Social Impairment of Adolescents with Attention-Deficit/Hyperactivity Disorder

by

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Abstract

The goal of this dissertation was to enhance our understanding of the social impairment of adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). It examined several aspects of their social functioning including bullying, social skills, and social perspective taking (SPT) and how SPT is related to social skills. In Study 1, I sought to determine whether adolescents with and without ADHD differ in rates of bullying and victimization, and to describe the nature of their experiences. In Study 2, I examined whether adolescents with and without ADHD differ in their levels of SPT and social skills and to examine the association between these skills.

The sample comprised 112 13- to 18-year-old adolescents: 59 (39 male, 20 female) with ADHD and 53 (25 male, 28 female) without ADHD. Adolescents, as well as their parents and teachers, completed measures assessing 1) adolescents’ inattention, hyperactivity-impulsivity and oppositionality; 2) adolescents’ experiences of victimization by peers and bullying others and 3) adolescents’ SPT and social skills.

Results indicated that, according to parent report, adolescents with ADHD were more likely to be victimized by peers than adolescents without ADHD. However, the patterns of victimization they experienced were normative. In terms of bullying others, there were discrepancies between adolescent- and parent-report. Adolescents with ADHD demonstrated impairment in SPT and
social skills. They had lower SPT skills, suggesting that they have difficulty considering multiple perspectives and coordinating their perspectives with others in social situations. Both adolescents with ADHD and their parents reported that these adolescents displayed deficits in social skills, though parents reported more severe deficits than adolescents did. The association between SPT and social skills was variable. For some self-reported social skills, SPT was a significant predictor over and above ADHD status, whereas for other domains, SPT moderated the relationship between ADHD status and self-reported social skills. SPT was not a significant predictor of parent-reported social skills over and above ADHD status for five domains, but it was for parent-reported responsibility skills. These findings are discussed within the context of the existing literature on the social functioning of adolescents with ADHD. Additionally, clinical implications and future directions are discussed.
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Chapter 1
General Introduction

1.1.1 Aim and Scope of Dissertation

The overarching goal of this dissertation was to examine the social impairment of adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). More specifically, it examines several aspects of their social impairment (e.g., bullying, social skills, social perspective taking) and how social perspective taking is related to social skills. This dissertation consists of two studies in which the participants were almost the same (study 2 had slightly more participants). Study 1 (Chapter 2) contributes to a developing body of literature examining bullying and victimization in these adolescents. More specifically, the goals of Study 1 were to determine whether adolescents with and without ADHD differ in rates of bullying and victimization, and to describe the nature of their experiences. Study 2 (Chapter 3) furthers our understanding of the social cognition and social skills of adolescents with ADHD. The goals of this study were to determine whether adolescents with and without ADHD differ in their levels of social skills and social perspective taking and to examine the association between social skills and social perspective taking. Chapter 4 is an integrated discussion of the key findings, implications, and future directions of the overall research. As the dissertation is written in manuscript format, there will be redundancies in topics discussed. This chapter provides a brief review of the literature on the constructs that frame this dissertation: Attention-Deficit/Hyperactivity Disorder, social relationships, social skills and social perspective taking. Previous research comparing adolescents with and without ADHD in relation to bullying and victimization, social skills and social perspective taking is discussed further in Chapters 2 and 3.

1.1.2 Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder (ADHD) is a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning and occurs across settings (e.g., school, home, and work) (American Psychiatric Association, 2013). Inattention manifests as low levels of persistence, having difficulty sustaining attention, distractibility and disorganization (American Psychiatric Association, 2013). Hyperactivity refers to excessive motor activity, fidgeting, restlessness or talkativeness (American Psychiatric Association, 2013).
Impulsivity refers to hasty actions occurring in the moment without considering consequences and may include an inability to delay gratification or social intrusiveness (American Psychiatric Association, 2013). The pooled prevalence of ADHD in individuals up to 18 years of age is 5.29% (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). While ADHD begins in childhood (American Psychiatric Association, 2013), symptomatology changes as individuals progress through adolescence; longitudinal studies have demonstrated that hyperactive-impulsive symptoms decline more than inattentive symptoms (Biederman, Mick, & Farone, 2000; Willcut et al., 2012).

ADHD is associated with academic, social and occupational impairment across the lifespan (American Psychiatric Association, 2013; Willcutt et al., 2012). In adolescence, ADHD has been associated with an increased risk of negative driving outcomes (Jerome, Segal, & Habinki, 2006), academic underachievement (Frazier, Youngstrom, Glutting, & Watkins, 2007; Kent et al., 2011), risky sexual behaviour (Flory et al., 2006) and substance use disorders (Lee, Humphreys, Flory, Liu, & Glass, 2011). Interpersonally, adolescents with ADHD have more difficulty in their relationships with peers (Bagwell, Molina, Pelham, & Hoza, 2001; Marshal, Molina, & Pelham, 2003; Sciberras, Ohan, & Anderson, 2012; Sibley, Evans, & Serpell, 2010), romantic partners (Babinski et al., 2011; Rokeach & Wiener, 2014) and parents (Barkley, Anastopoulos, Guevremont, & Fletcher, 1992; Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001; Markel & Wiener, 2014) than adolescents without ADHD. During adolescence, positive relationships with peers contribute to healthy development in numerous ways. For example, adolescents spend substantial time with peers, friendships are a source of social support, peer acceptance and relationships with friends are linked to psychological well-being and peer experiences play a role in identity development (Collins & Steinberg, 2006; Parker, Rubin, Erath, Wojlawowicz, & Buskirk, 2006). As such, the social impairment of adolescents with ADHD is especially concerning.

1.1.3 Social Functioning

In conceptualizing social functioning, Gresham (1986) distinguished between three constructs: social outcomes, specific social behaviours (social skills), and underlying interpersonal processes (social cognition).
Social outcomes include peer acceptance, interpersonal relationships, acceptance of adults (e.g., parents, teachers) and friendships (Gresham, 1986; Gresham, Van, & Cook, 2006). While Gresham used the term social outcomes to refer to these constructs, it has more recently been demonstrated that the relationships between social outcomes and, for example, social skills is bidirectional (e.g., Murray-Close et al., 2010). As such, I will be using the term social relationships. For the purposes of the present study, social relationships will refer to peer acceptance (being liked by a majority of peers and disliked by a few; Mikami, 2010), peer rejection (being disliked by the majority of peers and liked by a few; Mikami, 2010), friendships (close relationships that are mutual and reciprocal; Schneider, Wiener, & Murphy, 1994) and bullying (chronic negative actions that are intended to cause harm toward an individual within a relationship characterized by an imbalance of power; Olweus, 1995).

Social skills are a specific class of behaviours that an individual exhibits to successfully complete a social task (e.g., initiating and sustaining a conversation, making friends, playing a game with peers) (Gresham, 1986; Gresham, Elliott, Cook, Vance & Kettler, 2010). Social tasks often require several interconnected and discrete forms of socially skilled behaviours (e.g., conversation skills, cooperative behaviours, expressing feelings). In essence, social skills are one’s actions or what one is doing in a social situation.

Interpersonal processes refer to the psychological processes (e.g., knowledge, attitudes and perceptions) that underlie social functioning (Gresham, 1986). This is similar to what others have called social cognition, a term used to describe the cognitive mechanisms that help individuals perceive and understand social situations (Staub & Eisenberg, 1981). Social cognition includes the ability to identify and understand emotions, be aware of others’ perspectives in terms of their thoughts, motives, and beliefs, and find mutually beneficial resolutions to interpersonal conflicts (Sharp, Fonagy, & Goodyer, 2008; Staub & Eisenberg, 1981). Thus, whereas social skills are what one is doing, social cognition is what someone is thinking about social situations.

1.1.3.1 Social Relationships

Less is known about the about the social relationships of adolescents with ADHD than those of children with ADHD. The existing research demonstrates that adolescents with ADHD have higher levels of peer rejection, lower levels of peer acceptance, fewer close friends and more
deviant peers than typically developing adolescents (Bagwell et al., 2001; Marshal et al., 2003; Sciberras et al., 2012; Sibley et al., 2010). Adolescents with ADHD also appear to be at an increased risk for experiencing victimization by peers and bullying others (e.g., Sciberras et al., 2012; Timmermanis & Wiener, 2011); however, the evidence base appears to be stronger for the association between ADHD and victimization. Bullying, including peer victimization, is the social relationship that is a focus of the present study. However, a brief overview of other social relationships (e.g., peer status and friendships) is also provided, as these constructs are relevant to the dissertation.

1.1.3.1.1 Peer Status

*Peer status* is defined as the extent to which people are accepted by a social group of same-aged peers (Schneider et al., 1994). Most studies of peer status use peer sociometrics, in which individuals rate how much they like other children in their classroom (Schneider et al., 1994). *Peer acceptance* involves being liked by the majority of one’s peers and disliked by few, *peer rejection* is being disliked by most of one’s peers and liked by few and *peer neglect* involves low levels of both acceptance and rejection (Rubin, Bukowski, & Parker, 2006). Higher levels of peer acceptance have been associated with more school involvement, better academic achievement and less loneliness (Kingery, Erdley, & Marshall, 2011), whereas childhood peer rejection is associated with an increased likelihood of dropping out of high school (Parker & Asher, 1987).

In a review paper on the social functioning of children with ADHD, Hoza (2007) stated that it has been well established that children with ADHD are more likely to be rejected and less likely to be accepted by peers. These peer status difficulties emerge quickly in novel social situations and, once rejected, overcoming a negative reputation with peers is extremely difficult (Hoza, 2007). Furthermore, the negative outcomes of peer rejection have also been demonstrated in children with ADHD. Children with ADHD who were rejected by peers had higher levels of delinquency, smoking and anxiety in adolescence (Mrug et al., 2012). While there has been less research examining the peer status of adolescents with ADHD, there is evidence to suggest that individuals with ADHD continue to experience lower levels of peer acceptance (Sibley et al., 2010) and higher levels of peer rejection (Bagwell et al., 2001) in adolescence than those without ADHD.
1.1.3.1.2 Friendships

*Friendship* is a mutual and reciprocal close relationship co-created by two friends. This relationship is often characterized by shared experiences, support, intimacy, and trust (Schneider et al., 1994). As indicated by this comprehensive definition, friendship should not be viewed as a unitary construct (Mikami, 2010). Rather, friendships should be examined in terms of quality, stability and the characteristics of friends (Hartup, 1995; 1996).

In terms of quality, some friendships are characterized by validation, caring (e.g., support, trust, guidance), companionship (e.g., enjoyable time together), intimacy and self-disclosure. Conversely, friendships often have negative features such as conflict and betrayal (e.g., argument, annoyance, mistrust) (Parker & Asher, 1993). With regard to characteristics of friends, children are often similar to their friends in terms of demographic variables, attitudes, interests and behaviour (Hartup, 1995; Schneider et al., 1994). Similarity among friends can stem from three sources: demographic factors (e.g., neighbourhood characteristics), selection effects (e.g., choosing friends who resemble themselves) and social effects (e.g., similarity stemming from their interaction). The latter is particularly important in understanding the development of deviant behaviour in adolescence (e.g., smoking, drinking, drug use, sexual activity) because having deviant friends is associated with an increased risk of conduct problems (Chen, Drabick, & Burgers, 2014). Adolescents commonly report that friends are their most important non-familial resources and influences, and relationships with friends consistently are implicated in variations in adolescent competence and well-being (Collins & Steinberg, 2006).

Among individuals with ADHD, considerably less research has examined friendships, in contrast to the larger bodies of literature that exist on peer rejection and social skills deficits (Mikami, 2010). In a review of the research examining close friendships of children with ADHD, Normand, Schneider and Robaey (2007) found that children with ADHD have fewer close friendships. However, they stated that the data on the characteristics of the friendships of children with ADHD were too limited and too flawed to permit conclusions about patterns of interaction. Since that review, it has been found that children with ADHD have friendships that are shorter in duration, involve less time spent together outside of school, and are more likely to involve friends with learning and behaviour problems (Marton, Wiener, Rogers, & Moore, 2012). While the research on friendships of adolescents with ADHD is similarly limited, there is
emerging evidence that they have fewer friendships than adolescents without ADHD (Bagwell et al., 2001). In terms of characteristics of friends, adolescents with childhood ADHD have been shown to be more likely to report affiliation with deviant peers (Marshall et al., 2003). Furthermore, this affiliation mediated the effects of childhood ADHD on adolescent substance use and conduct problems.

During adolescence, another important relationship that begins to emerge is romantic relationships, which even young adolescents begin to distinguish from friendships (Rubin et al., 2006). The term romantic relationships refers to mutually acknowledged, ongoing, voluntary interactions which are distinguished from peer relationships by their intensity, expression of affection and current or anticipated sexual behaviour (Collins, Welsh, & Furman, 2009). Similar to friendships, romantic relationships vary in terms of stability and quality (e.g., positive, supportive and beneficial experiences vs. negative, aggressive, conflictual and controlling experiences) (Collins et al., 2009). Developmentally, romantic relationships are first seen in early adolescence and are increasingly more common in late adolescence. For example, 25% of 12-year-olds and 70-75% of 18-year-olds reported having had a romantic relationship (Carver, Joyner, & Udry, 2003).

1.1.3.1.3 Bullying/Victimization

Bullying occurs when one or more individuals perform negative actions toward another individual repeatedly and over time. These negative actions are intended to cause injury or discomfort. Bullying is characterized by an imbalance of power in which victims cannot defend themselves (Olweus, 1994). Children can be involved as victims (who are victimized but do not bully others), bullies (who bully others but are not victimized themselves) or bully-victims (who both bully others and are victimized themselves) (Kumpulainen, Rasanen, & Puura, 2001). In this dissertation, “victimization” refers to the experience of the individual who is targeted by bullying from peers and “bullying” refers to the actions of the individual who is perpetrating the bullying against peers. Bullying can take various forms including physical (e.g., hitting, kicking), verbal (e.g., name calling or threats, sexual comments), relational (e.g., intentionally excluding someone from a group, gossiping) or cyberbullying (e.g., sending hurtful messages over email, text or other cyber technology devices) (Hymel & Swearer, 2015; Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010; Nansel et al., 2001; Olweus, 1995). In adolescence, it is
particularly important to attend to relational bullying (Crick et al., 2001; Xie, Cairns, & Cairns, 2005) and cyberbullying (Mishna et al., 2010); this is discussed further in Chapter 2.

Bullying is best understood from a social-ecological perspective (Espelage & Swearer, 2010, Swearer & Hymel, 2015); being a victim or perpetrator of bullying is seen as the product of ongoing interactions between an individual and his or her family, friends, classmates, school and community. There are a number of individual factors associated with experiencing victimization by peers including internalizing difficulties (Reijntjes, Hamphuis, Prinzie, & Telch, 2010), inadequately developed social skills (Champion, Vernberg, & Shipman, 2003; Fox & Boulton, 2006b) and social cognitive difficulties (Camodeca & Goossens, 2005). In terms of bullying others, individual risk factors include oppositionality and conduct problems (Coolidge, DenBoer, & Segal, 2003; Kokkinos & Panayiotou, 2004), social cognitive difficulties (e.g., hostile attribution bias; Camodeca, Goosens, Schuengel, & Terwogt, 2003; Camodeca & Goossens, 2005), lower levels of empathy (Gini, Albiero, Benelli, & Altoe, 2007; Jolliffe & Farrington, 2011) and inadequate social skills (Perren & Alasker, 2006; Rigby et al., 1997). In terms of contextual factors, bullying others and experiencing victimization are both predicted by delinquency of other students in the school, negative family environment (e.g., abuse, conflict, substance use) and disengagement from school (Espelage & Swearer, 2010). Additionally, peer substance use is a significant predictor of bullying others and neighbourhood safety is a significant predictor of experiencing victimization (Espelage & Swearer, 2010). These contextual factors may be particularly relevant in early- to mid-adolescence when conformity to peer pressure (especially for deviant behaviours) is high (Chen et al., 2014; Smith, 2010).

Bullying is an important phenomenon to understand because victimization by peers and participation in bullying others are associated with long-term social, emotional and academic consequences. Experiencing victimization in youth increases risk of internalizing problems (e.g., anxiety, depression, low self-esteem, suicidal ideation and loneliness; Card & Hodges, 2008; Olweus, 1995; Reijntjes et al., 2010; Rigby, 2003) and academic maladjustment (e.g., school absenteeism, disliking school and lower academic achievement; Card & Hodges, 2008; Nakamoto & Schwartz, 2010). Bullying others has been associated with an increased risk of criminality and perpetrating violence later in life (Tofti, Farrington, Losel, & Loeber, 2011; Tofti, Farrington & Losel, 2012). Researchers have contended that the power and aggression seen in bullying is a key underlying component of sexual harassment, dating aggression,
workplace harassment, marital aggression and elder abuse (Pepler et al., 2006). Bully-victims, who both bully others and experience victimization, are at greater risk of experiencing severe long-term adjustment problems and requiring mental health services (Ivarsson, Broberg, & Arvidsson, 2005; Kumpulainen et al., 2001).

1.1.3.2 Social Skills

Among children with ADHD, several researchers have suggested that excesses of negative behaviour (e.g., inattention, impulsivity) as well as deficits in social skills may account for the association between ADHD and difficulty in social relationships (Pfiffner & McBurnett, 1997; Hoza, 2007). While there is some research demonstrating that overall social skills are impaired in adolescents with ADHD (e.g., Hinshaw, Owens, Sami, & Fargeon, 2006; Murray-Close et al., 2010), it is unclear whether adolescents with ADHD have social skills deficits in the same domains as children with ADHD and whether such deficits are associated with impaired social relationships. As such, the present dissertation sought to examine domain specific social skills of adolescents with ADHD.

