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Middle School Students' Willingness to Engage in Different Types of Activities with Peers: The Effect of Presence of ADHD Symptoms and Familiarity with ADHD

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Middle School Students' Willingness to Engage in Different Types of Activities with Peers: The Effect of Presence of ADHD Symptoms and Familiarity with ADHD

by

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Abstract

In addition to the increased risk they face for social and academic problems, adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD) must also contend with stigma attached to the disorder. For instance, youth prefer greater social distance from students described with ADHD symptoms than from peers with asthma (Walker, Coleman, Lee, Squire, & Friesen, 2008), and adolescents are also reluctant to engage in activities (e.g., go to the movies, study together) with a peer described with ADHD symptoms compared to peers described as obese or autistic (Law, Sinclair, & Fraser, 2007). Familiarity with individuals diagnosed with ADHD may influence adolescents' perceptions of their peers with ADHD, but the extant research on this relationship in adolescents is limited and mixed. The purpose of this study was to investigate middle school students' familiarity with ADHD, their willingness to engage in activities with a peer exhibiting ADHD symptoms, and how familiarity impacts their willingness to engage in a variety of activities with that peer. A sample of middle school students (N = 176) completed self-report measures of contact with ADHD and willingness to engage with a peer described in a vignette. Participants were randomly assigned vignettes describing either a peer displaying ADHD symptoms or a typical peer, employing a true experimental design. Middle school students expressed greater willingness to engage with a typical peer than one with ADHD symptoms overall. However, a significant difference ($p < .05$) was found only for academic activities, and not for social and recreational activities. This difference was present regardless of the inclusion of positive characteristics in the description of the peer with ADHD, suggesting that it is something

about ADHD symptoms leading to middle school students' reluctance, not simply the lack of appealing characteristics. Additionally, approximately 70% of middle school students indicated some contact with ADHD, although familiarity with ADHD was not found to predict participants' willingness to engage in activities with a peer with ADHD symptoms. Implications for school psychologists and directions for future research are discussed.

Chapter One: Introduction

Statement of the Problem

Attention-Deficit/Hyperactivity Disorder (ADHD) is diagnosed in 3 to 7% of school-age children (American Psychiatric Association [APA], 2000). The core symptoms of ADHD, which are inattention (e.g., failing to sustain attention, being easily distracted and forgetful, and failing to follow through on directions), hyperactivity (e.g., fidgeting, difficulty remaining still, talking excessively), and impulsivity (e.g., blurting out, interrupting others) negatively impact the academic, social, and behavioral functioning of those with the disorder (DuPaul & Stoner, 2003). For example, students with ADHD are more likely than their peers to underachieve in the classroom, be bullied by their peers, and react to situations and problems aggressively (Barkley, Fischer, Edelbrock, & Smallish, 1990; Cantwell & Baker, 1991; Stormont, 2001; Unnever & Cornell, 2003). The symptoms of ADHD also lend themselves to inappropriate social behaviors, which likely explains why students with ADHD are more disliked than their typical peers (Hinshaw, Zupan, Simmel, Nigg, & Melrick, 1997).

Though ADHD is often considered to be a childhood disorder, symptoms typically persist into adolescence and young adulthood. Longitudinal studies involving children with ADHD reveal that the majority continue to meet criteria for a diagnosis of ADHD as adolescents and young adults (Barkley, Fischer, Edelbrock, & Smallish, 1990; Biederman, Faraone, Milberger, Curtis, Chen, Marrs et al., 1996). One study found that 83% of children diagnosed with ADHD continued to meet criteria for the disorder eight years later (Barkley et al., 1990).

In addition to having a greater risk for negative outcomes, adolescents with ADHD must contend with the stigma attached to the disorder. Stigma attached to mental illness and to people who have a mental illness has been identified as a primary barrier to people seeking mental health treatment (U.S. Department of Health and Human Services, 1999). Adults and children alike perceive mental illness in general negatively, with children developing negative attitudes toward mental illness at young ages (Wahl, 2002). Previous research has indicated that youth aged 8 to 18 years express stigmatizing attitudes toward ADHD, with participants preferring greater social distance from the students described with ADHD than the student with asthma and endorsing more negative qualities (e.g., “gets into trouble more often”, “is more violent”) for the student with ADHD symptoms than for the students described with asthma (Walker, Coleman, Lee, Squire, & Friesen, 2008). These findings suggest that adolescents express more negative attitudes toward adolescents with ADHD than toward adolescents with other types of disorders or disabilities.

How familiar an individual is with mental illness in general has the potential to impact attitudes towards those with mental illness. In adults, negative attitudes toward people with mental illness tend to decrease if the perceiver is familiar with other people with mental illness (Corrigan, Edwards, Green, Diwan, & Penn, 2001). However, whether this relationship is similar in adolescents is unclear, as some research indicates that more familiarity relates to more positive attitudes (Watson, Miler, & Lyons, 2005) and other research indicates more familiarity relates to more negative attitudes (Corrigan, Lurie, Goldman, Slopen, Medasani, & Phelan, 2005). Most research on adolescents’

attitudes toward those with ADHD ignores the familiarity component and focuses on comparing adolescents' perceptions of different mental illnesses.

Though multiple studies have shown adolescents' negative attitudes toward peers with ADHD (Coleman, Walker, Lee, Friesen, & Squire, 2009; Law, Sinclair, & Fraser, 2007; Walker, Coleman, Lee, Squire, & Friesen, 2008), there are several limitations in the current research base. First, studies that have explored adolescents' attitudes toward those with ADHD typically involve presenting a vignette to participants and evaluating their attitude toward the vignette. These vignettes usually lack any positive characteristics and either only highlight the negative symptoms of ADHD or simply mention that the student has ADHD. Thus, it is unclear whether adolescents perceive these vignettes negatively because of the ADHD symptoms or because the described person appears to lack any positive characteristics. Additionally, in the one study that considered how participants' familiarity with ADHD specifically may influence attitudes (Law, Sinclair, & Fraser, 2007), the measure used to evaluate familiarity with the person with ADHD consisted of only two questions and its reliability and validity had not been examined.

Purpose of the Current Study

This study addressed the limitations of previous research specifically by utilizing a validated measure of adolescents' familiarity with ADHD and including positive characteristics in the vignettes. The study had three primary purposes: a) to explore middle school students' familiarity with persons with ADHD, b) to investigate middle school students' willingness to engage with a peer with ADHD as compared to their willingness to engage with a typical peer; and c) to determine whether familiarity with

ADHD predicted middle school students' willingness to engage with a peer with ADHD or a typical peer.

Definition of Variables

ADHD. A disorder characterized by inattention, hyperactivity, and impulsivity (APA, 2000). Criteria for diagnosis of ADHD requires six or more symptoms of inattention (e.g., difficultly maintaining attention to tasks, being easily distracted and forgetful), and/or six or more symptoms of hyperactivity-impulsivity (e.g., frequent fidgeting, excessive talking). ADHD is divided into three subtypes: Predominantly Inattentive Type, Predominately Hyperactive-Impulsive Type, and Combined Type.

Adolescent. A person between the ages of 11 and 18 years.

Familiarity with ADHD. How much contact adolescents report having with someone with ADHD. Familiarity, or level of contact, can vary from never observing anyone with ADHD, to having a class with someone with ADHD, to having a family member with ADHD, to having a diagnosis of ADHD.

Middle school student. A student in grades sixth, seventh, or eighth.

Willingness to engage. How willing participants are to engage in activities with a peer described with ADHD symptoms. Activities can include social activities (e.g., watching television, spending free time together), active recreational activities (e.g., playing soccer, hiking), and academic activities (e.g., studying for a test, working on a project).

Research Questions

The following research questions are addressed by analyzing a dataset consisting of student responses to a survey questionnaire.

Research question 1. How much familiarity do middle school students have with ADHD?

Research question 2. How does middle school students' willingness to engage in activities with a peer exhibiting symptoms of ADHD differ from their willingness to engage with a peer who does *not* exhibit symptoms of ADHD?

A. When considering *all* activities?

B. When considering *social* activities?

C. When considering *academic* activities?

D. When considering *active recreational* activities?

Research question 3. How does middle school students' familiarity with ADHD predict their willingness to engage in activities with a peer exhibiting symptoms of ADHD?

A. When considering *all* activities?

B. When considering *social* activities?

C. When considering *academic* activities?

D. When considering *active recreational* activities?

Research question 4. How does middle school students' familiarity with ADHD predict their willingness to engage in activities with a typical peer?

A. When considering *all* activities?

B. When considering *social* activities?

C. When considering *academic* activities?

D. When considering *active recreational* activities?

Contributions to the Literature

This study advances current knowledge by not only focusing on understudied topics, but also by improving upon previous methodology. Previous research utilizing vignettes depicting an adolescent with ADHD included only negative characteristics (Law, Sinclair, & Fraser, 2007). In this case, it is unclear whether adolescents are responding negatively to a peer with ADHD symptoms or a peer lacking any positive qualities. This present study used a vignette that includes positive characteristics as well as ADHD symptoms to investigate whether this difference affects middle school students' willingness to engage with the peer with ADHD. A control vignette was also used. This vignette depicted a "typical" adolescent with positive and negative characteristics. Another improvement to previous methodology is the use of random assignment of these two vignettes. Vignettes were randomly assigned to participants so that each participant received either the ADHD vignette or the typical vignette. Middle school students' responses to the vignettes were compared.

This study also contributes to the literature by adding knowledge to important topics that are often ignored in the research. These topics include adolescent ADHD, adolescent stigma, and ADHD stigma, all of which have important implications for adolescent outcomes, especially given the prevalence of ADHD.

Significance of the Study to School Psychology

Considering the prevalence of ADHD among adolescents and the obstacles associated with this disorder, school psychologists frequently work with this population. In fact, in a national survey of school psychologists, it was found that school psychologists received an average of approximately 17 referrals for ADHD a year and

that substantial time is devoted to the assessment and treatment of ADHD (Demaray, Schaefer, & Delong, 2003). The results of this study provide school psychologists with important information regarding adolescents' contact with ADHD, adolescents' attitudes toward peers with ADHD, and the relationship between these variables. With this information, school psychologists will gain insight into the attitudes that adolescents have towards students with ADHD.

Chapter Two: Review of the Literature

This chapter reviews literature pertinent to the current study. This literature review is divided into three sections: a review of Attention-Deficit/Hyperactivity Disorder (ADHD) and adolescents, perceptions of mental illness, and perceptions of adolescents with ADHD. The first section provides an overview of ADHD, the presence of ADHD in adolescents, and outcomes associated with ADHD in adolescents. The second section focuses on the development of attitudes toward mental illness and research findings specifically related to adolescents' attitudes toward mental illness. The third and final section explores adolescents' perceptions of peers with ADHD and factors related to the development of those perceptions. These three areas help provide a context for the focus of the current study.

Attention-Deficit/Hyperactivity Disorder

This section provides an overview of Attention-Deficit/Hyperactivity Disorder (ADHD), the presence of ADHD in adolescents, and outcomes associated with ADHD in adolescents. Attention-Deficit/Hyperactivity Disorder (ADHD) is characterized by persistent inattention, and/or impulsivity and hyperactivity (American Psychiatric Association [APA], 2000). This disorder is prevalent in the population with 3-7% of school-age children affected (APA, 2000); in other words, in a class of 20 students, it is likely that one student will have ADHD. ADHD is divided into three subtypes: Predominantly Inattentive Type, Predominately Hyperactive-Impulsive Type, and Combined Type. Individuals with Predominantly Inattentive Type exhibit six or more symptoms of inattention but fewer than six symptoms of hyperactivity-impulsivity. Alternatively, those with Hyperactive-Impulsive Type demonstrate six or more symptoms

of hyperactivity-impulsivity but fewer than six symptoms of inattention. Combined Type, the most common subtype among children and adolescents (APA, 2000), includes the presence of six or more symptoms of inattention and six or more symptoms of hyperactivity-impulsivity. Symptoms of inattention include: lack of attention to details or making careless mistakes in activities, difficulty maintaining attention to tasks at hand, appearing not to listen when directly spoken to, failing to follow through on instructions and complete tasks, difficulty organizing, avoiding tasks requiring sustained mental energy, frequently losing things, being easily distracted and being forgetful (APA, 2000). Symptoms of hyperactivity include: frequent fidgeting, failing to remain seated, excessive running or climbing (in adolescents or adults, this could be manifested as feeling restless), difficulty engaging in tasks quietly, often on the go, and excessive talking. Symptoms of impulsivity include: frequent blurting out, trouble awaiting turn, frequent interruptions into conversations or other activities. ADHD symptoms must appear before the age of seven years to meet criteria for diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders IV-TR*; however, symptoms can be manifested in a variety of ways, varying person to person and, within that person, varying by age (APA, 2000; Travell & Visser, 2006). For example, while an eight year-old may exhibit hyperactivity by running around a classroom, an adolescent may remain in his or her seat but feel restless and fidgety. Other diagnostic criteria include the presence of symptoms in two or more settings (e.g., at school and at home), significant impairment in social or academic functioning, and ruling out Mood Disorder, Anxiety Disorder, Dissociative Disorder, and Personality Disorder as better accounting for the symptoms.

Attention-Deficit/Hyperactivity Disorder in adolescents. Despite the prevalence of ADHD, erroneous beliefs regarding the disorder are common in the public dialogue. For example, poor parenting has been charged with causing ADHD in the past, and such notions still persist despite emerging evidence indicating neurobiological (Tannock, 1998) and hereditary influences (Biederman, Faraone, Mick, Spencer, Wilens, Kiely, et al., 1995). Another erroneous myth is that children with ADHD "grow out" of the disorder. Though ADHD discussions often center on children, longitudinal studies illustrate the persistent nature of ADHD and provide evidence for its continuation into adolescence. In one such study, 85% of participants between the ages of 6 and 17 years meeting criteria for ADHD continued to do so four years later (Biederman, Faraone, Milberger, Curtis, Chen, Marrs et al., 1996). Another study assessing children diagnosed with ADHD eight years later found 83% continued to meet criteria for diagnosis of ADHD (Barkley, Fischer, Edelbrock, & Smallish, 1990). While the severity of symptoms, particularly hyperactivity, are expected to diminish over time, over a third of participants aged 6 to 12 years diagnosed with ADHD in one longitudinal study still had their hyperactive symptoms 5 to 11 years later (Gittelman, Mannuzza, Shenker, & Bonagura, 1985). Furthermore, the problems associated with ADHD tend to multiply as a child moves into adolescence and faces increasing performance demands and expectations (Barkley, Fischer, Smallish, & Fletcher, 2006). Difficulties for adolescents with ADHD have been well documented within the research across the academic and social domains. In the following section, these outcomes will be described.

Outcomes associated with ADHD. Outcomes for individuals with ADHD vary from person to person (Travell & Visser, 2006). Nonetheless, adolescents with ADHD

are particularly vulnerable. The behavioral manifestations of ADHD symptoms of hyperactivity, impulsivity, and inattention are considered inappropriate in many contexts (Travell & Visser, 2006), and have strong implications for adolescents' academic and social functioning and well as their increased risk for conduct problems.

Academic functioning. Adolescents with ADHD are at-risk for experiencing academic difficulties and academic underachievement, stemming from their earliest years in school. Children with ADHD have been found to underachieve compared to their peers (Barkley, 2006), and are more likely to be diagnosed with a learning disability (Cantwell & Baker, 1991). Additionally, students with ADHD are three times more likely than students without ADHD to fail a grade level (Barkley, Fischer, Edelbrock, & Smallish, 1990). With these problems experienced in primary and secondary schools, it follows that adolescents with ADHD have lower grade point averages and class rankings in their senior year of high school than students without ADHD, and they are less likely to graduate or enroll in college (Barkley, Fishcher, Smallish, & Fletcher, 2006). In fact, adolescents with ADHD are less likely than their peers to graduate high school and more likely to attain a graduate equivalency diploma (GED; Hansen, Weiss, & Last, 1999).

It is thought that the manifestation of ADHD symptoms in the school setting (i.e., inattention, impulsivity, and hyperactivity) contribute to the academic underachievement associated with ADHD (DuPaul & Stoner, 2003). A dual pathway model examining the relationships between ADHD, cognitive processes, and behavior has been proposed to explain the impact of ADHD on scholastic underachievement (Rapport, Scanlan, & Denney, 1999). In this model, ADHD's influence on academic achievement is mediated by two different pathways, one cognitive and one behavioral. ADHD negatively impacts

cognitive processes (i.e., short-term memory and vigilance) and behavior which both, in turn, negatively influences academic achievement. When Rapport and colleagues empirically examined this model, they found that their data supported the dual pathway model. The direct relationship between ADHD and scholastic achievement was not significant, but cognitive and behavioral factors emerged as significant mediators between ADHD and scholastic achievement. The cognitive pathway included vigilance and memory as the mediating factors while the behavioral pathway included classroom behavior as the mediating factor.

Social functioning. Students with ADHD are also at risk for negative social outcomes related to their inattention, hyperactivity, and impulsiveness (Dumas, 1998; Stormont, 2001). These primary features of ADHD lend themselves to socially inappropriate behaviors, such as excessive talking, speaking out of turn, interrupting others, failing to notice social cues, speaking and acting without considering consequences, intruding unwelcomed into groups, and reacting to situations and problems aggressively (Greene, Biederman, Faraone, Ouellette, Penn, & Griffin, 1996; Stormont, 2001). One research group that found that students with ADHD showed more impairment in social functioning than students without ADHD on multiple measures suggested that youth with ADHD are at-risk for "social disabilities" (Greene, Biederman, Faraone, Ouellette, Penn, & Griffin, 1996). In a review of the literature on social characteristics associated with ADHD, it was concluded that those with ADHD may lack knowledge of appropriate social behavior, of their own social skills, and of the impact of their own behavior on others (Stormont, 2001). By exhibiting the behaviors described above and having a lack of knowledge related to social skills, it is apparent that adolescents with

ADHD could easily annoy or alienate their peers. Indeed, students with ADHD are more disliked than their non-ADHD peers (Hinshaw, Zupan, Simmel, Nigg, & Melrick, 1997) and are more likely to be bullied by their peers (Unnever & Cornell, 2003). In Unnever and Cornell's study with 1,315 middle school students, 34% of adolescents with ADHD reported being bullied at least two to three times a month compared to 22% of the other students (2003). Similarly, young adults with ADHD have fewer friends than those without ADHD (Barkley, Fishcher, Smallish, & Fletcher, 2006). Overall, adolescents with ADHD do not fare well socially.

