in which certain ethnic groups are perceived as more socially dominant due to number, socioeconomic status, language, or other characteristics. When such differences are perceived across groups within a school population, it may lead to the imbalance of power that is inherent in bully victimization (Vervoort, Scholte, & Overbeek, 2010).

English language learners. Even fewer researchers have examined the bully victimization experiences of subgroups of ethnic minority children and adolescents. Yet, certain groups, such as that of English language learners (ELLs), are rising in number and may be particularly at risk of being targeted by peers. Students who are ELLs are consistently found to experience stressors related to poverty, discrimination, acculturation, and other difficulties that may lead to negative academic and social outcomes (Dowdy, Dever, DiStefano, & Chin, 2011; Zehler et al., 2003). While studies have begun to examine the victimization experiences of specific ethnic minority groups,

those considering ELL status as a variable are still very few in number. Existing research has confirmed that ELLs do face marginalization, as well as rejection by peers and sometimes the school system itself in the form of poor instruction or resources (Coulter & Smith, 2006). These experiences have been linked to reports of a lower sense of school belonging and less perceived self-efficacy among ELLs (Morrison, Cosden, O'Farrell, & Campos, 2003).

Although ELL status can be related to immigrant status, which has been studied in more depth, investigations examining immigrant status and bully victimization have again yielded mixed results. Some studies have revealed higher rates of bully victimization among immigrants than peers born in the U.S. (Graham & Juvonen, 2002; Strohmeier, Karna, & Salmivalli, 2011), but others have found a higher risk for natives than immigrants (Hanish & Guerra, 2000; Verkuyten & Thijs, 2006). Finally, some studies have found no differences at all in prevalence rates (Fandrem, Strohmeier, & Roland, 2009; McKenney, Pepler, Craig, & Connolly, 2006; Monks, Ortega-Ruiz, & Rodriguez-Hidalgo, 2008). In light of these unclear results, further research is needed to explore more specific variables that may be related to bully victimization among ethnic minority students, such as those with limited English language proficiency.

Children with Disabilities

Students with disabilities may also be particularly at risk of being victimized, as they are often perceived as different, weaker, and more vulnerable than typically-developing peers (Rose, Espelage, & Monda-Amaya, 2011). Studies examining children receiving special education services have consistently found that they are more likely to

be involved in bullying (Thompson, Whitney, & Smith, 1994; Rose et al., 2011).

Although some have revealed an increased likelihood of these children assuming the role of bully as well (Van Cleave & Davis, 2006), evidence that they are more likely to be victims is the most robust finding across studies (Estell et al., 2009; Farmer et al., 2012; Norwich & Kelly, 2004; Rose, Espelage, and Monda-Amaya, 2009). Specific groups that have been examined in the literature most frequently with regards to bully victimization include children with Autism Spectrum Disorders (Cappadocia, Weiss, & Pepler, 2012; Van Roekel, Scholte, & Didden, 2010), behavioral disorders (Swearer, Wang, Maag, Siebecker, & Frerichs, 2012), learning disabilities (Baumeister, Storch, & Geffken, 2008; Mishna, 2003), speech/language impairment (Lindsay, Dockrell, & Mackie, 2008), intellectual disability (Horner-Johnson & Drum, 2006), and diabetes (Storch et al., 2004). Children with disabilities who are victimized often suffer from social, emotional, and behavioral difficulties, similar to non-disabled peers (Farmer et al., 2012).

Some studies have used larger datasets to explore the experiences of children with a wide range of disabilities and determine which groups are most likely to report bully victimization (Blake et al., 2016; Twyman et al., 2010). Collectively, these results have revealed that those with Attention-Deficit/Hyperactivity Disorder (ADHD), Autism, a Learning Disability, or Emotional Disturbance are at highest risk of being targeted. Although such disabilities are not typically visible to the eye, the exhibition of emotional and/or behavioral difficulties appears to be a significant indicator of risk for chronic bully victimization. This correlation remains largely unrecognized in the

literature on general bully victimization, despite the fact that Olweus' (1994) original description of the "provocative victim" may be supported by these findings. Children with ADHD, in particular, represent a group that has received minimal attention with regard to victimization, despite the fact that the disorder has a relatively high international prevalence rate of 5 to 9% (Giedd, 2000; Polanczyk, Silva de Lima, Horta, Biederman, & Rohde, 2007). Therefore, it is important that researchers explore the characteristics and development of ADHD in order to determine which aspects of the disorder are associated with an elevated level of bully victimization risk.

Characteristics of Children with Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurobehavioral disorders diagnosed in childhood, characterized by a pattern of inattentive and/or hyperactive-impulsive symptoms that occur across settings and interfere with daily activities. Recent studies indicate that the prevalence of ADHD diagnosis has been on the rise over the past decade, as awareness of symptoms and development of assessment tools have improved (Akinbami, Liu, Pastor, & Reuben, 2011). The etiology of ADHD is complex and may be influenced by a number of interacting factors, including neurology and biology (Biederman, 2005; Castellanos et al., 2002; Curatelo, Paloscia, D'Agati, Moavero, & Pasani, 2009; Sadek, 2014), genetics (Biederman, 2005; Larsson, Larsson, & Lichtenstein, 2004; Nadder, Rutter, Silberg, Maes, & Eaves, 2002; Sadek, 2014), and environmental variables (Biederman, 2005; Nigg, 2006; Swanson et al., 2007). Studies have concluded that with regards to gender differences, males are more likely to be diagnosed with ADHD than females (Biederman

et al., 2002), although the manifestation of symptoms may differ across groups (Mash & Barkley, 2003; Gaub & Carlson, 1997; Stein, Marx, & Beard, 2004). Children diagnosed with ADHD exhibit deficits in a wide variety of areas in everyday life, including academic achievement (DuPaul, 2007), peer relationships (Hoza et al., 2005; McQuade & Hoza, 2008), family relationships (Haack & Gerdes, 2011; Johnston & Mash, 2001), and social/emotional competence (Mrug et al., 2012).

ADHD Subtype Classification System

Given differences in etiology and individual characteristics, children with ADHD may present with symptoms in a variety of ways. The Diagnostic and Statistical Manual of Mental Disorders (DSM) has introduced a subtype system to facilitate the description of symptom manifestation, which includes three subtypes: Predominantly Inattentive, Predominantly Hyperactive-Impulsive, or Combined Presentation. The validity of these subtypes has been the focus of many studies (Barkley, 2006), with analyses finding that the inattentive and hyperactive-impulsive dimensions of ADHD have high internal consistency, discriminant validity, and their distinction is strongly supported by factor analyses. The reliability of the subtypes, however, as measured by ADHD rating scales, tends to decrease after periods of one to five years (Willcutt et al., 2012). Other studies have also found that ADHD subtypes may not be stable over time, due to developmental transitions. Thus, individuals may exhibit a change in symptom presentation that is sometimes large enough to meet criteria for a different subtype, commonly in the form of decreasing hyperactivity-impulsivity (Hinshaw, Owens, Nilofar, & Fargeon, 2006; Lahey & Willcutt, 2010; Larsson, Lichtenstein, & Larsson, 2006.) However, 50 to 80%

of those diagnosed with ADHD in childhood typically continue to meet criteria for some form of the disorder in adolescence (APA, 2014; Lahey, Pelham, Loney, Lee, & Willcutt, 2005; Timmermanis & Wiener, 2011). Though shifts may occur over time, the ADHD subtypes remain valid indicators of the nature of impairment that children with the disorder experience.

Cultural Factors Associated with ADHD

A relatively limited number of studies have examined ADHD in ethnic minority children. In general, existing research has found that White children are most often identified with the disorder, followed by Black and Puerto Rican children, and finally Hispanic children of other nationalities (Akinbami et al., 2011; Boyle et al., 2011). It is important to note that these findings may reflect cultural characteristics, such as perceptions of deviancy and social acceptability of behaviors, which influence the likelihood that children of certain racial/ethnic groups are evaluated and labeled with the disorder (Dwivedi & Banhatti, 2005; Haack & Gerdes, 2011).

Once identified with the disorder, cultural expectations and perceptions may also impact the manner in which individuals who display characteristics of ADHD are treated on a daily basis. Social stigma surrounding mental health disorders, such as ADHD, poses a significant concern for children, in particular, as it may impact not only the willingness of individuals and families to pursue treatment, but also their overall quality of life. Studies have discovered that although many adults are able to correctly identify a child with ADHD, they are less likely to perceive it as a serious condition in need of treatment and do not label it as a mental illness (Pescosolido et al., 2008). Further, many

adults desire that their children avoid social contact with children exhibiting ADHD symptoms (Martin, Pescosolido, Olafsdottir, & Mcleod, 2007). Studies eliciting responses from children have also found increased stigma surrounding ADHD when compared to other disorders in terms of potential for violent and troublesome behavior (Walker, Coleman, Lee, Squire, & Friesen, 2008). Thus, children who are already at risk of experiencing negative outcomes due to symptomology may also be marginalized or excluded by adults and peers due to social stigma.

Bully Victimization Experiences of Children with ADHD

Despite the risk for academic, behavioral, and social difficulties associated with ADHD and findings that children with the disorder are at an elevated risk of being victimized in comparison to other disability groups, a limited number of studies have specifically examined the link between ADHD and bully victimization risk (Taylor, Saylor, Twyman, & Macias, 2010). Yet, this seems to be an important area for future research, given the fact that the exhibition of ADHD symptoms may lead to peer rejection (Bagwell, Molina, Pelham, & Hoza, 2001; Hinshaw, 2002; Wiener & Mak, 2009). Further, the characteristics of ADHD coincide with Olewus' description of the "provocative victim" who unintentionally elicits bullying through their behaviors, suggesting that students with ADHD may be at increased risk of experiencing victimization. Early studies focusing on children with ADHD found that these students are more likely to be involved in bullying as both victims and perpetrators than peers without ADHD (Bacchini, Affuso, & Trotta, 2008; Holmberg & Hjern, 2008; Unnever & Cornell, 2003). However, earlier investigations had many methodological limitations,

such as failing to confirm student ADHD diagnoses, which have been improved upon by later studies.

More recent research with improved methodology has consistently revealed that children with ADHD are more likely to be involved in bully victimization as victims than perpetrators (Taylor, Saylor, Twyman, & Macias, 2010). These children are reported to experience verbal aggression most frequently, followed by relational and physical aggression (Wiener & Mak, 2009). Further, when compared to peers who are bully victims without ADHD, children with ADHD in these studies exhibited higher levels of internalizing and externalizing difficulties (Humphrey, Storch, & Geffken, 2007; Taylor, Saylor, Twyman, & Macias, 2010). Research exploring the experiences of adolescents with ADHD is particularly important given the increased risk of bullying among this population. Studies focusing on this group have found that those with ADHD may be twice as likely to be involved in bully victimization when compared to non-ADHD peers, and that they report greater interpersonal difficulties and less perceived social support (Sciberras, Ohan, & Anderson, 2012; Timmermanis & Wiener, 2011).

Study Purpose

Given consistent findings in the research literature that children with ADHD are at higher risk of being targeted for bully victimization than non-ADHD peers, it is important to investigate which behaviors associated with ADHD influence these trends. Therefore, the current study expanded on previous findings by exploring the connection between ADHD characteristics and bully victimization status in a large, national sample

of youth being served within the special education system. It was hypothesized that students exhibiting hyperactive-impulsive behaviors would be more likely to experience bully victimization during the first year of the study, given the fact that they are more likely to unintentionally elicit aggressive responses from peers according to Olweus' description of the "provocative victim." Due to the potential for symptom manifestation to change over time, this study also considered the impact that such shifts may have on risk of bully victimization via longitudinal analysis. It was hypothesized that trends in bully victimization status would shift over time, as hyperactive-impulsive behaviors tend to lessen in intensity as children mature and may render them less likely to be targeted as "provocative victims."