1.1.3.2.1 Defining Social Skills

Gresham (1986) outlined three definitions of social skills: the peer acceptance definition, the behavioural definition and the social validity definition. Using a peer acceptance definition, children and adolescents who are accepted or popular with their peers are said to be socially skilled. The peer acceptance definition was described as advantageous in that it identifies poorly accepted, unpopular or rejected children. However, it does not identify specific behaviours for remediation. The behavioural definition defines social skills as those situation specific responses that maximize the probability of reinforcement or minimize the probability of punishment contingent upon one’s social behaviour. The behavioural definition was said to be useful for targeting specific social behaviours, but not for determining whether or not such behaviours are socially significant or lead to socially important outcomes.

The social validity definition was described as potentially the most useful and conceptually valid definition because it combines the advantages of the peer acceptance and behavioural approaches. Gresham (1986; Gresham et al., 2006), who proposed the social validity definition,
emphasized the importance of focusing on social behaviours that predict important social relationships; behaviours are defined as socially skilled based upon their association with outcomes such as initiating and maintaining positive social relationships. Relatedly, from an intervention perspective, Gresham (1986) advocated for considering whether changes in targeted social behaviours that are associated with social skills interventions predict an individual’s standing in important social relationships (e.g., making friends, becoming accepted by peers).

Research has supported the social validity definition by demonstrating that poor social skills are associated with peer rejection, fewer friendships, and peer victimization, while positive social skills (e.g., friendly behaviours, cooperation) are associated with peer acceptance (Champion et al., 2003; Fox & Boulton, 2006a; 2006b; Newcomb, Bukowski, & Pattee, 1993; Rubin et al., 2006). Socially accepted children were evidenced to have better problem-solving skills (e.g., capacity to resolve conflict) and positive social actions (e.g., explicit behaviours reflecting cooperation, leadership and helpfulness) (Newcomb et al., 1993). This relationship between social skills and social relationships has also been demonstrated among individuals with ADHD. Longitudinal research in children and adolescents with ADHD has found that inadequate social skills were associated with subsequent peer rejection and peer rejection was also associated with subsequent impairment in social skills (Murray-Close et al., 2010).

The present dissertation examines domain specific social skills of adolescents with ADHD, rather than overall social skills. In developing the Social Skills Improvement System (SSIS), Gresham and Elliot (2008) identified seven domains of social skills: communication (e.g., takes turns in conversation, polite when speaking to others), cooperation (e.g., follows rules when playing with others, pays attention when others speak), assertion (e.g., asks for help when needed, expresses feelings when wronged), engagement (e.g., starts conversations, joins activities that are started), self-control (e.g., resolves disagreements calmly, stays calm when others are bothersome), empathy (e.g., tries to make others feel better, feels bad when others are sad) and responsibility (e.g., keeps promises, tells people when made mistake). Although the SSIS assesses the same seven social skill domains in both childhood and adolescence, it is important to consider social skills from a developmental perspective. More specifically, changing social contexts across childhood and adolescence mean that the degree to which
particular behaviours are socially adaptive changes across various ages (Bierman, Torres, & Schofield, 2010).

In adolescence, the peer context is larger, adult monitoring is reduced, and new cliques and crowds emerge (Brown & Klute, 2003). At this developmental stage, social interactions are more heterogeneous; for example, there is an increase in mixed gender groups and romantic relationships begin to emerge (Bierman et al., 2010). A major focus of peer relationships and friendships in adolescence (compared to those of younger children) is the emphasis on intimacy and self-disclosure, which involves discussion and communication (Rubin et al., 2006). This changing social structure of the adolescent peer group and the growing importance of friendship support place heightened demands on social perspective taking skills and conversation skills (Bierman et al., 2010). As such, communication skills may be particularly relevant to the social functioning of adolescents.

The transition between middle school and high school (e.g., grades 7, 8 and 9) is associated with increased rates of bullying (Pepler et al., 2006; Nansel et al., 2001). Additionally, parental monitoring decreases during this time and adolescents are more susceptible to peer influence in early to mid adolescence (e.g., to engage in risky or deviant behaviours) (Chen et al., 2014; Steinberg & Monohan, 2007). As such, the ability to cope with peer victimization and peer pressure may be a critical aspect of adolescent social functioning (Bierman et al., 2010). It is possible that assertion skills (e.g., letting people know when there is a problem, telling others when not treated well) may be necessary to decrease the frequency of such challenging situations or navigate them when they do occur. Research examining this association in children has found variable results. A link between low levels of assertiveness and being victimized by peers has been found in longitudinal and cross-sectional studies (Dodge & Coie, 1993; Fox & Boulton, 2006b), while another study found that assertiveness was not associated with being victimized by peers (Champion et al., 2003).

This is not to say that other social skills domains that were also necessary in earlier years, such as initiating interaction (engagement), playing cooperatively and following rules (cooperation), and inhibiting aggression (self-control), are no longer relevant; these skills continue to provide a basis for social interaction (Bierman et al., 2010). However, assessment of social skills in adolescents should also focus on social skill domains such as conversation skills, social perspective taking, and assertiveness (Bierman et al., 2010).
1.1.3.2.2 Acquisition or Performance deficit?

Gresham also emphasized the importance of distinguishing between social skill acquisition deficits and performance deficits. *Acquisition deficits* are described as either not knowing how to perform a given skill or difficulty in knowing which social skill is appropriate in a given situation (Gresham et al., 2006; Gresham, Elliott, & Kettler, 2010). *Performance deficits*, on the other hand, are the failure to perform a given social skill at an acceptable level even though the individual may know how to perform the skill (Gresham et al., 2006; Gresham et al., 2010). Essentially, the child has the social skill in his or her repertoire, but does not perform it.

Children and adolescents with ADHD have been shown in several studies to have social skills deficits (Hinshaw et al., 2006; Owens, Hinshaw, Lee, & Lahey, 2009; Murray-Close et al., 2010). For example, children with ADHD showed higher rates of noise-making, and inappropriate or unexpected actions. Although they talk more than other children, they show less verbal reciprocity (Hubbard & Newcomb, 1991; Whalen, Henker, Collins, Finck, & Dotemoto, 1979). However, it is not yet clear what proportion of these individuals with ADHD have social skill acquisition versus performance deficits (Gresham et al., 2010). It has been posited that children with ADHD may not merely have lower levels of social skills (acquisition deficit), but rather they may also fail to perform the skills they have when needed (performance deficit), possibly due to emotional dysregulation or difficulty inhibiting impulses (de Boo & Prins, 2007). Additionally, Hoza (2007) stated that while most children with ADHD can provide appropriate responses in the controlled environment of a social skills training group, they are often unable to appropriately regulate emotions in actual peer situations, particularly when provoked. See chapter 3 for a further discussion of social skills in children and youth with ADHD.

Although Gresham specifically discussed the distinction between acquisition and performance deficit with regard to social skills, this distinction may also be important to understanding social cognitive development and may have implications for intervention. As clinicians develop and implement programs to enhance the social functioning of adolescents with ADHD, it is essential that such programs be targeted to the needs of the individual adolescents. For example, it will be important to distinguish whether an adolescent needs support in acquiring certain skills, support in generalizing the skills and applying them on a day-to-day basis, or both.
1.1.3.3 Social Cognition

This dissertation examines social perspective taking, which is a particular aspect of social cognition (Selman, Beardslee, Schultz, Krupa, & Podorefsky, 1986). The rationale for choosing this aspect of social cognition was that research in typically developing populations demonstrates that social perspective taking is associated with social skills and social relationships (Adalbjarnardottir, 1995; Yeates, Schultz & Selman, 1991). With regard to ADHD, theoretical predictions and empirical research in children provide a foundation for hypothesizing that social perspective taking may be impaired in adolescents with ADHD. However, social perspective taking skills and their association with social skills among adolescents with ADHD has not been investigated in previous research.

1.1.3.3.1 Social Perspective Taking

Social perspective taking is the ability to understand a situation from another person’s perspective; thus, it requires the ability to differentiate the other’s view from one’s own (Selman, 1971). Selman (1980) emphasized that social perspective taking has stage-like properties reflecting how people develop the dynamic ability to differentiate, integrate and coordinate their understanding of others’ thoughts, feelings and motives in conjunction with their own in attempting to balance inner and interpersonal conflicts.

Consistent with this conceptualization of social perspective taking, Selman and colleagues proposed the Interpersonal Negotiation Strategies (INS) model; a functional and structural model for how children and adolescents articulate and use strategies for negotiating interpersonal challenges (Selman et al., 1986). The functional dimension of the model was based on social-cognitive research (e.g., Dodge, 1980; Spivack & Shure, 1976 cited in Selman et al., 1986), which examined social information processing during the steps of interpersonal problem solving (Selman et al., 1986). These steps include identifying the problem, generating alternative strategies, evaluating the consequences and implementing different strategies (Selman et al., 1986). The structural dimension of the model was based on structural-developmental approaches inspired by Piaget’s and Kohlberg’s work on children’s cognitive development (Selman et al., 1986). In outlining the theoretical underpinnings of the INS model, Selman and colleagues (e.g., Selman et al., 1986; Yeates & Selman, 1989) referenced the work of Piaget (1983, cited in Yeates & Selman, 1989), who proposed that children’s cognitive
operations could be viewed as traversing a universal and invariant set of stages. These stages consist of qualitatively distinct cognitive structures (or schemata), which organize thought in an increasingly differentiated and integrated fashion. Selman and colleagues further explained how Kohlberg (1969, cited in Yeates & Selman, 1989) applied Piaget’s ideas to social cognition by suggesting that social cognitive development, particularly growth in the understanding of the self in relation to other people, could be understood as progressing through a series of stages. The INS model integrates these approaches by using social perspective taking coordination levels (structural dimension) for organizing an individual’s verbalized communicative actions across a sequence of steps (functional dimension) in the communicative process (Beardslee, Schultz, & Selman, 1987) (see Figure 3.1).

In the INS model, the functional component identifies four “information-processing” steps (Selman et al., 1986, Yeates & Selman, 1989):

- **Defining the problem** (Step 1) refers to the ability to define the nature of the social problem at hand.

- **Generating alternative strategies** (Step 2) refers to the ability to think of more than one potential strategy that may solve the problem.

- **Selecting and implementing specific strategy** (Step 3) refers to the ability to choose and enact a particular strategy from the pool of suggested alternatives.

- **Evaluating outcomes** (Step 4) refers to the ability to evaluate the outcomes of specific negotiation strategies and processes.

The structural-developmental aspect addresses the level at which an individual’s articulated strategies reflect the coordination of the social perspectives of one’s self and another (Selman et al., 1986). The model proposes four developmental levels that individuals naturally progress through between early childhood and late adolescence (Beardslee et al., 1987; Im-Bolter, Cohen, & Farnia, 2013). These four levels reflect the increasing capacity to view oneself in the broader social contexts that involve multiple perspectives (Schultz, Yeates, & Selman, 1989) and to coordinate one’s own perspective with the perspectives of others (Selman et al., 1986). The four levels are as follows (Adalbjarnardottir & Selman, 1989; Schultz et al., 1989; Selman et al., 1986; Yeates & Selman, 1989):
At Level 0 (*egocentric and undifferentiated*), physical and psychological characteristics are not differentiated. There is no differentiation between the perspectives of the self and the other when considering interpersonal problems. Problem solving strategies are primarily impulsive or physical strategies to get what one wants (e.g., fight, grab, hit) or avoid harm (e.g., whine, flee, hide).

At Level 1 (*subjective and unilateral*), there is an awareness that the other may have a perspective that differs from one’s own, but there is no coordination or simultaneous consideration of perspectives. Problem solving strategies are primarily attempts to control the other person (e.g., one-way commands and assertions, bullying, ordering) or appease the other person (e.g., submission to wishes and power of the other person, “giving in” to the other).

At Level 2 (*self-reflective and reciprocal*), there is an understanding that both the self and other are planful and have opinions, thoughts and behaviours that influence the other person. Strategies include the ability to reflect from a second-person perspective in which the perspectives of self and other are appreciated, but not in relationship to one another. Problem solving strategies focus on either using psychological influence to change the other person’s mind (e.g., verbal persuasion, giving reasons) or psychological compliance to protect one’s own interests by making them secondary (e.g., making deals or exchanges, going second).

At Level 3 (*mutual and collaborative*), strategies reflect consideration of the self and other from a third-person perspective. Reciprocal perspectives are not only acknowledged, but also seen to be in need of coordination to compromise and reach mutually satisfactory resolutions. Problem solving strategies involve compromise, dialogue, process analysis and the development of shared goals. There is an understanding that the relationship’s continuity over time relates to the solution of any immediate problem.

Performance on each of the functional steps is scored within the structural scheme (Selman et al., 1986). The theory proposes that an individual’s level of strategy usage is sensitive to variation in context. The developmental level at which individuals relate to others is affected by internal (e.g., personal experience in a particular situation or relationships) and external (e.g.,
quality, hierarchy and attachment of the relationship) factors beyond their social-cognitive competence (Selman et al., 1986)

Research has demonstrated that social perspective taking is linked to social skills and social relationships. Children who are more socially withdrawn (e.g., do not try to be with other people, do not enjoy being with others, do not seek help from others) demonstrate lower social perspective taking skills in resolving conflicts than sociable children (Adalbjarnardottir, 1995). Furthermore, social perspective taking skills are positively correlated with teacher-reported social perspective taking, peer status (Yeates, Schultz, & Selman, 1991), and friendship formation (e.g., intimacy and closeness) in adolescents who moved schools (Vernberg, Ewell, Beery, & Abwender, 1994). With regard to children with ADHD, social perspective taking moderated the relationships between ADHD symptoms and length of friendship and amount of contact with friends, such that high levels of social perspective taking skills served as a buffer against the adverse effects of ADHD symptoms (Marton, 2008).

1.1.3.3.2 Social Perspective Taking, Theory of Mind and Empathy

It is important to distinguish social perspective taking from two other aspects of children’s social cognition – theory of mind and empathy. Theory of mind is defined as the ability to see oneself and others in terms of mental states (e.g., desires, emotions, beliefs, and intentions) that result in and are manifested in human action (Wellman, Cross, & Watson, 2001). At times, theory of mind is discussed as a single cognitive process or achievement (Wellman & Liu, 2004). As such, much theory of mind research has focused on a false belief task. An example of a false belief task would be presenting a child with a scenario in which the character put an object in one location and the object is moved to another location without the character knowing. The child is then asked where the character will look for the object, in the first or second location. If the child answers correctly, this implies that the child knows that the character’s actions depend on his beliefs, rather than simply the real situation. Several researchers suggest that a child’s understanding that the character will act based on a false belief provides compelling evidence for their capacity to represent the mental states of others (e.g., Wellman et al., 2001). However, other researchers believe that developing theory of mind includes understanding multiple concepts acquired in an extended series of developmental accomplishments (Wellman & Liu, 2004). For example, children initially learn to judge
people’s desires before they judge their beliefs. They subsequently learn to judge that two people can have different beliefs and how their actions follow from their beliefs. Only later can children judge false beliefs and actions stemming from false beliefs (Wellman & Liu, 2004).

Within the social perspective taking framework, a similar conceptual shift occurs between level 0 (egocentric and undifferentiated) and level 1 (subjective and unilateral). At level 0, physical and psychological characteristics of people are not clearly differentiated; children confuse objective/physical and subjective/psychological features (e.g., failure to distinguish between actions and feelings) (Yeates & Selman, 1989). The shift to level 1 involves the differentiation between people’s physical and psychological characteristics. Each person is acknowledged to have a unique, subjective and covert psychological life (Yeates & Selman, 1989). As such, the ability to represent others’ mental states (theory of mind) can be understood as an early developmental accomplishment within the social perspective taking model.

Empathy was previously defined as either a cognitive ability (i.e., the ability to understand the emotions of another person) or an affective trait (i.e., the tendency to experience the emotions of another person). However, it is currently conceptualized as a multidimensional construct that involves both affective and cognitive components (Braaten & Rosen, 2000; Espelage, Mebane, & Adams, 2004; Jolliffe & Farington, 2011). Empathy is defined as “an affective response that stems from the apprehension or comprehension of another’s emotional state or condition, and that is identical or very similar to what the other person is feeling or would be expected to feel” (Eisenberg, Fabes, & Spinrad, 2006, p. 647). While the present study does not explicitly examine empathy, some of the questions assessed within the social perspective taking model could be considered related to the cognitive component of empathy (e.g., How do you think (the protagonist) feels? How do you think (the other person) feels? Why does he (she) feel that way?). It should be noted that while empathy is more frequently viewed as a social-cognitive construct; it was discussed as a social skill in the Chapter 3 because the SSIS measures empathy behaviourally (e.g., I help my friends when they are having a problem, I try to make others feel better, I try to think about how others feel).

1.1.3.3.3 Social Perspective Taking and ADHD

Barkley’s (2006) model of ADHD provides a theoretical foundation for understanding why individuals with ADHD may demonstrate impairments in social perspective taking. This theory
posits that ADHD is characterized by deficits in ‘behavioural inhibition’ including difficulty inhibiting impulsive responses, inhibiting an ongoing response and inhibiting interference (sustaining attention). Furthermore, according to Barkley, these inhibition difficulties impair other executive functions (EF) such as working memory, planning and emotional regulation. Other researchers have argued that while EF weaknesses are significantly associated with ADHD, EF deficits are not the single necessary and sufficient cause of ADHD (Wilcutt, Doyle, Nigg, Faraone, & Pennington, 2005). Rather, it was posited that EF difficulties (including inhibition) appear to be one of several important weaknesses that comprise the overall neurocognitive profile of ADHD. Thus, while it is acknowledged that a multi-deficit model may be most useful to conceptualize the heterogeneous etiology and presentation of ADHD (Wilcutt et al., 2005), Barkley’s model of ADHD and hypotheses based upon it are helpful to generate predictions about how the executive functioning deficits associated with ADHD may impair social cognitive functioning.