Conduct problems. ADHD is frequently co-morbid with conduct disorders and aggression; hyperactivity may signal future conduct disorders (Gittelman, Mannuzza, Shenker, & Bonagura, 1985). In a review of ADHD co-morbidity studies with community-based samples, ADHD was found to most often be co-morbid with Conduct Disorder and Oppositional Defiant Disorder with rates ranging between 42-93% (Jensen, Martin, & Cantwell, 1997). One longitudinal study followed 85 children ages 7 to 11 years old for an average of 9.11 years into adolescence with participants' mean age being 18.23 at follow up (Harty, Miller, Newcorn, & Halperin, 2009). At time one, the participants all met diagnostic criteria for ADHD, and were divided into three groups based on the presence of co-morbid diagnoses: ADHD only (ADHD), ADHD co-morbid with Oppositional Defiant Disorder (ADHD+ODD), and ADHD co-morbid with Conduct Disorder (ADHD+CD). At time two, a comparison control group was recruited. During the follow-up, all participants were administered a validated self-report aggression questionnaire that measured four factors of aggression (i.e., physical aggression, verbal aggression, anger, and hostility) and a second self-report questionnaire measuring state

and trait experience of anger and expression and control of anger. Participants and their parents were also asked to independently report the presence and severity of ADHD symptoms via a validated Likert scale and a checklist featuring all DSM-IV ADHD symptoms. Results at follow-up showed that the ADHD groups all showed higher levels of ADHD symptoms than the control group and that ADHD symptom persistence accounted for differences in verbal aggression and anger. The latter finding in particular led the study authors to suggest that emotional dysregulation may be an important factor in ADHD (Harty et al., 2009).

In another longitudinal study, participants (initially aged four to twelve years old) with ADHD showed poorer outcomes than a matched sample of non-ADHD students eight years later at follow-up (Barkley, Fischer, Edelbrock, & Smallish, 1990). At follow up, the adolescents with ADHD were three times more likely to have been suspended from school or to have failed a grade, and more than eight times more likely to have been expelled from school or have dropped out of schools than the controls. Young adults with ADHD also report ADHD symptomatology and higher use of mental health services than control groups (Hansen, Weiss, & Last, 1999). In sum, the symptoms of ADHD continue to manifest themselves in inappropriate ways into, and past, adolescence.

In conclusion, adolescents with ADHD are a vulnerable population. While ADHD is often considered a childhood disorder, research documents the persistence of symptoms into adolescence. Moreover, adolescents with ADHD face increased risks for both negative academic (e.g., likely to have lower grade point averages, fail a grade level) and social (e.g., likely to have few friends, be a victim of bullying, and be disliked by

peers) outcomes. Given the increased academic and social demands experienced during adolescence, this time period is a particularly difficult one for adolescents with ADHD.

Perceptions of Mental Illness

The social difficulties experienced by adolescents with ADHD also may be impacted by the attitudes associated with the disorder. Based on previous research, adults and children alike perceive mental illness in general negatively, with children developing negative attitudes toward mental illness at young ages (Wahl, 2002). The Surgeon General has highlighted the danger of stigma by identifying it as a primary barrier to people seeking treatment for their mental illness (U.S. Department of Health and Human Services, 1999).

It is important to understand the development of stigma in adolescents, in order to develop ways to prevent these attitudes and behaviors from developing and persisting. The first part of this section will outline models explaining the development of stigma. Secondly, a review of extant research regarding adolescents' perceptions of peers with mental illness will be presented to explore what is known and unknown in this area.

Defining attitudes. When studying attitudes toward persons with mental illnesses, the research literature typically focuses on stigma, defined as "the prejudice and discrimination linked to individuals with mental illness" (Pescosolido, 2007, p. 611). More specifically, stigma researchers focus on the presence or absence of negative attitudes (prejudice) and the tendency to engage in exclusionary behaviors (discrimination; Martin, Pescosolido, Olafsdottir, & McLeod, 2007). An example of a prejudice would be "Children with Attention-Deficit/Hyperactivity Disorder are annoying" while excluding a peer from an activity because they have Attention-

Deficit/Hyperactivity would be an example of discrimination. Similarly, Gottlieb and Gottlieb (1977) have conceptualized attitudes as embodying two components, a cognitive attitude and a behavioral intention. The cognitive attitude embodies statements reflecting perceptions, beliefs, and stereotypes, such as "Children with Attention-Deficit/Hyperactivity Disorder are fun" or "Children with Attention-Deficit/Hyperactivity Disorder are annoying". Behavioral intentions are statements regarding intention to interact with another, such as "I would go to a birthday party with a child with Attention-Deficit/Hyperactivity Disorder" or "I would not go to a movie with a child with Attention-Deficit/Hyperactivity Disorder." Behavioral intentions are relevant to discrimination while cognitive attitudes are pertinent to prejudice.

Models of attitude development. Research typically focuses on the presence or absence of stigma to explain how attitudes toward mental illness develop. There are two overlapping models based on social cognition theory that researchers have proposed to explain the development of stigma, Weiner's attribution model (1995) and the Etiology and Effects of Stigma Model (Martin, Pescosolido, Olafsdottir, & McLeod, 2007). The attribution model has been validated with middle school students and the Etiology and Effects of Stigma Model with adults. The validation of these models is discussed in the next sections.

Attribution model. This Attribution model, which has been examined empirically, explains how stigma does or does not develop and how the presence or lack of stigma influences behavior (Corrigan, Watson, Otey, Westbrook, Gardner, Lamb, et al., 2007; Weiner, 1995). Weiner suggests that when developing their attitudes toward a person, individuals first attempt to determine the cause of a person's disability. Attributions made

about the cause of a person's mental illness then lead to inferences about how responsible that person is for their illness. Believing that an individual is personally responsible for his or her illness (for example, attributing the person's mental illness to illegal drug use or lack of self-control) leads to anger and discriminatory behavior. Alternatively, determining that the individual is not responsible for his or her illness (for example, the illness is attributed to genetics or an injury) leads to pity and helping behaviors. Therefore, persons viewed to be responsible for their mental illness are likely to be discriminated against and viewed negatively while persons viewed as not responsible for their mental illness (and thus seen as victims) are likely to receive help and be viewed more positively.

Corrigan and colleagues (2007) validated the attribution model with 1,391 middle school students from around the country. Researchers presented students with the following vignette: "There is a new student in your class who just came from another school. You have heard that this student has a mental illness," and then instructed them to complete a revised Attribution Questionnaire (r-AQ). The r-AQ, a shortened version of the original Attribution Questionnaire used with adults, consists of eight items, with one item measuring each of the following factors: responsibility ("It is not the student's fault if he or she has a mental illness"), pity ("I feel sorry for the new student"), anger ("The new student makes me angry"), help ("I would help the new student"), segregation ("The new student should be locked in a mental hospital"), dangerous ("The new student is not dangerous"), fear ("I am scared of the new student"), and avoidance ("I will try to stay away from the new student"). Students responded to each item via a 7-point Likert-like agreement scale. Results supported two different models, one related to responsibility

attributions and another related to danger attributions. In the first model, faulting the student for his or her mental illness (responsibility) directly predicted anger, which was negatively associated with a willingness to help the new student. Alternatively, believing the student lacked responsibility for their illness predicted pity, which was positively associated with helping behaviors. In the second model, believing the new student to be dangerous predicted fear, which was positively associated with avoidance. Overall, this study supports the application of the attribution model with adolescents by demonstrating that adolescents' responsibility attributions about their peers with mental illnesses predict their willingness to help that peer. Specifically, adolescents perceiving their peers to be responsible for their mental illnesses are likely to express more anger and less pity toward that peer, leading to less willingness to help him or her. This study by Corrigan et al. (2007) is the first validation of the attribution model with adolescents, but other research has validated this model with adult samples (Corrigan, Rowan, Green, Lundin, River, & Uphoff-Wasowski et al., 2002; Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003).

The etiology and effects of stigma model. The Etiology and Effects of Stigma Model (EES) extends the attribution theory by considering the factors that influence the development of attributions (Martin, Pescosolido, Olafsdottir, & McLeod, 2007). In this model, the respondent's knowledge of mental illnesses as well as previous positive contact with someone with a mental illness positively shapes attributions made about a person with mental illness, and leads to less stigmatizing attitudes toward others with mental illness. Martin and colleagues tested this model with 1,134 adults. Researchers presented participants with a vignette describing a youth who had a mental disorder, asthma, or typical, "normal troubles." Participants then completed a social distance scale

in which they indicated on a Likert scale how willing or unwilling they would be to: move next door to the family of the described child, have their child make friends with the child, socialize with the child's family, and to have the child be in their own child's classroom. Participants were also asked whether or not they had previous contact with an individual with a mental illness and what the qualitative outcome of that contact was on their relationship (i.e., improvement, no change, or deterioration). Results showed participants were more unwilling to socialize with youth with mental illness than with asthma or normal troubles. However, adults who reported having had positive contact with someone with a mental illness expressed less desire for social distance, providing evidence for the fact that familiarity (when considered positive) with a mental illness positively shapes willingness to engage with that person. However, this relationship between contact and less desire for social distance only held true when the contact had a positive outcome. Though this model has not been used with children or adolescents, its validation with adults provides a framework for examining the formation of attributions.

Adolescents' perceptions of mental illness. In addition to the developmental of models that delineate how stigma is formed, previous research has also looked at the levels of stigma exhibited by adolescents to better understand how and why stigma occurs in youth. Adolescents' perceptions of mental illness have been explored in multiple ways: what adolescents think about the label of "mental illness" (Royal & Roberts, 1987; Watson, Miller, & Lyons, 2005), how they react to the label of specific mental illnesses (e.g., schizophrenia, depression; Corrigan, Lurie, Goldman, Slopen, Medasani, & Phelan, 2005), and how they perceive a peer exhibiting symptoms of a mental illness (Secker, Armstrong, & Hill, 1999). In most of these studies, vignettes are

employed and then a separate measure assesses how the adolescent responds to the vignette. The extant literature has shown mixed findings regarding adolescents' attitudes toward mental illness, though it appears that, overall, adolescents perceive mental illness negatively. The following section describes research that has examined the broad mental illness label, as well as specific mental illnesses and symptoms.

The results of one study found that adolescents considered mental illness to be one of the most unacceptable and most severe disabilities individuals can have (Royal & Roberts, 1987). Researchers presented students in 3rd, 6th, 9th, 12th grades and college, with the names and definitions of twenty different disabilities (i.e., allergy, amputation, arthritis, asthma, blindness, cancer, cerebral palsy, deafness, diabetes, epilepsy, facial birthmark, learning disability, leg brace, limp, mental illness, mental retardation, missing finger, paraplegia, speech deficit, and ulcer). For each disability, participants were asked to indicate on a 5-point Likert-like-scale ranging from "not at all" to "very" how bad they thought the person with the disability's problems were (measure of severity) and how much they would like to have that person as a friend (measure of acceptability). Based on their response to how bad the person's problems were, participants identified mental illness as the third most severe disability, preceded only by cancer and mental retardation. Participants indicated the least willingness to have a person with mental illness as their friend, followed by mental retardation and cerebral palsy. However, there were grade level interactions for the acceptability ratings. Third graders were significantly more accepting of mental illness when compared to 9th graders and college students. Sixth graders were the most accepting, and were significantly more accepting than 9th graders, 12th graders, and college students (Royal & Roberts, 1987).

Other investigations into adolescents' perceptions of mental illness, rather than disabilities in general, suggest that the specific symptoms of mental illness may have more impact than the label of mental illness itself. Roberts, Beidleman, and Wurtele (1981) presented 34 participants aged 8 to 13 years with four different vignettes depicting an imaginary peer (with a gender neutral name) with a mild physical illness (with symptoms such as coughing and sneezing), severe physical illness (with symptoms of vomiting and requiring hospital stays), a mild mental illness (with aggressive external symptoms such as kicking and shouting), and a severe psychological illness (with symptoms such as believing in monsters and being from another planet). Interestingly, participants were just as likely to desire friendship with the peer with a severe mental illness as with peers with either physical illness, but they expressed less desire to be friends with the peer with a mild mental illness than with the peer with the severe mental illness.

Researchers concluded that participants probably viewed the peer with the mild mental illness as threatening due to his or her aggressive behaviors, while the peer with the severe mental illness presented no external symptoms. Roberts, Johnson, and Beidleman (1984) replicated procedures used in Roberts et al. (1981) with 105 students aged 10 to 13 years and again found that students were equally likely to desire friendship with the peer with a severe mental illness as they were with peers with either physical illness, but students expressed less desire to be friends with the peer with a mild mental illness than with the peer with the severe mental illness.

Researchers have also examined how the causal attributions adolescents make about the mental health label or symptoms impact their perceptions of peers with mental

illness, regardless of which one is presented. Researchers gave 13 to 19 year-old participants (n = 300) vignettes depicting four different fictional male peers with one of the following: a mental illness, a drinking problem, a brain tumor that makes the peer act as if he has a mental illness, and leukemia (Corrigan, Lurie, Goldman, Slopen, Medasani, & Phelan, 2005). The mental health vignette read as follows: “Brandon is a new student in your class. Before his first day, your teacher explained that Brandon is mentally ill and is transferring from a special school.” The other three vignettes read the same, except Joshua “has a drinking problem”, Tyler “has a brain tumor that makes him act like he has a mental illness sometimes” and Ryan “has leukemia, a cancer of the blood.” Participants completed the revised Attribution Questionnaire to evaluate their attitudes related to responsibility, pity, anger, dangerousness, fear, help, and avoidance for each of the imaginary peers. They also completed the revised version of the Level of Contact Report to assess participants’ familiarity with mental illness. This measure asks participants to read a list of eight situations varying in intimacy with the person with mental illness and check which ones apply to them. Situations varied from the least intimate contact (i.e., “I have never observed a person with a mental illness”) to highest intimacy (i.e., “I have a severe mental illness”). Results showed that participants felt that the peer with the drinking problem was most responsible for his illness, the most dangerous, that they were the angriest towards him, and they were most likely to avoid him than the other imaginary peers. Alternatively, participants attached the least amount of responsibility to the peer with leukemia, the most pity, and were most likely to engage in helping behaviors with him. Mental illness was associated with more stigmatizing attitudes than for leukemia, but stigmatizing attitudes decreased when the mental illness was attributed

to a brain tumor. In fact, adolescents responded with more stigmatizing attitudes of dangerousness, and fear to the peer with mental illness without an organic cause than the peer with the mental illness attributed to a brain tumor. How responsible adolescents perceived the peer with the mental illness to be for their own condition related to whether or not the adolescent felt pity or anger toward that peer with mental illness. Results also showed that 50% of participants were aware of a classmate with a severe mental illness, 29% have a relative with a severe mental illness, 28% have a family friend with a mental illness, and 4% had a mental illness themselves. Only 11% reported never observing a person with a mental illness. Interestingly, and contradictory to the EES model, the more familiar adolescents were with a person with a mental illness, the more they considered the person with a mental illnesses as personally responsible for that illness, and the more they considered that person to be dangerous. Thus, contrary to the EES model and research with adults (Corrigan, Edwards, Green, Diwan, & Penn, 2001), the more contact adolescents in this study had with someone with a mental illness, the more stigmatizing attitudes they endorsed. However, the researchers did not assess the outcome of participants' contact (whether it was positive or negative), which could be a factor in this finding.

Other research on the impact of familiarity on adolescents' attitudes toward mental illness show that familiarity relates to less stigmatizing attitudes but only to a point. When adolescents are the "most familiar" with mental illness as they can be – defined as the respondent having a mental illness him or herself – this relationship does not hold true. A sample of 415 high school students completed a 24-item measure called the Attitudes Toward Serious Mental Illness Scale-Adolescent Version (Watson, Miller,

& Lyons, 2005). Participants responded to each item with a 5-point Likert-scale ranging from Completely Disagree to Completely Agree. Each question related to one of five factors: threat ("If I had a mentally ill relative, I wouldn't want anyone to know"), social construction/concern ("I think that there really isn't anything called mental illness; some people are just different"), wishful thinking ("Mentally ill people can get well if they are treated with love and kindness"), categorical thinking ("I can't see myself hanging out with a mentally ill person") and out of control ("Mentally ill people tend to be more violent than other people"). Participants were also asked whether or not they had a family member diagnosed with a mental illness, and if they had been diagnosed with one themselves. Participants' attitudes were not strongly negative on any of the factors, and participants having a family member with a mental illness were more likely to worry about society labeling of people with mental illnesses and less likely to endorse thinking that people with mental illnesses are different and distinct from others. However, adolescents indicating that they themselves had a mental illness did not endorse different attitudes toward mental illness than their peers. Gender and grade differences also emerged. Boys were significantly more likely to endorse Threat and Categorical Thinking factors. Ninth and 10th graders were significantly more likely than 11th and 12th graders to endorse the Social Control/Concern factor. These demographic differences suggest that males may be more likely than females to believe people with mental illness are threatening and different while younger students tend to be more concerned than older students about labeling people with mental illness. Demographic differences relating to the relationship between familiarity and attitudes were not explored.

Secker, Armstrong, and Hill (1999) conducted a unique qualitative study in Scotland to explore how adolescents constructed their attitude toward case vignettes related to mental illness. Secker et al. conducted group discussions with 102 high school students and interviewed 18 high school students individually. During discussions and interviews, researchers presented participants with a series of five vignettes. The fictional person described in the vignettes was given a gender-neutral name, age, and behavior associated with a particular problem. James, 13, showed signs of a behavioral problem; his father had left three years earlier. John, 34, had chronic schizophrenia and hears voices. Angela, 17, developed anorexia after starting a diet with her friend. David, 40, has depression which led to him losing his job. Peter, 15, has early onset schizophrenia, hears voices, and worries about aliens. Each participant read the vignettes and were asked what they thought about the way the person described was acting. The researchers found that participants drew on their own personal experiences, or those of a salient other, when developing an opinion about the vignette characters. If participants had previously witnessed or experienced a behavior in what they considered an understandable context (i.e., they could plausibly explain the behavior occurring) they were less likely to label it as abnormal. The opposite was also true – behaviors not witnessed or experienced were more likely to be labeled abnormal. In addition, when participants labeled a character mentally ill, they were more likely to express sympathy than fear if they could identify with the age or gender of the peer. Secker et al. concluded that adolescents' ability to identify with someone experiencing mental illness is influential in attitude development toward that person.