Furthermore, considering the potentially heightened risk of bully victimization among students with ADHD and those who are English language learners, the current study desired to explore whether children with both of these characteristics are truly more likely to be targeted by peers. To the author's knowledge, this area has not yet been examined within the research literature. An exploratory analysis without a formal hypothesis was conducted to determine if English language learners with ADHD would be more at risk of bully victimization due to their double vulnerability. It is hoped that the results of this investigation may provide important information to inform the creation of bullying interventions tailored to meet the unique needs of children with ADHD.

Methods

The current investigation was carried out using a nationally representative sample of children with disabilities, the Special Education Elementary Longitudinal

Study (SEELS), which followed students as they progressed through elementary, middle, and high school over a period of six years. The original sample consisted of 9,747 randomly selected students with a wide range of disabilities. The sample used for the current study was composed of 358 students who had a confirmed ADHD diagnosis and a primary special education classification of Other Health Impairment (OHI), to limit the influence of other psychological or educational factors on bully victimization risk. The gender representation for this group was 77% male and 23% female. The racial/ethnic representation of the sample as reported by parents and school staff was 83% White, 12% African American, 4% Hispanic, and 2% other race/ethnicity. English language proficiency was indicated by teachers, who reported that 91% included in the sample were native English speakers, 6% were bilingual, and 3% were limited English proficient. Students were enrolled in 1st through 7th grade in public or private schools and 30 special schools at the first wave of data collection.

Data for SEELS were collected across three waves from 2000 to 2006. Parent interviews/questionnaires asked about family demographics and the characteristics, disabilities, learning problems, health, and experiences of each child at school. A response rate of 85% was obtained for parent questionnaires. A survey of student characteristics and experiences was also administered to language arts teachers and the school staff member most knowledgeable about each student's educational program. School principals and districts also provided general information on the same timeline regarding school characteristics, services offered within each school, and school demographic information.

Items that were utilized in the current study included indicators of age, gender, race/ethnicity, English proficiency status, ADHD diagnosis, and parent-reported bully victimization status. Due to the unavailability of specific subtype classifications from each student's formal ADHD diagnosis, items pertaining to subtypes were grouped into composites and then analyzed using latent class analysis (LCA; Collins & Lanza, 2010; Lazarsfeld & Henry, 1968). LCA is commonly used to define unobservable subgroups in a sample with categorical (rather than continuous) variables, based on responses to a set of items. Therefore, by utilizing LCA, students may be grouped in a natural fashion according to characteristics rather than using an arbitrary cut-off score to label them as pertaining to a specific group. The current study utilized LCA to separate students according to their bully victimization status in wave 1 and discover the best-fitting model to describe their characteristics.

To address the second hypothesis of this study, longitudinal latent class analysis (LLCA; Collins & Lanza, 2010; Lanza & Collins, 2006) was employed. This method used data obtained at each time point to determine whether the group that initially experienced the higher level of victimization at wave 1 continued to be the most likely target at waves 2 and 3. In order to understand the association between bully victimization trends and ADHD-related symptoms, the inattention and hyperactivity-impulsivity (subtype) composites were then included as covariates in the model. It was intended that the third exploratory research question examining bully victimization among ELLs with ADHD would be explored using of a one-way analysis of covariance,

taking into account factors such as age, gender, socioeconomic status, and disability category (ANCOVA; Fisher, 1925).

CHAPTER II

LITERATURE REVIEW

Bully victimization represents a highly problematic and prevalent form of violence among children and adolescents that has gained widespread attention across schools and communities in recent years. As such, a variety of research and initiatives have been undertaken worldwide to discover the nature of bully victimization, how it occurs, and who is typically involved. A longitudinal study of 27 countries conducted by the World Health Organization found that among 11 to 15 year-old students, the overall frequency of bullying decreased in most countries between 1993 and 2006, including the United States (Molcho et al., 2009). This finding is perhaps due to greater awareness of the harmful effects of bullying, the implementation of anti-bullying interventions, and enactment of anti-bullying legislation (Finkelhor, Turner, Ormrod, & Hamby, 2009). Yet, a high number of students continue to be at risk for victimization. The same study found that in the U.S., 30% of students reported experiencing occasional victimization and 11% reported chronic victimization during the 2005-2006 school year. Additionally, a survey conducted by the National Center on Educational Statistics during the 2013-2014 school year found that 22% of students between the ages of 12-18 experienced some form of bullying (NCES, 2015). Therefore, although trends appear to be decreasing (Rigby & Smith, 2011), it is crucial that researchers continue to elucidate how bullying occurs and who is typically involved so that preventative measures may be taken.

Understanding Bully Victimization

Bully victimization is commonly regarded as a subtype of peer victimization that has more specific characteristics and implications for students. While peer victimization is a more comprehensive construct that includes physical, emotional, or sexual assault and intimidation (Turner, Finkelhor, Hamby, Shattuck, & Ormrod, 2011), bully victimization consists of exposure to such actions when they are 1) meant to disturb or harm, 2) repeated over time, and 3) defined by an imbalance of power between the bully and victim (Nansel, 2001; Olweus, 1993). Although no universal definition of bully victimization exists (Furlong, Morrison, & Grief, 2003; Griffin & Gross, 2004), the above characteristics have been utilized across studies in various cultures to identify situations in which bullying has occurred. Bully victimization is also distinguished from other forms of victimization in that it is typically proactive aggression used as a means of gaining and maintaining dominance or status over peers (Fanti & Henrich, 2014).

Although discussion in the area of bully victimization often refers to these actions in a general sense, it is important to recognize the variety of means by which incidents occur. Olweus (1993) noted that, similar to the general construct of peer victimization, bullying may assume many forms, each having the potential to harm students who are perceived as vulnerable or less powerful. Victims may experience overt attacks, consisting of direct physical or verbal attacks, such as hitting, kicking, threatening, or name-calling. They may also be harmed by covert behaviors, which are indirect attacks that are used to impair one's social relationships, such as rumors or social exclusion (Byers, Caltabiano, & Caltabiano, 2011; Whitted & Dupper, 2005).

Research has typically focused on exploring the pathways and effects of more traditional forms of bully victimization, such as physical aggression. In recent years, however, more covert and non-traditional forms of bullying have gained attention as well. Cyber bullying, in particular, encompasses characteristics similar to those of indirect bullying, with the added effect of perpetrator anonymity and distance from adults, due to the fact that it is carried out via digital devices and social network sites (Casa, Del Rey, & Ortega-Ruiz, 2013). Additionally, cyberbullying can easily involve large numbers of students and occur anytime or anywhere, causing significant harm in a matter of seconds (Li, 2008). Bully victimization via text messaging, in particular, has been on the rise in recent years, perhaps due to increasing use of this form of technology (Ybarra, Mitchell, & Korchmaros, 2011). Of the many forms that bully victimization may assume, verbal insults are typically the most common (i.e. teasing or name calling), as well as relational techniques that involve social isolation, followed by physical attacks (Wang, Iannotti, Luk, & Nansel, 2010).

Victim Characteristics

The characteristics of victims have been researched and debated extensively over the years. Typically, victimized students are dichotomously characterized as being either “passive” victims, who present as anxious, depressed, insecure, and withdrawn, or “aggressive” victims, who exhibit both internalizing and externalizing behaviors and tend to react to those who antagonize them (Veenstra et al., 2005). The latter group has often been labeled the “bully/victim” type in the literature, due to the fact that they may engage in bullying while also being the target of victimization. When the aggressive

victim was first identified by Olweus (1994), however, his characterization was slightly different. He labeled them as “provocative” victims and described them as children who behave in ways that irritate or annoy those around them, thereby inciting negative reactions and making themselves the target of bully victimization. Olweus further characterized such children as having difficulties with concentration and hyperactivity that may be perceived as disruptive to others. The distinction between provocative victims and bully/victims is noteworthy, as the actions of provocative victims were described as unintentional and not meant to incite bullying. Therefore, the dynamics between bullies and victims are likely to be different when provocative victims are involved, given the fact that the perpetrator is reacting to specific behaviors of the victim and may believe that they have reason to target that individual.

Effects of Bully Victimization

The short and long-term effects of bully victimization can be serious and have a significant impact on many students, whether directly or indirectly involved. Victims often report a variety of internalizing symptoms, such as low self-esteem, loneliness, anxiety, depression, and psychosomatic problems (Gini & Pozzoli, 2013; Hawker & Bolton, 2000). In addition, they have been found to exhibit poor academic outcomes, including absenteeism and low academic achievement (Nakamoto & Schwartz, 2010; Schwartz, Gorman, Nakamoto, & Toblin, 2005), as well as aggression, and other difficulties that impact their daily functioning (Berger, Karimpour, & Rodkin, 2008; Hanish & Guerra, 2002; Hoggund & Hosan, 2012; Varjas, Henrich, & Meyers, 2009). Bullies are likewise at risk for many problems, including depression, school avoidance

and drop-out, poor academic achievement, physical violence, and even criminal offending later in life (Klein, 2006; Ttofi, Farrington, Losel, & Loeber, 2011). Due to the fact that bully victimization is often witnessed by students, teachers, and school staff who are bystanders, the climate of an entire school may be affected. Therefore, as incidents of bullying become more prevalent, they lead to an atmosphere that is less conducive to learning for students who are not directly involved (Eisenberg, Neumark-Sztainer, & Perry, 2003; Espelage, Bosworth, & Simon, 2000).

Age-Related Trends

Studies exploring bully victimization trends have found that in general, prevalence rates tends to increase during late elementary school years and middle school, peaking during the transition to high school, and then decreasing again (Nansel et al., 2001; Pellegrini & Long, 2002; Sawyer, Bradshaw, & O'Brennan, 2008). The increase of prevalence in middle school coincides with important developmental transitions experienced by students, such as the onset of puberty and adjustment to the secondary school setting. Entering adolescence and secondary school introduces a host of changes to the lives of youth, including increased emphasis on peer groups coupled with involvement in a new social hierarchy (Long & Pellegrini, 2003; Smith & Gross, 2006). As this occurs, social status relative to peers and relationships become increasingly central to one's daily life and behaviors. A key aspect of the definition of bully victimization is a perceived "imbalance of power" (Olweus, 1993) between victims and perpetrators. This imbalance may signify actual physical dominance, as seen in overt forms of bullying, or less visible forms of power that stem from social/emotional

competence due to popularity and interpersonal skill, which are evident in more covert forms of bullying (Olweus, 1995; Pellegrini & Long, 2002). Therefore, as social dynamics become increasingly important among youth during adolescence, physical aggression declines and verbal or relational aggressive methods may become more common (Griffin & Gross, 2004).

Bully Victimization and Ethnic Minority Students

Although educational research on bully victimization has gained momentum in recent years, studies examining the victimization of ethnic minority students are still few in number (Rosenbloom & Way, 2004). Some studies have noted that one's ethnicity may be indicative of social status, thus potentially leading to the imbalance of power between majority and minority group members that is conducive to bully victimization (Vervoort, Scholte, & Overbeek, 2010). Although prevalence rates tend to vary depending on study methodology, location, and other factors, researchers across studies have found that 6 - 15% of African American and Hispanic students report experiencing moderate to frequent bully victimization (Peskin et al., 2006; Spriggs et al., 2007). Common to such investigations is the finding that racial/ethnic differences exist in students' reporting of bullying and the dynamics surrounding bullying across minority populations. Therefore, further examination of these trends and the function of ethnicity in bullying situations is an important endeavor.