Researchers have theorized a number of mechanisms by which the executive functioning difficulties associated with ADHD may interfere with social cognitive functioning. Firstly, individuals need to inhibit a response long enough to consider that another person’s perspective may differ from their own or to understand the emotional experience of another person (Marton, Wiener, Rogers, Moore, & Tannock, 2009). When considering interpersonal situations, symptoms of inattention may impair the ability to sustain attention that is necessary to process social cues and generate solutions to social problems (Sibley et al., 2010). Additionally, deficits with planning and working memory may make it difficult to keep multiple pieces of information in mind, which may compromise the ability to understand another’s perspective and coordinate it with one’s own (Marton et al., 2009; Mikami, 2010). See chapter 3 for a further discussion of social perspective taking and children and adolescents with ADHD.

1.1.4 Summary

While considerable research has examined the social functioning and impairment of children with ADHD, there are many gaps in our understanding of the social functioning and impairment of adolescents with ADHD. Therefore, the overarching goal of this dissertation is to examine the social impairment of adolescents with ADHD. Three of the main domains to consider when discussing social functioning are social relationships (e.g., peer status, bullying and friendships),
social skills (e.g., cooperation, assertion, self-control) and social cognition (e.g., social perspective taking, empathy and theory of mind). In addition to examining these constructs individually, a comprehensive understanding of social functioning requires knowledge about the connections between them. The first study will enhance our understanding of the social relationships of adolescents with ADHD by examining the frequency and nature of their bullying and victimization experiences. The second study will contribute to our knowledge about social cognition and social skills of adolescents with ADHD by examining their social perspective taking, domain-specific social skills and the connection between social perspective taking and social skills. The final chapter highlights the key findings, as well as discusses future directions and clinical implications.
Chapter 2
Who? What? Why? An Exploration of Bullying among adolescents with Attention-Deficit/Hyperactivity Disorder

Abstract

The goals of this study were to determine whether adolescents with and without Attention-Deficit/Hyperactivity Disorder (ADHD) differ in rates of bullying and victimization, and to describe the nature of their experiences. The sample comprised 112 (13- to 18-year-old) adolescents; 59 with ADHD and 53 typically functioning comparison youth. Results indicated that, according to parent-report, adolescents with ADHD were more likely to be categorized as bullies, victims and bully/victims than adolescents without ADHD. While statistically significant ADHD group differences were not found for self-reported bullying or victimization, self-reported victimization among adolescents with ADHD was comparable to parent-reported levels and trends indicated it was higher than the comparison group. Patterns of bullying between adolescents with and without ADHD were similar. Relational and verbal bullying were the most frequent subtypes across genders, groups and informants. Additionally, bullying was most often targeted toward or experienced from classmates and friends. The reasons that adolescents provided for why they were victimized were also comparable between adolescents with and without ADHD. However, adolescents with ADHD and their parents also identified “having ADHD” as a reason for having been victimized. Clinical implications of these findings are discussed.


2.1 Introduction

2.1.1 Bullying

The purpose of the present study was to determine whether adolescents with and without Attention-Deficit/Hyperactivity Disorder (ADHD) differ in rates of bullying and victimization, and to describe the nature of their experiences. Bullying occurs when one or more individuals perform negative actions toward another individual repeatedly and over time. These negative actions are intended to cause injury or discomfort. Bullying is characterized by an imbalance of power in which victims cannot defend themselves (Olweus, 1994). Bullying can take various forms including physical (e.g., hitting, kicking), verbal (e.g., name calling or threats, sexual comments), relational (e.g., intentionally excluding someone from a group, gossiping) or cyberbullying (e.g., sending hurtful messages over email, text or other cyber technology devices) (Hymel & Swearer, 2015; Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010; Nansel et al., 2001; Olweus, 1995). Children can be involved as victims (who are victimized but do not bully others), bullies (who bully others but are not victimized themselves) or bully-victims (who both bully others and are victimized themselves) (Kumpulainen, Rasanen, & Puura, 2001). In the present study, “victimization” refers to the experience of the individual who is targeted by bullying from peers and “bullying” refers to the actions of the individual who is perpetrating the bullying against peers.

Chronic victimization by peers and participation in bullying others are associated with long-term social, emotional and academic consequences. Experiencing victimization by peers in youth increases risk of long-term anxiety, depression, low self-esteem, suicidal ideation and loneliness in adulthood (Card & Hodges, 2008; Olweus, 1995; Reijntjes, Kamphuis, Prinzie, & Telch, 2010; Rigby, 2003). Experiencing victimization has also been associated with academic maladjustment including school absenteeism, disliking school and lower academic achievement (Card & Hodges, 2008; Nakamoto & Swartz, 2010). Bullying others has been associated with an increased risk of criminality and perpetrating violence later in life (Tofti, Farrington, Losel, & Loeber, 2011; Tofti, Farrington & Losel, 2012). Researchers have contended that the power and aggression seen in bullying is a key underlying component of sexual harassment, dating aggression, workplace harassment, marital aggression and elder abuse (Pepler et al., 2006). Bully-victims, who both bully others and experience victimization, are at greater risk of
experiencing severe long-term adjustment problems and requiring mental health services (Ivarsson, Broberg, & Arvidsson, 2005; Kumpulainen et al., 2001).

### 2.1.2 Bullying and ADHD

Bullying is best understood from a social-ecological perspective (Espelage & Swearer, 2010; Swearer & Hymel, 2015); being a victim or perpetrator of bullying is seen as the product of ongoing interactions between an individual and their family, friends, classmates, school and cultural context. The behavioural and psychosocial profile of individuals with ADHD closely resembles the risk factors for experiencing victimization and bullying others. Children and adolescents with ADHD exhibit many social risk factors including lower social competence, higher peer rejection and fewer dyadic friendships (Bagwell, Molina, Pelham, & Hoza, 2001; Hoza, 2007; Sciberras, Ohan, & Anderson, 2012), deficits in social perspective taking (Marton, Wiener, Rogers, Moore, & Tannock, 2009) and lower perceptions of social support (Demaray & Elliot, 2001; Timmermanis & Wiener, 2011). In addition, they exhibit individual risk factors such as comorbid anxiety (Tannock, 2000), hyperactivity and oppositionality (Barkley, 2006).

Children with ADHD have been found to be at an increased risk for involvement in bullying with more than 50% experiencing problems with being victimized, bullying others or both (Wiener & Mak, 2009). Until recently, many of the studies demonstrating an association between ADHD and experiencing victimization were conducted in samples consisting of only children or children and adolescents combined. Across studies, children with ADHD reported higher levels of being victimized by peers than comparison children (Cardoos & Hinshaw, 2011; Holmberg & Hjern, 2008; Twyman et al., 2010; Unnever & Cornell, 2003; Wiener & Mak, 2009). One study of younger children (7-8 years of age) found trends indicating that children with ADHD self-reported experiencing more physical bullying than children without ADHD, but the difference was not statistically significant (Redmond, 2011).

More recently, research has shown that the association between ADHD and an increased likelihood of being victimized continues into adolescence (Sciberras et al., 2012; Timmermanis & Wiener, 2011). Timmermanis and Wiener (2011) found that adolescents with ADHD self-reported being victimized more frequently than adolescents without ADHD. Furthermore, among adolescents with ADHD, having experienced victimization was associated with other social difficulties including parent-reported peer relations problems and lower self-reported
perceptions of social support. Sciberras et al. (2012) examined overt (e.g., physical damage, verbal attacks) and relational (e.g., destruction of peer relationships) victimization among female adolescents with ADHD. Findings indicated that female adolescents with ADHD showed significantly higher levels of self- and parent-reported overt victimization and parent-reported (but not self-reported) relational victimization than those without ADHD.

Research in children has also demonstrated an association between ADHD and bullying others. However, the findings have been variable and differences occur between informants. In terms of self-report, some studies have found no significant differences between children with and without ADHD (Wiener & Mak, 2009), whereas other studies conducted with samples of children (Holmberg & Hjern, 2008; Unnever & Cornell, 2003) and children and adolescents combined (Twyman et al., 2010) have found that individuals with ADHD reported increased levels of bullying others. Parents and teachers have reported that children with ADHD bullied others more frequently than children without ADHD (Wiener & Mak, 2009). However, Wiener and Mak (2009) also found that parent-reported oppositional behaviour mediated the relationship between ADHD symptoms and parent- and teacher-reported bullying.

There is also emerging evidence that the association between ADHD and bullying others may persist into adolescence (Timmermanis & Wiener, 2011; Sciberras et al., 2012). Timmermanis and Wiener (2011) found that adolescents with ADHD self-reported bullying others more frequently than adolescents without ADHD. Sciberras et al. (2012) found nonsignificant trends indicating that female adolescents with ADHD perpetrated higher levels of self- and parent-reported overt and relational bullying than female adolescents without ADHD. However, symptoms of oppositional defiant disorder (ODD) were more strongly associated with bullying behaviour than was ADHD diagnosis.

More recently, Fite, Evans, Cooley and Rubens (2014) found that ODD symptoms had a stronger relationship to teacher-reported physical and relational victimization and bullying than ADHD symptoms. However, the study did not examine the experiences of adolescents with diagnosed and verified ADHD, but rather the association between teacher-reported bullying, victimization and ADHD symptoms. The authors cautioned that validity of the study’s findings might have been limited by the fact that high school teachers may have less knowledge of their students than elementary school teachers. Indeed, a large portion (21%) of participants’ teachers did not respond to items addressing relational bullying or victimization.
This research provides initial evidence that the increased likelihood of experiencing victimization and bullying others found in children with ADHD continues into adolescence. However, the evidence base appears to be stronger for the association between ADHD and victimization. The link between ADHD and bullying is less robust in the literature and many of the aforementioned studies found that ODD symptoms have a stronger association with bullying than did ADHD symptoms or diagnosis (e.g., Fite et al., 2014; Sciberras et al., 2012; Wiener & Mak, 2009). As such, there is still much to understand about frequency, subtypes and factors associated with victimization and bullying among adolescents with ADHD.

2.1.3 WHAT Subtypes of bullying

While much of the research among children and adolescents with ADHD has examined overall levels of victimization and bullying, some studies have investigated subtypes (Sciberras et al., 2012; Shea & Wiener, 2003; Wiener & Mak, 2009). Wiener and Mak (2009) conducted a quantitative study which found that children with and without ADHD experience verbal bullying more often than physical and relational bullying and children with ADHD experience all types of bullying more frequently than comparison children. Similarly, Sciberras et al. (2012) found that female adolescents with ADHD experienced higher levels of both overt and relational bullying than adolescents without ADHD. Qualitative interviews of boys with ADHD indicated that while they experience verbal, relational and physical bullying, the most common and salient form of victimization was verbal in form and social exclusionary (relational) in effect (Shea & Wiener, 2003). Wiener and Mak (2009) hypothesized that although verbal bullying occurs more frequently, relational bullying in the form of social exclusion may be perceived as more salient and distressing.

Research in typically developing populations highlights the importance of examining relational and cyberbullying among adolescents. The increased importance of social status, romantic relationships and competition for friends in adolescence may generate interpersonal conflicts that evoke the use of relational aggression (Xie, Cairns, & Cairns, 2005). As children progress from childhood to adolescence, they demonstrate an increase in covert, sophisticated and less confrontational types of relational aggression (e.g., spreading rumors, exclusion); these methods may be favoured by adolescents because they are considered socially acceptable and less likely to result in punishment by authorities or revenge/escalation by victims (Crick et al., 2001; Xie et
Another important factor in considering the bullying experiences of adolescents is technology. Research has demonstrated that 98% of Canadian middle and high school students reported using the computer for at least one hour per day (Mishna et al., 2010). Rates of cyberbullying have varied across studies; on average, between 20-40% of youth report having experienced victimization at least once in their lives (Tokunaga, 2010), with some research showing higher rates (e.g., Mishna et al., 2010). In terms of perpetration, prevalence rates range widely, from 5%-35% across studies (Cappadocia, Craig, & Pepler, 2013; Mishna et al., 2010). Most cyberbullying is perpetrated by friends or students attending the same school (Mishna et al., 2010).

2.1.4 Reasons adolescents provide for WHY the bullying occurred

Attribution theory (Weiner, 1985) has been helpful in understanding the reasons adolescents give to explain why they are victimized by peers (e.g., Graham & Juvonen, 1998; Harper, 2012; Shelley & Craig, 2010). Attributions are the causal perceptions, or explanations, of why a behaviour or event has occurred (Weiner, 1985). According to Weiner’s attribution taxonomy, there are three main attribution dimensions: stability (pervasiveness across time), locus of causality (whether cause is internal in the self or external in the environment), and controllability (whether cause is intentional or accidental). Particularly relevant to victimization is whether victims attribute the victimization to an internal locus of control (“It’s something about me”) or external locus of control (“It’s something about the bully/my school”).

Research has not yet examined the reasons that adolescents with ADHD provide for why they have experienced victimization. However, such research has been conducted in typically developing populations and interviews with parents of children with ADHD. Graham and Juvonen (2001) asked sixth and seventh graders to write down reasons “why some kids get picked on a lot”. Of the open-ended responses, one third were attributed to characteristics of the aggressor (e.g., some kids think it’s funny to hurt others) or school environment (e.g., school has a lot of tough kids). From an attribution theory perspective, these reasons would be categorized as external locus of control. In the remaining two thirds of responses, children identified reasons that were characteristics of the victim, which would be classified as internal locus of control. These characteristics of the victims fell into five broad categories: controllable by victim (52%),
uncontrollable by victim (24%), appearance (9%), different (8%), unpopular (7%). While many of these factors were uncontrollable by the victim (e.g., younger, weaker, unable to defend self), more than half of the reasons were categorized as controllable by the victim (e.g., behaviours such as showing off, tattling or bad mouthing).

Other research also indicated that, in some cases, children believe victims bring the “wrath upon themselves”. Qualitative interviews with female adolescents and their teachers yielded two main characteristics of victims: first, it was their own fault, and second, they were vulnerable (Owens, Slee, & Shute, 2001). Adolescents reported that victims are picked on because they engage in annoying or provoking behaviour that is within their control. Both adolescents and their teachers reported that victims displayed vulnerability (e.g., having few friends, being new, being unassertive, being different). Teachers identified additional internal (e.g., victims’ poor social skills) and external (e.g., absence of modeling of constructive conflict resolution at home, blaming perpetrators for aggression) reasons.

Some of these explanations for victimization among typically developing populations were echoed in interviews of parents and teachers of children with ADHD (Shea & Wiener, 2003). When describing why victimization occurred, parents and teachers indicated that the core of the problem rests in the behaviour of children with ADHD. The participants seldom discussed problems of bullies or school contexts as factors that elicited the victimization. Reasons as to why children with ADHD were excluded by peers included that they were different, lacked age appropriate social skills, exhibited behaviours associated with ADHD (e.g., loud, bossy, short attention span), were emotionally dysregulated and were unpopular with peers. Additionally, it was noted that children with ADHD had little insight into how these factors might contribute to the victimization.

While these studies explored the reasons that children, adolescents, parents and teachers put forth to explain why victimization occurred, they did not specifically address the attributions made by victims themselves. Understanding the attributions that adolescents with ADHD make for why they are victimized is important as researchers have contended that attributions may influence the coping styles individuals employ to address victimization (Shelley & Craig, 2010). Specific attributions, such as self-blame, have been associated with victimization. For example, characterological self-blame includes making attributions that are internal (“it’s something about me”), uncontrollable (“there is nothing I can do”) and stable (“it will always be this way”),
whereas behavioural self-blame includes making attributions that are internal (“it’s something about me”) but controllable (“I can impact what happens”) and unstable (“it might be different next time”) (Graham & Juvonen, 1998). Graham and Juvonen (1998) found that middle school children who perceive themselves as victimized are vulnerable to loneliness, social anxiety and low self-worth; furthermore, characterological self-blame partially mediated this association between victimization and maladjustment. Similarly, Harper (2012) found that the association between victimization and psychosocial maladjustment (e.g., anxiety, depression, loneliness) was mediated by characterological self-blame attributions.

2.1.5 Objectives and Hypotheses

The purpose of the present study was to explore the bullying and victimization experiences of adolescents with ADHD. This study was guided by three objectives. The first objective was to investigate whether adolescents with ADHD were more likely to be perpetrators or victims of bullying than adolescents without ADHD. Analyses examined group differences in levels of overall bullying and victimization, as well as subtypes such as verbal, physical, relational, and cyberbullying. Based on previous research among children and adolescents (Cardoos & Hinshaw, 2011; Holmberg & Hjern, 2008; Sciberras et al., 2012; Timmermanis & Wiener, 2011; Twyman et al., 2010; Unnever & Cornell, 2003; Wiener & Mak, 2009), it was predicted that adolescents with ADHD would be more likely to have perpetrated bullying and experienced victimization than adolescents without ADHD. Based on research among children with ADHD (Shea & Wiener, 2003; Wiener & Mak, 2009) and typically developing adolescents (Crick et al., 2001; Xie et al., 2005), it was further predicted that relational and verbal would be the most frequently reported subtypes of victimization.