Hennessy, Swords, and Heary (2007) conducted a review of existing literature regarding children and adolescents' understanding of mental health problems in their peers and concluded: that: (1) beliefs about the peers' personal responsibility for their problems influences attitudes toward that peer, and (2) more research is needed to determine the role of personal contact on youth's attitudes toward that peer. The research reviewed here support these conclusions.

In sum, adolescents perceive mental illness as undesirable. How adolescents react to peers with mental illnesses can be framed within the attribution and EES models; attributing the cause of the mental illness to the peer, or perceiving the peer as dangerous, tends to cause stigmatizing attitudes. The EES model maintains that familiarity with mental illness should lead to more positive attitudes toward those with mental illness. However, findings about this relationship have been mixed in adolescents. Of the two factors thought to relate to attitudes toward those with mental illness, personal responsibility has been well researched and led to consistent findings, however, how familiarity relates is unclear. Thus, while the majority of adolescents report some type of contact with someone with a mental illness, how this contact influences their attitudes toward their peers with mental illness requires further exploration.

Adolescents' Perceptions of ADHD

The focus of the present review is on perceptions of adolescents exhibiting symptoms of ADHD. As discussed earlier in this chapter, adolescents with ADHD often experience social problems. These social struggles are largely attributed to the manifestation of the ADHD symptoms, which lend themselves to socially inappropriate behaviors such as excessive talking, speaking out of turn, interrupting others, failing to

notice social cues, speaking and acting without considering consequences, intruding unwelcomed into groups, and reacting to situations and problems aggressively (Greene, Biederman, Faraone, Ouellette, Penn, & Griffin, 1996; Stormont, 2001). Students with ADHD are more disliked than their non-ADHD peers (Hinshaw, Zupan, Simmel, Nigg, & Melrick, 1997), young adults with ADHD have fewer friends than those without ADHD (Barkley, Fishcher, Smallish, & Fletcher, 2006), and adolescents with ADHD are more likely to be bullied than their friends (Unnever & Cornell, 2003).

Adolescents' perceptions of peers with ADHD. It seems logical that these social difficulties could be related to how adolescents with ADHD are perceived by their peers. Previous research has examined the perceptions of individuals with ADHD, including the relationship between familiarity with ADHD and individuals' perceptions. The findings from this scant literature base will be presented below and then the limitations of the research in this area will be highlighted.

One study evaluated adolescents' attitudes toward their peers with ADHD by comparing it to their attitudes toward other illnesses. Over 1000 youth aged eight to eighteen years were asked how willing or unwilling they thought a typical classmate would be to interact with a factitious student in their class ("Michael") who had depression, asthma, or ADHD (Walker, Coleman, Lee, Squire, & Friesen, 2008). The vignette used for each of the three conditions stated that Michael sees a doctor and has been to the hospital several times because of depression/Attention-Deficit Hyperactivity Disorder/asthma and that he is in special classes or activities for part of the day. There was no mention of any symptoms in the vignette, just the condition label. Participants completed a social distance scale that asked how likely the participant's classmates would

be to engage in activities such as eating lunch together, inviting him to a party, and say mean things to him. Participants also were asked to complete a negative attributions and a positive attributions scale to assess attributions participants made about the depicted youth. These two scales asked, "Compared to most students in your class, how likely is it that Michael…?" followed by either a negative attribution (i.e., "is lazier," "gets into trouble more often", and "is more violent") or a positive attribution (i.e., "is more creative", "has a better sense of humor", "is smarter" and "is more caring"). All participants completed both scales for their particular vignette. Results revealed that youth showed more rejection toward the children depicted as having ADHD and depression than toward the asthma vignette. Participants were more likely to endorse negative attributions for the ADHD vignette than for the depression or asthma vignettes. Mean negative attribution scale scores (and standard deviations), separated by participants' race and ethnicity by the authors, had the following ranges (with larger scores indicating participants endorsed more negative attributions): depression *M* = 6.41-8.30 (*SD* = 2.31-3.21), ADHD *M* = 6.48-7.93 (*SD* = 1.47-1.60), and asthma *M* = 4.29-5.31 (*SD* = 2.28-1.95). Participants were also more likely to endorse positive attributions for the asthma vignette than either the ADHD or depression. Mean scores (and standard deviations), separated by participants' race and ethnicity by the authors, had the following ranges: depression *M* = 8.87-10.87 (*SD* = 2.38-3.94), ADHD *M* = 9.02-10.26 (*SD* = 3.23-2.66), and asthma *M* = 9.60-11.36 (*SD* = 3.94-3.63). Adolescents also were less likely to interact with youth with ADHD as compared to youth with asthma, though ADHD and depression elicited the same distancing responses with one exception: "invite him to a party or outing" for which participants preferred more distance from the child

described in the depression vignette. Race/ethnicity differences emerged as well. Asian/Pacific Islander participants endorsed significantly more negative attributions for depression than either Caucasian or Hispanic participants, and Hispanic participants were significantly more likely than white participants to give more negative attributions for ADHD.

Coleman et al. (2009) re-examined this data set to investigate participants' causal attributions of depression, ADHD, and asthma and how they related to social distance. This analysis included participants' responses to the following causation items: "Michael's parents are not raising him right", "Michael abuses drugs or drinks alcohol", "Michael is not trying hard enough to get better", "Michael's parent or other members of Michael's family have the same condition", "Michael's brain works differently than a normal brain does", "It's God's will", and "Michael has experienced more stressful events than most do". These statements tapped the following factors: parenting, substance abuse, low effort, genetics, brain differences, God's will, and stress, respectively. Participants were directed to select each statement that they thought could be partly causing Michael's condition. Preference for social distance was measured with the same scale in the previous study. Results showed that parenting, substance abuse, and low effort were endorsed more for depression and ADHD than for asthma, though depression was the highest. These factors were the same three that most significantly related to a preference for social distance (correlation coefficients ranged from .15 to .21), while attributing a disability to genetics, brain differences, or God's will was not significantly related to social distance (correlation coefficients ranged from -.03 to .04). Thus, these results suggest that attributing peers' disability to factors more within their

control relates to more negative attitudes. Demographic differences were also found for race/ethnicity, gender and age. Overall, when compared to white participants, Asian and Pacific Island participants were significantly more likely to endorse parenting and stress as causes, and Hispanic participants were significantly more likely to endorse parenting and low effort. As for causes of ADHD, Hispanic participants were more likely than white participants to endorse parenting and less likely to endorse brain differences. In regard to other demographic differences, girls were significantly more likely to endorse stress than boys and older participants were more likely to attribute Michael's condition to substance abuse and less likely to genetics, brain differences, and stress than younger participants. Taken together, these differences illustrate that ethnicity, gender, and age can all impact how adolescents explain and react to mental illness and ADHD.

Saecker and colleagues (2010) investigated how the inclusion of descriptions about a peer's personal experience impacts adolescents' behavioral intentions toward a peer with ADHD, with the notion that providing personal experiences might increase adolescents' personal connections to the disorder and subsequently their perceptions of a peer with that disorder. Sixty-two high school students were divided into two different groups to watch either an experimental or control video. Both groups were told they were going to watch an informational video about ADHD, and both videos involved a young actor describing twelve myths about ADHD and providing information to refute each myth. In the video for the experimental group, the actor also introduced himself as a university student with ADHD and described personal experiences related to six of the 12 myths. Following the video, participants in both groups completed a revised version of the Knowledge of Attention Deficit Disorders Scale (KADDS; Sciutto & Feldhamer,

1994) and the Behavioral Intention Scale (BIS; Laws & Kelly, 2005; Roberts & Lindsell, 1997). The revised KADDS was designed to measure students' knowledge of ADHD symptoms, features, and treatment and consisted of 18 items, six that were not addressed in the video, six that were addressed with information in the video, and six that were addressed with information and an anecdote (in the experimental video only). The BIS measures students' behavioral intentions and consisted of 10 items describing increasingly intimate social situations, ranging from "I would go up to him/her to say hello" to "I would share a secret with him or her." To investigate academic-behavioral intentions, researchers also included five items that increasingly required mutual responsibility for an academic task, ranging from "I would choose him/her to be in my discussion group" to "I would teach a class session with him/her." For both behavioral intentions scales, participants would respond on a scale of one to four, with four indicating the strongest intentions (specific responses were: "no", "probably no", "probably yes", and "yes").

Results showed no significant differences in the behavioral intentions of the two groups, nor were there significant differences between responses to the social versus the academic situations. The mean scores (and standard deviations) for the control group were 3.07 (0.63) and 2.65 (0.77) for social and academic situations, respectively. The mean scores (and standard deviations) for the experimental group were 3.14 (0.55) and 2.63 (0.67) for social and academic situations, respectively. Therefore, contrary to the researchers' hypotheses, the inclusion of personal experiences did not increase high school students' behavioral intentions toward a peer with ADHD. Participants in both groups correctly answered more questions that were addressed in the video compared to

unaddressed items on the knowledge test; however, the experimental group correctly answered more than the control group on the items addressed with information and an anecdote, while the control group correctly answered more than the experimental group on the items addressed with information only. The researchers suggested that the inclusion of personal experiences may have aided in the learning of facts associated with them or hindered the learning of the other facts. Overall, the authors of the study concluded that providing adolescents with information can improve their understanding of disorders but their results indicate that the inclusion of personal experiences does not change peers' behavioral intentions. A limitation of this study is that participants' familiarity with ADHD prior to the video was not measured.

Law, Sinclair, and Fraser (2007) extended research on adolescents' perceptions of peers with ADHD by comparing how young adolescents' responses to vignettes depicting a gender-neutral peer ("Anon") exhibiting ADHD symptoms differed depending on the presence or absence of a diagnostic label in the vignette. Each of the three vignettes contained the same behavioral description, however, one vignette included only the behavioral description, one included the sentence "Anon has Attention Deficit Hyperactivity," and one included the sentence "Anon has Attention Deficit Hyperactivity *Disorder*." Researchers assessed the attitudes of the 120 eleven and twelve year olds toward the vignettes with an adjective checklist and the Shared Activities Questionnaire (SAQ-B; Morgan, Walker, Biebrich, & Bell, 2000). For the adjective checklist, participants selected from a list of half positive adjectives ("happy," "smart") and half negative ("stupid", "crazy") the words they thought best described the vignette student. The SAQ-B assesses participants' willingness to engage in different types of activities

with the target student: general social (e.g., “Invite X to my birthday party”), academic (e.g., “Work on a science project at school with X”), and active recreational/physical activities (e.g., “Pick X to be on my soccer team”). Participants respond “yes”, “no” or “maybe” to the 24 questionnaire items. Participants were also asked what gender they thought “Anon” was, and (to assess for familiarity) if they knew something about ADHD, and if they have met someone like “Anon” before.

Overall, participants responded negatively toward all three vignettes. The most frequently chosen adjectives adolescents selected to characterize “Anon” were “careless”, “lonely”, “crazy” and “stupid”, independent of the student’s label. The findings from this study suggest that adolescents may react negatively to the behavior manifestations of ADHD, rather than the label itself. Furthermore, the label of ADHD also did not affect adolescents’ willingness to engage in activities with the peer exhibiting ADHD behaviors. No significant differences emerged between SAQ-B total scores across the three vignettes, nor did they between subscale (general social, academic, active recreational). There are no cut-off score for the SAQ-B, but participants’ scores did show a reluctance to engage with the targeted students as scores for all three vignette conditions were significantly lower than SAQ-B scores of similarly aged samples in other studies which used target students depicted as obese (Bell & Morgan, 2000) or with autistic behaviors (Swaim & Morgan, 2001). Lastly, 85% of participants believed “Anon” was male, and only 8% reported knowing something about ADHD, though interestingly, 63% reported having met someone like “Anon” before. However, familiarity, as measured by the above questions (i.e. "Do you know something about ADHD?” and “Have you met someone like Anon before?”), did not have any significant relationship

with participants' attitudes or willingness to engage with any of the vignettes target students.

In sum, findings from these four reviewed studies suggest the following: (a) adolescents have predominantly negative perceptions of peers described as exhibiting ADHD behaviors, peers labeled as having ADHD, and peers described both with the behaviors and the label, (b) adolescents are less willing to engage with peers labeled with ADHD than with peers presenting physical disabilities, and (c) there is preliminary support that adolescents' familiarity with ADHD does not appear to influence attitude toward or willingness to engage with a peer exhibiting ADHD behaviors. The apparent lack of relationship between adolescents' familiarity with ADHD and their attitude toward a peer with ADHD notably contradicts past work with adults in which more familiarity with mental illness related to more positive perceptions (Corrigan, Edwards, Green, Diwan, & Penn, 2001). However, this relationship has only been investigated by Law et al. (2007) and done so using only two questions.

Limitations of previous research. There are several limitations to the existing research of adolescent's perceptions of peers with ADHD. These limitations include: lack of positive characteristics in the vignettes, homogenous samples, and weak methodology. Law and colleagues (2007), who conducted the only study of adolescents' perceptions and willingness to engage with peers' with ADHD as it relates to labels and familiarity, acknowledged that the absence of any positive qualities in their vignette descriptions may have led participants to endorse negative responses more freely. Other research of ADHD perceptions utilizing vignettes have also failed to include any positive characteristics (e.g., Martin, Pescosolido, Olafsdottir, & McLeod, 2007; Walker,

Coleman, Lee, Squire, & Friesen, 2008). Describing individuals by their symptoms only without any mention of positives makes it difficult to determine whether participants are indeed responding negatively to ADHD characteristics or simply to an individual who is described only negatively. Additionally, the Law et al.'s participants were all from the United Kingdom and were 98% Caucasian, limiting the generalizability of these findings to more diverse U.S. adolescent populations. This limitation is particularly noteworthy when considering the findings of Walker et al. (2008) and Coleman et al. (2009) who suggested demographic differences (i.e., gender, ethnicity, and age) could influence adolescents' response to peers with ADHD. Lack of random assignment of participants to vignettes is another methodological limitation. The sample included three schools, which were each randomly assigned a vignette condition, with one school split across two conditions to keep participant numbers equal for all conditions. However, since the students themselves were not randomly assigned a vignette condition, issues of independence emerge, as it is unknown how the school attended might influence participants' responses to the vignettes. Lastly, as mentioned above, the study by Law et al. was the only study to examine the impact of familiarity on attitude, and did so without a validated scale. Therefore, though these studies provided some insight on adolescents' behavioral intentions toward peers with ADHD, how these intentions vary when a more balanced vignette is presented to a more diverse population, and how familiarity factors into this relationship warrants further investigation.

Conclusions

Since ADHD is often viewed as a childhood disorder, adolescents with ADHD receive much less attention in the literature. However, the difficulties children experience

due to their ADHD symptoms often continue in adolescence (e.g., Barkley, Fischer, Smallish, & Fletcher, 2006). Therefore, adolescents with ADHD are a particularly vulnerable population, and their rejection by peers has been documented (Hinshaw, Zupan, Simmel, Nigg, & Melrick, 1997). With about one child in every class of twenty students having ADHD (Pastor & Reuben, 2002) and with evidence that symptoms persist into adolescence (Biederman, Farone, Milberger, Curtis, Chen, & Marrs et al., 1996), there are many students in middle school who continue to need support to address the impairments associated with ADHD.

Adolescents do not positively view their peers with ADHD, nor do they perceive those with mental illness in general positively. Adolescents consider mental illness undesirable and express a desire for social distance from those who have a mental illness. However, two factors appear to relate to the formation of adolescents' attitudes: attributions of responsibility and familiarity. When adolescents believe a peer is personally responsible for his or her mental illness, he or she is more likely to exhibit stigmatizing attitudes. However, how adolescents determine this type of responsibility attribution appears to relate to previous experiences with people with that specific mental illness, though whether previous contact with people with mental illness leads to more positive or more negative attributions and attitudes is unclear.

In sum, it is important understand adolescents' perceptions of students with ADHD and what factors relate to those perceptions, as these negative perceptions have implications for adolescents with ADHD. Given the increased risk for adverse social outcomes adolescents with ADHD face, a better understanding of their peers' attitudes can help support this population. This current study aims to address the limitations found

in previous research (i.e., lack of positive characteristics included in vignettes, more diverse sample, validated familiarity measure) and investigate the attitudes that adolescents have about their peers with ADHD and how familiarity with individuals with ADHD influences those attitudes.

Chapter Three: Methods

This chapter describes the methods and data set. First, participants and measures are presented. Discussion of the measures includes information regarding the instruments' psychometric properties and their use in similar populations. Then, the research procedures are summarized, including information regarding the recruitment process and ethical considerations. Lastly, the research design, the research questions, and the statistical analysis plan for each question are presented.

Participants

Data from a larger study were analyzed to answer this study's research questions. This larger research project involved a survey questionnaire administered to students from two middle schools in a large school district in Florida. The principal investigators (PIs) of the larger project received approval from the Social and Behavioral Institutional Review Board of the University of South Florida Division of Research Integrity and Compliance (IRB) on February 5, 2010 (modification request approved on March 16, 2010). The PIs also sought and received approval from the Assessment and Accountability office of the school district in January 2010 to conduct research in the two schools. Approval to utilize the larger dataset, as well as to analyze additional research questions was obtained on December 16, 2010 from the University of South Florida IRB.

Participant selection. The PIs established contact with the principals of two middle schools in a large school district in Florida. School 1 has received a school grade of "B" with previous grades being "Cs". School 1 has a magnet focus in engineering and approximately 15% of students participate in this program. Ten percent of students at this school are there due to School of Choice. School 1 also has a certification from the

College Board to implement study skills school wide. School 1 includes three self-contained classrooms for students with cognitive impairments with 15-20 co-taught classrooms. A full-time school psychologist is on staff. School 2 has a history of receiving school grades of "A". There is not a magnet component at School 2 but there is a gifted program. Approximately 25% of students at School 2 are enrolled due to School of Choice. School 2 has no self-contained classrooms and instead serves students through five Varying Exceptionality (VE) units. School 2 has a part-time school psychologist. Demographic information for the two schools, as provided from their school wide data system, is presented in Table 1. Students from these schools range in age from 10 to 16 years and grades six to eight.