Mixed results have been found in studies examining the prevalence of bullying among ethnic minority students when compared to majority group peers (Hoglund & Hosan, 2012; Vervoort, Scholte, & Overbeek, 2010). A number of studies, such as those

by Juvonen and colleagues (2003) and Nansel and colleagues (2001) have found that students of some minority groups are significantly less likely to be bullied than their majority counterparts. Others, however, have concluded that minority youth are significantly more likely to experience bullying (i.e. Graham & Juvonen, 2002; Verkuyten & Thijs, 2002; Mouttapa et al. 2004). A third group of studies did not find a significant difference between minority and majority groups in bullying trends, including those by Seals and Young (2003) and Siann and colleagues (1994). It is noteworthy that the prevalence of bullying in most studies has varied across minority groups, as well. For example, an investigation conducted by Spriggs, Ianotti, Nansel, and Haynie (2007) found that Hispanic and Caucasian students were significantly more likely to be bullied than their African American peers. In contrast, Peskin, Tortolero, and Markham (2006) found that the Hispanic students in their study were significantly less likely to be victimized than African American students. Therefore, it is unclear at the current time as to whether individuals of certain ethnicities are at greater risk of experiencing bully victimization.

Given these mixed results, it has been suggested that other factors may contribute to differences across studies. Some researchers have considered the geographical area from which samples were taken, aspects of the target populations (e.g. school/classroom ethnic composition, age, or grade; Graham & Juvonen, 2002; Hanish & Guerra, 2000; Vervoort, Scholte, & Overbeek, 2010), and the type of victimization measures used to be influential. In examining victimization rates across ethnicities, it is particularly important to consider the impact of school racial/ethnic composition (Bellmore, Witkow,

Graham, & Juvonen, 2004). A number of studies have found that while ethnicity in itself was not a factor in predicting peer victimization, it has a significant influence when interacting with school ethnic composition. Thus, students pertaining to the numerical minority group of their school are more likely to be targeted, which may be due to the perceived power imbalance across ethnic groups (Graham & Juvonen, 2002; Olweus, 1994; Verkuyten & Thijs, 2002). Other studies, such as that of Høglund and Hosan (2012), suggest that the type of victimization experienced by different groups, or content of the attacks, may be an important factor to consider. “Peer ethnic victimization” is said to occur when students are targeted specifically due to their race or ethnicity, and differs from discrimination in that incidents are repetitive and intentional. Recent studies have found that peer ethnic victimization may represent a significant component of the bullying experienced by ethnic minority students (Høglund & Hosan, 2012).

Additionally, mixed findings may be the result of cultural perceptions of bullying that influence students’ responses on different types of measures. Sawyer, Bradshaw, and O’Brennan (2008) examined variation in racially/ethnically diverse children’s reporting of victimization when presented with both a single-item, definition-based measure and a behavior-based measure that inquired about victimization without specifying the target construct as “bullying.” While 20-30% of students reported experiencing frequent bullying on the definition-based item, 55-80% reported being victimized in the past month on the behavior-based measure. Across groups, results indicated that on the definition-based measures, no ethnic differences were found except among high school males. Hispanic and Asian males in secondary school were more

likely to report frequent bullying than their White peers. On the behavior-based measure, however, African American males and females in elementary school were more likely to report all forms of victimization compared to White peers, and Hispanic males in high school also reported significantly higher levels of victimization than White counterparts. Interestingly, across grades, ethnic minority students were less likely than their White peers to indicate that they had been “bullied” on the definition-based measure, even if they had reported being victimized on the behavior-based measure. This finding was particularly strong for African American students. Thus, studies must account for cultural differences that may influence student perceptions and their willingness to report bullying (i.e. stigma associated with being a victim), particularly when using definition-based measure.

Bully Victimization and English Language Learners

Studies exploring bully victimization among ethnic minority youth have recently begun to examine the experiences of subgroups that may be particularly vulnerable, such as those who have recently immigrated and are learning English as a second language. English language learners (ELLs) constitute a rapidly growing group of students, as the U.S. school population becomes increasingly diverse (LeClair, Doll, Osborn, & Jones, 2009). Students who are ELL represent a diverse group in themselves, having a variety of native lands, languages, abilities, and situations in life. Studies have found that a majority speak Spanish as their first language (77%), followed by Vietnamese (2.3%), Hmong (2.2%), and many other languages (Zehler et al., 2003). Despite their unique characteristics, these children as a group are consistently found to be at risk for negative

outcomes. Compared to their native English and even bilingual peers, ELLs are more likely to experience academic failure and retention, school drop-out, discrimination, and other stressors related to poverty, acculturation, and learning a second language (Dowdy, Dever, DiStefano, & Chin, 2011; Peguero, 2008; Zehler et al., 2003). Although ESL or bilingual education may be available for students who have difficulty learning in English-dominant classrooms, placement in alternative classes often leads to separation and even alienation from mainstream peers. Further, having limited opportunities to interact with native English speakers may hinder the linguistic and academic progress of ELLs, contributing to negative outcomes (Gebhard, 2003).

At the current time, ELL status in itself has rarely been isolated as a variable influencing victimization (Peguero, 2008). This may be due to methodological challenges, such as those presented by the unavailability of measures in students' native language and the lack of personnel who could administer and interpret such measures. Yet, it is widely acknowledged that immigrants who are ELLs experience a number of social and emotional challenges as they adjust to life in the U.S., particularly with regards to peer relationships. One study by Coulter and Smith (2006) qualitatively examined difficulties experienced by ELLs by conducting in-depth interviews with students. Themes that emerged included exclusion and/or rejection by peers and by the school as a whole, structural inequality due to lack of attention given to the English as a Second Language (ESL) program, being tracked into remedial classes with poor instruction, and the expectation to leave behind their unique cultural identity in order to assimilate to the dominant culture. Other studies have explored the victimization of

immigrants within various ethnic groups by more acculturated peers (Mendez, Bauman, & Guillory, 2012; Qin, Way, & Rana, 2008). Interestingly, these studies found that students who were immigrants were chronically targeted due to lack of English proficiency, above all other variables. Other factors contributing to intragroup victimization included social status (acculturated peers perceived themselves as socially superior), the isolation of ELLs in alternative classes, and the fact that the ELLs were easy to identify as being different. When all incidents of bully victimization against these immigrant youth were considered, the perpetrators were most commonly more acculturated youth of the same ethnic group and the primary reason for which victims were targeted was ELL status.

Although few quantitative studies have been conducted that include ELL status as a variable, an investigation by Peguero (2008) found that English proficiency was an influential factor contributing to victimization. Specifically, youth who identified themselves as non-native English speakers were at higher risk of being a victim of violence at school than native English peers. Further, non-native speakers who classified themselves as not speaking English well were more than twice as likely to be victimized when compared to non-native peers who spoke the language well or very well. Those who did not speak English well were also significantly more likely to indicate feeling unsafe at school than native English-speaking peers.

While other studies have not focused exclusively on ELL status as a variable, a number have examined bully victimization in association with factors such as country of origin and immigrant status. At the current time, inconsistent prevalence rates have been

found across such studies. Many have produced no differences in victimization between immigrants and their native peers (Fandrem et al., 2009; McKenney, Pepler, Craig, & Connolly, 2006; Monks, Ortega-Ruiz, & Rodriguez-Hidalgo, 2008), while some have found a higher likelihood of victimization among immigrants (Graham & Juvonen, 2002; Strohmeier, Karna, & Salmivalli, 2011). Still others discovered higher levels of victimization among native students than immigrants (Hanish & Guerra, 2000; Verkuyten & Thijs, 2006). A recent study by Sulkowski, Bauman, Wright, Nixon, and Davis (2014) found that youth who had immigrated were more likely to experience physical bullying than non-immigrant peers, but no significant differences were revealed with regards to other types of bullying. These results suggest that more complex factors may be involved in bully/victim dynamics that influence variation in results, such as language or generational status, disability status, and other individual or environmental characteristics. Therefore, preliminary studies related to ELLs and bully victimization suggest the need to further consider the experiences of this unique group of students.

Bully Victimization and Children with Disabilities

Children with disabilities represent a group that is particularly at risk of being victimized, even across elementary school years, as they are often viewed as different, weaker, and more vulnerable than typically-developing peers (Rose, Espelage, & Monda-Amaya, 2011). Research in the area of bullying and individuals with disabilities has gained momentum in recent years as studies reveal the unique experiences of these children (Twyman et al., 2010). An early study by Thompson, Whitney, and Smith (1994) found that students who receive special education services are more likely to be

victimized by peers, with more frequent victimization occurring as they are segregated and less included in mainstream classrooms. This finding has been supported by recent studies as well, as documented in a review of the literature on bullying and special education published in 2011 by Rose, Espelage, and Monda-Amaya. An investigation conducted by Van Cleave and Davis (2006) using data from the National Survey on Children's Health revealed that students with disabilities are at a higher risk than non-disabled peers of being involved not only as victims, but also perpetrators and bully-victims. According to parent reports in this sample, 34% of children were classified as victims, 24% as bullies, and 10% as bully-victims. In a more recent study, however, Farmer et al. (2012) examined bullying involvement among 5th grade students in rural areas and found that children receiving special education services were 2 to 5 times more likely to be victimized than their non-disabled peers. They were also significantly more likely to be involved as bully-victims, but not perpetrators.

Differences in findings such as these may be related to the sample itself or the measures that were utilized to examine bullying and disabilities in the studies. Despite some level of disagreement as to whether or not children with disabilities are more likely to be bullies, studies have consistently found that they are at a significantly higher risk of being targeted for victimization than their peers across grade level, gender, and nationality (see also Estell et al., 2009; Norwich & Kelly, 2004; Rose, Espelage, and Monda-Amaya, 2009). Additionally, studies agree that similar to their non-disabled peers, children with disabilities who are victimized experience a host of social, emotional, academic, and behavioral difficulties, displaying both internalizing and

externalizing problems (Farmer et al., 2012). Therefore, it is extremely important to explore bullying among children with different types of disabilities in order to further discover if certain groups are more at risk of victimization than others.

A number of studies have examined the prevalence rates of involvement in bullying among children with various disabilities, though some types have been investigated more frequently than others (Blake et al., 2016; Swearer, Wang, Maag, Siebecker, & Frerichs, 2012). Results show increased risk of involvement among children with Autism Spectrum Disorders (Cappadocia, Weiss, & Pepler, 2012; Van Roekel, Scholte, & Didden, 2010), with one study indicating that 63% of participants had experienced bullying during their lives and 38% had experienced it within the past month (Zablotsky, Bradshaw, Anderson, & Law, 2013). In addition, those participants with symptoms of Asperger's Disorder who were included in general education classrooms were more at risk than those with more severe symptoms of Autism, contrary to the findings of Thompson et al. (1994) related to segregation. Other disability types that have been investigated include behavioral disorders (Swearer et al., 2012), learning disabilities (Baumeister, Storch, & Geffken, 2008; Mishna, 2003), speech/language impairment (Lindsay, Dockrell, & Mackie, 2008), intellectual disability (Horner-Johnson & Drum, 2006), and Diabetes (Storch et al., 2004).

Some investigators have examined samples of children who have a variety of disabilities in an effort to determine which groups, if any, are most likely to be targeted for bully victimization. Twyman et al. (2010) conducted one such study among 294 children between the ages of 8 and 17, and found that those who reported the highest

level of clinically significant bullying experiences were those with Attention-Deficit/Hyperactivity Disorder (ADHD), Autism, and Learning Disabilities. In another recent study, Blake et al. (2016) examined predictors of peer victimization for students in special education using a national sample. Similar to Twyman et al. (2010), the authors found that the children who were at greatest risk of being chronically targeted were those diagnosed with ADHD, followed by those classified with an Emotional Disturbance (ED). These results are somewhat surprising, given the fact that both ADHD and ED are considered “non-visible” disabilities and no outward physical impairment is typically noticeable by peers. Although previous studies have found the presence of a visible disability to be more predictive of victimization (Rose et al., 2011), this finding is understandable due to the fact that one of the most significant indicators of risk for chronic victimization in this sample was emotional or behavioral difficulties, which are key aspects of ADHD and ED classification. Given such recent findings, it is important to understand why those with non-visible disabilities are targeted in order to develop preventive measures. Children with ADHD, in particular, represent a group that has received minimal attention with regards to victimization, despite the relatively high prevalence of the disorder. Therefore, researchers must examine the characteristics and development of ADHD in order to determine which aspects of the disorder are associated with a heightened level of risk.