The second objective was to determine the characteristics, such as relationship (friend, classmate, stranger, romantic partner), age (younger, same, older), and gender (same, other) of individuals who were victimized by or bullied adolescents with ADHD. Additionally, the extent to which these characteristics differed between adolescents with and without ADHD was explored. As this topic has not been examined among children or adolescents with ADHD, these analyses were exploratory.

The third objective was to investigate the reasons that adolescents with ADHD and their parents provided to explain why they were victimized. The list of possible reasons reflected both
previous research (Graham & Juvonen, 2001; Owens et al., 2001) and social-ecological theory (Espelage & Swearer, 2010). Based on previous research, it was predicted that reasons endorsed would include characteristics of the victims themselves (e.g., appearance, being different), characteristics of the aggressor and characteristics of the school environment.

2.2 Method

2.2.1 Participants

The sample comprised 112 adolescents; 59 (39 male, 20 female) were classified as having ADHD and 53 (25 male, 28 female) served as a typically functioning comparison group. All participants were between 13- and 18-years of age (M=15.33, SD=1.60) and were required to have average intellectual ability as indicated by an abbreviated IQ ≥ 80 on the *Wechsler Abbreviated Scale of Intelligence* (WASI). Adolescents with Autism Spectrum Disorders, Intellectual Disabilities, Psychotic Disorders, and Bipolar Disorder were excluded as these intellectual disabilities and mental health problems may have independent effects on adolescents’ experiences with bullying. Given the high rates of comorbidity with ADHD, participants with co-occurring Learning Disabilities, Conduct Disorder, Oppositional Defiant Disorder, anxiety and depression were included.

All participants with ADHD were required to have a previous diagnosis of ADHD based on DSM-IV criteria. To ensure participants continue to display ADHD symptoms, the DSM-IV Inattentive and DSM-IV Hyperactive/Impulsive scales of the Conners 3-Parent, Conners 3-Teacher and Conners 3-Self-report (Conners, 2008) were used. Participants were classified as having ADHD in two ways: 1) participants needed to have at least one clinically significant parent rating (T ≥ 70) (n = 56); or 2) participants needed to have at least one borderline parent rating (T = 65-69) and at least one borderline rating (T = 65-69) from a second informant (self- or teacher-report) (n = 3). Adolescents were included in the typically functioning comparison group in two ways: 1) participants were required to have parent ratings in the average range (T ≤ 60) (n = 51) or 2) participants were required to have all T-scores below 64 according to both parent- and teacher-report (n = 2).

Within the ADHD group, 72.9% (n = 43) of participants regularly took medication to manage their ADHD symptoms. However, on the day of data collection, these participants were asked
not to take their medication. In addition, 69.5% (n = 41) had comorbid diagnoses. Thirty-five adolescents were diagnosed with a comorbid learning disability, six with anxiety, two with depression, three with oppositional defiant disorder and one with conduct disorder. Within the comparison group, 15.1% (n = 8) of the adolescents had comorbid diagnoses. Seven were diagnosed with a comorbid learning disability, one with anxiety and one with oppositional defiant disorder.

As shown in Table 2.1, adolescents with and without ADHD did not differ in age, \( t(110) = 0.18, p = .86 \). There was a significant gender difference between groups, \( X^2 (1, N = 112) = 4.09, p = .04 \), indicating a higher proportion of the ADHD group was male. Adolescents with and without ADHD did not differ with respect to their parents’ marital status, \( X^2 (1, N = 112) = 1.32, p = .25 \), or the likelihood that a language other than English was spoken in the home, \( X^2 (1, N = 111) = .87, p = .35 \). Parental education (measured by the highest level of parental educational attainment in the household) did not differ between families of adolescents with and without ADHD, \( t(86) = .754, p = .45 \).

Adolescents with and without ADHD did not significantly differ in IQ, \( t(110) = 1.90, p = .06 \). According to parent-, teacher- and self-report, adolescents with ADHD scored significantly higher on the Conners-3 DSM-IV Inattentive and DSM-IV Hyperactive/Impulsive subscales than did adolescents without ADHD. Parents and adolescents (but not teachers) rated adolescents with ADHD significantly higher on the DSM-IV Oppositional Defiant Disorder subscale. Additionally, parents and teachers rated adolescents with ADHD significantly higher on the Peer Relations (problems) subscale.

### 2.2.2 Measures

#### 2.2.2.1 Comprehensive Bullying Measure

The Comprehensive Bullying Measure (CBM) (see Appendix A) was adapted for the purposes of this study from the Safe Schools Questionnaire (Craig, 1998), California Bullying Victimization Scale (Felix, Sharkey, Green, Fur, & Tanigawa, 2011), Pacific-Rim Bullying Measure (Taki, Slee, Sim, Hymel, & Pepler, 2006) and Safe Schools Survey (Totten, Quigley, & Morgan, 2004). This measure was used to assess parents’ perceptions and adolescents’ self-reported experiences of victimization by peers and of bullying others. Participants were
provided with the following description, taken from the Pacific-Rim Bullying Measure (Taki et al., 2006), which does not use the term ‘bullying’: ‘Students can be very mean to one another at school. Mean and negative behaviour can be especially upsetting and embarrassing when it happens over and over again, either by one person or by many different people in the group. We want to know about times when students use mean behaviour and take advantage of other students who cannot defend themselves easily’. Parents and adolescents were asked to indicate how often the adolescent had bullied others and been victimized in a two-month period on a 5-point scale from 0 (Never in the last 2 months) to 4 (Several times a week). Seven questions assessed various types of bullying including physical, verbal, relational, sexual, cyberbullying and destruction of property. Participants were also asked to indicate the characteristics (e.g., relationship, age, gender) of the individuals who they bullied or who victimized them, as well as their perception of the reasons for the victimization. They were also asked to provide information about the responses they made when victimized (e.g., fought back, told an adult). Bullying and Victimization subscales were created by totaling the frequency ratings across the seven questions. The internal consistency (assessed with Cronbach’s alpha) was found to be adequate for both the bullying scale (Adolescent: .71; Parent: .77) and the victimization scale (Adolescent: .72; Parent: .90). The CBM was completed by 110 adolescents and 92 parents.

2.2.2.2 Conners Rating Scale-Third Edition

The Conners Rating Scale-Third Edition (Conners, 2008; Parent- Conners 3-P, Teacher-Conners 3-T, Self-report- Conners 3-SR) was used to confirm continuation of ADHD symptoms of inattention and hyperactivity/impulsivity, as well as to assess oppositionality and peer relations. Parents, teachers and adolescents were asked to rate the adolescent on a 4-point scale from 0 (Not at all/Seldom, Never) to 3 (Very Much True/Very Often, Very Frequent). The long forms, which were used in the present study, are composed of 110 (Parent), 115 (Teacher) and 99 (Self-report) items. The three DSM-IV subscales (DSM-IV Inattention, DSM-IV Hyperactive/Impulsive, DSM-IV Oppositional Defiant Disorder) demonstrate good internal consistency (Parent: .93, .92, .91; Teacher: .94, .95, .93; Self-report .89, .85, .83) and good test-retest reliability (Parent: .84, .89, .88; Teacher: .85, .84, .83; Self-report .71, .72, .78). The Peer Relations subscales demonstrate good internal consistency (Parent: .85; Teacher: .92) and good test-retest reliability (Parent: .78; Teacher: .87). For participants in the ADHD group who were on ADHD medication, parents, teachers and adolescents were asked to think of the individual
when they were not on medication.

### 2.2.2.3 Wechsler Abbreviated Scale of Intelligence

The *Wechsler Abbreviated Scale of Intelligence* (WASI; Wechsler, 1999) is a standardized abbreviated test of intelligence. The Vocabulary and Matrix Reasoning subtests were administered in the present investigation to obtain an estimate of the adolescents’ cognitive functioning. This abbreviated IQ scale demonstrates good internal consistency (Age ≤ 16 years: .93; Age ≥ 17 years: .96) and test-retest reliability (Age ≤ 16 years: .85; Age ≥ 17 years: .88). The correlation with the Full Scale IQ on the WISC-III is .81.

### 2.2.3 Procedure

This investigation was approved by the Research Ethics Board of the University of Toronto. Participants were recruited through advertisements in community newspapers and websites, children’s mental health centers, physicians’ and psychologists’ offices and other agencies working with adolescents with ADHD. Participants from previous studies who agreed to be contacted for future research were also informed about the study. Participants were given the option of counting their participation in the study toward their required secondary school community service hours or receiving $30.00 in cash to cover their expenses for the day. Additionally, adolescents and their parents were given an educational report describing the adolescents’ academic, cognitive and social/emotional functioning and giving recommendations for home and school.

Parents of participating adolescents were contacted by phone and given detailed information about the study. They provided information about the adolescents’ diagnosis and completed the Conners 3-P as a verification of ADHD diagnosis. If adolescents met eligibility criteria, a package was mailed to the family including consent letters and forms (both parent and adolescent versions) explaining the purpose and procedures of the study, as well as potential risks and benefits associated with the study. Consent letters and forms are included in Appendix B. Parents were asked to complete a variety of measures and provided consent for the Conners 3-T to be sent to the adolescents’ school. The adolescent measures were administered in an individual testing session by a graduate student in the ADHD laboratory of Dr. Judith Wiener at OISE/University of Toronto. Testing sessions were approximately four hours and the
participants were given frequent breaks. Participants completed the WASI, CBM, Conners 3-SR and additional measures for other studies.

### 2.2.4 Data Analyses

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 21. The data were examined for outliers. However, due to the nature of bullying, extreme scores were not adjusted as they were deemed to be valid instances representing frequent bullying or victimization. As the Bullying and Victimization subscales from the Comprehensive Bullying Measure (CBM) were not normally distributed (both initially and after transformations), categorical analyses were conducted.

The first set of analyses investigated whether adolescents with ADHD differed from comparison adolescents in the overall frequency of bullying and victimization. Chi-square analyses were conducted to examine age and gender effects on the likelihood of being categorized as a victim or bully according to self- or parent-report (see Appendix C). Gender and age effects are only reported in the Results section when significant. Chi-square analyses were conducted to examine the association between ADHD status and the likelihood of being categorized as a victim, bully or bully/victim according to self- or parent-report. Finally, parent and adolescent data were pooled and chi-square analyses examined the association between ADHD status and likelihood of being categorized as a victim or bully.

Additional frequency analyses examined subtypes of bullying including physical, relational, verbal and cyberbullying. These categories were created by combining questions on the Comprehensive Bullying Measure. An adolescent was considered to have perpetrated or experienced “physical” bullying if either physical aggression (e.g., pushing, hitting, kicking) or damaging/stealing property was endorsed. Similarly, “relational” bullying was created by collapsing items addressing spreading rumours/getting others to dislike or ignoring/intentional exclusion from group and “verbal” bullying was created by collapsing items addressing teasing/threatening or making sexual comments/gestures. Cyberbullying was based on a single question, which asked about harm coming via e-mail, social networking or text message. Chi-square analyses were conducted to examine gender effects (see Appendix D). In light of the gender differences, the sample was divided by gender in order to examine subtype differences between adolescents with and without ADHD. Chi-square analyses were conducted to examine
the association between ADHD status and subtypes of bullying (see Table 2.3) and victimization (see Table 2.4). However, the cell sizes were small and did not allow for statistical comparison in approximately half of the analyses conducted. As such a qualitative description is presented.

The second set of analyses examined the characteristics (e.g., relationship, age and gender) of those being bullied by or victimizing adolescents with and without ADHD. When determining the characteristics of individuals being bullied by participants, analyses were limited to “bullies” who, according to themselves and/or their parents, had perpetrated bullying “two times per month or more”. Table 2.5 shows characteristics of individuals who participants of the present study bullied. When determining characteristic of individuals who participants were victimized by, analyses were limited to “victims” who, according to themselves and/or their parents, had experienced victimization “two times per month or more”. Table 2.6 shows characteristics of individuals who victimized participants in the present study.

The third set of analyses investigated the reasons that adolescents and their parents provided to explain why victimization occurred. These responses were examined only among participants categorized as “victims”. Table 2.7 provides the percentages of adolescents and parents who endorsed characteristics of the adolescents (internal reasons) as explanations for why the victimization occurred. Partway through data collection, the CBM was modified to include reasons for victimization that were characteristics of the individuals, as well as external reasons such as characteristics of the bully and the school environment. It should be noted that about 75% of participants were given this version, so the results do not reflect the views of all “victims”. Table 2.7 also provides the percentages of adolescents and parents who endorsed characteristics of the bullies and school environment.

For the analyses of profiles of others involved and reasons for victimization, sample sizes were too small to allow for statistical comparisons and qualitative descriptions of the results are presented.

2.3 Results

2.3.1 Victimization and Bullying in Adolescents with ADHD

2.3.1.1 Overall Frequency
Adolescents were categorized as “bullies” or “victims” if they received a score of four or more on the Bullying or Victimization subscales of the CBM respectively. This cutoff corresponds with a frequency of approximately “2 or more times per month”. A criterion of “2-3 times a month” has been cited as a reasonable and useful lower bound cutoff point for victim and bully classification (Solberg & Olweus, 2003).

With respect to parent-reported bullying, adolescents with ADHD (33.3%) were significantly more likely to be categorized as bullies than adolescents without ADHD (6.8%), $X^2(1, N = 92) = 9.85, p < .01$. However, adolescents with ADHD (15.5%) and without ADHD (19.2%) did not differ significantly in the likelihood of being categorized as a bully according to self-report, $X^2(1, N = 110) = .27, p = .61$. In terms of parent-reported victimization, adolescents with ADHD (29.2%) were significantly more likely to be categorized as victims than adolescents without ADHD (11.4%), $X^2(1, N = 92) = 4.44, p = .04$. However, when victimization was assessed by self-report, adolescents with ADHD (31.6%) and without ADHD (21.2%) did not differ significantly in the likelihood of being categorized as a victim, $X^2(1, N = 109) = 1.51, p = .22$.

Another series of classifications were conducted to identify adolescents who both experienced victimization and bullied others. Adolescents were classified as “bully/victims” if they met criteria for both bully and victim groups. This classification system produced four groups: “bullies”, “victims”, “bully/victims” and individuals not involved in victimization or bullying (see Table 2.2). According to parent-report, adolescents with ADHD (20.8%) were significantly more likely than adolescents without ADHD (6.8%) to be classified as bully/victims, $X^2(1, N = 92) = 3.71, p = .05$. However, in terms of self-report, adolescents with ADHD (6.9%) and without ADHD (11.5%) did not differ significantly in their likelihood of being classified as a bully/victim, $X^2(1, N = 110) = .715, p = .40$.

When self- and parent-report data were pooled, adolescents with ADHD (35.6%) were not significantly more likely than adolescents without ADHD (24.5%) to be classified as bullies, $X^2(1, N = 112) = 1.62, p = .20$. In contrast, adolescents with ADHD (48.3%) were significantly more likely than adolescents without ADHD (28.3%) to be classified as victims, $X^2(1, N = 111) = 4.66, p = .03$. 
2.3.1.2 Subtypes of Bullying

Participants were considered to have perpetrated or experienced a given subtype of bullying if they endorsed a rating of “once” or more in the last two months (i.e., they reported that it had ever happened in the last two months, irrespective of frequency).

**Gender**

In terms of self-reported bullying, male adolescents (29.0%) were significantly more likely to have perpetrated physical bullying than female adolescents (8.5%), $X^2 (1, N = 109) = 6.99, p < .01$. Male adolescents (39.7%) were marginally more likely than female adolescents (22.2%) to have perpetrated verbal bullying, $X^2 (1, N = 108) = 3.65, p = .06$. In terms of self-reported victimization, male adolescents (29.5%) were significantly more likely to have experienced physical bullying than female adolescents (10.6%), $X^2 (1, N = 108) = 5.64, p = .02$. Male adolescents (19.4%) were marginally more likely than female adolescents (6.5%) to have experienced cyberbullying, $X^2 (1, N = 108) = 3.64, p = .06$.

**Subtype differences between adolescents with and without ADHD (sample divided by gender)**

Table 2.3 presents the percentages of adolescents who have perpetrated subtypes of bullying in the last two months. Consistent across gender and ADHD status, the most common form of self-reported bullying was relational, followed by verbal. Trends indicated that female adolescents with ADHD perpetrated all subtypes of self-reported bullying less frequently than female adolescents without ADHD. In terms of parent-reported bullying, verbal was the most frequent form of bullying perpetrated across groups. Trends showed that, in both genders, adolescents with ADHD were more likely to have perpetrated all subtypes of parent-reported bullying than adolescents without ADHD.

Table 2.4 presents the percentages of adolescents who have experienced subtypes of victimization in the last two months. Consistent across gender and ADHD status, verbal was the most common form of self-reported victimization experienced, followed by relational. In both the male and female groups, trends indicated that adolescents with ADHD were more likely to have experienced relational and verbal self-reported victimization than adolescents without ADHD. In terms of parent-reported victimization, verbal and relational were the most common forms of victimization experienced across groups. Trends showed that adolescents with ADHD
of both genders were more likely to have experienced all subtypes of parent-reported victimization than adolescents without ADHD.

### 2.3.2 Profiles of others involved

Table 2.5 shows characteristics of individuals who participants of the present study bullied. Among adolescents with and without ADHD, self- and parent-report indicated that bullying most frequently targeted classmates and friends. On rare occasion it targeted strangers. No adolescent or parent reported that bullying was directed toward romantic partners. In addition to the categories provided, respondents were asked to identify “other” people whom bullying was directed toward. Siblings were the most commonly suggested group. Six parents of adolescents with ADHD (33.3%) and three parents of adolescents without ADHD (23.1%) reported that their adolescents’ bullying was directed toward siblings or family members. One adolescent without ADHD and none with ADHD reported bullying being directed toward siblings. In terms of age, adolescents and their parents reported that bullying most frequently targeted individuals of the same age, followed by younger individuals. Adolescents were least likely to bully individuals who were older than them, though trends suggested that adolescents with ADHD were more likely to bully older individuals than adolescents without ADHD. In terms of gender, bullying behaviour was most commonly directed toward members of the same gender. However, bullying members of the other gender did occur.