Participation for the larger study was sought from students with English proficiency. Students served exclusively in self-contained special education classrooms were excluded because students served in these classes, due to learning and mental disabilities, may not possess the reading and reasoning skills necessary for survey completion. Additionally, English proficiency is required in order to read the survey measures. While the exact number of students these criteria excluded is unknown, 12.5% and 20.3% of School 1's student body receive English as a Second Language (ESL) or Exceptional Student Education (ESE) services, respectively. At School 2, 14.6% and 15.3% of the student body receive ESL or ESE services, respectively. Parental consent was obtained for 198 students, which includes 10% of the total enrollment across both schools (Total = 1,983; School 1 n = 895; School 2 n = 1088), 12% of the total enrollment across both schools with ESL students removed (Total = 1,652; School 1 n = 784; School 2 n = 868), and 12% of the total enrollment across both schools with ESE

students removed (Total = 1,687; School 1 *n* = 765; School 2 *n* = 922). While not all ESE students were excluded (only those students served in self-contained classrooms), these percentages provide a better understanding of who was eligible to participate in the study.

One-hundred eighty-three students were present and gave assent to participate in the study (9% of students enrolled across both schools). Data were entered into an Excel spreadsheet. To ensure accurate data entry, integrity checks were completed for 11% of complete surveys. When an error was found on one or more items, an additional survey was checked for accuracy. A total of 14% of surveys were checked for errors.

Table 1

Student Body Demographics of School 1 (N = 895) and School 2 (N =1,088)

	School 1		School 2		Total	
	N	%	*N*	%	*N*	%
Gender						
Male	473	52.8	521	47.9	994	50.1
Female	422	47.2	567	52.1	989	49.9
Race/Ethnicity						
American Indian or Alaskan Native	5	.6	2	.2	7	.4
Asian or Pacific Islander	24	2.7	37	3.4	61	3.1
Black, Non-Hispanic	472	52.7	69	6.3	541	27.3
Hispanic	179	20.0	463	42.6	642	32.4
Multiracial	46	5.1	69	6.3	115	5.8
White, Non-Hispanic	169	18.9	448	41.2	617	31.1
Free and Reduced Lunch Status						
Yes	716	80.0	582	53.5	1298	65.5
No	179	20.0	506	46.5	685	34.5
Receiving ESL Services	112	12.5	159	14.6	271	13.7
Enrolled in ESE	182	20.3	166	15.3	348	17.6
Grade						
6	278	31.1	386	35.5	664	33.5
7	319	35.6	361	33.2	680	34.3
8	298	33.3	342	31.4	640	32.3

Note. ESL = English as a Second Language; ESE = Exceptional Student Education.

Instruments

The larger study utilized a survey consisting of nine different measures. Within the survey packet, three instruments were the focus of this present study. This larger study was also piloted with 15 middle school students from a 7th grade English class.

Demographics. The demographic questionnaire consisted of 15 questions. Participants were asked questions regarding their gender, ethnicity, age, grade, estimated grade point average, Free or Reduced Lunch status, and school attendance. Participants were also asked to indicate the number of office discipline referrals, school suspensions, and arrests they had received in the past year. The last questions were yes or no questions regarding whether or not participants had been diagnosed with ADHD; whether they had been diagnosed with anxiety, depression, or other mental problems; whether they had been prescribed medication for ADHD; and whether they had been prescribed medication for anxiety, depression, or other mental problems. The specific questions that were used from the demographic questionnaire in this study are numbers 1 (gender), 2 (ethnicity), and 4 (grade level). Please see Appendix A for the demographic measure.

Level of Contact Report (LCR). The Level of Contact Report (LCR) assessed participants' familiarity with mental illness (Holmes, Corrigan, Williams, Canar, & Kubiak, 1999). The original version listed 12 situations ranging in degree of intimacy with a person with mental illness. Holmes and colleagues reported that the situations were ranked in terms of intimacy of contact by three experts in severe mental illness and psychiatric rehabilitation, and the mean of the rank order correlations summarizing interrater reliability was .83.

The LCR has been revised in previous research for use with adolescents (Corrigan, Lurie, Goldman, Slopen, Medasani, & Phelan, 2005). Corrigan and colleagues shortened the measure from 12 to eight items, and situations were adjusted to make them relevant for adolescents. The LCR is a Guttman-like scale, in which items are ranked in an order so participant agreement with any one item implies agreement with lower-order items. On the LCR, the items are situations that range from least intimate ("I have never observed a person with a mental illness") to most intimate ("I have a severe mental illness"), and participants check to indicate agreement for each item. Scores on this instrument range from 1 to 8 with higher numbers indicating greater familiarity. Being a Guttman scale, scores are based on the highest numbered item to which the participant expresses agreement. For example, if a participant checked "Yes" for items #3 ("I have observed a person with a severe mental illness") and #4 ("I have been in a class with a person with severe mental illness"), and checked "No" for the rest, the score would be a 4 since that item is the most intimate item.

For the current study, the words "mental illness" or "severe mental illness" were replaced with Attention-Deficit/Hyperactivity Disorder to assess participants' familiarity with this specific disorder. The format of the questionnaire was changed slightly. Instead of using checks, participants were asked to circle Yes or No in response to the items to be consistent with the rest of the measures within the survey packet. The number of participants who respond "Yes" to the first item on the LCR ("I have <u>never</u> observed a person with Attention-Deficit/Hyperactivity Disorder (ADHD).") and also respond "Yes" to higher rank-order items (and thus have conflicting responses) were tallied to note how many responded in this manner. Please see Appendix B for this measure.

Shared Activities Questionnaire (SAQ-B). The Shared Activities Questionnaire (SAQ-B) measured the willingness of a participant to engage in certain activities with a target person (Bell & Morgan, 2000). There are two different forms of the SAQ, the SAQ-A and the SAQ-B. The SAQ-A was originally designed to assess the willingness of students to engage in activities with a peer in a wheelchair, and does not include any sports-related activities (Morgan, Walker, Bieberich, & Bell, 2000). Therefore, a second form of the SAQ (SAQ-B) was developed to assess the willingness of participants to engage in activities with a peer with a condition that would not necessarily eliminate sports activities, such as obesity (Bell & Morgan, 2000). Four sports-related items replaced four of the recreational items in the SAQ-A to form the SAQ-B. The SAQ-B covers three different activity areas: General Social, Academic, and Active Recreational with eight different questions for each area for a total of 24 items. With the SAQ-B, participants are presented with information about a target student through a vignette and asked to circle one of three faces with a response underneath it: a sad face with "No", a neutral face with "Maybe", or a happy face with "Yes" to indicate if they would want to engage in the particular activity with a target student. Items include: "Ask X to come to my house to watch TV" (General Social), "Sit next to X in class" (Academic), and "Pick X to be on my soccer team" (Active Recreational). To score the SAQ-B, each "yes" item is 3 points, "maybe" two points, and "no" one point. A total, overall score can be computed as well as a score for each activity area. Higher scores indicate more willingness to share in the activity. Total scores can range from 24 to 72 while activity scores can range from 8 to 24. Though there are not SAQ-B cut-off scores, scores were interpreted by comparing this sample's scores to similar samples used in previous work

with the SAQ-B, which includes Bell and Morgan (2000), Greenleaf et al. (2006), and Law et al. (2007).

The authors of the SAQ-A assessed the construct validity of the measure with a confirmatory factor analysis with data collected from a sample of 120 third through sixth graders (Morgan, Bieberich, Walker, & Schwerdtfeger, 1998). Morgan et al.'s (1998) analysis revealed an adequate fit (using a criterion of .95 for the comparative fit index, which has been suggested as an adequate fit by Hu and Bentler, 1999) for the three-factor solution of .95 with the following mean item loadings for the three factors: .69 for General Social (with a range of .56 to .76), .68 for Academic (with a range of .54 to .83), and .73 for Recreational (with a range of .69 to .81). Cronbach's alphas were computed to assess internal consistency, with coefficient alphas of .95 found for the Total Score, .88 for General Social, .87 for Academic, and .90 for Recreational. Campbell (2008) also examined the construct validity of the SAQ-A with a confirmatory factor analysis, this time with a slightly older sample (sixth through eighth graders). This analysis yielded a comparative fit index for the three-factor solution of .96, with all standardized path coefficients between factors and items ranging between .72 and .83. Internal consistency of the SAQ-A with this sample was supported by calculating Cronbach alphas (.97 for Total, .92 for Social, .92 for Academic, and .94 for Recreational).

Bell and Morgan (2000) used the SAQ-B with third through sixth grade students to gauge their willingness to share activities with a child presented as obese. The authors tested the reliability of the SAQ-B with their sample of 184 elementary school children by calculating Cronbach's alphas. The coefficient alphas were .94 for the Total Score, .86 for General Social, .83 for Academic, and .86 for Active Recreational.

Law, Sinclair, and Fraser (2007) also used the SAQ-B with 11 and 12 year old students in sixth grade to assess their willingness to engage in activities with a student with ADHD. With their sample of 120 students, Cronbach's alphas were: .81 for General Social, .82 for Academic, and .82 for Active Recreational. Swaim and Morgan (2001) used the SAQ-B to determine the willingness of third and sixth grade students to engage with a student with autism. Cronbach's alphas for their sample of 112 third graders and 121 sixth graders were .91 for Total Score, .82 for General Social, .78 for Academic, and .81 for Active Recreational.

The SAQ-B has also been used with an older sample of students in the sixth through eighth grades (Greenleaf, Chambliss, Rhea, Martin, & Morrow, 2006). Greenleaf and colleagues provided 274 students with two target figures described as new students in the participant's class, one with a heavy silhouette and one with a thin silhouette, and asked them to complete a SAQ-B for each. Participants' responses for each were compared to investigate how behavioral intentions vary according to the weight of the peer. Greenleaf et al. reported strong internal consistency for responses to both the "thin" and "fat" SAQ-B responses (alphas of .96 and .97, respectively), with all subscale internal consistencies above .90. Furthermore, in a pilot study conducted by Greenleaf et al., the SAQ-B demonstrated adequate test-retest reliability with $r = .84$ and $r = .58$ for "thin" and "fat", respectfully. See Table 2 for a summary of studies using the SAQ.

Table 2

Summary of Previous Studies Using the SAQ

Authors	SAQ Version	Condition	*N*	Participants' Grade	α (T/S/A/R)[a]
Bell & Morgan (2000)	SAQ-B	Obesity	184	3rd-6th	.96/.86/.83/.86
Campbell (2008)	SAQ-A	Autism	1,007	6th-8th	.92/.92/.92/.94
Greenleaf et al. (2006)	SAQ-B	Obesity	274	6th-8th	.97/All subscales above .90
Law, Sinclair, & Fraser (2007)	SAQ-B	ADHD	120	*M* age = 11.9	Not reported/.81/.81/.82
Morgan et al. (1998)	SAQ-A	Wheelchair	120	3rd-6th	.95/.88/.87/.90
Swaim & Morgan (2000)	SAQ-B	Autism	112	3rd and 6th	.91/.82/.78/.81

[a] T = Total SAQ Subscale, S = Social SAQ Subscale, A = Academic SAQ Subscale, R = Recreational or Active Recreational SAQ Subscale

The SAQ-B was slightly revised for this current study to update the format and wording. These changes were communicated to and approved by the author (S. Morgan, personal communication, September 14, 2009). First, the happy, neutral, and sad faces were omitted to leave just the No, Maybe, and Yes text for responses. Greenleaf et al. (2006) also omitted the happy, neutral, and sad faces in their use of the SAQ-B. Second, the wording for three items was changed to be more consistent with the language and activities of current middle schools students. For example, "Work arithmetic problems in

class with X" was changed to "Work math problems in class with X." With the revisions, the theme of the item (General Social, Academic, or Active Recreational) was preserved. See Table 3 for revised items.

Table 3

SAQ-B Original and Revised Items

Item	Original	Revised
15	Work arithmetic problems in class with X.	Work math problems in class with X.
20	Play with X outside during recess.	Hang out with X during free time.
21	Pick X as my partner in a game with other children.	Pick X as my partner in a game with other students.

Vignettes. Two vignettes were developed for this study to be used in conjunction with the SAQ-B. Specifically, the Shared Activities Questionnaire-B followed each vignette to assess the participants' willingness to share activities with the student depicted. Vignettes with behavioral descriptions of hypothetical peers, are often utilized in studies of youth's perceptions of disabilities (Hennessy, Swords, & Heary, 2007), and have been used specifically to assess attitudes toward mental health disorders including ADHD (e.g., Corrigan, Demming, Goldman, Slopen, Medasni, & Phelan 2005; Law, Sinclar, & Fraser, 2007; Roberts, Beidleman, & Wurtele, 1981). Vignettes or short descriptions of behavior are often preferred in this type of research compared to the use of labels since participants may not understand certain terms, such as ADHD (Hennessy & Heary, 2009). In studies with vignettes, participants are typically presented with a

vignette describing a person exhibiting target behaviors and then asked a series of questions to tap the participants' perceptions of that fictional person.

For the present study, the two vignettes both described a student with a gender-neutral name ("Taylor") and both included a sentence telling the participant that "Taylor is in your grade". The first vignette, the "ADHD vignette", described a student with ADHD symptoms. The second described a typical student. Similarly to Law, Sinclar, and Fraser (2007), who also utilized the SAQ-B with vignettes to explore attitudes toward a student with ADHD, the ADHD vignette describes Taylor as having ADHD symptoms. The student in Law et al.'s vignettes, who was given the gender-neutral name "Anon", was described as having six symptoms of inattention, three symptoms of impulsivity, and three of hyperactivity to have 12 symptoms overall of ADHD as described in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000). In the ADHD vignette for this study, Taylor is described as having 10 total ADHD symptoms, six inattentive, two hyperactivity, and two impulsivity. More inattention symptoms than hyperactivity and impulsive symptoms were described since, as students with ADHD mature, symptoms of hyperactivity and impulsivity tend to diminish while inattentive ones remain (American Psychiatric Association, 2007). In addition to the ADHD symptoms, this first vignette included positive characteristics ("Taylor is outgoing," "Taylor is a good swimmer") as Law et al. indicated their own lack of positives in their vignettes was a limitation of their study. Readability was calculated with the Flesch-Kincaid Grade Level system through Microsoft Word to ensure that students with at least a sixth grade reading level could read the vignettes. The Flesch-Kincaid Grade Level was 6.5 for the typical vignette and 6.9 for the ADHD

vignette. See Table 4 for a breakdown of the ADHD symptoms described in the ADHD vignette.

Table 4

Description from ADHD Vignette and Symptom Type

ADHD Symptom Type	Description from Vignette
Inattention	Taylor has a hard time completing school assignments and turning them in on time.
Inattention	Taylor is easily distracted
Inattention	"zones out" in class or talks with classmates instead of doing schoolwork
Inattention	The teachers say that when Taylor does do work, it often looks rushed and contains many careless mistakes.
Impulsivity	Taylor blurts out in class.
Hyperactivity	Taylor talks a lot
Hyperactivity	moves quickly from one activity to another
Impulsivity	They also say that Taylor is a risk-taker and always looks for new and exciting things to try.
Inattention	Taylor has a messy room and loses things a lot
Inattention	Taylor's parents say that Taylor doesn't focus on what they say or ask, even when they repeat themselves

The second vignette depicted "Taylor" as a typical adolescent. The first vignette was broken down sentence by sentence. The number of sentences containing at least one negative description was counted, and seven of the 11 total sentences were identified as containing negative information. Then, the "typical student" vignette was constructed by writing a sentence to align with each sentence in the first ADHD vignette. For this vignette, the ADHD symptoms were changed but the positive characteristics remained the same from the first vignette.

To ensure that the two vignettes described the student in an unbiased way, feedback was sought from a group of eight graduate students. Each student was presented

with the two vignettes and asked to rate each on a scale of 0 to 10, with 0 being "Very Negatively", 5 being "Neutral" and "10" being "Very Positively." The majority of the group thought that the ADHD vignette (M = 4.00, SD = 1.07) was described more negatively than the typical vignette (M = 6.88, SD = 1.13). The two vignettes were revised and presented to another group of six graduate students for review. Again, each student was asked to read both vignettes and asked to rate each on the same 0 to 10 scale. This group rated the ADHD vignette (M = 5.17, SD = 0.41) and typical vignette (M = 5.33, SD = 0.52) similarly for how positive versus negative they were. See Table 5 to compare the two vignettes. Please see Appendix C and Appendix D for a copy of the ADHD vignette with the SAQ-B and the typical vignette with the SAQ-B.

Table 5

Sentence by Sentence Comparison of Vignettes

Sentence Number	ADHD Vignette	Typical Vignette
1	Taylor is in your grade.	Taylor is in your grade.
2	Taylor is outgoing and very social.	Taylor is outgoing and very social.
3	Taylor is smart but doesn't always get good grades because Taylor has a hard time completing school assignments and turning them in on time.	Taylor is smart and gets As and Bs though Taylor doesn't always turn in school assignments on time.
4	Taylor's teachers say that Taylor is easily distracted and "zones out" in class or talks with classmates instead of doing schoolwork	Taylor's teachers say that Taylor sometimes talks with classmates instead of doing schoolwork but is fine overall.
5	The teachers say that when Taylor does do work, it often looks rushed and contains many careless mistakes.	The teachers say that Taylor usually completes work though it contains careless mistakes once in awhile
6	Taylor's teachers also say that Taylor blurts out in class.	Taylor's teachers also say that usually, but not always, Taylor raises a hand to speak in class.

7	Taylor's friends say that Taylor talks a lot and moves quickly from one activity to another, but they say that Taylor is fun to hang out with.	Though Taylor's friends sometimes get into small disagreements (like any friends), they say that Taylor is fun to hang out with.
8	They also say that Taylor is a risk-taker and always looks for new and exciting things to try	They also say that Taylor likes to try new things.
9	At home, Taylor has a messy room and loses things a lot.	At home, Taylor has a messy room.
10	Taylor's parents say that Taylor doesn't focus on what they say or ask, even when they repeat themselves.	Taylor's parents say that Taylor doesn't always focus on what they say or ask but usually does.
11	Taylor's teachers, parents, and friends also say that Taylor is a good swimmer.	Taylor's teachers, parents, and friends also say that Taylor is a good swimmer.