Understanding Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurobehavioral disorders diagnosed in childhood, characterized by a pattern of

inattentive and/or hyperactive-impulsive symptoms that occur across settings and interfere with daily activities. Studies have found international prevalence rates of 5 to 9% (Giedd, 2000; Polanczyk, Silva de Lima, Horta, Biederman, & Rohde, 2007). However, such estimates may vary considerably across studies as a result of research methodology and sample characteristics, such as age, region, and socioeconomic status (Sciutto & Eisenberg, 2007). Current research indicates that the rate of ADHD diagnosis rose slightly between 1998 and 2009 across all groups, perhaps due to increased recognition of symptoms and the use of more comprehensive assessment procedures (Akinbami, Liu, Pastor, & Reuben, 2011). Although some discussion has surfaced as a result of this rise regarding the possible overdiagnosis of ADHD, research has not found sufficient evidence to support such a conclusion. A study by Sciutto and Eisenberg (2007) reviewed 14 recent investigations on ADHD prevalence rates within the United States and found that most were consistent with the 3 – 7% rate reported by the DSM-IV. Contrary to popular belief, there was no indication that the number of false positives identified were greater than the number of false negatives. Thus, while misdiagnosis may certainly occur, overdiagnosis of ADHD in the last decade has yet to be substantiated.

Etiology of ADHD

The etiology of ADHD is complex and typically involves a number of interacting factors. Given the fact that most children will exhibit the core symptoms of ADHD at some point in their lives, it is important to distinguish between the basis of the actual disorder and what is simply typical behavior. Research has explored several key areas in

relation to the etiology of ADHD: neurology, biology, genetics, and environmental factors. As a result of advanced studies, a neurobiological basis of ADHD has been found within certain areas of the brain, such as those involving attention and executive functioning (Curatolo, Paloscia, D'Agati, Moavero, & Pasini, 2009). Researchers across studies have implicated deficits in the frontal lobe and subcortical areas as key aspects of ADHD symptomology, with a lack of activity in these regions leading to a decrease in dopamine and norepinephrine production (Biederman, 2005). In particular, the literature examining children with and without ADHD has associated the Pre-frontal Cortex, Anterior Cingulate Cortex, basal ganglia, and cerebellum with core symptoms of the disorder (Castellanos et al., 2002; Sadek, 2014).

Genetic factors are also well established as strong determinants of ADHD and its manifestation, as supported by twin studies, family studies, and adoption studies (Sadek, 2014). Twin studies have discovered a heritability rate as high as 77%, with biological relatives being more likely to exhibit hyperactivity and associated symptoms than adopted relatives (Biederman, 2005; Larsson, Larsson, & Lichtenstein, 2004; Nadder, Rutter, Silberg, Maes, & Eaves, 2002). Across studies, the likelihood of siblings and parents of children with ADHD having the disorder is found to be two to eight times greater than that of the general population (Biederman, 2005). Specific genes that have been implicated include the dopamine D4 and D5 receptor genes (Faraone et al., 2001; Sadek, 2014), although research continues to elucidate affected components. Finally, additional biological and environmental factors are acknowledged for their role in the development of ADHD symptoms. These risk factors may include complications during

pregnancy and delivery, low birth weight, and maternal alcohol or drug consumption, lead exposure, and familial stress and adversity, among others (Biederman, 2005; Nigg, 2006; Swanson et al., 2007).

Gender Differences

In general, studies have concluded that males are more likely to be diagnosed with ADHD than females, finding ratios as high as 10:1 in clinic-based samples and 3:1 in community samples (Biederman et al., 2002). However, researchers have suggested that such rates may not be accurate due to manifestation differences across genders (Sciutto & Eisenberg, 2007). Males with ADHD are more likely to be diagnosed with symptoms of hyperactivity and impulsivity than females, while females tend to present with more inattention and social impairment (Mash & Barkley, 2003; Stein, Marx, & Beard, 2004). Thus, males tend to exhibit a higher frequency of disruptive, externalizing behaviors across home and school settings and are more often referred for evaluation. Females with ADHD, on the other hand, are less likely to be identified in either setting and may be underrepresented in ADHD prevalence rates (Biederman et al., 2002). A key meta-analysis on gender differences by Gaub and Carlson (1997) found that ADHD was more prevalent than expected in females and that female study participants experienced an equal or greater amount of functional impairment than their male peers.

ADHD Subtypes

Children with ADHD may exhibit the disorder in a variety of ways, with no two profiles being alike. In order to facilitate accurate classification and better determination of appropriate interventions, the Diagnostic and Statistical Manual of Mental Disorders

(DSM) has introduced a subtype system. Children with ADHD are classified by one of three subtypes that indicate the pattern of behaviors displayed: Predominantly Inattentive, Predominantly Hyperactive-Impulsive, or Combined Presentation. According to the DSM-5, the Predominantly Inattentive type is characterized by symptoms such as difficulty with sustained attention, task completion, lack of attention to detail, lack of organization, failing to follow instructions, and forgetfulness. In contrast, individuals presenting with the Hyperactive-Impulsive type have difficulty with inhibiting their thoughts and actions. Therefore, they tend to interrupt others, talk too loudly and/or excessively, have trouble waiting their turn, display excessive energy, and often appear restless or fidgety. Individuals with a Combined Presentation exhibit behaviors from both of the other two subtypes (APA, 2014).

Symptoms of ADHD typically surface during early childhood, and the Diagnostic and Statistical Manual of Mental Disorders (5th Edition; DSM-V; APA, 2014) requires that some symptom be present by age 12 in order to meet diagnostic criteria. Studies on gender differences have discovered that in general, males are more likely to be diagnosed with the Hyperactive-Impulsive or Combined subtypes than females, due to their tendency to display more externalizing behaviors (Mash & Barkley, 2003; Stein, Marx, & Beard, 2004). The validity of these subtypes has been examined extensively since their appearance in the DSM-III, with some researchers questioning the distinction between the Predominantly Inattentive and Combined subtypes and whether the Predominantly Inattentive type should be considered a valid part of the ADHD spectrum (Barkley, 2006). A meta-analysis conducted by Willcutt and

colleagues (2012) found a total of 546 articles evaluating subtype validity, based on 386 independent samples with children, adolescents, and adults. Their analysis revealed that the inattentive and hyperactive-impulsive dimensions of ADHD have high internal consistency and their distinction has been strongly supported by factor analyses, as they are not excessively correlated with one another ($r = .63 - .75$). Additionally, these symptoms had discriminant validity, being sufficiently distinct from the symptoms of other correlated disorders. The test-retest reliability of both the inattentive and hyperactive-impulsive dimensions was found to be high for periods of less than one year ($r = .70 - .82$) and somewhat lower for periods of one to five years ($r = .64$).

Considering the conclusion of Willcutt and colleagues, it is important to emphasize that the literature on ADHD subtypes has found that they are not always stable over time and may have distinct developmental trajectories. Although 50 to 80% of individuals typically continue to meet criteria for ADHD upon entering adolescence, their symptoms may change in presentation due to age-related developmental transitions and/or treatment effects, and this shift is sometimes large enough to meet criteria for a different subtype of the disorder (APA, 2014; Lahey, Pelham, Loney, Lee, & Willcutt, 2005; Timmermanis & Wiener, 2011). According to the meta-analysis by Willcutt et al. (2012), the results of longitudinal studies indicate that 59% of children initially diagnosed with ADHD continue to meet criteria after a period of five to nine years, but only 35% meet criteria for the same subtype with which they were initially diagnosed.

Generally, longitudinal studies report that individuals initially diagnosed with the Hyperactive-Impulsive subtype tend to exhibit a significant decline in hyperactive

symptoms over time that is unrelated to receiving treatment, and may shift to meet criteria for the Inattentive subtype (Hinshaw, Owens, Nilofar, & Fargeon, 2006; Lahey & Willcutt, 2010; Larsson, Lichtenstein, & Larsson, 2006). Researchers have found that after five to nine years, 33% of those diagnosed with the Hyperactive-Impulsive type in early childhood continued to meet criteria for ADHD, while 13% of those diagnosed in late childhood continued to meet criteria (Willcutt et al., 2012). Individuals who were initially diagnosed with the Inattentive subtype may experience a reduction of inattentive symptoms over time (Biederman, Mick, & Faraone, 2000) and in some cases no longer meet criteria for ADHD (Willcutt et al., 2012). Finally, studies have found that those diagnosed with the Combined subtype typically continue to meet criteria for that subtype or shift to the Predominantly Inattentive subtype at one to five year follow-up (Willcutt et al., 2012). Therefore, the Predominantly Hyperactive-Impulsive type appears to be the least stable over time, particularly after early childhood. In addition, it is not uncommon for individuals to experience a reduction or shift in symptom manifestation as they mature. Yet, the subtypes of ADHD remain valid indicators of the nature of impairment experienced by children across home, school, and community settings.

Functional Impairment and Outcomes

According to the DSM-V (APA, 2014), symptoms of ADHD must be associated with significant functional impairment in order for individuals to fully meet criteria for the disorder. Across studies, children diagnosed with ADHD have been found to exhibit deficits in a wide variety of areas of everyday life. Functional difficulties related to ADHD typically fall into three broad categories: academic achievement, social/peer

relationships, and family relationships. DuPaul (2007) authored a review of ADHD impairment as linked to academic performance and found that students with the disorder tended to exhibit off-task and disruptive behaviors during academic activities, interrupt or talk out of turn, have difficulty remaining seated for sustained periods of time, and bother other students. These behaviors were significantly associated with student academic performance, in that ADHD symptoms were predictive of current and future academic outcomes (such as grades and teacher ratings of achievement).

In a study examining the relationships of children with ADHD, McQuade and Hoza (2008) report that they often display behaviors that are regarded as socially inappropriate or annoying, including being noncompliant, argumentative, intrusive, or aggressive with peers. These behaviors and others contribute to the fact that between 50 and 80% of children with the disorder have been rejected by peers in some studies, and that such relationship dynamics are established by early to middle elementary school (Hoza, 2007; Hoza et al., 2005). A recent study examining peer rejection and ADHD revealed that it is associated with a host of negative outcomes, as children who are excluded may lack opportunities to develop social skills, be targeted for bully victimization, and exhibit symptoms of distress that include depression, anxiety, and general impairment across multiple domains (Mrug et al., 2012). In the area of family-related functioning, research findings have been relatively inconsistent. However, evidence has been found that ADHD symptoms influence parenting behaviors, and in turn, parenting behaviors influence the manifestation of ADHD symptoms, particularly in terms of conduct problems (Johnston & Mash, 2001). Impairment in any one or more

of these areas may be associated with difficulties across the lifespan, continuing into adolescence and adulthood, and may have significant impact on not only the impaired individual, but also his or her family and community (Haack & Gerdes, 2011).

Ethnic Minority Children with ADHD

The number of studies examining ADHD in ethnic minority children is relatively limited. Prevalence estimates considering cultural differences have found that rates tend to vary by race/ethnicity, but the gap between groups has narrowed in recent years.