Table 2.6 shows characteristics of individuals who victimized participants in the present study. Among adolescents with and without ADHD, self- and parent-report indicated that victimization was most frequently coming from classmates, followed by friends. It occasionally came from strangers and, very rarely, romantic partners. In addition to the categories described, respondents were asked to identify “other” people who victimized them. Five parents of adolescents with ADHD (19.2%) and two parents of adolescents without ADHD (15.8%) reported that their adolescents were victimized by siblings. One adolescent with ADHD (3.7%) and two adolescents without ADHD (13.3%) reported that they had been victimized by siblings. Adolescents and their parents reported that adolescents were most commonly victimized by individuals of the same age. Adolescents were also victimized by individuals who were younger and older than them. Adolescents were most frequently victimized by members of the same gender, but were also victimized by members of the other gender.
2.3.3 Reasons Provided

In terms of internal reasons for victimization, among adolescents with and without ADHD, themes that were frequently endorsed included being different (e.g., behaviour different than others, interests are different), physical appearance (e.g., appearance, body shape, weight, style/dress), internalizing problems (e.g., anxious, sad, withdrawn) and having learning difficulties (e.g., have a learning disability, have difficulty in school). Additionally, adolescents with ADHD highlighted “having ADHD” as one of the top reasons for experiencing victimization. Parents of adolescents with ADHD endorsed many reasons as to why their children were victimized, while parents of adolescents without ADHD endorsed relatively few. The reasons endorsed by parents of adolescents with ADHD were similar to those provided by adolescents; themes included having ADHD, being different, having difficulty in school, appearance and internalizing problems. A subset of participants completed the second version of the CBM that included external reasons for victimization. Among adolescents and parents, characteristics of bullies (e.g., wants to feel powerful, thinks it is funny to hurt) were endorsed more frequently than characteristics of the school environment (e.g., school does nothing to prevent it, school has a lot of tough kids). These results are shown in Table 2.7.

2.4 Discussion

The results of the present study partially supported the prediction that adolescents with ADHD would be more likely to bully others and experience victimization. According to parent-report, adolescents with ADHD were more likely to be categorized as bullies, victims and bully/victims than adolescents without ADHD. Statistically significant ADHD group differences were not found for self-reported bullying or victimization. However, self-reported victimization among adolescents with ADHD was comparable to parent-reported levels and trends indicated it was higher than the comparison group. When self- and parent-report data were pooled, adolescents with ADHD were significantly more likely to have experienced victimization than adolescents without ADHD. No ADHD group differences in bullying were found in the pooled data. Relational and verbal bullying were the most frequently perpetrated and experienced subtypes of victimization across genders, groups and informants. The profiles of “others involved” were consistent among adolescents with and without ADHD: most frequently, bullying was targeted toward or experienced from classmates and friends of the same age and same gender. The
internal reasons that adolescents provided for why they were victimized were consistent between those without and without ADHD; themes included appearance, being different, having learning difficulties and internalizing problems. The main group difference was that adolescents with ADHD and their parents identified “having ADHD” as a reason for having been victimized. In terms of external reasons for victimization, characteristics of the bullies were endorsed more frequently than characteristics of the school environment.

2.4.1 ADHD and bullying

2.4.1.1 Overall frequency

The first objective of the present study was to examine the frequencies of bullying others and experiencing victimization among adolescents with and without ADHD. The prediction that adolescents with ADHD would be more likely to be categorized as bullies was partially supported. According to parent-report, adolescents with ADHD were more likely to be categorized as bullies than adolescents without ADHD. However, there were no group differences in self-reported bullying among adolescents with and without ADHD. In the present sample, adolescents without ADHD reported involvement in bullying (19.2%) comparable to a large scale prevalence study which found that 19.4% of sixth to tenth graders bullied others on a moderate (“sometimes”) or frequent (“once a week or more”) basis (Nansel et al., 2001). Adolescents with ADHD self-reported slightly lower rates of bullying (15.5%). When comparing across informants, parents of adolescents with ADHD reported higher levels of bullying (33.3%) than did their adolescents. Thus, adolescents with ADHD in the present study reported lower (though not statistically different) levels of bullying compared to their parents, adolescents without ADHD and previous prevalence studies.

This finding is inconsistent with previous research indicating that adolescents with ADHD self-reported increased levels of bullying (Sciberras et al., 2012; Timmermanis & Wiener, 2011). It is possible that the discrepant findings are due to differences in methodology and frequency of bullying considered. The present study examined the likelihood of being categorized as a bully using “2 or more times a month” as a cut-off for classification. In contrast, Sciberras et al. (2012) and Timmermanis and Wiener (2011) used dimensional scales for self-reported bullying. Sciberras et al. (2012) used a 5-point Likert scale assessing the extent to which statements about bullying were true for participants (e.g., “Never True” to “Almost always true”).
Timmermanis and Wiener used a 5-point Likert scale representing the frequency of bullying within different time periods. The results of these studies reported group differences in mean scale ratings not group differences in involvement in frequent bullying. While speculative, this could be interpreted in two ways. Firstly, it is possible that group differences between adolescents with and without ADHD are not seen when examining more frequent and repetitive bullying. Alternatively, in light of high levels of parent-reported bullying in the present study, it is also possible that adolescents with ADHD are underreporting frequent bullying for social desirability reasons (Pellegrini, 2001) or because they do not view their behaviour as characteristic of bullying (i.e., repetitive, intentional, power imbalance).

The prediction that adolescents with ADHD would be more likely to be categorized as victims was also partially supported. According to parent-report and pooled data, adolescents with ADHD were more likely to be categorized as victims than adolescents without ADHD. Contrary to previous research (Sciberras et al., 2012; Timmermanis & Wiener, 2011), no group differences were seen in self-reported victimization among adolescents with and without ADHD. However, trends indicated that adolescents with ADHD reported increased levels of victimization. Nansel et al. (2001) found that 16.9% of sixth to tenth graders experienced victimization on a moderate or frequent basis. In the present study, 31.6% of adolescents with ADHD and 21.2% of adolescents without ADHD reported experiencing victimization. Parents of adolescents with ADHD reported levels of victimization (29.2%) similar to those reported by their adolescents. As such, the adolescents with ADHD had nearly double the rate of victimization compared to the Nansel et al. (2001) sample. Additionally, the lack of a statistically significant difference between groups may be attributed to the higher than expected rates of victimization in the comparison group in the present study.

These results, as well as previous research among adolescents with ADHD (Sciberras et al., 2012; Timmermanis & Wiener, 2011), indicate discrepancies between self- and parent-reported levels of victimization and bullying. Research examining parental perspectives on bullying has found variability in parental awareness; some parents do not know their children have been victimized while others were aware and concerned about the negative impact on their children’s well-being (Mishna, Wiener, & Pepler, 2008; Sawyer, Mishna, Pepler, & Wiener, 2011). Within the comparison group, parents reported lower levels of bullying (6.8%) and victimization (11.4%) than their adolescents did (bullying – 19.2%; victimization – 21.2%). It is possible that
parent-reported levels of bullying and victimization were lower because adolescents did not tell their parents about their experiences. Research on children and adolescents’ willingness to report distress (including but not limited to victimization and bullying) has found participants were more willing to disclose distress to researchers than to adults in their lives (Mishna, Schwan, Lefebvre, Bhole, & Johnston, 2014). Reasons provided to explain their reluctance to disclose to adults included protecting themselves (e.g., self-image, shame, upsetting to talk about, worried about reaction from others), protecting others (e.g., not causing burden, not wanting parents to feel blamed or worried) or believing adults’ advice/help would be ineffective. While parents of comparison youth reported less involvement in bullying and victimization than their adolescents’ did, parents of children with ADHD reported levels of bullying (33.3%) higher than those reported by their adolescents (15.5%) and levels of victimization (29.2%) similar to those reported by their adolescents (31.6%). It is unclear why parents of adolescents with ADHD would be more aware of their children’s experiences with bullying and victimization. As discussed below, this is an important direction for future research.

2.4.1.2 Subtypes of Bullying

In addition to exploring overall levels of bullying and victimization, further exploration was conducted into subtypes such as physical, relational, verbal or cyberbullying. In line with predictions, across gender and ADHD status, the most common form of self-reported bullying was relational and second was verbal. This is consistent with previous research indicating that there is a significant increase in social aggression during late childhood and early adolescence, possibly due to the increased importance of peer social networks and social cognitive development (Xie et al., 2005). In terms of parent-reported bullying, across groups and genders, verbal bullying was the most frequently reported subtype. When addressing issues of measurement, previous research has indicated that teachers may have limited knowledge of subtle aggressive behaviours and relational aggression (e.g., Fite et al., 2014; Xie et al., 2005) and the same may be true of parents in the present study who generally reported lower levels of relational bullying than their children.

Across gender and ADHD status, the most common form of self-reported victimization was verbal, followed by relational. Similarly, in terms of parent-reported victimization, verbal and relational were most common and comparable in frequency. These findings are consistent with
predictions and with qualitative interviews of boys with ADHD, which indicated that while they experience verbal, relational and physical bullying, the most common and salient form of victimization was verbal in form and social exclusionary (relational) in effect (Shea & Wiener, 2003). The present findings provide a developmental extension to the work of Wiener and Mak (2009) who found that among children with ADHD, verbal victimization was the most frequent and relational and physical victimization were lower and roughly comparable. As individuals with ADHD progress from childhood to adolescence, verbal victimization remains frequent and relational victimization emerges as a frequent subtype.

2.4.2 Profiles of others involved

The second objective was to determine the characteristics, such as relationship (friend, classmate, stranger, romantic partner), age, and gender of individuals who were bullied by or who victimized adolescents with ADHD. The pattern of results that emerged was similar for adolescents with and without ADHD and was similar across informants.

Bullying occurred primarily between classmates and friends. When bullies were asked whom they bullied and victims were asked who bullied them, classmates and friends were the most frequent responses. Strangers and relationship partners were involved very infrequently. The existence of bullying among classmates and friends is consistent with previous research (e.g., Mishna et al., 2010; Mishna et al., 2008; Wei & Jonson-Reid, 2011). Bullying within friendships is often relational and is associated with confusion about how to interpret the behaviour and how to respond (Mishna et al., 2008). This presence of bullying within friendship stands in contrast to the frequent assertion that friendships are protective against victimization. Research on typically developing children and children with ADHD has shown that friendships are protective in terms of decreasing the likelihood of being victimized and decreasing the negative impact (Cardoos & Hinshaw, 2011; Hodges, Boivin, Vitaro, & Bukoski, 1999). The findings that children and adolescents can be both bullied and supported by friends exemplifies the complexity of networks of friendships and highlights the need for additional research to further understand these dynamics (Mishna et al., 2008).

When participants were asked to identify “other” individuals who were targets or perpetrators of bullying, “siblings” was the most common response, especially by parents. This finding is consistent with previous qualitative and quantitative research demonstrating the presence of
conflict and victimization in the sibling relationships of children with ADHD (Kendall, 1999; Mikami & Pfiffner, 2007). Qualitative research among siblings of children with ADHD showed that siblings felt victimized by aggressive acts from their sibling with ADHD and that their experiences of victimization were often minimized and overlooked in the family (Kendall, 1999). Aggressive acts included physical violence (e.g., hit, kicked, held down) and verbal aggression (e.g., insults, threats of violence or rejection). Relatedly, quantitative research has shown that children with ADHD have higher levels of conflict (e.g., fighting and antagonism) in their sibling relationships than children without ADHD (Mikami, & Pfiffner, 2007). While the present study did not allow for comparison between adolescents with and without ADHD, the findings do give an indication that bullying in sibling relationships of children with ADHD may continue into adolescence.

Adolescents with and without ADHD bullied and were victimized by peers of the same gender most frequently. However, bullying and being victimized by members of the other gender also occurred. Previous research examining same-gender and other-gender victimization in large samples of adolescents has found that male adolescents nominate more same-sex bullies than female adolescents, whereas female adolescents nominated more other-sex bullies than male adolescents did (Olweus, 2010; Sainio et al., 2013). Unfortunately, the sample size of the present study did not allow for similar analyses. Attending to whether bullying is occurring within same or opposite gender pairs is important in light of research highlighting differing social and emotional outcomes. Sainio et al. (2013) found that same-sex victimization was more strongly related to negative perceptions of peers, whereas other-sex victimization was more strongly associated to low self-esteem.

2.4.3 Reasons Provided

The third objective was to investigate reasons that adolescents with ADHD and without ADHD and their parents provided to explain why they experienced victimization. The “internal” reasons identified by adolescents with and without ADHD shared many themes such as being different, physical appearance, internalizing problems and having learning difficulties. The thoughts and feelings of the bullies (e.g., wants to feel powerful, thinks it is funny to hurt) were the most frequently endorsed external reasons. Characteristics of the school environment (e.g., happens all the time at my school) were also endorsed, but less frequently.
Explanations for victimization such as being different and appearance are consistent with previous research in typically developing populations and children with ADHD (Graham & Juvonen, 2001; Owens et al., 2001; Shea & Wiener, 2003). The identification of learning difficulties as a reason for victimization is consistent with research indicating children with learning disabilities (LD) are more likely to be victimized by peers than children without LD (Martlew & Hodson, 1991; Morrison, Furlong, & Smith, 1994; Nabuzko & Smith, 1993; Sabornie, 1994). The theme of internalizing problems being a reason for victimization is consistent with a recent meta-analysis, which concluded that internalizing problems are both an antecedent and consequence of victimization by peers (Reijntjes et al., 2010).

Adolescents with ADHD and their parents also identified “having ADHD” as one of the top reasons for experiencing victimization. While comprehensively assessing attributions (e.g., locus of control, stability, controllability; Weiner, 1985) is beyond the scope of the present study, this issue merits future research in light of attribution literature on adolescents with ADHD and maladaptive outcomes associated with certain attributional styles. Adolescents with ADHD view their challenges (e.g., argumentative problems, concentration, noncompliance) as being stable over time (Cooper & Shea, 1999; Ohan & Johnston, 1999). Additionally, adolescents with ADHD view their problematic behaviours as more uncontrollable than comparison youth (Varma, 2013). Within the bullying literature, having a characterological attribution style (internal, stable, uncontrollable) has been shown to partially mediate the relationship between victimization and maladjustment (Graham & Juvonen, 1998; Harper, 2012). Thus, the relationship between victimization and attribution style among adolescents with ADHD is an important direction for future research.

2.4.4 Limitations and Implications for Future Research

The present study has a number of limitations and highlights opportunities for further research. Theoretically rigorous cutoff points for victim and bully classification (e.g., “2 or more times per month”) were used to identify individuals who experienced moderately frequent bullying and victimization. This is an important extension of our previous work on bullying and ADHD, which compared participants with no experience to those who had any experience with victimization or bullying (Timmermanis & Wiener, 2011). A consequence of this procedure was that it produced small subgroups of victims and bullies. This meant that analyses of subtypes of
victimization/bullying, characteristics of others involved and reasons provided were descriptions instead of statistical comparisons. A larger sample size would have allowed for statistical analyses of the trends outlined.

The Comprehensive Bullying Measure (CBM), adapted for the purposes of this study, has both strengths and limitations. The present study used a multi-informant approach (Bovaird, 2010), in response to cautions against relying exclusively on self-report measures, which are subject to the careless responding, memory for the event, and inflating or minimizing of experiences (Cornell & Bandyopadhyay, 2010). Recommendations for measuring bullying include using assessment instruments that clearly distinguish bullying from other forms of peer aggression (Bovaird, 2010; Cornell & Bandyopadhyay, 2010). The CBM used a definition, taken from the Pacific-Rim Bullying Measure (Taki et al., 2006), which describes the behaviour and makes reference to the three critical elements – intentionality, repetition and power imbalance - without explicitly using the word “bullying”. There is debate among researchers about whether or not to use the “word” bullying in assessment (Swearer, Siebecker, Johnsen-Frerichs, & Wang, 2010). Students who are provided with a definition of bullying and are repeatedly exposed to the term “bully” report perpetrating significantly less bullying than those not exposed to a definition or the word “bully” (Kert, Codding, Tryon, & Shiyko, 2010). Relatedly, it has been suggested that lower rates of victimization are reported when “emotionally laden” terms such as “bullying” are used (Grief & Furlong, 2006; Hamby & Finkelhor, 2000). As such, the levels of bullying and victimization in the present study may have been lower if an assessment tool explicitly using the word “bullying” had been used. Additionally, this may partially explain the high levels of self-reported victimization in the comparison group.

Previous research has found variability in parental awareness of bullying, which is important given that parents’ perceptions of bullying influence parents’ responses (or lack thereof) (Sawyer et al., 2011). Research into the parental perceptions of victimization and bullying experiences of adolescents with ADHD may be an important area of research. Such research could examine how confident parents are in their responses and how they know about their children’s experiences (e.g., adolescent disclosure, informed by school, observed, etc.). Additionally, the findings of the present study support the investigation of how conflict between siblings impacts parents’ perceptions of their adolescents’ involvement in victimization and bullying. Relatedly, preliminary research in the present sample has indicated that parenting
stress is correlated with victimization experiences among parents of adolescents with ADHD (Wiener, 2014). As such, future research into the impact of adolescents’ social difficulties, particularly bullying and victimization, on parental psychological adjustment would be beneficial.