Procedures

Two middle schools located in southwestern Florida in the local community were identified as sources for participants for the larger study. Once approval from the IRB, school board, and school principals was granted, recruitment of participants began. Parent consent letters explaining the goals of the project and how the goals would be undertaken were distributed at both schools in each homeroom class in both English and Spanish. See Appendix E for a copy of this letter. The PIs of the larger project provided their contact information to allow parents the opportunity to discuss any concerns or questions. Incentives were used to encourage student participation. First, any student who returned a signed parental consent form (regardless whether or not the parent consent form provided permission for the student to participate in the study) had his or her name entered into a drawing for one of two $25 gift cards to a local store. Two students in each grade (6-8) at both schools (a total of 12 students) were randomly selected to receive a

$25 gift card. Students were also given a small incentive for participating on the day of survey administration.

Child assent was also sought on the day of survey administration from students who received parental permission to participate. A letter delineating the purpose of the larger project and what participation involved was distributed and read to the students. Students had the opportunity to ask questions and withdraw from the study at any time. Please see Appendix F for a copy of this assent letter. Participants were also provided a copy for their records.

On the day of survey administration, participants received the pack of questionnaires. The questionnaires were counter-balanced with 6 different orders. The demographic questionnaire, the Shared Activity Questionnaire, the vignettes, and the Level of Contact Report were included in each packet. Participants randomly received only one Shared Activity Questionnaire and vignette so that half of the participants completed the Shared Activity Questionnaire for the ADHD vignette and the other half for the typical vignette. In total, there were 12 versions of the survey with six different orders and two possibilities for the vignette. The LCR was always separated by at least two measures from the SAQ-B to reduce any influence one might have on the other. One PI and trained graduate students were present in the room during administration to answer any questions and to ensure that participants were spaced far enough apart from one other and given folders to prop up on the tables to ensure they could not see one another's responses (which could influence how they answer the questionnaires).

Data collection occurred across five days with one primary day at each school as well as several make-up days for any participants who were absent on the day of survey

administration. Data collection occurred during students' elective periods which were indicated by the principals as the most convenient time for the school. Groups of five to 20 students assembled in the school libraries during their assigned data collection time, with the exception of one large group of approximately 50 students at School 2 who were split into two smaller groups and administered the surveys on opposite sides of their school cafeteria.

Research Questions, Statistical Analysis and Research Design

This current study utilized both true experimental and correlational designs, depending on the research question. The type of vignette (ADHD or typical) was manipulated and randomly assigned to participants, meeting the criteria for a true experiment. Measurements aside from the vignettes and SAQ-B were not randomly assigned to participants, nor were they manipulated, making research questions related to these measures correlational in design.

Prior to answering any research questions, Cronbach's alphas were computed for each scale of the SAQ-B. Item correlations within each scale, as well as correlations among the three scales and the total score, were also examined. Though randomization was used, to check that the participants who received the ADHD vignette were similar in demographic characteristics to the participants who received the typical vignette, chi square tests were performed for gender, ethnicity, and grade level.

Research question 1. How much familiarity do middle school students have with ADHD?

To address the first research question, descriptive statistics, including the mode, mean, standard deviation, and range on the scores for the revised Level of Contact Report were computed.

Research question 2. How does middle school students' willingness to engage in activities with a peer exhibiting symptoms of ADHD differ from their willingness to engage with a peer who does *not* exhibit symptoms of ADHD?

A. When considering *all* activities?

B. When considering *social* activities?

C. When considering *academic* activities?

D. When considering *active recreational* activities?

To address the second research question, descriptive statistics, including the mode, mean, standard deviation, and range on the scores for the SAQ-B were computed for the total score and for each of the subscale scores for the participants who received the typical vignette and again for the participants who received the ADHD vignette. Then, a multivariate analysis of variance (MANOVA) was computed to compare total scores and subscale scores (General Social, Academic, and Recreational) for the SAQ-B from participants receiving the ADHD vignette to total scores for SAQ from participants receiving the typical vignette. This test shows: (a) what the mean differences are between participants' willingness to engage with the student described in the ADHD vignette versus the student described in the typical vignette for the total and subscale scores, (b) if these mean differences are significant, and (c) whether or not there are any interaction effects. Assumptions in MANOVA are independent random sampling, normality, and multivariate homogeneity of variance. These were examined prior to data analysis.

Research question 3. How does middle school students' familiarity with ADHD predict their willingness to engage in activities with a peer exhibiting symptoms of ADHD?

A. When considering *all* activities?

B. When considering *social* activities?

C. When considering *academic* activities?

D. When considering *active recreational* activities?

To address the third research question, correlation matrices were first examined to explore relationships between the variables. Secondly, hierarchical multiple regression was performed. The regression analyses were run using the LCR scores (as the independent variable) and total score from the SAQ-B (as the dependent variable) from only the participants who received the ADHD vignette. Hierarchical multiple regression were also performed with the LCR scores and the subscale scores from the SAQ-B for each group to determine if there was a stronger relationship between familiarity and the different activity types (General Social, Academic, and Recreational). Gender, ethnicity, and grade (items #1, #2, #4 from the Demographics measure) were statistically controlled for all regressions.

Research question 4. How does middle school students' familiarity with ADHD predict their willingness to engage in activities with a typical peer?

To address the fourth research question, hierarchical multiple regression was first used to determine whether there were interaction effects between LCR scores and vignette type in predicting SAQ-B scores. Secondly, hierarchical multiple regression was performed. The regression analyses were run using the LCR scores (as the independent

variable) and total score from the SAQ-B (as the dependent variable) from only the participants who received the typical vignette. Hierarchical multiple regression were also performed with the LCR scores and the subscale scores from the SAQ-B for each group to determine if there was a stronger relationship between familiarity and the different activity types (General Social, Academic, and Recreational). Gender, ethnicity, and grade (items #1, #2, #4 from the Demographics measure) were statistically controlled for all regressions.

Chapter Four: Results

This chapter presents the results of the statistical analyses conducted to answer the research questions. First, steps taken to screen the data and conduct preliminary analyses are described. For the first research question, descriptive statistics are presented for the participants' Shared Activity Questionnaire-B (SAQ-B) scores for both the ADHD and typical vignettes. Additionally, results from a multivariate analysis of variance (MANOVA) conducted to determine whether significant differences exist between middle school students' willingness to engage with a peer with ADHD versus a typical peer are presented. For the second research question, descriptive statistics are presented for participants' Level of Contact (LCR) scores. For the third and fourth research questions, results of hierarchical multiple regressions are presented to determine how well participants' LCR scores predicted their SAQ-B scores for both the ADHD and typical vignettes.

Data Screening

Parental consent was obtained for a total of 198 students, which yielded a 10% return rate, given that total enrollment across both schools was 1,983 (School 1 n = 895; School 2 n = 1088). One-hundred eighty-three students were present and gave assent to participate in the study (9% of students enrolled across both schools). During the data screening processes, it was observed that there was a low frequency of participants who identified themselves as Asian/Pacific Islander (n = 5) on the Demographics measure, and all received the ADHD vignette (despite random assignment of the vignettes). Due to this low frequency, these five participants were excluded from data analyses. An

additional two participants were excluded for incomplete data as will be described below. Thus, the final dataset yielded a useable total sample of 176 participants.

Data were analyzed using SPSS Statistics 19.0. Averages for the SAQ-B composite score and three subscales were computed. Given that seven participants did not respond to every item on the SAQ-B, a criterion of 75% was set. Therefore, only participants who completed at least 16 of the 24 items on the SAQ-B composite and at least six of the eight items on each subscale were included in analyses. These criteria excluded two participants. Scores for the SAQ-B Total and three subscale scores were computed by averaging responses (rather than summing) to address the missing data. To avoid confusion, the SAQ-B Total score will subsequently be referred to as the SAQ-B Overall score while the three subscales will be referred to by their titles (General Social, Academic, Active Recreational).

On the LCR, the index for familiarity scores was the rank score of the most intimate situation indicated by the participant. For example, if the participant checked both the second ("I have watched a television show that included a person with Attention-Deficit/Hyperactivity Disorder;" score of 2) and third items ("I have observed a person with Attention-Deficit/Hyperactivity Disorder"; score of 3), the participant was given a score of three. Steps taken to include the 27 participants that did not endorse "yes" to any of the LCR items are detailed later in this chapter.

Descriptive analyses were conducted for the variables to check: (a) that data fell into expected ranges, (b) for normality by analyzing skewness and kurtosis, and (c) for outliers. All variables fell within expected ranges (i.e., SAQ-B scores ranged from 1 to 3 and LCR scores from 0 to 7). See Table 6 for descriptive statistics (e.g., minimums,

maximums, means) for the variables. The skewness and kurtosis for each variable were calculated and examined and fell within acceptable ranges. To screen for univariate outliers, all variable scores were converted into z-scores and compared to a criterion of 3.3 (which would indicate a very large standardized scores that are far from the mean of the distribution; Tabachnick & Fidell, 2007). No z-scores were larger than the specified criterion. To screen for multivariate outliers, Mahalanobis Distance was computed for each variable score and compared to a critical chi-square value ($T = 13.28$, $df = 4$). This critical value was obtained from a T-Table using four degrees of freedom for the four independent variables (LCR, gender, ethnicity, and grade level) and a *p*-value of .01 to ensure that each case was not significantly separated from the rest of the data (Tabachnick & Fidell, 2007); none exceeded this criterion.

Table 6

Descriptive Statistics for Variables

Variable	*N*	Minimum	Maximum	*M* (*SD*)	Skew	Kurtosis
ADHD SAQ-B						
Overall	83	1.04	3.00	1.92 (0.50)	0.17	-1.00
General						
Social	83	1.13	3.00	2.02 (0.53)	0.02	-0.93
Academic	83	1.00	3.00	1.68 (0.58)	0.74	-0.56
General						
Recreational	83	1.00	3.00	2.05 (0.60)	-0.07	-1.12
Typical SAQ-B						
Overall	93	1.00	3.00	2.11 (0.51)	-0.36	-0.66
General						
Social	93	1.00	3.00	2.13 (0.53)	-0.28	-0.81
Academic	93	1.00	3.00	2.07 (0.57)	-0.18	-0.90
General						
Recreational	93	1.00	3.00	2.15 (0.57)	-0.24	-0.66
LCR	176	0	7	3.00 (2.40)	0.13	-1.3

Note. ADHD SAQ-B and Typical SAQ-B refer to the vignette received by the participants. SAQ-B = Shared Activity Questionnaire-B; LCR = Level of Contact Report.

Preliminary Analyses

Preliminary analyses consisted of: (a) computing Cronbach's alphas for the overall and three subscales of the SAQ-B for each vignette, (b) examining item correlations within and between the overall and three subscales of the SAQ-B for each vignette, (c) examining the correlations between the key variables, (d) conducting Chi square tests for independence for gender, ethnicity, and grade level for participants who received the ADHD vignette and for participants who received the typical vignette.

The internal consistency of the SAQ-B was examined using Cronbach's alpha. Reliability for the overall scale and subscales was supported with strong Cronbach coefficients for those receiving the ADHD vignette (.94 for Overall, .86 for General Social, .90 for Academic, and .90 for Active Recreational) and the non-ADHD vignette (.95 for Overall, .87 for General Social, .89 for Academic, and .88 for Active Recreational). Mean item correlations within each of the SAQ-B scales for the ADHD vignette were obtained for Overall (.41), General Social (.44), Academic (.53), and Active Recreational (.52). Mean item correlations within each of the SAQ-B scales for the typical vignette were also obtained for Overall (.45), General Social (.46), Academic (.50), and Active Recreational (.49). Correlations among the SAQ-B scales for the ADHD vignette ranged from .54 (Academic and Active Recreational) to .93 (General Social and Overall) and for the non-ADHD vignette .71 (Academic and Active Recreational) to .95 (General Social and Overall). See Table 7 for correlations between SAQ-B and LCR.

Table 7

Correlation Matrices for Variables

Vignette	Overall	General Social	Academic	Active Recreational	LCR
ADHD					
Overall	1	-	-	-	-
General Social	.93	1	-	-	-
Academic	.83	.67	1	-	-
Active Recreational	.90	.82	.54	1	-
LCR	-.16	-.15	-.06	-.21	1
Typical					
Overall	1	-	-	-	-
General Social	.95	1	-	-	-
Academic	.90	.78	1	-	-
Active Recreational	.92	.85	.71	1	-
LCR	-.03	-.06	.02	-.04	1

Note. LCR = Level of Contact Report

To ensure that the participants who received the ADHD vignette did not significantly differ from the participants who received the typical vignette in terms of gender, ethnicity, or grade level, three Chi-square tests for independence were employed. A Chi-square test for independence (with Yates Continuity Correction) indicated no significant relationship between vignette and gender, χ^2 (1, N = 178) = .07, p = .48, *phi* =

-.07. A second and third Chi-square test for independence indicated no significant relationship between vignette and ethnicity, χ^2 (3, N = 178) = 0.90, p = 0.82 or between vignette and grade level, χ^2 (2, N = 178) = 0.07, p = 0.96. Thus, the two vignette groups were not significantly different along these variables. See Table 8 for demographic frequencies for each vignette.

Table 8

Demographic Variable Frequencies and Percentages for Each Vignette

Variable	ADHD Vignette *n* (%)	Typical Vignette *n* (%)	χ^2
Gender			0.07
Female	51 (61.4)	63 (67.7)	
Male	32 (38.6)	30 (32.3)	
Ethnicity			0.90
African American/Black	23 (27.7)	25 (26.9)	
White	28 (33.7)	36 (38.7)	
Hispanic	25 (30.1)	27 (29.0)	
Other	7 (8.4)	5 (5.4)	
Grade			0.07
6	39 (47.0)	44 (47.3)	
7	20 (24.1)	24 (25.8)	
8	24 (28.9)	25 (26.9)	

To determine if the participants in the sample who reported having ADHD on the LCR were different from those who did not reporting having ADHD, demographic variables of this group were examined. Ten of the sixteen middle school students reporting that they had ADHD were female. Regarding ethnicity, three were African American/Black, eight were White, four were Hispanic, and one was Other. Twelve of the 16 were in 6th grade, one in 7th, and three in 8th. These percentages were similar to those found in the overall sample. It was also determined how many students who indicated they had ADHD on the LCR fell into each of the vignette groups. Of these 16 students, eight fell into each of the vignette groups.

Research Question 1

To address this first research question, regarding much familiarity middle school students have with ADHD,, descriptive statistics were computed for all participants' LCR scores. Participants' LCR scores were assigned based on the highest item number to which they responded "yes". One hundred and twenty-nine participants (73.30%) responded "yes" to at least one of the LCR items numbered two (I have watched a television show that included a person with Attention Deficit/Hyperactivity Disorder) through eight (I have Attention-Deficit/Hyperactivity Disorder), signifying some type of exposure to ADHD. One hundred and sixteen participants (65.90%) responded yes to at least one of the LCR items numbered three (I have observed a person with Attention-Deficit/Hyperactivity Disorder) through eight, signifying they have had a personal encounter with a person with ADHD. "I have been in a class with a person with ADHD" was the modal response, and 9.10% of participants endorsed having ADHD themselves. Twenty-seven participants (15.30%) did not endorse "yes" on any of the LCR items,

which led to conflicting responses (i.e., these participants responded no to item number 1 "I have never observed a person with Attention-Deficit/Hyperactivity Disorder (ADHD)" and yet also responded no to all of the other items related to contact with persons with ADHD). See Table 9 for a summary of these descriptive statistics.

To further validate the use of the Guttman score, several correlations were examined. To ensure that participants who responded "yes" to multiple items on the LCR were represented by their LCR score, correlations between the sum score of the LCR (the total number of items to which the participant responded "yes") with the LCR Guttman score were examined. The sum score of the LCR was highly positively correlated with the LCR Guttman score (r=.84), giving validity to the Guttman score. To further investigate the validity of the LCR scores, correlations between participants' response to an item after the vignettes ("Do you know someone like Taylor?") with LCR scores were examined. A small, positive correlation (r=.24) was found for participants who received the ADHD vignette and responded "yes" to the item (indicating they knew someone like Taylor) and their LCR scores. Contrary to this finding, no correlation (r=.00) was found for participants who received the typical vignette and responded yes to the item and their LCR scores, providing additional support for the validity of the LCR scores.

Table 9

Frequencies of Level of Contact Report Items

Item	*N* (*N* = 176)	%
No items endorsed	27	15.30
1. I have never observed a person with Attention-Deficit/Hyperactivity Disorder (ADHD).	20	11.40
2. I have watched a television show that included a person with Attention Deficit/Hyperactivity Disorder (ADHD).	13	7.40
3. I have observed a person with Attention-Deficit/Hyperactivity Disorder (ADHD).	13	7.40
4. I have been in a class with a person with Attention-Deficit/Hyperactivity Disorder (ADHD).	28	15.90
5. A friend of the family has Attention-Deficit/Hyperactivity Disorder (ADHD).	20	11.40
6. I have a relative who has Attention-Deficit/Hyperactivity Disorder (ADHD).	21	11.90
7. I live with a person who has Attention-Deficit/Hyperactivity Disorder (ADHD).	18	10.20
8. I have Attention-Deficit/Hyperactivity Disorder.	16	9.10

Research Question 2

To address this research question, regarding how middle school students' willingness to engage in activities with a peer exhibiting symptoms of ADHD differs from their willingness to engage with a peer who does *not* exhibit symptoms of ADHD, descriptive statistics for the SAQ-B scores were first computed for participants who received the ADHD vignette and for participants who received the typical vignette.

Higher scores indicate more willingness to engage. As shown in Table 10, mean scores for participants receiving the ADHD vignette were lower across all scales compared to scores for participants receiving the typical vignette.

Table 10

SAQ-B Scores for Each Vignette

Vignette	*N*	SAQ-B Overall *M* (*SD*)	General Social *M* (*SD*)	Academic *M* (*SD*)	Active Recreational *M* (*SD*)
ADHD	83	1.92 (0.50)	2.02 (0.53)	1.68 (0.58)	2.05 (0.60)
Typical	93	2.12 (0.51)	2.13 (0.53)	2.07 (0.57)	2.15 (0.57)

Note. All scales had a possible range of 1 to 3.