Research conducted by Akinbami and colleagues (2011) on a large, nationally representative sample of children between the ages of 5 and 17 determined that White children are most frequently identified with ADHD, with similar rates among Black and Puerto Rican children (9-11%). In contrast, Mexican children tend to be the least frequently identified with ADHD (4%). Therefore, among Hispanic children living in the United States, within-group differences are present in ADHD prevalence rates.

Another study by Boyle and colleagues (2011) using a national sample of children between the ages of 3 and 17 likewise found that while White and Black children were identified with ADHD at a similar rate (7.8% and 6.3%, respectively), Hispanic children were almost half as likely to be identified (3.9%).

It is important to note that within the first study, the prevalence of ADHD between 1998 and 2009 increased by poverty level, with lower SES children being more likely to receive a diagnosis. Geographic region was also an important factor in the study; children residing in the South and Midwest were at higher risk of being diagnosed with ADHD. These findings may reflect cultural characteristics, which influence the

likelihood that children of certain racial/ethnic groups are evaluated and consequently labeled with the disorder. For example, studies have suggested that perceptions of deviant behavior, attribution of problem behaviors, and social acceptability of certain behaviors related to ADHD impact the attitudes of those who work with children, including, parents, teachers, and practitioners (Dwivedi & Banhatti, 2005; Haack & Gerdes, 2011).

Children with ADHD in Special Education

A large number of children with ADHD are provided with school-based services under Section 504 of the Vocational Rehabilitation Act and the Individuals with Disabilities Education Act (IDEIA). These children may qualify for services within any number of disability categories, due to the high rate of comorbidity found in association with ADHD (Larson, Russ, Kahn, & Halfon, 2011). As a result, few studies have examined actual prevalence rates of children with ADHD in special education and their use of services within the system. An investigation by Schnoes, Reid, Wagner, and Marder (2006) accomplished this task by utilizing a nationally representative dataset of children in special education, the Special Education Elementary Longitudinal Study (SEELS), which specifically requested information from parents and schools about whether participants had received a diagnosis of ADHD and experiences in special education. Their results revealed that 33% of participants had a confirmed ADHD diagnosis from both parent and school sources of data, and 82% of these students were male. Across disability categories, children with ADHD comprised 66% of the Other Health Impairment category, 58% of the Emotional Disturbance category, 21% of the

Learning Disability and Intellectual Disability categories, and 5% of the Speech/Language Impairment categories. However, it must be considered that children may meet criteria for more than one disability, and the authors did not provide information regarding the primary disability of students with ADHD. It is also important to note that the most common disability category found among children with ADHD in this study was that of a Learning Disability.

A less recent study by Bussing, Zima, Perwien, Berlin, and Widawski (1998) also examined ADHD prevalence among students in special education, using a smaller sample of 2nd through 4th grade children. Their analyses found that 44% of participants qualified for a diagnosis of ADHD, based on examination of parent interviews and rating scales completed by both parents and teachers. Of those children who met criteria, however, only half were actually receiving any kind of treatment for the disorder. Female students were particularly at risk of not receiving treatment, when compared to their male counterparts. This finding brings to light the question of unmet need, and the number of children who could benefit from services related to ADHD, even within special education, that are not currently receiving them. Those students within the special education system may be provided with services such as behavior management programs and interventions, counseling, assistance from a classroom aide, tutoring or extra academic assistance, study skills instruction, additional time to complete tests and other assignments, and shortened tasks (Schnoes et al., 2006). While the majority of students with ADHD who qualify for special education spend most of their time within

the general education setting, this is largely dependent upon the presence of comorbid disorders and the severity of all disorders in terms of functional impairment.

Social Stigma Surrounding ADHD

Public stigma surrounding mental health disorders is a significant concern, due to its potential influence on both the willingness of individuals to seek treatment for psychological symptoms and the outcome of such treatment. Studies exploring stigma related to adult mental illness have found that stigmatization tends to increase with the perceived severity of condition and degree to which behaviors transgress social norms (Martin, Pescosolido, Olafsdottir, & McLeod, 2007). This stigma in adults may be manifested in a variety of ways; however, it commonly assumes the form of avoidance, fear, bias, and a lack of trust, among others (Walker, Coleman, Lee, Squire, & Friesen, 2008). Several studies suggest that the sociodemographic characteristics of both the affected individuals and those who are evaluating them may impact judgment and lead to stigma, including factors such as race/ethnicity, age, and socioeconomic status (Whaley, 2001).

Studies examining stigma among children have discovered that individuals with emotional and behavioral disorders are particularly at risk of having low social status and being subject to negative treatment by peers, which may ultimately lead to peer rejection (Hoza, 2007; Hoza et al., 2005). Investigations looking more closely at the experiences of children with ADHD in relation to social stigma are limited, but some have explored this phenomenon by comparing ADHD to other psychological and control conditions. Pescosolido and colleagues (2008) surveyed a large, nationally

representative sample of adults using vignettes of a child with ADHD and depression. Responses revealed that 42% of adults were able to correctly identify the child with ADHD; yet, they were less likely to perceive ADHD as a serious condition in need of treatment when compared to depression, and nearly 20% rejected the label of mental illness in association with ADHD.

Another study using the same dataset examined more specifically the constructs of social distancing and rejection related to social stigma (Martin, Pescosolido, Olafsdottir, & Mcleod, 2007). Analyses found that 20% of adults desired that their family avoid social contact with children who exhibited behaviors or feelings consistent with ADHD, including an unwillingness to allow their own child to have a child with ADHD as a friend, neighbor, or classmate. While slightly lower numbers were found in relation to depression, only 5% of participants reported similar feelings toward a child with asthma. The age and gender of the vignette influenced findings, in that adolescents and boys elicited a greater desire for social distance.

In order to obtain similar information from the perspective of children, a national study conducted by Walker, Coleman, Lee, Squire, & Friesen (2008) surveyed 1,318 youth using vignettes of children with ADHD, depression, and asthma. Although many participants provided relatively neutral responses, the ADHD and depression conditions elicited significantly more stigma than the asthma condition. While the depression condition was associated with the highest degree of stigma, the child with ADHD was perceived as significantly more likely to be violent and more likely to get into trouble than the child with asthma. These findings held true regardless of demographic

characteristics, with the exception of Hispanic participants, who reported a higher number of negative attributions toward the individual with ADHD. Given the potentially serious consequences of social stigma, including bully victimization, it is crucial for researchers to further explore how peer and teacher attitudes may impact students' ability to succeed.

Bully Victimization and Children with ADHD

Although the number of studies related to bullying and children with disabilities have increased in recent years, relatively few have focused on individuals with ADHD (Taylor, Saylor, Twyman, & Macias, 2010). This is surprising given the risk factors for academic, behavioral, and social difficulties that are inherent in symptoms of the disorder (Bacchini, Affuso & Trotta, 2008; Barkley, 1998). ADHD is often associated with behaviors that violate societal expectations, in particular, as these children exhibit actions that may be perceived as inappropriate, bothersome, or annoying. For example, some have a tendency to speak or act inappropriately given the time and place, disregard others' space and/or feelings, act aggressively as a result of impulsivity, and often lack emotional regulation and awareness of social cues when compared to non-disabled peers (Holmberg & Hjern, 2008; Wiener & Mak, 2009). In general, children with ADHD, regardless of subtype, demonstrate underdeveloped social skills and may fail to build age-appropriate friendships (Taylor et al., 2010). Many studies document that individuals with ADHD are likely to be rejected by peers as a result of these behaviors (Bagwell et al., 2001; Hinshaw, 2002; Wiener & Mak, 2009), which coincides with Olewus' description of the "provocative victim" who unintentionally elicits bullying.

In addition to the strain that symptoms of ADHD place on peer relationships, teacher relationships often suffer as well. Although limited studies have examined this area, existing research has revealed that teachers find instructing children with ADHD to be significantly more stressful than instructing their non-ADHD peers (Greene, Beszterczey, Katzenstein, Park, & Goring, 2002). This is largely due to the fact that they are more likely to disrupt teaching, exhibit restlessness, and act in ways that hinder their learning and the learning of others. Students with ADHD exhibiting oppositional or aggressive behaviors were perceived as the most stressful to teach. Another study using teacher nominations found that out of all of their students, general education teachers were most likely to reject (or wish to have removed from their classroom) those who were identified with “mild” or “hidden” disabilities, such as ADHD and Asperger’s Syndrome (Cook, 2001). In this study, teacher attitudes were attributed to the tendency of these students to violate expectations and exceed teacher tolerance while appearing outwardly similar to non-disabled classmates. Thus, students with ADHD are often perceived by both peers and teachers as problematic, even when their behaviors are not intentional. Further, the non-visible nature of their impairment leads to a significant reduction in others’ willingness to tolerate their difficulties. In some cases, rejection of these children by peers and teachers leads to victimization (Hoza, 2007). Therefore, students with ADHD represent a unique population that experience rejection within schools at a higher rate than many other groups as a result of their disability.

Despite increasing attention to the topic, few researchers have focused exclusively on bullying experiences of children with ADHD (Taylor et al., 2010). The

first study to accomplish this was conducted by Unnever and Cornell (2003), who discovered a direct relationship between self-report of taking stimulant medication and bully/victim status. Although those classified as having ADHD in their sample were at a higher risk of being self-identified as both victims and perpetrators when compared to non-ADHD peers, it must be noted that the diagnosis was not confirmed by a parent or a physician. A later study by Bacchini, Affuso, and Trotta (2008) examined bullying among 4th and 5th grade students with ADHD in Italy, finding that symptoms of ADHD were associated with increased risk of bullying behaviors in males and victimization in females. Additionally, the study found that symptoms of ADHD only had a direct influence on peer rejection when their model did not account for bully/victim status as a mediator. Therefore, it seems ADHD alone is not a predictor of peer rejection; it is only when these behaviors lead to participation in bullying or being targeted for victimization that children are at risk for social isolation. Holmberg and Hjern (2008) conducted another investigation in Sweden with a large sample of 4th grade students and also found that symptoms of ADHD were related to both victimization and perpetration of bullying behaviors.

Wiener and Mak (2009) attempted to improve upon previous studies by ensuring that all participants with ADHD had a physician's diagnosis, as well as elevated scores on the Conners Rating Scales (Conners, 1997). They also expanded upon other studies by examining different types of bullying. Consistent with previous results, Wiener and Mak found that 58% of students with ADHD between the ages of 9 and 14 reported involvement in bullying as perpetrators, victims, or bully-victims, compared to only 14%

of their non-ADHD peers. Victims with ADHD experienced physical, verbal, and relational bullying more frequently than other students as well, with verbal victimization being the most common type reported. In general, girls with ADHD reported a higher rate of victimization than their male counterparts.

Taylor and colleagues (2010) conducted a study focusing solely on children with ADHD after their more general exploration of bullying among those with special needs. Using the same sample of children between the ages of 8 and 17 ($n = 238$), they examined the relationship between symptoms of ADHD and self-reported bullying and victimization. In contrast to other studies, their results showed that children with ADHD reported significantly higher rates of victimization than non-ADHD peers, but not bullying behaviors. The study also discovered that victims with ADHD experience higher rates of both internalizing and externalizing difficulties when compared to peers, indicating significant psychological impairment. These findings echo the results of Humphrey, Storch, and Geffken (2007), who looked at the psychological impairment of children with ADHD who are bullied and found that they exhibit higher scores on many subscales of the Child Behavior Checklist (CBCL, 2001), such as depression, anxiety, aggressive behavior, and interpersonal difficulties.