The present study provides some preliminary information about the reasons that adolescents with ADHD provide to explain their involvement in bullying. However, many relevant issues remain to be explored. For example, the list of internal reasons in the present study did not include reasons identified in previous literature such as social skills, social status, emotional dysregulation, and assertiveness (Graham & Juvonen, 2001; Owens et al., 2001; Shea & Wiener, 2003). Additionally, only 75% of the present sample was given the opportunity to respond to external reasons including characteristics of the bully and characteristics of the school environment. While reasons provided were categorized into “internal” and “external”, the present study did not comprehensively examine the attributions (locus of causality, controllability, stability) for experiencing victimization. In addition to these areas, further research should examine the reasons that adolescents with ADHD provide for why they bully others.

2.4.5 Clinical Implications

The present findings have implications for mental health professionals who engage in assessment and treatment planning, as well as parents and educators who interact regularly with adolescents with ADHD. Experiencing victimization and bullying others is associated with a range of long-term social, emotional and academic consequences (Card & Hodges, 2008; Olweus, 1995; Pepler et al., 2006; Reijntjes et al., 2010; Rigby, 2003; Tofti et al., 2011; Tofti et al., 2012). In the present study, according to parent- and self-report, approximately 30% of adolescents with ADHD experienced victimization. Parents and educators interacting with adolescents with ADHD should be mindful of the possibility that they may be experiencing victimization and associated consequences. Parents and educators should remember that bullying behaviours, particularly relational, are often difficult for adults to notice and, as such, it is important to create a climate in which adolescents can feel safe to share their experiences. Knowledge dissemination about bullying and its consequences may support parents and educators in identifying individuals experiencing victimization and, if necessary, getting
appropriate support for those involved (Sawyer et al., 2011). Mental health professionals working with adolescents with ADHD should comprehensively examine social functioning, including assessing for experiences of victimization, bullying others and associated psychosocial maladjustment. Practitioners should be cognizant of the fact that bullying often occurs among classmates, friends and siblings.

Researchers examining victimization by peers among children with ADHD (e.g., Cardoos & Hinshaw, 2011) contend that developing friendships should be a target for intervention as friendships protect children from victimization and the associated negative short- and long-term outcomes. These authors called for further research into the mechanisms by which friendships are protective. Such research is particularly important in light of the present findings and previous literature indicating that bullying exists within friendships (e.g., Mishna et al., 2010; Mishna, et al., 2008; Wei & Jonson-Reid, 2011). While individuals working with adolescents with ADHD are encouraged to foster their friendship development, such friendships should be monitored in terms of qualities such as social support and companionship versus power distribution, aggression, and conflict (Mishna et al., 2008).

The findings also contribute to our understanding of bullying behaviour. Among those adolescents with ADHD who were categorized as “bullies” approximately 20% self-reported that they bully their friends and approximately 50% reported that they bully their classmates. As such, practitioners and future research should examine motivations and mechanisms for this bullying within friendships and classmates to develop a further understanding and targets for intervention. Possible targets for intervention (e.g., social perspective taking, social problem solving interventions) are discussed in Chapter 3.
### Table 2.1

Descriptive Information about Sample

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<th></th>
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<td>n</td>
<td>M</td>
<td>SD</td>
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<td>18.27</td>
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<td>56.93</td>
<td>15.86</td>
<td>84.56</td>
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<td>10.85</td>
<td>106</td>
<td>-5.51**</td>
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<td>49.33</td>
<td>8.26</td>
<td>106</td>
<td>-2.93**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p<.05, **p<.01

---

1 Parental education was measured on an 11-point scale from 1=no school to 11= doctoral degree; a rating of 8 corresponds with having attended some university and 9 corresponds with having completed an undergraduate degree.
Table 2.2

Victimization and Bullying Categories

<table>
<thead>
<tr>
<th>Categorization</th>
<th>Bullies n (%)</th>
<th>Victims n (%)</th>
<th>Bully/Victim n (%)</th>
<th>Not Involved n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-report ADHD (n=57)</td>
<td>5 (8.8)</td>
<td>14 (24.6)</td>
<td>4 (6.9)</td>
<td>34 (59.6)</td>
</tr>
<tr>
<td>Comparison (n=52)</td>
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<td>5 (9.6)</td>
<td>6 (11.5)</td>
<td>37 (71.2)</td>
</tr>
<tr>
<td>Parent-report ADHD (n=48)</td>
<td>6 (12.5)</td>
<td>4 (8.3)</td>
<td>10 (20.8)</td>
<td>28 (58.3)</td>
</tr>
<tr>
<td>Comparison (n=42)</td>
<td>0 (0)</td>
<td>2 (4.5)</td>
<td>3 (6.8)</td>
<td>39 (88.6)</td>
</tr>
</tbody>
</table>

*Based on criteria of approximately “2 or more times per month”*
Table 2.3
Percentage of adolescents who have perpetrated subtypes of bullying in the last two months

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADHD</td>
<td>Comparison</td>
</tr>
<tr>
<td>Self-Reported</td>
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<td></td>
</tr>
<tr>
<td>Physical</td>
<td>12 (31.6)</td>
<td>6 (25.0)</td>
</tr>
<tr>
<td>Relational</td>
<td>17 (43.6)</td>
<td>13 (54.2)</td>
</tr>
<tr>
<td>Verbal</td>
<td>17 (43.6)</td>
<td>8 (33.3)</td>
</tr>
<tr>
<td>Cyberbullying</td>
<td>4 (10.3)</td>
<td>5 (20.8)</td>
</tr>
<tr>
<td>Parent-Reported</td>
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</tr>
<tr>
<td>Physical</td>
<td>6 (20.0)</td>
<td>1 (4.8)</td>
</tr>
<tr>
<td>Relational</td>
<td>7 (24.1)</td>
<td>2 (9.5)</td>
</tr>
<tr>
<td>Verbal</td>
<td>13 (43.3)</td>
<td>3 (15.0)</td>
</tr>
<tr>
<td>Cyberbullying</td>
<td>6 (20.0)</td>
<td>2 (9.5)</td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .01$
NR Not reported as at least one cell had expected count less than 5

2 Participants were considered to have perpetrated a given subtype of bullying if they endorsed a rating of “once” or more in the last two months (i.e., they reported that it had ever happened in the last two months, irrespective of frequency)
### Table 2.4

Percentage of adolescents who have experienced subtypes of victimization in the last two months\(^3\)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADHD (n=38)</td>
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<td>ADHD (n=19)</td>
<td>Comparison (n=28)</td>
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<td>5 (17.9)</td>
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<td>8 (42.1)</td>
<td>10 (35.7)</td>
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<td>Verbal</td>
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<td>8 (33.3)</td>
<td>9 (47.4)</td>
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<td>Cyberbullying</td>
<td>6 (15.8)</td>
<td>6 (25.0)</td>
<td>1 (5.6)</td>
<td>2 (7.1)</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>(df,N)=X(^2)</th>
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<tr>
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<tr>
<td>Parent-Reported</td>
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<td>(n=18)</td>
<td>(n=23)</td>
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<td>Verbal</td>
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<td>6 (28.6)</td>
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<td>2 (9.5)</td>
<td>3 (16.7)</td>
<td>1 (4.5)</td>
</tr>
</tbody>
</table>

\(* p < .05, \quad ** p < .01\)

NR Not reported as at least one cell had expected count less than 5

\(^3\) Participants were considered to have experienced a given subtype of victimization if they endorsed a rating of “once” or more in the last two months (i.e., they reported that it had ever happened in the last two months, irrespective of frequency)
<table>
<thead>
<tr>
<th></th>
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<th>Parent-Report</th>
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<td>(n=18)</td>
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<td>(n=13)</td>
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</tr>
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<td>0 (0)</td>
<td>0 (0)</td>
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<td></td>
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Table 2.6

Characteristic of individuals who participants were victimized by

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<td>Other</td>
<td>4 (14.8)</td>
<td>9 (60.0)</td>
</tr>
</tbody>
</table>
Table 2.7
Reasons identified by victims as to why victimization toward them occurred

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Internal Reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>0 (0)</td>
<td></td>
<td>0 (0)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Skin Colour</td>
<td>2 (7.4)</td>
<td></td>
<td>2 (7.7)</td>
<td></td>
<td>1 (7.7)</td>
<td></td>
</tr>
<tr>
<td>Country of Origin</td>
<td>2 (7.4)</td>
<td></td>
<td>1 (3.8)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Have little money</td>
<td>1 (3.7)</td>
<td></td>
<td>2 (7.7)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Have ADHD</td>
<td>6 (22.2)</td>
<td></td>
<td>8 (30.8)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Behave different than others</td>
<td>8 (29.6)</td>
<td></td>
<td>13 (50.0)</td>
<td></td>
<td>2 (15.4)</td>
<td></td>
</tr>
<tr>
<td>Have a Learning Disability</td>
<td>4 (14.8)</td>
<td></td>
<td>7 (26.9)</td>
<td></td>
<td>1 (7.7)</td>
<td></td>
</tr>
<tr>
<td>Have difficulty in school</td>
<td>5 (18.5)</td>
<td></td>
<td>10 (38.5)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Do well in school</td>
<td>2 (7.4)</td>
<td></td>
<td>1 (3.8)</td>
<td></td>
<td>1 (7.7)</td>
<td></td>
</tr>
<tr>
<td>Have a Physical Disability</td>
<td>1 (3.7)</td>
<td></td>
<td>0 (0)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>2 (7.4)</td>
<td></td>
<td>2 (7.7)</td>
<td></td>
<td>1 (7.7)</td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>4 (14.8)</td>
<td></td>
<td>1 (6.7)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
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<td>Weight</td>
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<td></td>
<td>3 (11.5)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Appearance/Body Shape</td>
<td>10 (37.0)</td>
<td></td>
<td>6 (23.0)</td>
<td></td>
<td>1 (7.7)</td>
<td></td>
</tr>
<tr>
<td>Style/Dress</td>
<td>4 (14.8)</td>
<td></td>
<td>3 (11.5)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Interests are different</td>
<td>6 (22.2)</td>
<td></td>
<td>4 (15.4)</td>
<td></td>
<td>1 (7.7)</td>
<td></td>
</tr>
<tr>
<td>Physical weakness</td>
<td>2 (7.4)</td>
<td></td>
<td>1 (3.8)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>Seem anxious or fearful</td>
<td>5 (18.5)</td>
<td></td>
<td>2 (7.7)</td>
<td></td>
<td>1 (7.7)</td>
<td></td>
</tr>
<tr>
<td>Seem sad or withdrawn</td>
<td>3 (11.1)</td>
<td></td>
<td>3 (11.5)</td>
<td></td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td>External Reasons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People in school are mean</td>
<td>4 (18.2)</td>
<td></td>
<td>3 (27.3)</td>
<td></td>
<td>0 (0.0)</td>
<td>1 (11.1)</td>
</tr>
<tr>
<td>Happens all the time at school</td>
<td>4 (18.2)</td>
<td></td>
<td>2 (18.2)</td>
<td></td>
<td>2 (9.5)</td>
<td>1 (11.1)</td>
</tr>
<tr>
<td>School does nothing to prevent</td>
<td>0 (0.0)</td>
<td></td>
<td>1 (9.1)</td>
<td></td>
<td>2 (9.5)</td>
<td>1 (11.1)</td>
</tr>
<tr>
<td>School has a lot of tough kids</td>
<td>2 (9.1)</td>
<td></td>
<td>0 (0.0)</td>
<td></td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Others thinks it’s funny to hurt</td>
<td>7 (31.8)</td>
<td></td>
<td>5 (23.8)</td>
<td></td>
<td>1 (11.1)</td>
<td></td>
</tr>
<tr>
<td>Person wanted to feel powerful</td>
<td>10 (45.5)</td>
<td></td>
<td>9 (42.9)</td>
<td></td>
<td>3 (33.3)</td>
<td></td>
</tr>
</tbody>
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Chapter 3
Social Cognition and Social Skills and Adolescents with and without Attention-Deficit/Hyperactivity Disorder

Abstract

The goal of this study were to determine whether adolescents with and without Attention-Deficit/Hyperactivity Disorder (ADHD) differ in their levels of social perspective taking (SPT) and social skills and to examine the association between these skills. The sample comprised 115 (13- to 18-year-old) adolescents; 61 with ADHD and 54 typically functioning comparison youth. Results indicated that adolescents with ADHD demonstrated poorer overall SPT skills and suggested fewer solutions to interpersonal problems than did adolescents without ADHD. In terms of social skills, adolescents with ADHD demonstrated poorer social skills in the domains of self-reported communication, cooperation and responsibility and parent-reported communication, cooperation, engagement, self-control, responsibility and empathy. In terms of the association between SPT and social skills, SPT was found to be a significant predictor of four domains of self-reported social skills, over and above the variance accounted for by ADHD status. For two other domains of self-reported social skills, a moderation effect was found, such that SPT was associated with self-reported social skills for typically functioning adolescents (but not those with ADHD). For parent-reported social skills, ADHD was the only significant predictor for five domains of social skills, but SPT predicted additional variance in parent-reported responsibility skills. Clinical implications of these findings are discussed.
3.1 Introduction

3.1.1 ADHD and Social Problems

The purpose of the present study was to determine whether adolescents with and without Attention-Deficit/Hyperactivity Disorder (ADHD) differ in their levels of social perspective taking and social skills and to examine the association between these skills. Compared to typically developing children, children with ADHD have impaired social functioning (Hoza, 2007; Nijmeijer et al., 2008), which persists into adolescence. Adolescents with ADHD have higher levels of peer rejection, lower levels of peer acceptance, fewer close friends and more deviant peers than adolescents without ADHD (Bagwell, Molina, Pelham, & Hoza, 2001; Marshal, Molina, & Pelham, 2003; Sciberras, Ohan, & Anderson, 2012; Sibley, Evans & Serpell, 2010). During adolescence, positive relationships with peers contribute to healthy development (Collins & Steinberg, 2006; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006); thus, the interpersonal problems of adolescents with ADHD are concerning.

Many assumptions regarding the social impairment experienced by adolescents with ADHD derive from upward extensions of findings from the childhood literature (Sibley et al., 2010). Among children, it is believed that excesses of negative behaviour (e.g., inattention, impulsivity) as well as deficits in social skills may account for the relationship between ADHD and social impairment (Pfiffner & McBurnett, 1997; Hoza, 2007). Extending these assumptions from the childhood literature to older populations is problematic because of developmental changes in both ADHD symptoms and cognition during adolescence (Biederman, Mick, & Farone, 2000; Keating, 2004). As such, research examining the social cognitive factors and social skills underlying the impaired social functioning of adolescents with ADHD is needed.

3.1.2 Social Perspective Taking

Social cognition is a term used to describe the cognitive mechanisms that help individuals perceive and understand social situations (Staub & Eisenberg, 1981). It includes the ability to identify and understand emotions, be aware of others’ perspectives in terms of their thoughts, motives, and beliefs, and find mutually beneficial resolutions to interpersonal conflicts (Sharp, Fonagy, & Goodyer, 2008; Staub & Eisenberg, 1981). One aspect of social cognition is social
perspective taking, which is the ability to understand a situation from another person’s perspective; thus, it requires the ability to differentiate the other’s view from one’s own (Selman, 1971). Selman (1980) emphasized that social perspective taking has stage-like properties reflecting how people develop the dynamic ability to differentiate, integrate and coordinate their understanding of others’ thoughts, feelings and motives in conjunction with their own in attempting to balance inner and interpersonal conflicts.

Consistent with this conceptualization of social perspective taking, Selman and colleagues proposed a functional and structural model for how children and adolescents articulate and use strategies for negotiating interpersonal challenges (Selman, Beardslee, Schultz, Krupa, & Podorefsky, 1986). This model is referred to as the Interpersonal Negotiation Strategies (INS) model (see Figure 3.1). The functional (or social information-processing) dimension of the model represents the steps of interpersonal problem solving (e.g., identification of the problem, generation of strategies for resolution, strategy selection and implementation, evaluation of outcomes). In terms of the structural (or cognitive-developmental) dimension, the model proposes four developmental levels that individuals naturally progress through between early childhood and late adolescence (Beardslee, Schultz, & Selman, 1987; Im-Bolter, Cohen, & Farnia, 2013). These four levels reflect the increasing capacity to view oneself in the broader social contexts that involve multiple perspectives (Schultz, Yeates, & Selman, 1989) and to coordinate one’s own perspective with the perspectives of others (Selman et al., 1986).

A description of the four levels is provided in the INS manual (Schultz et al., 1989) and numerous research articles (e.g., Adalbjarnardottir & Selman, 1989; Selman et al., 1986; Yeates & Selman, 1989). At Level 0 (egocentric and undifferentiated), physical and psychological characteristics are not differentiated. There is no differentiation between the perspectives of the self and the other when considering interpersonal problems. At Level 1 (subjective and unilateral), there is awareness that the other may have a perspective that differs from one’s own, but there is no coordination or simultaneous consideration of perspectives. At Level 2 (self-reflective and reciprocal), there is an understanding that both the self and other are planful and have opinions, thoughts and behaviours that influence the other person. Strategies include the ability to reflect from a second-person perspective in which the perspectives of self and other are appreciated, but not in relationship to one another. At Level 3 (mutual and collaborative), strategies reflect consideration of the self and other from a third-person perspective. Reciprocal
perspectives are not only acknowledged, but also seen to be in need of coordination to compromise and reach mutually satisfactory resolutions.