Effect sizes, measured by Cohen's *d*, were computed to determine the average differences between the two vignette groups. SAQ-B Overall ($d = 0.40$) and Academic ($d = 0.68$) both yielded moderate effect sizes while General Social ($d = 0.20$) and Active Recreational ($d = 0.17$) yielded small effect sizes. Thus, there was a moderate difference between participants' responses on the Overall and Academic scales on the SAQ-B for the ADHD vignette versus the typical vignette but a small difference for General Social and Active Recreational.

Next, a multivariate analysis of variance (MANOVA) was performed to compare SAQ-B scores of each vignette group to determine if there were any significant differences between groups. Four dependent variables were used, SAQ-B Overall, General Social, Academic, and Active Recreation. The independent variable was the vignette (ADHD or typical). MANOVA assumptions were tested to check for linearity of the dependent variable, multivariate normality, and multivariate homogeneity of variance.

No violations of univariate or multivariate normality were found; however, the Box's Test of Equality of Covariance Matrices was used to test the assumption of multivariate homogeneity of variance and indicated this assumption had been violated, Box's M = 187.76, F (20, 140526.15) = 18.31, p = .00. Given that Box's Test is highly sensitive with large sample sizes (Tabachnick & Fidell, 2007), the researcher proceeded with the MANOVA test, but results should be interpreted with caution.

A statistically significance difference between vignette groups was found on the combined dependent variables, F (4, 171) = 6.53, p = 0.00; Wilks' Lamda = .87; partial eta squared = .13. When the dependent variables were considered separately with a Bonferroni adjusted alpha level of .013, statistically significant group differences were found for SAQ-B Academic scores, F (1, 174) = 19.42, p=.00, partial eta squared=.10. Specifically, participants indicated significantly greater willingness to engage in academic activities with a typical peer than one with ADHD. For General Social (F (1, 174) = 2.06, p = .15, partial eta squared=.01) and Active Recreational activities (F (1, 174) = 1.34, p =. 25, partial eta squared=.01), no significant differences were found.

Research Question 3

Hierarchical multiple regressions were used to assess how well participants' LCR scores predicted SAQ-B Overall scores, after controlling for the influence of gender, ethnicity (dummy codes were used for these variables with White being the reference group and Black/African-American, Hispanic, and Other being dummy coded), and grade level. Only data from participants who received the ADHD vignette were included. Participants who did not endorse any of the LCR items were grouped with participants

who endorsed only item one ("I have never observed a person with Attention-Deficit/Hyperactivity Disorder"; score of 0) for this analysis.

For the first hierarchical multiple regression, gender, ethnicity, and grade level were entered at Step 1, explaining 5.1% of the variance in SAQ-B Overall scores. After LCR scores were entered at Step 2, the total variance explained by the model was 6.9%, *F*, (6, 76)=.94, *p* =.48). After controlling for gender, ethnicity, and grade level, LCR scores explained an additional 1.7% of the variance in SAQ-B Average scores, *R* squared change = .02, *F* change (1, 76)= 1.42, *p* = .24. This change was not significant ($p > .05$). In the final model, LCR scores were not statistically significant.

A second hierarchical multiple regression was used to assess how well the LCR scores of participants who received the ADHD vignette predicted SAQ-B General Social scores after controlling for the influence of gender, ethnicity, and grade level. Gender, ethnicity, and grade level were entered at Step 1, explaining 6.6% of the variance in SAQ-B General Social scores. After LCR scores were entered at Step 2, the total variance explained by the model was 8.1%, *F* (6, 76)=1.11, *p* =.38. After controlling for gender, ethnicity, and grade level, LCR scores explained an additional 1.5% of the variance in SAQ-B General Social scores, *R* squared change = .02, *F* change (1, 76)= 1.22, *p*=.27. This change was not significant ($p > .05$). In the final model, LCR scores were not statistically significant.

A third hierarchical multiple regression was used to assess how well the LCR scores of participants who received the ADHD vignette predicted SAQ-B Academic scores after controlling for the influence of gender, ethnicity, and grade level. Gender, ethnicity, and grade level were entered at Step 1 and explained 7.9% of the variance in

SAQ-B Academic scores. After LCR scores were entered at Step 2, the total variance explained by the model was 8.0%, *F (*6, 76) = 1.10, *p* =.38. After controlling for gender, ethnicity, and grade level, LCR scores explained an additional .1% of the variance in SAQ-B Academic scores, *R* squared change = .00, *F* change (1, 76)= .09, *p*=.77. This change was not significant (*p* > .05). In the final model, LCR scores were not statistically significant.

A fourth hierarchical multiple regression was used to assess how well LCR scores of participants who received the ADHD vignette predicted SAQ-B Active Recreational scores after controlling for the influence of gender, ethnicity, and grade level. Gender, ethnicity, and grade level were entered at Step 1 and explained 1.6% of the variance in SAQ-B Academic scores. After LCR scores were entered at Step 2, the total variance explained by the model was 5.3%, *F* (6, 76)=.71, *p* = .64. After controlling for gender, ethnicity, and grade level, LCR scores explained an additional 3.7% of the variance in SAQ-B Active Recreational scores, *R* squared change = .04, *F* change (1, 76)= 3.01, *p* =.08. This change was not significant (*p* > .05). In the final model, LCR scores were not statistically significant.

Overall, participants' familiarity with ADHD did not predict their willingness to engage with a peer with ADHD across different types of activities. Table 11 contains a summary of findings from these hierarchical multiple regressions.

Table 11

Summary of Hierarchical Regression Analysis for LCR Predicting ADHD Vignette SAQ-B, N = 83

	SAQ-B Overall			General Social			Academic			Active Recreational		
Variable	*B*	*SE B*	Beta	*B*	*SE B*	Beta	*B*	*SE B*	Beta	*B*	*SE B*	Beta
Step 1												
Male	-.06	.12	-.06	-.10	.12	-.09	-.03	.13	-.02	-.06	.14	-.05
African American/Black[a]	-.03	.15	-.02	-.11	.15	-.09	-.01	.17	-.01	.03	.17	.03
Hispanic [a]	-.01	.14	-.01	-.02	.15	-.01	-.05	.16	-.04	.03	.17	.02
Other[a]	-.25	.21	-.14	-.35	.22	-.19	-.20	.25	-.10	-.20	.26	-.09
Grade	-.09	.07	-.16	-.09	.07	-.14	-.17	.08	-.25	-.03	.08	-.04
Step 2												
LCR	-0.03	0.02	-0.13	-0.03	0.02	-0.12	-0.01	0.03	-0.03	-0.05	0.03	-0.20
R^2		.02			.02			.00			.04	
F for change in R^2		1.42			1.22			0.09			3.01	

Note. LCR = Level of Contact Report; SAQ-B = Shared Activity Questionnaire-B; Grade = Grade Level

[a]As compared to White participants.

Research Question 4

Hierarchical multiple regression was used to assess how well participants' LCR scores predicted SAQ-B Average scores, after controlling for the influence of gender, ethnicity, and grade level. Dummy codes were created for the ethnicity variables. Only data from participants who received the typical vignette were included. Participants who did not endorse any of the LCR items were grouped with participants who endorsed only item one ("I have never observed a person with Attention-Deficit/Hyperactivity Disorder"; score of 0) for this analysis.

For the first hierarchical multiple regression, where the dependent variable was SAQ-B Overall scores, gender, ethnicity, and grade level were entered at Step 1, explaining 10.7% of the variance in SAQ-B Average scores. After LCR scores were entered at Step 2, the total variance explained by the model was 10.8%, F (6, 86) = 1.74, p =.12). After controlling for gender, ethnicity, and grade level, LCR scores explained an additional .1% of the variance in SAQ-B Overall scores, R squared change = .00, F change (1, 86) = .14, p = .71. This change was not significant ($p > .05$). In the final model, none of the variables were statistically significant.

For the second hierarchical multiple regression, gender, ethnicity, and grade level were entered at Step 1, explaining 11.2% of the variance in SAQ-B General Social scores. After LCR scores were entered at Step 2, the total variance explained by the model was 11.7%, F (6, 86) = 1.90, p = .09). After controlling for gender, ethnicity, and grade level, LCR scores explained an additional .5% of the variance in SAQ-B General Social scores, R squared change = .01, F change (1, 86)= .47, p = .50. This change was

not significant ($p > .05$). In the final model, none of the variables were statistically significant.

For the third hierarchical multiple regression, gender, ethnicity, and grade level were entered at Step 1, explaining 11.2% of the variance in SAQ-B Academic scores. After LCR scores were entered at Step 2, the total variance explained by the model was 11.2%, F (6, 86) = 1.81, p = .11. After controlling for gender, ethnicity, and grade level, LCR scores explained no additional variance in SAQ-B Academic scores, R squared change = .00, F change (1, 86)= .01, p = .91. This change was not significant ($p > .05$). In the final model, none of the variables were statistically significant.

For the fourth hierarchical multiple regression, gender, ethnicity, and grade level were entered at Step 1, explaining 7.9% of the variance in SAQ-B Active Recreational scores. After LCR scores were entered at Step 2, the total variance explained by the model was 8.0%, F (6, 86) = 1.25, p = .29. After controlling for gender, ethnicity, and grade level, LCR scores explained an additional .1% variance in SAQ-B Active Recreational scores, R squared change = .00, F change (1, 86)= .07, p = .79. This change was not significant ($p > .05$). In the final model, none of the variables were statistically significant.

Overall, participants' familiarity with ADHD did not predict their willingness to engage with a typical peer. Table 12 contains a summary of findings from these hierarchical multiple regressions

Table 12

Summary of Hierarchical Regression Analysis for LCR Predicting Typical Vignette SAQ-B, N = 93

	SAQ-B Overall			General Social			Academic			Active Recreational		
Variable	*B*	*SE B*	Beta	*B*	*SE B*	Beta	*B*	*SE B*	Beta	*B*	*SE B*	Beta
Step 1												
Male	-.10	.12	-.09	-.13	.20	-.12	.01	.13	.01	-.16	.13	-.13
African American/Black[a]	-.01	.13	-.01	.00	.14	.00	.03	.15	.03	-.06	.15	-.05
Hispanic[a]	.13	.13	.12	.10	.13	.08	.18	.15	.14	.13	.15	.10
Other[a]	.16	.24	.07	.21	.25	.09	.36	.27	.14	-.09	.27	-.03
Grade	.16	.07	.27	.16	.07	.26	.19	.07	.28	.14	.07	.20
Step 2												
LCR	-0.01	0.02	-0.04	-0.02	0.02	-0.07	-0.00	0.03	-0.01	-0.01	0.03	-0.03
R^2		.00			.01			.00			.00	
F for change in R^2		0.14			0.47			0.01			0.07	

Note. LCR = Level of Contact Report; SAQ-B = Shared Activity Questionnaire-B; Grade = Grade Level

[a]As compared to White participants.

Chapter Five: Discussion

The primary purposes of this current study were: a) explore middle school students' familiarity with ADHD, b) to investigate middle school students' willingness to engage with a peer exhibiting ADHD symptoms; and c) determine whether familiarity with ADHD predicted middle school students' willingness to engage with a peer with ADHD symptoms or a typical peer.

This chapter summarizes the results of this current study and discusses the findings in the context of existing literature. First, a discussion of results and significant findings is presented followed by the implications of these results for school psychologists, limitations, and directions for future research.

Middle School Students' Familiarity with ADHD

The purpose of the first research question was to document how familiar middle school students are with persons with ADHD. Given the prevalent nature of ADHD (APA, 2000; Biederman, Faraone, Milberger, Curtis, Chen, Marrs et al., 1996), it would appear that a typical middle school student would have some contact with an individual with ADHD. Law and colleagues (2007) found 63% of their sample of young adolescents in the United Kingdom reported knowing someone with ADHD symptoms but only 8% reported knowing something about ADHD. This current study yielded much more information about adolescents' familiarity with ADHD. Specifically, over 70% of participants indicated some level of contact with ADHD, varying from watching a television show that included a person with ADHD to actually having ADHD themselves. Additionally, nearly a third of participants reported having significant familiarity with ADHD by being related to someone with ADHD, living with a person who has ADHD,

or by having ADHD themselves. Notably, approximately 9% of participants reported having ADHD themselves. Approximately 11% of the sample reported never having observed a person with ADHD and 15% did not endorse any of the items on the measurement scale. Participants in the present study appear to have somewhat less exposure to ADHD than the younger sample (ages eleven and twelve) surveyed by Law and colleagues where 63% indicated knowing someone with ADHD symptoms (2007).

These findings are significant for several reasons. The majority of middle school students have contact with persons with ADHD. Furthermore, middle school students themselves report this contact; that is, middle school students are aware that they often are in direct contact with persons with ADHD.

Middle School Students' Willingness to Engage with a Peer Displaying ADHD Symptoms

One purpose of this research was to determine whether middle school students would be less willing to engage in activities with peers described as ADHD as compared to a typical peer. Overall, middle school students were less willing to engage in activities with a peer described with ADHD than with a typical peer. When activities were separated by type (i.e., social, academic, and recreational), significant differences emerged for only academic activities.

Taken together, these results regarding differences in middle school students' willingness to engage with peers displaying ADHD symptoms versus a typical peer are significant. Previous research using similar methodology has documented adolescents' reluctance to engage with a peer with ADHD symptoms (Law, Sinclair, & Fraser, 2007; Walker, Coleman, Lee, Squire, & Friesen, 2008). However, the vignette used in this

study to describe the student with ADHD included both positive and negative characteristics, whereas in previous studies, only negative symptoms of ADHD were used to describe the fictional student. Additionally, the ADHD vignette did not include an ADHD label, only the behavioral symptoms of ADHD. These findings demonstrate that even with the inclusion of positive characteristics and the lack of an ADHD label, middle school students were still less likely to express willingness to engage academically with a student described with ADHD symptoms than with a typical peer, suggesting that it is something about the ADHD symptoms leading to middle school students' reluctance. This finding is consistent with previous research showing that adolescents' perceptions of a mental illness are more impacted by the specific symptoms displayed rather than the label of that mental illness (Roberts, Beidleman, & Wurtele, 1981).Importantly, this reluctance to engage with a peer with ADHD symptoms did not apply to all types of activities, with no statistically significant differences on social and active recreational activities. However, middle school students were statistically significantly less willingness to engage with a peer with ADHD symptoms than a typical peer on academic activities.

When compared to other studies that also used the Shared Activity Questionnaire-B (SAQ-B), the findings from the current study further emphasized that adolescents appear reluctant to engage academically with a peer with ADHD symptoms (effect sizes, measured by Cohen's *d* (with .80 suggesting a large effect, .5 a medium effect, and .2 a small effect), were computed to determine the average differences.). For example, when comparing mean SAQ-B scores, middle school students in the present study were less willing to engage with a peer displaying ADHD symptoms on academic activities than

similarly aged adolescents were to engage with an obese peer on academic activities (Greenleaf, Chambliss, Rhea, Martin, & Morrow, 2006). Notably, differences between participants' willingness in the present study to engage with a peer with ADHD symptoms did not differ as greatly from males' willingness to engage with an obese peer on academic activities (d = .16), as they did when compared to females' willingness to engage with an obese peer on academic activities (d = .78; Greenleaf et al. reported participant SAQ-B scores by gender). However, participants in the present study were more willing to engage with a peer displaying ADHD symptoms on General Social and Active Recreational activities. In these comparisons, participants' willingness to engage with a peer with ADHD symptoms in the present study differed more from males' willingness to engage with an obese peer (General Social, d = 1.05; Active Recreational, d = .68) than from females (General Social, d = .39; Active Recreational, d = .12). On the contrary, middle school students in the current study were also less willing to engage with a peer with ADHD symptoms on academic activities than sixth grade students were to engage with a peer with Autism on *all* activity types (General Social, d = .67; Academic d = 1.47; Active Recreational d = .24), with the largest different emerging for academic activities (Swaim & Morgan, 2001). Importantly, middle school students in the present study were more willing to engage with a peer with ADHD symptoms than participants were in a slightly younger sample, even when academic activities were considered (Law, Sinclair, & Fraser, 2007; SAQ-B Total, d = .58; General Social, d = .72; Academic d = .27; Active Recreational d = .55), thought the smallest difference appeared for academic activities. One plausible explanation for this finding is that the present study included positive characteristics in the description of the student with

ADHD while Law and colleagues did not, although the age difference between the samples could have also accounted for this difference. Results of the present study also differed from one conducted by Saecker and colleagues (2010), in which there was no difference between high school students' willingness to engage in social or academic activities with a peer with ADHD. However, Saecker and colleagues (2010) used a different measure than the SAQ-B to assess participants' behavioral intentions, which make direct comparisons difficult. A possible reason for this difference in findings across activity types could relate to the independent variable used (an informational video presenting facts to dispel common myths about ADHD, rather than a vignette) or the age of the participants (high school rather than middle school).

Collectively, these results and comparisons suggest that, despite the inclusions of both positive and negative characteristics to describe the student's interactions in both social and academic domains, young adolescents tend to be less willing to engage in academic activities with a peer with ADHD symptoms. In addition, adolescents appear to be less willing to engage with a peer displaying ADHD symptoms than with a peer with other disabilities. Findings of the present study related to academic activities were consistent with previous work, but less consistent with regard to social and recreational activities.

One hypothesis for adolescents' reluctance to engage with a peer with ADHD symptoms on academic activities may be that adolescents consider a peer's difficulties with academic activities (e.g., studying together, working together on a school report) as potentially detrimental to their own academic success when they work together. With social activities (e.g., inviting the peer to a party, eating lunch together) and active

recreational activities (e.g., picking the peer to be on a soccer team, riding bikes together), adolescents could perceive the manifestation of ADHD symptoms in the vignette as exciting and interesting rather than as problematic or barriers to an enjoyable time.

In sum, these findings underscore that adolescents are reluctant to engage in academic activities with peers exhibiting ADHD symptoms. The practical implications of these findings are important as well, as middle school students appear to perceive ADHD symptoms as a bigger issue when working on school projects and academic tasks than when playing sports or going to social events.