A limited number of studies have examined bullying trends among adolescents with ADHD, as most either utilized a sample with a wide age range or focused solely on younger children. Considering the increased emphasis on peer relationships during adolescence in middle and high school, it is likely that any social difficulties previously experienced would be exacerbated, including those related to ADHD. Two recent

investigations sought to isolate this population, with the first being that of Timmermanis and Wiener (2011), whose sample consisted of a small group of students between the ages of 13 and 18. Consistent with other studies, they found that students with ADHD were twice as likely to be involved in bullying when compared their non-ADHD peers as both victims and perpetrators. Additionally, students with ADHD who were victimized evidenced a higher level of interpersonal difficulty and a lower level of perceived social support, as reported by their parents, with effect sizes in the large range. Sciberras, Ohan, and Anderson (2012) conducted another study on adolescents with ADHD and focused on female students between the ages of 12 and 18, looking at both overt and relational forms of bullying. Results showed that symptoms of ADHD among females may be linked to greater social impairment and higher rates of victimization when compared to peers without ADHD. These trends were more strongly related to victimization than bullying, according to both parent and self-report measures.

Purpose of the Current Study

Although the literature has reached a consensus that children with ADHD are more likely to be victimized than those without ADHD and those with other disabilities (Taylor et al., 2010), studies have not explored the influence of behavioral phenotypes on victimization trends. This is surprising, given the fact that the inattentive and hyperactive-impulsive subtypes of ADHD are associated with a unique set of symptoms and impairment, which may represent significant risk factors on their own. The current study sought to expand on previous findings by exploring how inattentive and hyperactive-impulsive behaviors may be linked to victimization. Additionally, this

study used a longitudinal dataset to examine shifts in victimization status over time, which were expected due to developmental changes as children mature.

In a secondary analysis, this study explored the bully victimization experiences of English Language Learners (ELL) identified with ADHD. To the author's knowledge, this area has not yet been examined within the literature. Yet, it represents an area of interest due to the combined risk of being an ELL diagnosed with ADHD, as children who are ELL reportedly experience social marginalization. Results of this investigation provide important information to inform bullying interventions that are tailored to meet the unique needs of children with ADHD.

Hypotheses

Two hypotheses and one exploratory research question were generated and tested. First, it was hypothesized that students pertaining to the Hyperactive-Impulsive behavioral phenotype would be most likely to experience bully victimization during the first year of the study. This was expected given the fact that students who exhibit hyperactive and impulsive behaviors best fit Olweus' theoretical definition of the provocative victim, likely due to a higher level of social difficulty associated with peer rejection (Olweus, 1994; Hoza, 2007). Secondly, it was hypothesized that this trend would shift over time, due to research indicating that hyperactive and impulsive behaviors tend to lessen in frequency and intensity as children with ADHD mature (Willcutt et al., 2012). Thus, a reduced display of hyperactivity/impulsivity was anticipated during the second and third waves of the study that could lead to a decrease in victimization. A third exploratory research question was also posited in relation to

children with ADHD who were also ELL, which asked whether this subgroup would be more likely to experience bully victimization due to their double vulnerability. This question was proposed without a hypothesis due to the conflicting nature of existing research findings regarding the bully victimization experiences of ELLs.

CHAPTER III

METHODS

This investigation was conducted using a national sample of children with disabilities from the Special Education Elementary Longitudinal Study (SEELS). The SEELS dataset was collected by SRI International through funding from the Office of Special Education Programs (OSEP) in order to examine the characteristics, academic success, and experiences of children enrolled in special education, including exposure to bully victimization. The study followed students as they progressed through elementary, middle, and high school over a span of six years, from 2000 to 2006, consisting of three waves of data collection.

The sample of this dataset is nationally representative and was obtained via two levels of stratified random sampling. The first selection occurred at the local education agency (LEA) level, as 1,124 were randomly chosen according to geographic region, socioeconomic status, and district size. Based on a power analysis, 297 LEAs were needed to obtain an adequate sample and 245 agreed to participate in the study. This number was found sufficient to constitute a nationally representative dataset in further analyses. At the student level, the name, birthdate, and disability category of all students receiving special education services between the ages of 6 through 12 during the 1999 – 2000 school year was collected from participating LEAs. Students were enrolled in 1st through 7th grade in public and private schools and 30 special schools. The original

sample was composed of 9,747 randomly selected students representing a variety of disability categories.

Participants

At the onset of the study in Wave 1, 35.4% of participants fell between the ages of 7 and 9, 50.2% between 10 and 12, and 14.5% between 13 and 14. Gender in the sample was characterized as 59.4% male and 30.4% female, with 10% of respondents not indicating gender. Regarding ethnicity, 59.1% of students were described as White, 22.5% as African American, 13.4% as Hispanic, 2.6% as Asian/Pacific Islander, 0.7% as American Indian/Alaska Native, and 0.4% Multi-racial. Information about each student's disability categorization was provided by both school staff and parents. The primary disabilities of the full sample in Wave 1 were as follows: Learning Disability (12.1%), Emotional Disturbance (10.9%), Hearing Impairment (10.8%), Orthopedic Impairment (10.3%), Mental Retardation (10.2%), Speech Impairment (9.7%), Autism (8.7%), Visual Impairment (8.3%), Other Health Impairment (7.3%), Multiple Disabilities (6.8%), Traumatic Brain Injury (4.0%), and Deaf/Blindness (0.5%).

Latent Class Analysis Sample

Participants for the primary analysis of the study were selected based on ADHD diagnosis and inclusion in the Other Health Impairment disability category. Inclusion was limited to this category in order to reduce the potentially confounding influence of other variables that might affect victimization risk, as heightened risk has been associated with various intellectual, learning, and emotional or behavioral disabilities. Parents and school staff indicated whether students had been diagnosed with ADHD, and

a combined survey variable provided evidence of ADHD manifestation across settings. Of the original 9,747 SEELS participants, an ADHD diagnosis was reported by both parents and school staff in 3,468 cases (35.6%). Of these students, 694 were served under the Other Health Impairment category, suggesting that ADHD was likely their primary disability. Due to missing teacher and/or parent surveys in Wave 1 containing items crucial for forming the ADHD composites, 48% of students ($n = 336$) were excluded from the primary analysis. Chi Square analyses were conducted to determine whether significant differences existed between students with and without surveys. Students in these groups did not differ based on gender ($\chi^2 [1] = 0.01, p = 0.93$), race/ethnicity ($\chi^2 [3] = 4.10, p = 0.25$), or SES ($\chi^2 [2] = 1.57, p = 0.46$). A significant difference was found in student age ($\chi^2 [7] = 15.31, p = 0.03$). Cramer's V was obtained as a post-hoc measure to determine the strength of association related to age, and only a very weak effect size was found ($v = 0.14$). Thus, a total of 358 students were selected for inclusion in the latent class analysis. Gender representation for this group was 77% male and 23% female. Race/ethnicity as reported by parents and school staff was 83% White, 12% African American, 4.0% Hispanic, 2.0% other race/ethnicity.

Attrition was a significant problem within the SEELS data in Waves 2 and 3. Missing data values for the bully victimization composites grew from 3.0% in Wave 1 to 17% in Wave 2 and 35% in Wave 3. Students missing data in Wave 2 did not differ on age ($\chi^2 [2] = 2.93, p = 0.23$), gender ($\chi^2 [2] = 1.62, p = 0.20$), race/ethnicity ($\chi^2 [3] = 2.62, p = 0.46$), or SES ($\chi^2 [2] = 1.11, p = 0.58$). Students missing data in Wave 3 also did not differ based on age ($\chi^2 [2] = 0.95, p = 0.62$), gender ($\chi^2 [1] = 1.85, p = 0.17$), or

SES ($\chi^2 [2] = 0.93, p = 0.63$). These students did differ, however, with regards to race/ethnicity ($\chi^2 [3] = 10.66, p = 0.01$). Cramer's V indicated that the strength of this association was weak (value = 0.17). In order to handle missing data, the full information maximum likelihood estimation method (FIML) was utilized in MPlus.

English Language Learner Sample

Participants in the secondary analysis of English language learners were selected based upon school-reported English proficiency in the first wave of SEELS. Schools reported that 85% of students were native English speakers, 6.0% were bilingual, 3.0% were limited English proficient, 0.2% did not speak any English, and 7.0% did not use spoken language. Those reported to be bilingual, limited English proficient, or non-English speaking were regarded as English Language Learners. Of the original sample, 5,038 students (51%) were missing teacher and/or parent surveys and were excluded. Additionally, 414 students (0.04%) were reported as not using any spoken language, and were thus excluded from the sample. A Chi Square analysis was conducted to determine whether any differences existed between students included and excluded based on age, gender, race/ethnicity, income level, and disability category. Results indicated that students did not differ based on age ($\chi^2 [7] = 11.05, p = 0.14$), gender ($\chi^2 [1] = 0.18, p = 0.67$), or income level ($\chi^2 [2] = 4.61, p = 0.10$). Significant differences were found in race/ethnicity ($\chi^2 [5] = 56.78, p = 0.00$) and primary disability category ($\chi^2 [11] = 178.61, p = 0.00$). Cramer's V indicated a weak effect size for each domain (v = 0.09 and 0.17, respectively). Thus, 4,295 students were included in the ANCOVA sample, 3,917 who were native English speakers (91%) and 378 who were English Language

Learners (9.0%). Within the ANCOVA sample, 75 students classified as ELL had a confirmed ADHD diagnosis (2.0%).

Procedures

Data for SEELS were collected across three waves from 2000 to 2006. Parents were interviewed via telephone during the summer of 2000, winter 2001-spring 2002, and winter 2003-spring 2004. These interviews asked about family demographics as well as the characteristics, disabilities, learning problems, health, and experiences of each child at school. Interviews averaged 40 minutes in length. Those who could not be interviewed over the telephone were mailed questionnaires to complete. A response rate of 85% was obtained for parent questionnaires. A survey of student characteristics and experiences was also administered to language arts teachers, and the school staff most knowledgeable about each student's educational program answered questions about the services that they received. These surveys were completed during the winter of 2000-spring 2001, winter 2001-spring 2002, and winter 2003-spring 2004. The response rate for all school staff was 59%. School principals and districts provided information on the same timeline regarding school characteristics, services offered, and school demographic information. Parents and teachers were offered compensation via entry in a random drawing to receive a \$100 gift certificate.

Measures

ADHD and Behavioral Phenotypes

The presence of ADHD was measured directly via parent and school questionnaires, as they answered a dichotomous survey item that asked if the student has

been diagnosed with ADHD. An item confirming both parent and school-reported ADHD diagnosis was utilized to determine inclusion in analyses. The subtypes of ADHD were not directly measured by any specific items within the SEELS dataset. Information regarding the daily functioning of students diagnosed with ADHD, however, provided an indication of the impairment that these students exhibited, which may be linked to behavioral phenotypes. The following items were utilized to characterize inattention: “Keeps working at something until he or she is finished” and “Is well organized” from the parent questionnaire, and “Gets easily distracted,” “Does things independently even when they are hard,” “Keeps at task until finished, even if it takes a long time,” and “Completes homework on time” from the teacher questionnaire. A different set of items were used to characterize hyperactivity-impulsivity: “Speaks in an appropriate tone at home” and “Avoids situations that are likely to result in trouble” from the parent questionnaire, and “Acts impulsively,” “Fights with others,” and “Avoids situations likely to result in trouble” from the teacher questionnaire. Items pertaining to inattention were averaged to create an Inattention Composite, and items related to hyperactivity/impulsivity were likewise averaged to create a Hyperactivity-Impulsivity Composite for each individual student. Positively worded items were reverse coded when creating the composites.

Victimization

Victimization status was assessed through three items presented on the parent questionnaire. These items asked if the student had been “bullied/picked on by other students,” “teased/called names at school,” and “physically attacked.” Parents answered

“yes” or “no” and responses were combined to create a Victimization Composite score, ranging from 0 to 3 in value.

Race/Ethnicity

Students of several racial/ethnic groups were included in this study: White, African American, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Multiracial/Other. A variable created to combine both parent and school reports of race/ethnicity was utilized to ensure accuracy of categorization.