Researchers have theorized a number of mechanisms by which the difficulties associated with ADHD may interfere with social cognitive functioning. Firstly, an individual needs to inhibit a response long enough to consider that another person’s perspective may differ from their own or to understand the emotional experience of another person (Marton, Wiener, Rogers, Moore, & Tannock, 2009). When considering interpersonal situations, symptoms of inattention may impair the ability to sustain attention that is necessary to process social cues and generate solutions to social problems (Sibley et al., 2010). Additionally, deficits with planning and working memory may make it difficult to keep multiple pieces of information in mind, which may compromise the ability to understand another’s perspective and coordinate it with one’s own (Marton et al., 2009; Mikami, 2010).

A comprehensive investigation of social perspective taking in 8- to 12-year-old children with ADHD was conducted by Marton and colleagues (2009). Using the INS model, these researchers found that children with ADHD demonstrated poorer social perspective taking skills at various problem-solving steps and suggested fewer strategies to solve interpersonal problems. Additionally, ADHD status was a significant predictor of social perspective taking skills over and above the variance accounted for by language and intelligence. Relatedly, other research has demonstrated that children with elevated hyperactivity (Zentall, Cassady, & Javorsky, 2001), boys with ADHD (Matthys, Cuperus, & Van Engeland, 1999) and young adolescents with ADHD (Sibley et al., 2010) generated fewer effective solutions when presented with hypothetical interpersonal problems.

### 3.1.3 Social Skills

*Social skills* are a specific class of behaviours that an individual exhibits to successfully complete a social task (e.g., initiating and sustaining a conversation, making friends, playing a game with peers) (Gresham, 1986; Gresham, Elliott, Cook, Vance, & Kettler, 2010). Social tasks often require several interconnected and discrete forms of socially skilled behaviours (e.g., conversation skills, cooperative behaviours, expressing feelings). Developmental research has shown that throughout childhood and adolescence, individuals with ADHD demonstrate poorer social skills than those without ADHD (Hinshaw, Owens, Sami, & Fargeon, 2006; Owens,
Hinshaw, Lee & Lahey, 2009; Murray-Close et al., 2010). While it has been established that children and adolescents with ADHD exhibit poorer social skills, most research on adolescents has been conducted using indicators of overall social skills, which aggregate across domains. As such, it remains unknown which domains of social skills (e.g., self-control, cooperation, assertiveness) are impaired among adolescents with ADHD.

In conceptualizing social functioning, Gresham advocated for focusing on specific social behaviours (social skills) and their association with social relationships (e.g., peer acceptance, popularity, friendships) (Gresham, 1986; Gresham, Van, & Cook, 2006). The utility of examining underlying interpersonal processes (e.g., knowledge, attitudes) was questioned, as they were deemed intangible and difficult to measure reliably (Gresham, 1986). However, research in samples of individuals with ADHD has supported the hypothesis that deficits in social cognition may be at least partially responsible for the impaired social functioning of adolescents with ADHD. In a sample of adolescents with and without ADHD, Sibley et al. (2010) found that performance on a social comprehension task (which measured the ability to interpret cause and effect relations in social situations) predicted parent-reported social impairment. However, the measure of social impairment used was a single, general question (“how do your child’s problems affect his/her relationships with playmates?”) and social problem solving (another measure of social cognition) was not a significant predictor of social impairment. In children, social perspective taking was negatively associated with ADHD symptoms and positively associated with social skills, but it did not explain unique variance in social skills above ADHD symptoms (Marton, 2008). However, social perspective taking did moderate the relationship between ADHD symptoms and some aspects of friendship (e.g., length of corroborated friendship, frequency of contact) (Marton, 2008). As such, while there is some research examining the association between social cognition, social skills and social relationships in individuals with ADHD, the connection between social perspective taking and social skills among adolescents with ADHD is unknown.

3.1.4 Objectives and Hypotheses

The present study was guided by four objectives. The first objective was to investigate whether adolescents with and without ADHD differ in social perspective taking skills. Based on Barkley’s (2006) behavioural inhibition theory (Marton et al., 2009; Mikami, 2010; Sibley et al.,
2010) and empirical findings (Marton et al., 2009; Sibley et al., 2010), it was predicted that adolescents with ADHD would demonstrate less advanced social perspective taking and would generate fewer solutions to interpersonal problems. The second objective was to determine whether ADHD status predicts social perspective taking over and above factors that have been previously shown to be related to this construct. Based on the findings of Marton et al. (2009), it was expected that ADHD status would predict variance in social perspective taking skills over and above the variance accounted for by language skills (Cohen et al., 1998; Im-Bolter et al., 2013), intelligence (Beardslee et al., 1987; Selman et al., 1986), and oppositionality (Cohen, Kershner, & Wehrspann, 1985; Leadbeater, Hellner, Allen, & Aber, 1989). The third objective was to determine whether adolescents with and without ADHD differ in levels of self- and parent-reported social skills. Based on the findings of Murray-Close and colleagues (2010), it was predicted that adolescents with ADHD would demonstrate poorer social skills than adolescents without ADHD. The fourth objective was to examine whether social perspective taking explains variance in social skills over and above the variance attributed to ADHD status. Based on Marton’s (2008) findings, it was predicted that social skills would be associated with ADHD status and social perspective taking, but it was not clear whether social perspective taking would explain unique variance in social skills above ADHD status.

3.2 Method

3.2.1 Participants

The sample comprised 115 adolescents; 61 (40 male, 21 female) were classified as having ADHD and 54 (25 male, 29 female) served as a typically functioning comparison group. All participants were between 13- and 18-years of age (M = 15.35, SD = 1.64) and were required to have at least average intellectual ability as indicated by an abbreviated IQ ≥ 80 on the Wechsler Abbreviated Scale of Intelligence (WASI). Adolescents with Autism Spectrum Disorders, Intellectual Disabilities, Psychotic Disorders, and Bipolar Disorder were excluded as these intellectual disabilities and mental health problems may have independent effects on adolescents’ social functioning. Given the high rates of comorbidity with ADHD, participants with co-occurring learning disabilities, conduct disorder, oppositional defiant disorder, anxiety
and depression were included.

All participants with ADHD were required to have a previous diagnosis of ADHD based on DSM-IV criteria. To ensure participants continued to display ADHD symptoms, the DSM-IV Inattentive and DSM-IV Hyperactive/Impulsive scales of the Conners 3-Parent, Conners 3-Teacher and Conners 3-Self-Report were used. Participants were classified as having ADHD in two ways: 1) participants needed to have at least one clinically significant parent rating (T ≥ 70) (n = 58); or 2) participants needed to have at least one borderline parent rating (T = 65-69) and at least one borderline rating (T = 65-69) from a second informant (self- or teacher-report) (n = 3). Adolescents were included in the typically functioning comparison group in two ways: 1) participants were required to have parent ratings in the average range (T ≤ 60) (n = 52); or 2) participants were required to have all T-scores below 64 according to both parent- and teacher-report (n = 2).

Among adolescents with ADHD, 70.5% (n = 43) regularly took medication to manage their ADHD symptoms. However, on the day of data collection, these participants were asked not to take their medication. In addition, 68.9% (n = 42) had comorbid diagnoses. Thirty-eight adolescents were diagnosed with a comorbid learning disability, seven with anxiety, two with depression, two with oppositional defiant disorder, one with conduct disorder and one with Tourette disorder. Within the comparison group, 14.8% (n = 8) had diagnoses of a learning or mental health problem. Seven were diagnosed with a learning disability, one with an anxiety disorder, one with oppositional defiant disorder and one with conduct disorder.

As shown in Table 3.1, adolescents with and without ADHD did not differ in age, t(113) = 0.48, p = .63. There was a significant gender difference between groups, \( X^2 (1, N = 115) = 4.33 \), \( p = .04 \), indicating a higher proportion of the adolescents with ADHD were male. Adolescents with and without ADHD did not differ with respect to their parents’ marital status, \( X^2 (1, N = 115) = .71 \), \( p = .40 \), or the likelihood that a language other than English was spoken in the home, \( X^2 (1, N = 115) = 1.07 \), \( p = .30 \). Parental education (measured by the highest level of parental educational attainment in the household) did not differ between families of adolescents with and without ADHD, \( t (99) = 0.14 \), \( p = .89 \).

Adolescents with and without ADHD did not significantly differ in IQ, \( t(113) = 1.85 \), \( p = .07 \). According to parent-, teacher- and self-report, adolescents with ADHD scored significantly
higher on the Conners-3 DSM-IV Inattentive and DSM-IV Hyperactive/Impulsive subscales than did adolescents without ADHD. Parents and adolescents (but not teachers) rated adolescents with ADHD significantly higher on the DSM-IV Oppositional Defiant Disorder subscale. Additionally, parents and teachers rated adolescents with ADHD significantly higher on the Peer Relations (problems) subscale.

3.2.2 Measures

3.2.2.1 Interpersonal Negotiation Strategies

The Interpersonal Negotiation Strategies (INS; Schultz et al., 1989) (see Appendix E) is a semi-structured interview that was used to assess participants’ social perspective taking in the context of interpersonal dilemmas. Participants were presented with four hypothetical dilemmas involving conflict situations between a protagonist and a significant other. The situations were chosen to reflect interpersonal dilemmas with romantic partners, parents, friends and employers. Participants were asked questions assessing six sequential problem-solving steps: 1) defining the problem; 2) identifying feelings about the problem; 3) generating strategies to solve the problem; 4) selecting the best strategy; 5) identifying feelings about the solution; and 6) determining when the conflict was resolved. The original version of the INS also asked about identifying and overcoming obstacles. However, this was omitted from the present version due to time constraints.

The assessor presented the interpersonal dilemmas to the participant orally. This oral presentation was accompanied by a visual representation including a picture and text outlining the dilemma. The semi-structured interview, outlined in Appendix E, was audiotaped and transcribed verbatim. Coders blind to group designations (i.e., ADHD status) coded the responses using a scoring manual based on the scoring manual of Schultz et al. (1989). This modified scoring manual was necessary as some of the interpersonal dilemmas were adapted for the purposes of the present study. For example, the parent dilemma was developed to assess parent-adolescent conflict around educational issues. Participants’ responses were scored as one of four developmental levels reflecting the ability to integrate and coordinate the thoughts, feelings and intentions of both the protagonist and the other character. The scores for each step were averaged across the four dilemmas to yield an estimate of developmental level for each step. The average scores for all problem-solving steps across the dilemmas were then summed.
and divided by 6 (the number of steps) to yield an overall measure of social perspective taking (Total INS). The INS has demonstrated good interrater reliability (kappa = .75 across problem solving steps) and test-retest stability (r=.80 across the school year) (Adalbjarnardottir, 1995). INS scores are positively correlated with teacher-rated social perspective taking (Yeates, Schultz, & Selman, 1991) and negatively correlated with social withdrawal (Adalbjarnardottir, 1995). The INS has also been shown to have good internal consistency (Cronbach alpha = .83) and interrater reliability (weighted kappa = .86) in a sample of children with ADHD (Marton et al., 2009). In the present sample, reliability checks were made on 30% of the protocols. Interrater reliability (weighted kappa = .76) and internal consistency (Cronbach alpha = .79) were good.

3.2.2.2 Social Skills Improvement System

The Social Skills Improvement System (SSIS, Gresham & Elliot, 2008) was used to assess self- and parent-reported social skills. The present study used seven domain subscales including: communication, cooperation, assertion, engagement, self-control, empathy and responsibility (see Appendix F for sample items). These scales demonstrate good internal consistency, with Cronbach alphas ranging from .77 to .87 for parent-reported subscales and .75 to .83 for self-reported subscales. These subscales also demonstrate adequate test-retest reliability (parent: r = .73 to .82; self: r = .59 to .81). In the present sample, these scales demonstrate adequate internal consistency, with Cronbach alphas ranging from .65 to .89 for parent-reported subscales and .74 to .82 for self-reported subscales.

3.2.2.3 Conners Rating Scale-Third Edition

The Conners Rating Scales-Third Edition (Conners, 2008; Parent- Conners 3-P, Teacher-Conners 3-T, Self-report- Conners 3-SR) were used to confirm continuation of ADHD symptoms of inattention and hyperactivity/impulsivity, as well as to assess oppositionality and peer relations. The three DSM-IV subscales (DSM-IV Inattention, DSM-IV Hyperactive/Impulsive, DSM-IV Oppositional Defiant Disorder) demonstrate good internal consistency (Parent: .93, .92, .91; Teacher: .94, .95, .93; Self-report .89, .85, .83) and good test-retest reliability (Parent: .84, .89, .88; Teacher: .85, .84, .83; Self-report .71, .72, .78). The Peer Relations subscales demonstrate good internal consistency (Parent: .85; Teacher: .92) and good test-retest reliability (Parent: .78; Teacher: .87).
3.2.2.4 Wechsler Abbreviated Scale of Intelligence

The *Wechsler Abbreviated Scale of Intelligence* (Wechsler, 1999) was used to determine eligibility for participation in the study. The abbreviated IQ scale (based on the two subtest scores) demonstrates good internal consistency (Age ≤ 16 years: .93; Age ≥ 17 years: .96) and test-retest reliability (Age ≤ 16 years: .85; Age ≥ 17 years: .88). The correlation with the Full Scale IQ on the WISC-III is .81. Additionally, the Matrix Reasoning subtest was used as a measure of nonverbal intelligence and the Vocabulary subtest was used as a measure of language ability.

3.2.3 Procedure

This investigation was approved by the Research Ethics Board of the University of Toronto. Participants were recruited through advertisements in community newspapers and websites, children’s mental health centers, physicians’ and psychologists’ offices and other agencies working with adolescents with ADHD. Participants from previous studies who agreed to be contacted for future research were also informed about the study. Participants were given the option of counting their participation in the study toward their required secondary school community service hours or receiving $30.00 in cash to cover their expenses for the day. Additionally, adolescents and their parents were given an educational report describing the adolescents’ academic, cognitive and social/emotional functioning and giving recommendations for home and school.

Parents of participating adolescents were contacted by phone and given detailed information about the study. They provided information about the adolescents’ diagnosis and completed the Conners 3-P as a verification of ADHD diagnosis. If adolescents met eligibility criteria, a package was mailed to the family including consent letters and forms (both parent and adolescent versions) explaining the purpose and procedures of the study, as well as potential risks and benefits associated with the study. Parents were asked to complete a variety of measures and provided consent for the Conners 3-T to be sent to the adolescents’ school. The adolescent measures were administered in an individual testing session by a graduate student. Testing sessions were approximately four hours and the participants were given frequent breaks. Participants completed the WASI, Conners 3-SR, SSIS, INS and additional measures for other studies.
3.2.4 Data Analyses

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 21. The data were examined for outliers, and when detected, extreme scores were adjusted using the windsorizing method. Two-by-two analyses of variance (ANOVAs) and multivariate analyses of variance (MANOVAs) were used to examine ADHD status and gender differences in social perspective taking. Two-by-two ANOVAs were conducted with the Total INS score and the Number of Strategies as dependent variables. Two-way MANOVAs were conducted with the six INS problem-solving steps and the four dilemmas as dependent variables, and ADHD status and gender as fixed factors. When appropriate, univariate ANOVAs for each of the INS problem-solving steps and each of the INS dilemmas were conducted. Pearson correlations and hierarchical regression analyses were used to examine correlates of social perspective taking.

Two-way MANOVAs were used to examine ADHD status and gender differences in self- and parent-reported social skills with the seven subscales of the SSIS as dependent variables, and ADHD status and gender as fixed factors. When appropriate, univariate ANOVAs for the seven subscales of the SSIS were conducted. Pearson correlations and hierarchical regression analyses were used to examine correlates of self- and parent-reported social skills.

3.3 Results

3.3.1 Group Differences in Social Perspective Taking

ADHD status and gender differences in social perspective taking (SPT) are shown in Table 3.2. Adolescents with ADHD had lower Total INS scores, $F(1, 105) = 9.52, p < .01, n^2_p = .08$ and generated fewer possible strategies to solve the dilemmas than adolescents without ADHD, $F(1, 105) = 5.95, p = .02, n^2_p = .05$. There were no significant gender main effects or ADHD status by gender interaction effects.

With regard to the six INS problem-solving steps, a significant multivariate effect was found for ADHD status, Wilks’ $\Lambda = .83, F(6, 100) = 3.36, p < .01, n^2_p = .17$. There was no significant
gender effect, Wilks’ $\Lambda = .94$, $F (6, 100) = 1.05$, $p = .40$, $n^2_p = .06$, or gender by ADHD status interaction effect, Wilks’ $\Lambda = .94$, $F (6, 100) = 1.09$, $p = .37$, $n^2_p = .06$. As shown in Table 3.3, adolescents with ADHD used significantly less advanced SPT skills when Defining the Problem (Q1), identifying Feelings about the Problem (Q2), Selecting the Best Strategy (Q4) and identifying Feelings about the Solution (Q5) than comparison adolescents. Adolescents with and without ADHD did not differ in their level of SPT skills when Suggesting Alternative Strategies (Q3) and Evaluating Outcomes (Q6).

With regard to differences in SPT skills across dilemmas, a significant multivariate effect was found for ADHD status, Wilks’ $\Lambda = .90$, $F (4, 102) = 2.78$, $p = .03$, $n^2_p = .10$. There was no significant gender effect, Wilks’ $\Lambda = .96$, $F (4, 102) = 1.09$, $p = .37$, $n^2_p = .04$, or gender by ADHD status interaction effect, Wilks’ $\Lambda = .99$, $F (4, 102) = .25$, $p = .91$, $n^2_p = .01$. These results are presented in Table 3.3. Compared to adolescents without ADHD, adolescents with ADHD used less advanced SPT skills in interpersonal dilemmas with romantic partners (Dilemma #1) and parents (Dilemma #2). Adolescents with and without ADHD did not differ in their level of SPT skills in interpersonal dilemmas with friends (Dilemma #3) or employers (Dilemma #4).