Relationship between Familiarity and Shared Activities with a Peer Exhibiting Symptoms of ADHD

The purpose of the third research question was to explore the extent to which middle school students' familiarity with ADHD predicted their willingness to engage with a peer displaying ADHD symptoms. In this study, familiarity with ADHD was not found to predict willingness to engage with a peer with ADHD. That is, previous contact with persons with ADHD did not make an adolescent more or less willing to engage in activities with a peer exhibiting ADHD symptoms. In fact, the bivariate relationship between the LCR and SAQ-B was in the opposite direction as expected. Specifically, as a student reported more familiarity with ADHD, or LCR scores increased, they reported lower scores on all subscales of the SAQ-B, meaning that they were less willing to engage in various activities with a young adolescent with ADHD symptoms. Given that previous research in this area is both limited and mixed, these results have implications for future research.

Past conceptualizations of individuals' perceptions of others with mental illness have included level of familiarity with mental illness as an important factor. In one of the primary models of attitude development toward mental illness, the Etiology and Effects of Stigma Model (Martin, Pescosolido, Olafsdottir, & McLeod, 2007), an individual's knowledge of mental illness and previous contact with persons with mental illness are thought to positively shape that individual's attributions made about a person with mental illness, and lead to less stigmatizing attitudes toward others with mental illness. Research on adults' perceptions has supported the idea that familiarity relates to more positive perceptions (Corrigan, Edwards, Green, Diwan, & Penn, 2001), but the findings for adolescents have been mixed. In fact, Corrigan and colleagues (2005) found a negative relationship between adolescents' contact with someone with mental illness and their perceptions of people with mental illness, which corresponds with the findings in the present study. In the sole previous examination of adolescent familiarity and perceptions of ADHD specifically, Law et al. (2007) found no significant relationship between the two. While this current study builds upon the work of Law and colleagues by using a more comprehensive scale of familiarity with ADHD, again, familiarity with ADHD did not emerge as a predictor of willingness to engage. One hypothesis for this lack of finding is that the outcome of participants' contact with ADHD was not assessed. Past research suggests that whether participants' contact with ADHD was a positive or negative experience may be an important part of this relationship (Martin et al., 2007). Thus, perhaps if an adolescent has previous positive experiences with a person with ADHD, then he or she may be more likely to engage in activities with peer with ADHD

while the converse may be true for an adolescent with previous negative experiences with a person with ADHD.

Past research has also suggested that the type of attributions adolescents make about their peers with disabilities may impact how familiarity relates to their willingness to engage. In the Attribution Model, another model of attitude development toward mental illness, how responsible individuals perceive a person with a mental illness to be for their own condition relates to the attitudes that individual has about that person with mental illness (Corrigan, Lurie, Goldman, Slopen, Medasani, & Phelan, 2005; Corrigan, Watson, Otey, Westbrook, Gardner, Lamb, et al., 2007; Weiner, 1995). Therefore, whether middle school students in the present study perceived the student in the ADHD vignette to be personally responsible for his or her ADHD symptoms (e.g., "Taylor" makes careless mistakes because he/she is lazy) or perceived that the peer was not responsible for his or her ADHD symptoms (e.g., "Taylor" makes careless mistakes because he/she has difficulty self-regulating) could potentially impact how willing or unwilling the adolescents were to engage in activities with that peer. The attributions participants made about the vignette characters were not assessed in the present study and therefore how this factor related to the relationship between familiarity and willingness to engage was unable to be evaluated.

Relationship between Familiarity and Shared Activities with a Typical Peer

The purpose of this fourth research area was to explore how well middle school students' familiarity with ADHD predicted their willingness to engage with a typical peer. This area was investigated primarily to determine, if familiarity with ADHD did predict willingness to engage with a peer with ADHD symptoms, whether that

relationship was actually meaningful. In other words, if familiarity with ADHD also predicted willingness to engage with any peer, then this finding would be less meaningful than just finding a link between familiarity with ADHD and willingness to engage with a peer with ADHD. However, in this study, familiarity with ADHD was not found to predict either willingness to engage with a peer with ADHD or with a typical peer. Therefore, familiarity with ADHD had no significant relationship with middle school students' willingness to engage in activities with a peer; meaning, that middle school students' exposure to ADHD did not influence their willingness to engage in activities with a peer.

In sum, results of this study revealed that middle school students report significant contact with ADHD with over 70% reporting having some type of contact with the disorder. Middle school students were overall significantly less willing to engage with adolescents with ADHD versus a typical adolescent. When activities were separated into type, differences emerged only for academic activities. Thus, middle school students were just as willing to engage in social and recreational activities with a peer with ADHD symptoms as a typical peer, but they were significantly less likely to engage in academic tasks with a peer with ADHD symptoms. However, a student's familiarity with ADHD did not predict how willing middle school students were to engage with a peer with ADHD symptoms.

Implications of the Results for School Psychologists

Given the prevalence of ADHD among adolescents and the obstacles associated with this disorder, school psychologists frequently work with adolescents with ADHD. Specifically, school psychologists report receiving approximately 17 referrals a year

related to ADHD with a significant amount of work time devoted to assessing and providing treatment for students with ADHD (Demaray, Schaefer, & DeLong, 2003). Findings from this study emphasize the vulnerability of adolescents with ADHD and contribute to practitioners' knowledge regarding the social difficulties this population experiences. These findings demonstrate that middle school students are reluctant to engage in academic activities with peers displaying ADHD symptoms. Presumably, middle school students perceive ADHD symptoms as a more significant issue when working on school projects and academic tasks than when playing sports or going to social events. Therefore, difficulty engaging successfully with peers on academic tasks is a potential functional deficit adolescents with ADHD may encounter and which may require intervention.

Summer treatment programs for ADHD provide some guidance to potential effective interventions for addressing this deficit. While traditional social skills training (school-based or in a clinic) lacks empirical support for the treatment of social deficits associated with ADHD (Pelham & Fabiano, 2008), empirically supported summer treatment programs for ADHD suggest a different approach (Pelham, Gnagy, Greiner, Waschbusch, Fabiano, & Burrows-MacLean, 2010). The summer treatment program (STP) is a manualized behavioral intervention for students with ADHD that consists of behavior modification, sports skills training, social skills training, and problem-solving skills training in an integrated program. Sports skills training consists of daily small-group skills training and play in age-appropriate sports and games where team memberships and sportsmanship are emphasized. Reinforcement for skills taught is embedded into students' recreational activities through continuous prompts and

reinforcement. STP has been shown to improve both students' classroom behavior and behavior in recreational settings with decreases shown in frequency of rule violations, conduct problems, and negative verbalizations, increases in activity rule following, and student reports that they get along better with peers during the program (Chronis, Fabiano, Gnagy, Onyango, Pelham, Williams, et al., 2004; Fabiano, Pelham, Gnagy, Wymbs, Chacko, Coles, et al., 2007).

The success of the STP suggests that teaching specific skills in an applied setting and then building reinforcement into their daily activities for displaying those skills is a viable method for improving the interpersonal behaviors of students with ADHD symptoms. Therefore, applying these types of interventions to the enhancement of students' academic work skills, such as academic enablers, may also be an effective approach. Academic enablers are defined as "attitudes and behaviors that allow a student to participant in and ultimately benefit from academic instruction in the classroom" (DiPerna & Elliott, 2002, p. 294), and include motivation, interpersonal skills, engagement, and study skills. Previous research has found that academic enablers were a significant predictor of reading achievement, even after ADHD symptoms were accounted for (Volpe, DuPaul, DiPerna, Jitendra, Lutz, Tresco, et al., 2006), and has highlighted the need to consider not just reducing core symptoms of ADHD but to also target academic skills and enablers as a part of a treatment plan (DuPaul, 2007). Findings from this current study may also suggest that enhancing academic enablers in students with ADHD symptoms could have social, as well as academic, benefits. Given that middle school students were less willing to engage in students with ADHD symptoms academically, it stands to reason that enhancing academic enablers (motivation,

engagement, study skills, interpersonal skills) would also improve a student's desirability as an academic work partner. Like social skills and sports skills, students with ADHD symptoms could potentially benefit from learning academic work skills, such as how to be better academic work partners. While the summer treatment programs provide more intensive services than typically feasible at schools, the success of this program, coupled with the findings of this study that academic activities may be particularly problematic for adolescents with ADHD, suggest that teaching students with ADHD how to be better work partners may be an avenue for future research.

The Challenging Horizons Program (CHP) provides another good model of intervention research relevant to the findings of this study. CHP is an intervention program that has focused on improving academic outcomes in youth with ADHD that has been implemented in the schools through a manualized after school program that targets interpersonal behavior, academic success, family functioning, and disruptive behavior (Evans, 2001). Academic components of CHP consist of teaching students specific academic skills (e.g., note taking skills, skills, written language skills), organization techniques for their school materials, and time management to plan ahead for school assignments and tests. CHP also includes goal setting, behavior management, and recreational time. CHP has resulted in positive outcomes in organization and homework management skills, teacher ratings of student academic impairment and GPA in students with ADHD in grades four through seven after participating in CHP two days a week for eight weeks (Langberg, Epstein, Urbanowicz, Simon, & Graham, 2008) and improvements found in parent-rated academic progress, self-esteem, and overall severity of problems for middle school students after participating in CHP for four days a week

(Langberg, Smith, Bogle, Scmidt, Cole, & Pender, 2007). These findings are promising in that they indicate that explicitly teaching students with ADHD symptoms academic enabling types of skills (e.g., organization, time management etc.) is beneficial to improving their academic success. Future research on this program that includes an examination of whether the academic interventions utilized in this study result in improved academic interactions with peers will be useful in determining how school psychologists can best intervene and support both the academic and social outcomes of students with ADHD.

Aside from intervening with the students with ADHD symptoms themselves, their peers could also be the focus of intervention. Saecker and colleagues (2010) presented a potentially useful intervention for adolescents which comprised of showing a video depicting a peer with ADHD who discussed several myths associated with the disorder and presented information to dispel those myths. Researchers concluded that the video resulted in increased students' knowledge of ADHD, though this knowledge increase did not relate to increased willingness to engage with the student with ADHD in the video, suggesting that some modifications to the intervention may be necessary to increase students' willingness to engage with a student with ADHD symptoms. Understanding how to best support middle school students with ADHD symptoms by intervening with their peers is an area for future research.

Limitations of Current Study

A few limitations potentially threaten the validity of this study's findings. These limitations include generalizability of the sample, use of self-report measures, use of the LCR, and lack of outcome or attribution measurement.

The sample was a convenience sample, and for this reason there may be several limitations with the generalizability to other students. First, students who returned their consent forms may have been different from other students. The study's low response rate (10% of total population, approximately 12% of eligible population) is another limitation. This response rate is lower than that found in previous studies surveying middle school students about ADHD (Doherty, Frankenberger, Fuhrer & Snider, 2000, 80%; Law, Sinclair, & Fraser, 2007, 28%). However, it is unclear whether the middle schools featured in those previous studies were similar to the ones sampled in the present study in terms of demographic variables. Due to these limitations, the sample may not be representative of all middle school students, limiting the external validity of the study findings. The sample of the current study was limited to students from two public middle schools in the southeastern United States. It is noted, however, that the current sample was fairly representative overall to the district population in terms of ethnicity though not as well represented in terms of gender. A comparison of the ethnicity of the sample with the district's is presented in Table 13.

Table 13

Comparison of Sample and District Demographics

Variable	Sample	District
Gender		
Female	64.8%	51.6%
Male	35.2%	48.4%
Ethnicity		
White	36.4%	40.4%
African-American/Black	27.3%	21.7%
Native American/Alaska Native	-	0.3%
Asian/Pacific Islander	-	3.3%
Hispanic	29.6%	29.4%
Other	6.8%	5.0%

Additionally, participation was limited to English speakers and students not served exclusively in ESE classrooms. Therefore, findings may not be applicable to students who do not fall in these groups.

Secondly, the use of self-report measures could compromise the validity of participants' responses. The Shared Activity Questionnaire-B (SAQ-B) asked participants to indicate their willingness to engage with the students depicted in the vignette, but it is uncertain whether their behavioral intentions match what their actual behavior might be. However, previous studies utilizing the SAQ-B have assessed its concurrent validity by evaluating its relationship with a measure of cognitive attitudes, such as the Adjective Checklist (ACL, Siperstein & Bak, 1977). Correlations between the SAQ-B Overall score and the ACL have ranged from .46 to .59 (Bell & Morgan, 2000; Law, Sinclair, & Fraser, 2007; Swaim & Morgan, 2001), supporting the concurrent validity of the SAQ-B. Furthermore, previous research with adults provides evidence that behavioral intentions are highly related to actual behavior (Ajzen, 2001). Therefore, the SAQ-B appears to be a

valid measure of middle school students' behavioral intentions and behavior. This methodology is also useful given that a significant portion of students in the current study reported that they were not familiar with ADHD. By using behavioral descriptions of students versus the ADHD label, those students who are not familiar with the diagnosis can still provide insight into their willingness to interact with the student described in the vignette.

There were also some limitations to the measure use to examine students' familiarity with ADHD, the Level of Contact Report-Revised (LCR). The wording of this measure was altered for this study (i.e., "Attention-Deficit/Hyperactivity Disorder replaced "severe mental illness"). While this measure has been used with this population previously, this was the first time it has been used in this format. Another limitation is that the LCR relies on participants knowing whether the individuals they interact with have ADHD. For example, a participant may have been in a class with a student with ADHD but did not realize that the person has the disorder and thus responded "no" to this item. In such an example, the LCR would not yield the correct level of contact that student has with persons with ADHD. Furthermore, 27 participants did not endorse "yes" to any of the LCR items, which led to contradictory responses. It is unclear what level of contact these participants' have with ADHD, if any at all.

Previous literature has suggested that individuals' attributions for the cause of the illness and their actual interactions with individuals with this disability play a role in behavioral intentions (Corrigan, Lurie, Goldman, Slopen, Medasani, & Phelan, 2005; Martin, Pescosolido, Olafsdottir, & McLeod, 2007). A final limitation with the present study is the lack of outcome measure for participants' contact with ADHD and

attributions. While this information could have been valuable to the study findings, previous work in this area has mostly been with adults and rarely has focused on adolescents or ADHD specifically, providing limited validated measures with which to use.

Directions for Future Research

Since this study is the first of its kind to utilize positive characteristics in the vignette description of a student with ADHD symptoms and a validated measure of adolescent familiarity with ADHD, additional studies are needed to extend and replicate the current findings. Further studies on the impact of adolescents' contact with ADHD on their perception of peers with ADHD might be enhanced by inquiring about the outcome of any contact with persons with ADHD to explore how this aspect influences willingness to engage in activities. Since previous research has suggested the outcome of contact may be an important factor (Martin, Pescosolido, Olafsdottir, & McLeod, 2007), as well as the attributions participants make about the cause of the disorder (Corrigan, Lurie, Goldman, Slopen, Medasani, & Phelan, 2005), these are areas for future exploration. While previous research has shown that contact is important for reducing negative attitudes toward people with mental illness in general, it is unclear what factors are necessary for that contact to be effective (Couture & Penn, 2003). However, research with adults indicates that individuals tend to recall negative stimuli rather than positive stimuli, suggesting that negative contact with individuals with ADHD may be more salient than positive ones (Dougal & Rotello, 2007). Future research should further investigate the impact of contact on perceptions of youth with ADHD, as well as the moderators and mediators of this relationship. Additionally, future research should

survey both elementary and high school students to investigate whether findings are consistent for younger children and older adolescents. Previous research have yielded mixed findings regarding the impact of age on students' perceptions of peers with mental illness (Wahl, 2002), but this relationship has not been investigated in terms of students' perceptions of peers with ADHD. Since this study's ADHD vignette described a student with ADHD Combined Type, future research should also include vignettes describing a student with other ADHD subtypes. Since the symptoms associated with the different subtypes of ADHD, adolescents' willingness to engage with peers exhibiting ADHD Inattentive Type, for example, may differ from the present study.

An important implication of this study is the potential need to enhance the academic "social skills" of students with ADHD symptoms. The results of this current study and previous research on the Summer Treatment Program and Challenging Horizons Program provide models for intervention that may work for students exhibiting ADHD symptoms who have difficulty working on academic tasks with others (Chronis, Fabiano, Gnagy, Onyango, Pelham, Williams, et al., 2004; Langberg, Epstein, Urbanowicz, Simon, & Graham, 2008; Langberg, Smith, Bogle, Scmidt, Cole, & Pender, 2007; Fabiano, Pelham, Gnagy, Wymbs, Chacko, Coles, et al., 2007). Future research could investigate how teaching students with ADHD to be better work partners and implementing interventions designed to enhance their academic enablers impacts their social functioning on academic tasks.

Conclusions

Although often considered a childhood disorder, ADHD is not rare in adolescents. Approximately 3-7% of school-age children are affected by ADHD (APA, 2000) and

over 80% continue to meet criteria into adolescence (Barkley, Fischer, Edelbrock, & Smallish, 1990). Negative academic and social outcomes are associated with adolescents with ADHD, including greater likelihood to drop out of school and have fewer friends than peers without ADHD (Barkley, Fischer, Smallish, & Fletcher, 2006; Barkley, Fischer, Edelbrock, & Smallish, 1990). Furthermore, adolescents with ADHD must also contend with the stigma attached to the disorder (Walker, Coleman, Lee, Squire, & Friesen, 2008).

Findings from this study suggest that the majority of middle school students are familiar with persons with ADHD. This finding coupled with the prevalence of ADHD in adolescence, makes it concerning that middle school students in this study were reluctant to engage in academic activities with a peer with ADHD symptoms. It appears that it is something about the ADHD symptoms themselves that is unattractive to adolescents during academic tasks. It may be beneficial to explore the effectiveness of teaching adolescents with ADHD symptoms how to successfully work with others on academic tasks in the way that social skills are taught. While there was a lack of relationship between level of contact with ADHD and willingness to engage with a peer with ADHD symptoms, future research should ask participants about the outcomes of their contact with ADHD as this may be a relevant factor to this relationship.