ELL Status

Students’ level of English language proficiency was reported by teachers. Students could be rated as a “Native English Speaker,” “Bilingual,” “Limited English Proficient,” “Non-English,” or “Does not use spoken language.” Those classified as “Bilingual,” “Limited English Proficient,” or “Non-English” were regarded as English Language Learners for the purpose of the current study.

Age

The SEELS data is separated into three age ranges. When the study began in 2000, the three age groups were as follows: 7 – 9, 10 – 12, and 13 – 14. The age of each student was confirmed using a variable created to combine both parent and school reports at each wave of data collection.

Data Analysis

Behavioral Phenotype Analysis

Latent profile analyses (LPA) were first conducted using Mplus 7.3 (Muthén & Muthén, 2014) to identify empirically-derived trajectory profiles of students’ bully

victimization experiences over time. LPA is a person-centered analytic method that derives classes (i.e., subgroups) of individuals based on similar characteristic patterns, thus differentiating homogeneous subgroups within a larger sample (Berlin, Williams, & Parra, 2014a; Berlin Williams, & Parra, 2014b). A number of fit indices were used to determine the optimal model for this sample: Bayesian Information Criterion (BIC; Schwartz, 1978), with lower values signifying better fit; entropy values, with values closer to 1.0 indicating higher accuracy of classification (Berlin et al., 2014); Lo–Mendell–Rubin test (LMR; Lo, Mendell, & Rubin, 2001), with p values < 0.05 indicating improvement in model fit; Bootstrap Likelihood Ratio Test (BLRT; McLachlan & Peel, 2000), with p values < 0.05 indicating improvement in model fit; and interpretability of results.

Statistical assumptions associated with latent class analysis include the use of categorical or ordinal data, independence of observations in each class, and suitable model identification. The first two assumptions were met prior to conducting the latent profile analysis. In order to determine whether key demographic variables were significantly associated with latent class assignment, the three-step approach was used to compare classes based on age, gender, race/ethnicity, SES, and stimulant medication status (Asparouhov & Muthén, 2014). As none of these variables were significant in the latent profile analysis, they were not included in the subsequent latent class analysis.

The primary analysis of the study was a Longitudinal Latent Class Analysis (LLCA; Collins & Lanza, 2010), a Growth Mixture Modeling (GMM) technique that enables the grouping of individuals based on specific characteristics over time. Thus,

LLCA permits differences in patterns of growth among subgroups as their variance centers around separate means. This method is commonly used to define unobservable subgroups in a sample with categorical variables, based on responses to a set of items. LLCA has previously been employed to measure the effects of exposure to various risk factors, identify the most at-risk groups, help determine the most appropriate way to tailor interventions for particular groups, and to understand the outcomes associated with certain behaviors. Longitudinal latent class analysis contrasts with latent transition analysis (LTA), in that it does not examine the probability of participants transitioning from one group to another over time. Covariates may be introduced in LLCA when one desires to determine the relationship between group membership and other associated variables. This is accomplished by generating logistic regression coefficients that reveal the manner in which differences in the covariate correspond to group membership (Dayton & Macready, 1988). The current study utilized victimization status as the primary outcome measure and means of determining latent class assignment. The Inattention and Hyperactivity-Impulsivity Composites were then included as a covariates and examined as predictors of bully victimization.

English Language Learner Analysis

A secondary exploratory analysis was conducted to answer the final research question, which sought to examine bully victimization among ELLs with ADHD. This analysis tested whether those students classified in the SEELS dataset as having “limited English proficiency” (LEP), “non-English”, or bilingual proficiency levels were more likely to be victimized than those of “native English” speaking status. Thus, an analysis

of group differences was utilized to determine association with bully victimization in Wave 1. Given the presence of multiple groups and desire to avoid an inflated Type 1 error inherent in conducting multiple t-tests, a one-way analysis of covariance (ANCOVA; Fisher, 1925) was intended to examine this question while controlling for age, gender, SES, race/ethnicity, and stimulant medication status.

Several assumptions must be met in order to ensure accuracy of ANCOVA analyses. Assumptions were first tested with the larger Wave 1 sample, and then tested with students with ADHD whose language proficiency information was available. The first four assumptions were met prior to conducting any analyses: use of continuous dependent and covariate variables, use of an independent variable that consists of at least two categorical and independent groups, independence of observations, and no significant outliers included in the analysis. The fifth assumption is approximately normal distribution of the dependent variable, which was tested using the Shapiro-Wilk Test of Normality. The sixth assumption is homogeneity of variance within the data, tested most commonly using Levene's Test of Homogeneity of Variance.

CHAPTER IV

RESULTS

A preliminary analysis of responses in the latent class analysis sample indicated that 65% of students in Wave 1, 56% of students in Wave 2, and 42% of students in Wave 3 experienced some form of bully victimization. With regards to the frequency of ADHD-related behaviors, responses to single items on the teacher survey for inattention (“Gets easily distracted”) and impulsivity (“Acts impulsively”) were examined in a preliminary analysis. These items were later included in the Inattention and Hyperactivity-Impulsivity composites. Results for inattention during Wave 1 indicated that 38% of students were described as “sometimes” inattentive, while 60% were described as “very often” inattentive. The impulsivity item, in contrast, indicated that 45% were “sometimes” impulsive and 39% were “very often” impulsive. Thus, these behaviors were very common among children within the SEELS dataset within the Other Health Impairment category who had a confirmed diagnosis with ADHD.

Behavioral Phenotype Analysis

The primary analysis conducted in the current study was a Longitudinal Latent Class Analysis (LLCA) of bully victimization status among students with ADHD, which was completed in two steps. First, latent profile analyses (LPA) divided students into subgroups, or classes, based on reported bully victimization across time points. These analyses also controlled for key demographic variables, including age, gender, SES, race/ethnicity, and whether students took a stimulant medication. A 4-class LPA model

was determined to provide the best fit to the data (see Table 1). This solution provided the best fit in terms of AIC, BIC, entropy, as well as BLRT values. Although the LMR value grew non-significant at the 3-class model, the BIC and BLRT are widely regarded as the most accurate indicators of model fit in latent class analysis. Additionally, the 4-class model provided greatest interpretability of class delineation. Thus, it was determined that the 4-class model would be utilized to complete further analyses.

Table 1
Comparison of Latent Profile Analysis Models

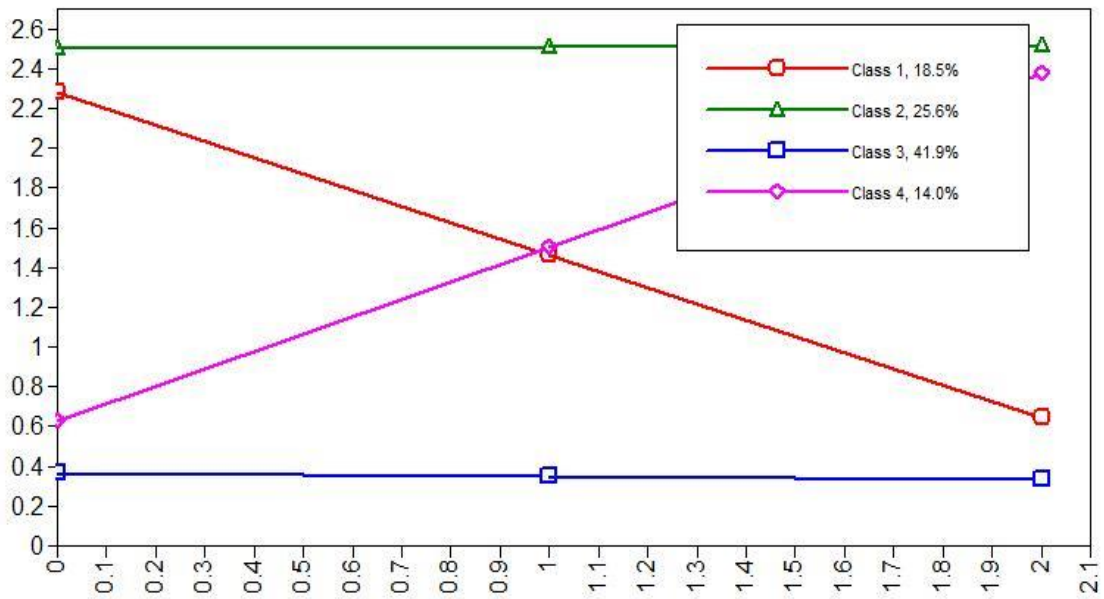
N-Classes	Akaike Information Criterion	Bayesian Information Criterion	Entropy	Lo-Mendell-Rubin Test	Bootstrap Likelihood Ratio Test
2	2430.52	2473.08	0.91	$p = 0.00$	$p = 0.00$
3	2417.05	2471.22	0.92	$p = 0.06$	$p = 0.00$
4	902.62	968.39	0.99	$p = 0.81$	$p = 0.00$
5	905.37	982.75	0.95	$p = 0.36$	$p = 0.31$

The majority of the students in this sample (55.9%) in this study fell into a low victimization profile, with 41.9% falling into a stable trend and 14.0% falling into high positive growth trend, indicating a steep increase in bully victimization. Another large group of students fell into a high victimization profile, in which 25.6% presented with a very small positive growth trend and 18.5% with a steep negative trend over time. The means and slopes of each profile are described below and displayed in Table 2. A visual representation of these trajectories is also depicted in Figure 1.

Table 2
Comparison of Latent Class Characteristics

	Declining High Victim	Stable High Victim	Stable Low Victim	Increasing Low Victim
Intercept	2.06	2.27	0.19	0.42
Slope	-0.08	0.03	0.00	0.90
Inattention	7.14	6.70	5.78	6.82
Hyp-Imp	4.10	4.84	3.08	4.00

Figure 1 Comparison of Latent Class Trajectories



Victimization Profiles and ADHD Predictors

The second step of the analyses added the Inattention and Hyperactivity-Impulsivity composites as covariates in the LLCA. Results showed that hyperactive-impulsive behaviors significantly influenced the intercept of each victimization profile at

Wave 1 ($p = 0.02$), but inattentive behaviors did not ($p = 0.55$). Thus, hyperactivity-impulsivity was a significant predictor of class assignment within this sample. Neither behavioral phenotype, however, impacted the slope of victimization profiles at a statistically significant level ($p = 0.80, 0.91$).

Declining high victimization profile. Students assigned to the first latent class (18%, $n = 62$) presented with a mean intercept of 2.06 ($p = .00$) and a slope of -0.80 ($p = .00$). Therefore, they exhibited a high level of victimization initially that steeply declined across Waves 2 and 3. In relation to ADHD symptoms, the mean level of inattention among these students was 7.14 and the mean level of hyperactivity-impulsivity was 4.10. Further examination indicated that students in Class #1 exhibited the highest level of inattention in comparison to other classes, though the difference was only significant compared to Class #3.

Stable high victimization profile. Students pertaining to the second latent class (26%, $n = 92$) presented with a mean intercept of 2.27 ($p = 0.00$) and slope of 0.03 ($p = 0.72$). They initially displayed a slightly higher level of victimization than Class #1, but rather than declining, remained fairly stable across Waves 2 and 3. The mean level of inattention found among students in Class #2 was 6.70, whereas the mean level of hyperactivity-impulsivity was 4.84. Results indicated that students in Class #2 displayed the highest amount of hyperactivity-impulsivity when compared to all other classes, and this difference was significant compared to Classes 3 and 4.

Stable low victimization profile. The majority of students were assigned to the third latent class (45%, $n = 159$) and presented with a mean intercept of 0.19 ($p = 0.04$)

and slope of 0.00 ($p = 0.96$). Thus, they reported a very low level of victimization at Wave 1 and continued to report low victimization over time. Students in this class presented with the lowest levels of inattention and hyperactivity-impulsivity, with mean levels of 5.78 for inattention and 3.08 for hyperactivity-impulsivity. This difference was statistically significant in comparison to Classes 1 and 2.

Increasing low victimization profile. The smallest group of students was assigned to Class #4, which reported a mean intercept of 0.42 ($p = 0.00$) and slope of 0.90 ($p = 0.00$). Students in this class initially presented with a relatively low level of victimization, but experienced a steep increase in victimization over time. With regards to ADHD symptoms, this group had a mean of 6.82 for inattention and 4.00 for hyperactivity-impulsivity. They were significantly less likely to exhibit hyperactivity than students in Class #2. All other differences across classes were non-significant.

English Language Learner Analysis

To determine the appropriateness of conducting this exploratory analysis of English Language Learners among students with ADHD, it was first conducted with the larger Wave 1 sample. The first four assumptions of ANCOVA were met by the Wave 1 sample. The assumption of distribution normality was violated, however, obtaining a significant value on the Shapiro-Wilk Test of Normality ($p = 0.00$). Furthermore, the sixth assumption of homogeneity of variance was also violated according to Levene's Test ($p = 0.00$). The smaller ADHD-only sample also violated the Shapiro-Wilk Test of Normality ($p = 0.00$). Thus, it was not possible to analyze this data using the ANCOVA test, as originally desired, and a Mann-Whitney U Test was used instead. The Mann-

Whitney U Test is the equivalent of the Independent Samples T-Test for non-parametric data. The assumptions of the Mann-Whitney U Test are identical to the first three of ANCOVA, which were met by nature of the sample.

Findings revealed a statistically significant effect of language status on victimization experiences in Wave 1 ($p = 0.00$). Victimization at Wave 1 in the general sample was significantly greater for native English speakers (Rank = 2189.35) than English language learners (Rank = 1670.89). Within the smaller sample of students with ADHD, a similar result was found, with victimization being higher among native English speakers (Rank = 731.02) than English language learners (Rank = 491.22).

Findings revealed a significant effect of language status on experiences of bully victimization after accounting for all control variables ($p = 0.00$). Thus, significant differences in means between the groups in Wave 1, with students who were native English speakers (mean = 0.83) reportedly being bullied at a higher rate than English language learners (mean = 0.53).

An additional exploratory analysis separated the sample into three groups, distinguishing those who were categorized as bilingual from those who demonstrated limited English proficiency. The means of these two groups were virtually identical, however, with no statistically significant differences found between them. Both groups again presented with significantly lower victimization than those of students who were native English speakers ($p = 0.00$).

CHAPTER V

SUMMARY AND CONCLUSIONS

Studies on bullying have revealed that children with ADHD are at high risk of being targeted as victims in comparison to those without the disorder, including those with other types of special needs (Blake et al., 2016; Twyman et al., 2010; Wiener & Mak, 2009). Although many researchers have reached this conclusion, the author is not aware of any existing studies at the current time that have examined the potential influence of ADHD behavioral phenotypes on bullying trends. Such knowledge could contribute much-needed direction to guide anti-bullying prevention and intervention efforts that may benefit children with ADHD. Given current knowledge of ADHD impairment and foundational theories related to bully victimization, it was hypothesized that students presenting with a high degree of hyperactive/impulsive behaviors, rather than inattentive behaviors, would be at greatest risk. It was further hypothesized that students high in hyperactivity/impulsivity would report a decrease in victimization over time as their behaviors lessened in intensity, concordant with developmental changes and heightened acceptability of impulsivity in high school. Finally, it was hypothesized that students with high inattention would report a decrease in victimization over time slower than those with high hyperactivity/impulsivity, similar to the general population.

Discussion of Findings

With regards to the first hypothesis, the current analyses revealed that hyperactive/impulsive behaviors were indeed predictive of students' victimization

experiences. More specifically, students exhibiting the highest level of hyperactive-impulsive symptoms fell into the second victimization class that was initially the highest at Wave 1 and remained high across Waves 2 and 3. Contrary to the second hypothesis, these students' trajectories were stable with a slight positive slope, rather than decreasing over time. They presented with a significantly greater level of hyperactivity-impulsivity in comparison with those in the third and fourth classes, who initially reported a lower level of victimization. Students in the third class, which reported the least amount of victimization initially and over time, presented with the lowest level of hyperactivity-impulsivity. Thus, this study found that hyperactive-impulsive behaviors were more common among students reporting a higher level of victimization, to the extent that hyperactivity-impulsivity significantly predicted their trajectories.

As hypothesized, inattention was not a significant predictor of students' victimization trajectories and the profile with the highest level of inattention exhibited a negative slope over time. However, inattention was a pervasive symptom, exhibited to a moderate or high degree by the majority of students in the sample. Students presented with a higher level of inattention than hyperactivity-impulsivity in all four victimization profiles. This finding was first noted in the preliminary analysis of data based on single items, in which 98% of students were reported to exhibit inattention within the classroom setting. Although fewer students were reported to exhibit impulsivity in the classroom, 84% displayed some degree of impulsivity. Overall, the findings suggest that most participants' behaviors coincide best with a combined presentation of ADHD.

Analysis of English language learners in the current study, both with and without ADHD, discovered that these students were significantly less likely to be victimized than native English speakers during the first wave of the study. Furthermore, when students categorized as bilingual and limited English proficient were separated, the average of reported victimization was nearly identical. The finding that English language learners were significantly less likely to experience victimization than native English peers is contrary to a number of previous studies, which found that lower language proficiency was a key predictor of bullying (Coulter & Smith, 2006; Peguero, 2008). Other studies found lower proficiency to be a risk factor within racial/ethnic groups as well, due to its association with acculturation status (Mendez, Bauman, & Guillory, 2012; Peguero, 2008; Qin et al., 2008). Hanish and Guerra (2000) suggested that Hispanic students in general may be less likely to report experiencing victimization than White or African American peers, but language proficiency was not accounted for in their study and English language learners have a variety of racial/ethnic backgrounds. Thus, the current analysis suggests that bullying trends may be different among English language learners who are receiving special education services. It is possible that bullying dynamics differ due to greater separation from peers in general education, less consideration of immigration/acculturation status in their peer relationships, or lack of reporting among the parents of victimized students in special education.

Examination of bully victimization among English language learners with ADHD was challenging due to the very low number of these students who had both parent and teacher questionnaires completed. Among the full SEELS sample, only 5.5%

were considered bilingual and 2.9% were limited English proficient. This finding itself suggests that very few students who are learning or have learned English as a second language are included within special education, and even fewer have been diagnosed with ADHD. It is unclear as to whether cultural factors may have influenced students' inclusion in these categories, such as stigma within their racial/ethnic community surrounding mental health, lack of mental health professionals who can provide evaluations in students' dominant language, or schools' hesitancy to qualify students for special education who would need services in a language other than English.

Limitations

A number of limitations must be considered when interpreting the findings of this study. First, although parent and teachers ratings of ADHD-related behaviors may be more accurate than self-report ratings by students, parent-reported bully victimization may not be as accurate as teacher, peer, or even self-reported victimization. This may be particularly true when considering students with ADHD, due to parents' reduced ability to observe interactions with peers and reliance on the reports of their children, who may have less accurate perception of others' social behaviors toward them (e.g. intentionality of actions, desire to harm). Therefore, a foundational limitation of this study is the lack of teacher, peer, or self-reported experiences with bullying to confirm parental reports.

Second, the ADHD behavioral phenotype composites were based on items related to functional impairment that did not reflect all diagnostic criteria for the hyperactivity/impulsivity and inattention subtypes. Though many criteria were included, a more valid measure of each phenotype might have been obtained if the items were

more representative in nature to cover all criteria. It is also noteworthy that students were not separated by predominant subtype presentation in this study, but all students' inattention and hyperactivity-impulsivity were considered together for latent class analyses and then divided naturally based on their victimization experiences. Division by subtype, given an accurate pre-existing diagnosis, would provide results that are easier to apply within school and community settings.

Finally, a number of factors were not examined in the current study that may be influential in determining bully victimization trends among students with ADHD. Though the SEELS dataset was very comprehensive in a general sense, it did not contain adequate information related to the bully victimization experienced, particularly the frequency of incidents and school or classroom-wide anti-bullying interventions. Additionally, although stimulant medication use was included as a control in this study, youth are often prescribed non-stimulant medications to alleviate ADHD symptoms that were not accounted for in the SEELS dataset. It is also important to consider the potentially therapeutic effects of psychological intervention, if students and their families engage in behavioral therapy or if school-based interventions are in place. These treatments could influence the degree of symptoms exhibited, and possibly weaken the association between ADHD and bully victimization.

Implications and Future Directions

The major finding of this study suggests that among students with ADHD in special education, hyperactive-impulsive behaviors are predictive of bully victimization. Furthermore, students exhibiting a high degree of such behaviors are more likely to

continue experiencing victimization over time. These results are not only consistent with Olweus' conceptualization of the "provocative victim," but provide clarification as to which provocative behaviors place students at risk of being targeted by peers. Additional research that address the various limitations in the current study are needed in order to confirm these findings. Taken in combination with existing studies, however, it is clear that students with ADHD are at high risk of victimization and remain at high risk over time.

With this information established, the time has arrived for the field to move forward and begin developing prevention and intervention strategies for this population. First and foremost, it is essential for individuals working with students who have ADHD to be observant of their peer relationships, particularly peer rejection. If peer rejection and/or bullying are evident, mental health professionals and parents should be advised so that they may assist the victim using appropriate prevention/intervention measures. Little is known at the present time about effective prevention and intervention tools to help reduce victimization among children with disabilities in general (Rose et al., 2011). In a recent study, Espelage, Rose, and Polanin (2015) conducted a randomized controlled trial of the Second Step: Student Success through Prevention Program (SS-SSTP) with a sample of middle school students who have disabilities. This social-emotional learning program provides explicit instruction in key areas such as emotional awareness, communication skills, problem-solving, and education about school violence. The study found a significant reduction in bullying perpetration, but not victimization,

suggesting that other areas must be examined to truly assist those students targeted as victims.

Given findings in the current study that ADHD-related symptoms in and of themselves are predictive of bully victimization, research on effective treatments for ADHD in may provide guidance and future direction. In addition to more traditional development of coping skills for victims, tools that focus on promoting increased behavioral inhibition, self-control, and emotional regulation might be beneficial for students with ADHD who experience bullying. Although medication may impact these aspects of ADHD presentation, it is not guaranteed to generalize to peer interactions and improve students' weaknesses in social skills. It is widely recognized that the most effective treatment for ADHD symptoms combines medication with behavioral parent management training, with a combined approach resulting in reduced functional impairment across settings (Chronis, Jones, & Raggi, 2006). No such training programs are designed for teachers at the present time. However, many teachers engage in consultation with school mental health professionals, who recommend behaviorally-based classroom intervention strategies (e.g. differential attention, behavior-specific praise, token/point systems, and daily report card; Pelham, et al., 1998). Utilizing appropriate behavior management techniques may have a positive impact on both student-teacher relationships and peer relationships, as disruptive behaviors become less frequent and teachers model positive interactions with students who have ADHD.

A very unique aspect of this study was its investigation of students in special education. Thus, participants represented are among those with the highest level of

impairment and intervention needs. Preliminary results confirmed that fact that bully victimization is a significant problem in this sample, regardless of disability category, and that ADHD-related behaviors were a common concern. Although not all students with ADHD qualify for and are ultimately placed in special education, many students are actively receiving services. The fields of ADHD and bullying research would benefit from continued study of students in special education to further determine their needs. This research will hopefully result in greater awareness of ADHD as a disability with significant functional impairment, particularly among school professionals, and inspire the development of more inclusive classrooms to help students with ADHD succeed.

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