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Appendices

Appendix A: Demographics Measure

1. Gender
- ❍ 1) Female
- ❍ 2) Male

2. Ethnicity
- ❍ 1. African American/Black
- ❍ 2. Asian/ Pacific Islander
- ❍ 3. White
- ❍ 4. Hispanic
- ❍ 5. Native American/ Alaska Native
- ❍ 6. Other (Specify _____)

3. Age

❍ 10	❍ 14	❍ 18
❍ 11	❍ 15	❍ 19
❍ 12	❍ 16	❍ 20
❍ 13	❍ 17	❍ 21

4. Grade

❍ 6	❍ 9	❍ 11
❍ 7	❍ 10	❍ 12
❍ 8		

5. Estimated GPA
- ❍ 4.0 or higher (A)
- ❍ 3.0-3.9 (B)
- ❍ 2.0-2.9 (C)
- ❍ 1.0-1.9 (D)
- ❍ Less than 1.0 (F)

6. Are you on Free or Reduced Lunch (e.g. do you not pay full price for lunch in the cafeteria)?
- ❍ 1. Yes
- ❍ 2. No

7. Do you attend school regularly?
- ❍ 1. No
- ❍ 2. Sometimes
- ❍ 3. Yes

8. Including last year, and this year, have you received any discipline referrals for behaviors other than being tardy?
- ❍ 1. Often (More than 5)
- ❍ 2. Some (1-5)
- ❍ 3. Never

9. Including last year, and this year, have you been suspended out of school (including ATOSS)?
- ❍ 1. Often (More than 5 days total)
- ❍ 2. Some (1-5 days total)
- ❍ 3. Never

10. Including last year, and this year, have you been arrested?
- ❍ 1. Often (More than 2 times)
- ❍ 2. Some (1-2 times)
- ❍ 3. Never

11. Have you ever been diagnosed with ADHD?
- ❍ 1. Yes
- ❍ 2. No

12. Have you ever been diagnosed with Anxiety, Depression, or other mental health problems?
- ❍ 1. Yes
- ❍ 2. No

13. Have you ever been prescribed medication for ADHD?
- ❍ 1. Yes, and I still take the medication.
- ❍ 2. Yes, but I no longer take medication.
- ❍ 3. No

14. Have you ever been prescribed medication for Anxiety, Depression, or other mental health problems?
- ❍ 1. Yes, and I still take the medication.
- ❍ 2. Yes, but I no longer take medication.
- ❍ 3. No

15. My biological parents are:
- ❍ 1. Married
- ❍ 2. Divorced
- ❍ 3. Separated
- ❍ 4. Never married
- ❍ 5. Never married but living together
- ❍ 6. Widowed

Appendix B: Level of Contact Report

LCR

Please read each of the following statements carefully and respond by circling No or Yes.

1.	I have never observed a person with Attention-Deficit/Hyperactivity Disorder (ADHD).	No	Yes
2.	I have watched a television show that included a person with Attention-Deficit/Hyperactivity Disorder (ADHD).	No	Yes
3	I have observed a person with Attention-Deficit/Hyperactivity Disorder (ADHD).	No	Yes
4.	I have been in a class with a person with Attention-Deficit/Hyperactivity Disorder (ADHD).	No	Yes
5	A friend of the family has Attention-Deficit/Hyperactivity Disorder (ADHD).	No	Yes
6.	I have a relative who has Attention-Deficit/Hyperactivity Disorder (ADHD).	No	Yes
7.	I live with a person who has Attention-Deficit/Hyperactivity Disorder (ADHD).	No	Yes
8.	I have Attention-Deficit/Hyperactivity Disorder.	No	Yes

Appendix C: ADHD Vignette and Shared Activities Questionnaire-B

(Modified to fit in Current Document)

Please read the paragraph below and answer the following questions by circling your response.

Taylor is in your grade. Taylor is outgoing and very social. Taylor is smart but doesn't always get good grades because Taylor has a hard time completing school assignments and turning them in on time. Taylor's teachers say that Taylor is easily distracted and "zones out" in class or talks with classmates instead of doing schoolwork. The teachers say that when Taylor does do work, it often looks rushed and contains many careless mistakes. Taylor's teachers also say that Taylor blurts out in class. Taylor's friends say that Taylor talks a lot and moves quickly from one activity to another, but they say that Taylor is fun to hang out with. They also say that Taylor is a risk-taker and always looks for new and exciting things to try. At home, Taylor has a messy room and loses things a lot. Taylor's parents say that Taylor doesn't focus on what they say or ask, even when they repeat themselves. Taylor's teachers, parents, and friends also say that Taylor is a good swimmer.

1.	Do you know someone like Taylor?	No	Yes	
2.	Do you have a class with someone like Taylor?	No	Yes	
3.	Do you have a friend like Taylor?	No	Yes	

If Taylor moves to your school, here is a list of things that you might do with Taylor. Circle the answer that shows how you feel about doing each of these things with Taylor.

1.	Ask Taylor to come to my house to watch TV.	No	Maybe	Yes
2.	Sit next to Taylor in class	No	Maybe	Yes
3.	Work in the school library with Taylor	No	Maybe	Yes
4.	Share my games or books with Taylor.	No	Maybe	Yes
5.	Work on a science project at school with Taylor	No	Maybe	Yes
6.	Be in the same reading group with Taylor.	No	Maybe	Yes
7.	Study spelling words with Taylor at school.	No	Maybe	Yes
8.	Invite Taylor to my birthday party.	No	Maybe	Yes
9.	Ask Taylor to go to a swimming party with me.	No	Maybe	Yes
10.	Ask Taylor to hike in the woods with me.	No	Maybe	Yes
11.	Eat lunch next to Taylor at school.	No	Maybe	Yes
12	Walk together with Taylor in the hall at school.	No	Maybe	Yes
13.	Do art with Taylor in class.	No	Maybe	Yes
14	Pick Taylor to be on my soccer team.	No	Maybe	Yes
15.	Work math problems in class with Taylor.	No	Maybe	Yes
16.	Write a story or report for school with Taylor.	No	Maybe	Yes
17.	Ask Taylor to join my club.	No	Maybe	Yes
18.	Do homework with Taylor at home after school.	No	Maybe	Yes
19.	Go to the movies with Taylor.	No	Maybe	Yes
20.	Play with Taylor during free time.	No	Maybe	Yes
21.	Pick Taylor as my partner in a game with other students.	No	Maybe	Yes
22.	Be good friends with Taylor.	No	Maybe	Yes
23.	Go to a ball game with Taylor.	No	Maybe	Yes
24.	Ride bikes with Taylor.	No	Maybe	Yes

Appendix D: Typical Vignette and Shared Activities Questionnaire-B

(Modified to fit in Current Document)

Please read the paragraph below and answer the following questions by circling your response.

Taylor is in your grade. Taylor is outgoing and very social. Taylor is smart and gets As and Bs though Taylor doesn't always turn school assignments in on time. Taylor's teachers say that Taylor sometimes talks with classmates instead of doing schoolwork but is fine overall. The teachers say that Taylor usually completes work though it contains careless mistakes once in awhile. Taylor's teachers also say that usually, but not always, Taylor raises a hand to speak in class. Though Taylor's friends sometimes get into small disagreements (like any friends), they say that Taylor is fun to hang out with. They also say that Taylor likes to try new things. At home, Taylor has a messy room. Taylor's parents say that Taylor doesn't always focus on what they say or ask but usually does. Taylor's teachers, parents, and friends also say that Taylor is a good swimmer.

1.	Do you know someone like Taylor?	No	Yes
2.	Do you have a class with someone like Taylor?	No	Yes
3.	Do you have a friend like Taylor?	No	Yes

If Taylor moves to your school, here is a list of things that you might do with Taylor. Circle the answer that shows how you feel about doing each of these things with Taylor.

1.	Ask Taylor to come to my house to watch TV.	No	Maybe	Yes
2.	Sit next to Taylor in class	No	Maybe	Yes
3.	Work in the school library with Taylor	No	Maybe	Yes
4.	Share my games or books with Taylor.	No	Maybe	Yes
5.	Work on a science project at school with Taylor	No	Maybe	Yes
6.	Be in the same reading group with Taylor.	No	Maybe	Yes
7.	Study spelling words with Taylor at school.	No	Maybe	Yes
8.	Invite Taylor to my birthday party.	No	Maybe	Yes
9.	Ask Taylor to go to a swimming party with me.	No	Maybe	Yes
10.	Ask Taylor to hike in the woods with me.	No	Maybe	Yes
11.	Eat lunch next to Taylor at school.	No	Maybe	Yes
12	Walk together with Taylor in the hall at school.	No	Maybe	Yes
13.	Do art with Taylor in class.	No	Maybe	Yes
14	Pick Taylor to be on my soccer team.	No	Maybe	Yes
15.	Work math problems in class with Taylor.	No	Maybe	Yes
16.	Write a story or report for school with Taylor.	No	Maybe	Yes
17.	Ask Taylor to join my club.	No	Maybe	Yes
18.	Do homework with Taylor at home after school.	No	Maybe	Yes
19.	Go to the movies with Taylor.	No	Maybe	Yes
20.	Play with Taylor during free time.	No	Maybe	Yes
21.	Pick Taylor as my partner in a game with other students.	No	Maybe	Yes
22.	Be good friends with Taylor.	No	Maybe	Yes
23.	Go to a ball game with Taylor.	No	Maybe	Yes
24.	Ride bikes with Taylor.	No	Maybe	Yes

Appendix E: Parent Letter

(Modified to fit in Current Document)

Dear Parent or Caregiver:

This letter provides information about a research study that will be conducted at _____ Middle School by Dr. Julia Ogg and Dr. Rance Harbor. Dr. Ogg is a professor from the University of South Florida and Dr. Harbor is a school psychologist in _____County, as well as a visiting professor at the University of South Florida. Our goal in conducting the study is to investigate the experiences of adolescents exhibiting symptoms of inattention, hyperactivity, and impulsivity and to better understand the perceptions of adolescents toward those exhibiting these behaviors.

- ✓ Who We Are: Julia Ogg, Ph.D. is a professor in the College of Education at the University of South Florida (USF). Rance Harbor, Ph.D. is a school psychologist in _____County and a visiting professor at USF. We are planning the study in cooperation with the principal and administrators of _____ Middle School to ensure the study provides information that will be helpful to the schools.
- ✓ Why We Are Requesting Your Participation and Your Child's Participation: This study is being conducted as part of a project entitled, "The Experiences of and Perceptions toward Adolescents Exhibiting Inattention, Hyperactivity, and Impulsivity." You and your child are being asked to participate because your child is a student at _____ Middle School. All students at _____ Middle School are being asked to participate.
- ✓ Why You and Your Child Should Participate: We need to learn more about how to help students be successful during the pre-teen and teenage years. The information that we collect from students and parents may help increase our overall knowledge of difficulties frequently encountered in school and help support students' success. Please note neither you nor your child will be paid for your participation in the study. However, all students who return parental consent forms will be entered into a drawing for a gift certificate, regardless of if you allow your child to participate or not.
- ✓ What Participation Requires: If you give permission for your child to participate in the study, he or she will be asked to complete paper-and-pencil questionnaires. The surveys will ask about your child's behaviors, feelings about themselves, medication use, substance use, life events, and about how family members get along. They will also be asked to report their gender, ethnicity, experiences getting in trouble, diagnoses, and the marital status of their parents. Completion is expected to take your child about 40 minutes. We will personally administer the questionnaires at _____ Middle School along with a trained team of researchers from USF during regular school hours. Questionnaires will be administered to students who have parent permission to participate. Participation will occur during one class period this Spring semester. In addition, students' school records will be reviewed for academic achievement (e.g., grades, FCAT scores) and reduced lunch status. If you choose to participate, you will be asked to complete a questionnaire about your child's behavior. Completion of the questionnaire is expected to take about 5 minutes.
- ✓ Please Note: Your decision to participate and to allow your child to participate in this research study is completely voluntary. You are free to allow your child to participate in this research study or to withdraw him or her at any time. You are also free to decide if you would like to participate in this study or to withdraw at any time. If you choose not to participate or not to allow your child to participate, or if you withdraw your child at any point during the study, this will in no way affect your relationship with _____ Middle School, USF, or any other party.
- ✓ Confidentiality of Your Responses and Your Child's Responses: There is minimal risk to you and your child for participating in this research. We will be present during administration of the questionnaires, along with a team of trained researchers, in order to provide assistance to your child if he or she has any questions or concerns. Your child's privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, and the USF Institutional Review Board may inspect the records from this research project, but you and your child's individual responses will not be shared with school system personnel or anyone other than us and our research assistants. Your questionnaire and your child's completed questionnaire will be assigned a code number to protect the confidentiality of his or her responses. Only we will have access to the locked file cabinet stored at USF that will contain: 1) all records linking code numbers to participants' names, and 2) all information gathered from school records.

Appendix E: Continued

The questionnaires will be kept for 5 years and then will be destroyed. Please note that although your child's specific responses on the questionnaires will not be shared with school staff, if your child indicates that he or she intends to harm him or herself, we will provide your child's name to the mental health counselors at _____ Middle School and ask that they follow up with your child to ensure your child's safety. We will also let school mental health counselors know if your child scores high on a measure of depression. The mental health counselors will determine if additional follow-up is needed.

- ✓ What We'll Do With Your Responses and Your Child's Responses: We plan to use the information from this study to inform educators and psychologists about helping all students be successful in school. The results of this study may be published. However, the data obtained from you and your child will be combined with data from other people in the publication. The published results will not include your name or your child's name or any other information that would in any way personally identify you or your child.
- ✓ Questions? If you have any questions about this research study, please contact Dr. Julia Ogg at (813) 974-9698. If you have questions about you or your child's rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-9343.
- ✓ Do You Want to Participate or Have Your Child Participate? To permit your child to participate in this study, complete the attached child consent form (top portion below) and have your child turn it in to his or her 1st period teacher. If you would like to participate in this study, please complete the parent consent form (2nd portion of form below). If you choose to participate, your child will also bring the questionnaire home for you to fill out.

Sincerely,

Julia A. Ogg, Ph.D.
Assistant Professor of Educational Psychology
USF College of Education

Rance Harbor, Ph.D.
School Psychologist & Visiting Professor
_____County & USF College of Education

Consent for Child to Take Part in this Research Study

☐ I do not give permission to let my child take part in this study.

☐ I freely give my permission to let my child take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

_____ _____

Printed name of child | Child's Homeroom Teacher | Date

_____ _____

Signature of parent of child taking part in the study | Printed name of parent

Consent For You To Take Part in this Research Study

☐ I do not give permission to participate in this study.

☐ I freely give my permission to take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

_____ _____ _____

Signature of parent taking part in study | Printed name of parent | Date

Statement of Person Obtaining Informed Consent

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

_____ _____ _____

Signature of person obtaining consent | Printed name of person obtaining consent | Date

Appendix F: Student Assent Letter

(Modified to fit in Current Document)

Hello!

This letter explains a research study that we would like you to take part in. Our goal in conducting the study is to learn more about your thoughts, feelings, and attitudes related to school, family, friends, and life in general.

- ✓ Who We Are: Julia Ogg, Ph.D. is a professor in the College of Education at the University of South Florida (USF). Rance Harbor, Ph.D. is a school psychologist in _____ County and a visiting professor at USF. Several doctoral students in the College of Education at USF are also part of the team. We are working with your principal and administrators to make sure this study will be helpful to your school.

- ✓ Why We are Asking You to Take Part in the Study: This study is being conducted as part of a project entitled, "The Experiences of and Perceptions toward Adolescents Exhibiting Inattention, Hyperactivity, and Impulsivity." You are being asked to participate because you are a student at _____ Middle School.

- ✓ Why You Should Take Part in the Study: We need to learn more about how to help students be successful during the pre-teen and teenage years! The information that we collect from you may help increase our overall knowledge of difficulties frequently encountered in school and help support your success. Please note you will not be paid for your participation in the study. However, all students who complete and return parental consent forms will be entered into a drawing for a gift certificate.

- ✓ What Will Happen if You're in the Study: If you choose to take part in the study you will be asked to complete a paper-and-pencil questionnaire. The survey will ask you about your thoughts and behaviors. It will take you about 40 minutes to complete the questionnaire. If you choose to take part in the study, we will also look at some of your school records including your grades, and reduced lunch status.

- ✓ Please Note: Your involvement in this study is voluntary (it's your choice). By signing this form, you are agreeing to take part in this study. Your decision to take part, not to take part, or to stop taking part in the study at any time will not affect your student status or your grades; you will not be punished in any way. If you choose not to take part, it will not affect your relationship with _____ Middle School, USF, or anyone else.

- ✓ Privacy of your Involvement: Your privacy and research records will be kept confidential (private, secret) to the extent of the law. People approved to do research at USF, people who work with the Department of Health and Human Services, the USF Institutional Review Board, and its staff, and other individuals acting on behalf of USF may look at the records from this research project. However, your responses to the surveys will not be shared with people in the school system or anyone other than us and our research assistants. Your surveys will be given a code number to protect the confidentiality of your responses. Only we will have the ability to open the locked file cabinet stored at USF that will contain: 1) all records linking code numbers to names, and 2) all information gathered from school records.
- ✓ All records from the study (completed surveys, information from school records) will be destroyed in four years. Please note that although your specific responses and comments will not be shared with school staff, if you say or write that you may harm yourself or someone else, or if your responses on specific surveys indicate extreme emotional distress, we will contact district mental health counselors

Appendix F: Continued

to make sure everyone is safe. The district mental health counselor may meet with you to make sure you are safe.

- ✓ What We'll Do With Your Responses: We plan to use the information from this study to learn more about how to help students be successful during the pre-teen and teenage years! The information that we collect from you may help increase our overall knowledge of difficulties frequently encountered in school and help support your success. The results of this study may be published. However, your responses will be combined with other students' responses in the publication. The published results will not include your name or any other information that would identify you.

- ✓ Questions? If you have any questions about this research study, please contact Dr. Julia Ogg at (813) 974-9698. If you have questions about your rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-9343.

Thank you for taking the time to take part in this study.

Sincerely,

Julia A. Ogg, Ph.D.
Assistant Professor of School Psychology
USF College of Education

Rance Harbor, Ph.D.
School Psychologist & Visiting Professor
_____ County & USF College of Education

Assent to Take Part in this Research Study

I give my permission to take part in this study. I understand that this is research. I have received a copy of this letter and assent form.

_____ _____ _ _____

Signature of student taking part in the study Printed name of student Date

_____

Your Homeroom Teacher

Statement of Person Obtaining Assent

I certify that participants have been provided with an assent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

_____ _____ _____

Signature of person obtaining assent Printed name of person obtaining assent Date