3.3.2 Predictors of Social Perspective Taking

The WASI Vocabulary subtest was used as an estimate of language and the WASI Matrix Reasoning subtest was used as an estimate of nonverbal intelligence. The Total INS score was used as a measure of social perspective taking (SPT). In the present sample, language ($r = .22$, $p = .02$) and nonverbal intelligence ($r = .23$, $p = .02$) were positively correlated with SPT. ADHD status ($r = -.31$, $p < .01$) and parent-reported oppositionality ($r = -.36$, $p < .01$) were negatively correlated with SPT. ADHD status was positively correlated with parent-reported oppositionality ($r = .67$, $p < .001$), negatively correlated with language ($r = -.18$, $p = .05$) and not correlated with nonverbal intelligence ($r = -.09$, $p = .36$).

Two hierarchical regressions were conducted to determine whether ADHD status and parent-reported oppositionality explained unique variance in SPT above the variance accounted for by language and intelligence (Table 3.4). In both regressions, language was entered as the first predictor and intelligence as the second predictor. In Regression A, parent-reported oppositionality was entered in step 3 and ADHD status was entered in step 4. In Regression B,
these two variables were reversed and ADHD status was entered in step 3 and parent-reported oppositionality was entered in step 4. When language was entered as the first predictor, it explained 5% of the variance in SPT, $R^2 = .05$, $F (1, 106) = 5.50$, $p = .02$. Intelligence was entered next into the regression but it did not explain additional variance, $R^2 change = .03$, $F (1, 105) = 3.02$, $p = .09$. In Regression A, parent-reported oppositionality was entered in step 3 of the regression and it explained an additional 9% of the variance, $R^2 change = .09$, $F (1, 104) = 11.55$, $p < .01$. ADHD status was entered last in the regression, but it did not explain additional variance in SPT, $R^2 change = .01$, $F (1, 103) = 1.06$, $p = .31$, after the variance attributed to language, intelligence and oppositionality was considered. In Regression B, when ADHD status was entered in step 3, it explained an additional 8% of the variance, $R^2 change = .08$, $F (1, 104) = 9.58$, $p < .01$. Parent-reported oppositionality was entered in step 4, but it did not explain additional variance in SPT, $R^2 change = .02$, $F (1, 103) = 2.87$, $p = .09$, after the variance attributed to language, intelligence and ADHD status was considered. While ADHD status and oppositionality were significantly correlated ($r = .67$), tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern (all variance inflation factors (VIF) < 2).

### 3.3.3 Group Differences in Social Skills

ADHD status and gender differences in self- and parent-reported social skills are shown in Table 3.2. For self-reported social skills, a significant multivariate effect was found for ADHD status, Wilks’ $\Lambda = .86$, $F (7, 104) = 2.50$, $p = .02$, $n^2_p = .14$, and gender, Wilks’ $\Lambda = .76$, $F (7, 104) = 4.66$, $p < .01$, $n^2_p = .24$. There was no significant gender by ADHD status interaction effect, Wilks’ $\Lambda = .94$, $F (7, 104) = .98$, $p = .45$, $n^2_p = .06$. Adolescents with ADHD had significantly lower self-reported cooperation, communication and responsibility skills. Female adolescents with and without ADHD had significantly higher self-reported cooperation, communication and empathy skills. With regard to parent-reported social skills, a significant multivariate effect was found for ADHD status, Wilks’ $\Lambda = .60$, $F (7, 89) = 8.56$, $p < .01$, $n^2_p = .40$. There was no significant gender effect, Wilks’ $\Lambda = .90$, $F (7, 89) = 1.36$, $p = .23$, $n^2_p = .10$, or gender by ADHD Status interaction effect, Wilks’ $\Lambda = .91$, $F (7, 89) = 1.28$, $p = .27$, $n^2_p = .09$. Adolescents with ADHD had significantly lower parent-reported communication, cooperation, engagement, self-control, empathy and responsibility skills.
3.3.4 Predictors of Social Skills

ADHD status was negatively correlated with social perspective taking (SPT) \( (r = -0.31, p < .01) \) and social skills including self-reported communication \( (r = -0.23, p = .01) \), cooperation \( (r = -0.29, p < .01) \) and responsibility \( (r = -0.26, p < .01) \) and parent-reported communication \( (r = -0.43, p < .01) \), cooperation \( (r = -0.56, p < .01) \), engagement \( (r = -0.36, p < .01) \), self-control \( (r = -0.51, p < .01) \), empathy \( (r = -0.39, p < .01) \) and responsibility \( (r = -0.52, p < .01) \). ADHD status was not significantly correlated with self-reported assertion, engagement, self-control and empathy or parent-reported assertion. SPT was positively correlated with self-reported communication \( (r = 0.27, p < .01) \), cooperation \( (r = 0.30, p < .01) \), empathy \( (r = 0.27, p < .01) \) and responsibility \( (r = 0.33, p < .01) \) and parent-reported cooperation \( (r = 0.29, p < .01) \), engagement \( (r = 0.20, p = 0.05) \), self-control \( (r = 0.29, p < .01) \), empathy \( (r = 0.29, p < .01) \) and responsibility \( (r = 0.39, p < .01) \). SPT was marginally positively correlated with self-reported assertion \( (r = 0.19, p = 0.06) \) and engagement \( (r = 0.18, p = 0.07) \) and parent-reported communication \( (r = 0.20, p = 0.06) \). SPT was not significantly correlated with self-reported self-control or parent-reported assertion. Since self-reported self-control and parent-reported assertion were not associated with ADHD status or SPT, they were not included in subsequent hierarchical regressions.

Hierarchical regressions were conducted to determine whether SPT explained unique variance in self-reported (Table 3.5) and parent-reported (Table 3.6) social skills above the variance accounted for by ADHD status. Moderation analyses were used to determine if SPT moderated the relationship between ADHD status and social skills. Prior to analysis, predictor variables were standardized and interaction terms were created using these standardized scores. As gender differences were found for self-reported communication, cooperation and empathy, gender was added as a first predictor for those regressions only.

For self-reported communication, when gender was entered as the first predictor, it explained 4% of the variance, \( R^2 = 0.04, F (1, 107) = 4.96, p = .03 \). When ADHD status and SPT were entered in the second and third steps, respectively, ADHD status explained an additional 4% of the variance, \( R^2 \text{ change} = 0.04, F (1, 106) = 4.74, p = .03 \), and SPT explained an additional 3% of the variance, \( R^2 \text{ change} = 0.03, F (1, 105) = 3.81, p = .05 \). When entered last, the interaction term explained an additional 6% of the variance, \( R^2 \text{ change} = 0.06, F (1, 104) = 7.58, p < .01 \), suggesting that SPT moderated the relationship between ADHD status and self-reported
communication skills. As indicated in Figure 3.2, adolescents with ADHD have similar levels of self-reported communication irrespective of their levels of social perspective taking skills. In contrast, for adolescents without ADHD, higher social perspective taking skills were associated with higher self-reported communication skills. In terms of self-reported cooperation, when gender was entered as the first predictor, it explained 11% of the variance, $R^2 = .11$, $F (1, 107) = 13.47, p < .01$. When ADHD status and SPT were entered in the second and third steps, respectively, ADHD status explained an additional 4% of the variance, $R^2_{\text{change}} = .04$, $F (1, 106) = 4.58, p = .04$, and SPT explained an additional 4% of the variance, $R^2_{\text{change}} = .04$, $F (1, 105) = 4.76, p = .03$. The interaction term did not explain unique variance in self-reported cooperation, $R^2_{\text{change}} = .00$, $F (1, 104) = .02, p = .90$.

For self-reported assertion, when ADHD status was entered as the first predictor, it did not account for a significant portion of the variance, $R^2 = .00$, $F (1, 107) = .00, p = .96$. When SPT was entered in the second step, it explained 4% of the variance, $R^2_{\text{change}} = .04$, $F (1, 106) = 4.23, p = .04$. The interaction term did not explain unique variance in self-reported assertion, $R^2_{\text{change}} = .01, F (1, 105) = 1.14, p = .29$. In terms of self-reported engagement, when ADHD status was entered as the first predictor, it did not account for a significant portion of the variance, $R^2 = .00$, $F (1, 107) = .27, p = .61$. When SPT was entered in the second step, it explained 4% of the variance, $R^2_{\text{change}} = .04$, $F (1, 106) = 4.45, p = .04$. When entered last, the interaction term explained an additional 4% of the variance, $R^2_{\text{change}} = .04, F (1, 105) = 5.05, p = .03$, suggesting that SPT moderated the relationship between ADHD status and self-reported engagement. As indicated in Figure 3.3, adolescents with ADHD have similar levels of self-reported engagement irrespective of their levels of social perspective taking skills. In contrast, for adolescents without ADHD, higher social perspective taking skills were associated with higher self-reported engagement skills.

In terms of self-reported empathy, when gender was entered as the first predictor, it explained 7% of the variance, $R^2 = .07, F (1, 107) = 8.28, p < .01$. When ADHD status and SPT were entered in the second and third steps, respectively, ADHD status did not explain unique variance in self-reported empathy, $R^2_{\text{change}} = .00, F (1, 106) = .01, p = .92$, while SPT explained an additional 5% of the variance, $R^2_{\text{change}} = .05, F (1, 105) = 6.22, p = .01$. The interaction term did not explain unique variance in self-reported empathy, $R^2_{\text{change}} = .00, F (1, 104) = .16, p = .69$. For self-reported responsibility, when ADHD status was entered as the first predictor, it
explained 7% of the variance, $R^2 = .07$, $F (1, 107) = 8.12$, $p < .01$. When SPT was entered in the second step, it explained an additional 7% of the variance, $R^2_{change} = .07$, $F (1, 106) = 8.00$, $p < .01$. The interaction term did not explain unique variance in self-reported responsibility, $R^2_{change} = .01$, $F (1, 105) = .73$, $p = .40$.

In a series of hierarchical regressions examining parent-reported social skills, when ADHD status was entered in the first step, it explained 20% of the variance in communication, $R^2 = .20$, $F (1, 94) = 24.13$, $p < .01$, 32% of the variance in cooperation, $R^2 = .32$, $F (1, 93) = 43.86$, $p < .01$, 17% of the variance in engagement, $R^2 = .17$, $F (1, 94) = 19.46$, $p < .01$, 27% of the variance in self-control, $R^2 = .27$, $F (1, 93) = 34.94$, $p < .01$, 19% of the variance in empathy, $R^2 = .19$, $F (1, 94) = 21.43$, $p < .01$, and 27% of the variance in responsibility, $R^2 = .27$, $F (1, 94) = 34.93$, $p < .01$. When SPT was entered in the second step of each of these regressions, it explained an additional 5% of the variance in parent-reported responsibility, $R^2_{change} = .05$, $F (1, 93) = .722$, $p < .01$, but SPT did not explain additional variance in any of the other five parent-reported social skills above the variance attributed to ADHD status. The interaction term, entered in the third step of each of these regressions, did not explain additional variance.

Since responsibility was the only domain of parent-reported social skills that was predicted by SPT, exploratory analyses were conducted to determine if this was related to oppositionality. In a hierarchical regression examining parent-reported responsibility (see Table 3.6), when ADHD status was entered as the first predictor, it explained 27% of the variance, $R^2 = .27$, $F (1, 94) = 34.93$, $p < .01$. When parent-reported oppositionality was entered in the second step, it explained an additional 16% of the variance, $R^2_{change} = .16$, $F (1, 93) = 25.98$, $p < .01$. When SPT was entered in the third step, it did not account for a significant portion of the variance, $R^2 = .02$, $F (1, 92) = 3.89$, $p = .05$.

### 3.4 Discussion

The results of the present study showed that adolescents with ADHD demonstrated impairment in social perspective taking skills and social skills. They demonstrated poorer overall social perspective taking skills and suggested fewer solutions to interpersonal problems than did adolescents without ADHD. Adolescents with ADHD demonstrated less advanced social
perspective taking when presented with dilemmas involving a romantic partner or parent. After controlling for language and intelligence, regressions examining predictors of social perspective taking skills showed that when added in the third step of the model, oppositionality predicted an additional 9% of the variance. ADHD status, added in the fourth step, did not predict additional variance. When these last two variables were reversed, ADHD status (third step) predicted an additional 8% and oppositionality (fourth step) did not explain additional variance.

In terms of social skills, adolescents with ADHD demonstrated poorer social skills in the domains of self-reported communication, cooperation and responsibility and parent-reported communication, cooperation, engagement, self-control, empathy and responsibility. When regressions were conducted to examine predictors of social skills, social perspective taking was a significant predictor of self-reported cooperation, assertion, empathy and responsibility, above the variance accounted for by ADHD status. In terms of self-reported communication and engagement, social perspective taking moderated the relationship between ADHD status and these self-reported social skills. That is, social perspective taking was positively associated with self-reported communication and engagement for adolescents without ADHD but no association was seen for adolescents with ADHD. In terms of self-reported communication and engagement, social perspective taking moderated the relationship between ADHD status and these self-reported social skills. That is, social perspective taking was positively associated with self-reported communication and engagement for adolescents without ADHD but no association was seen for adolescents with ADHD. In terms of self-reported communication and engagement, social perspective taking moderated the relationship between ADHD status and these self-reported social skills. That is, social perspective taking was positively associated with self-reported communication and engagement for adolescents without ADHD but no association was seen for adolescents with ADHD. In terms of parent-reported social skills, ADHD status (entered in the first step) was a significant predictor of communication, cooperation, engagement, self-control, empathy and responsibility. Social perspective taking (entered in the second step) was a significant predictor of parent-reported responsibility. In contrast, social perspective taking (entered in the second step) did not explain additional variance in the other five domains of parent-reported social skills nor did it moderate the relationship between ADHD status and any parent-reported social skills. Exploratory analyses (hierarchical regression) showed that social perspective taking was not a significant predictor of parent-reported responsibility over and above the variance accounted for by ADHD status (step 1) and parent-reported oppositionality (step 2).

The present findings contribute to the understanding of social functioning among adolescents with ADHD and, contrary to previous assertions (e.g., Gresham, 1986), highlight the need to consider both social cognitive and social skill development in research and interventions targeting their social functioning. Some authors have cautioned about generalizing the findings from laboratory settings to actual interpersonal situations. For example, in discussing social skills interventions, Hoza (2007) indicated that while most children with ADHD can provide...
appropriate responses in the controlled environment of a social skills training group, they are often unable to appropriately regulate emotions in actual peer situations, particularly when provoked. Gresham identified the importance of distinguishing between skill acquisition deficits (absence of knowing how to perform a given skill) and performance deficits (failure to perform given skills despite knowing what to do) (Gresham, 1986; Gresham et al., 2006). It has been posited that children with ADHD may not merely have lower levels of social cognition and social skills (acquisition deficit), but they may also fail to perform those skills when needed (performance deficit), possibly due to emotional dysregulation or difficulty inhibiting impulses (de Boo & Prins, 2007). In the present study, social cognition was assessed by having adolescents respond to hypothetical interpersonal conflict in a calm, one-to-one semi-structured interview with a graduate student. As such, it appears that adolescents with ADHD display a deficit in social perspective taking, even in a research setting in which their responses were not likely impacted by elevated emotions. This suggests that in actual interpersonal situations, they may display both acquisition and performance deficits. Thus, whereas future research should examine how emotion regulation may impact the social cognition of adolescents with ADHD, the present findings indicate the presence of an acquisition deficit in social perspective taking.

3.4.1 Social Perspective Taking

Consistent with predictions and previous research (Marton et al., 2009; Sibley et al., 2010), adolescents with ADHD demonstrated less advanced social perspective taking skills and generated fewer solutions to hypothetical interpersonal dilemmas than adolescents without ADHD. These findings are consistent with the theory that difficulties associated with ADHD (e.g., inattention, impulsivity, working memory deficits) may interfere with a number of processes involved in effective social perspective taking such as inhibiting an initial response to think through the situation, sustaining attention to process social cues and think of solutions to social problems, and keeping multiple pieces of information in mind to coordinate perspectives (Barkley, 2006; Marton et al., 2009; Mikami, 2010; Sibley et al., 2010).

The relationship between social perspective taking skills and impaired relationships with peers in adolescents with ADHD may be cyclical. Deficits in social cognition may contribute to individuals with ADHD being less likely to experience constructive social interactions in which to develop further insights into others’ perspectives (Bagwell et al., 2001; Murray-Close et al., 2010; Uekermann et al., 2010). It is plausible that deficits in social cognitive skills, and social
perspective taking in particular, may be at least partially responsible for the difficulties that adolescents with ADHD face in the social realm (Marton et al., 2009; Sibley et al., 2010). Additionally, having fewer friends and experiencing higher levels of peer rejection may mean that individuals with ADHD have less opportunity to develop social perspective taking skills, practice problem solving and develop a repertoire of solutions to social dilemmas during childhood and adolescence (Marton et al., 2009).

Exploratory analyses were conducted to determine whether adolescents with ADHD demonstrated more impaired social perspective taking in interpersonal conflicts within certain relationships. Compared to adolescents without ADHD, those with ADHD demonstrated less advanced social perspective taking in dilemmas involving romantic partners and parents and equivalent skills in dilemmas involving friends and employers. These contextual differences in social perspective taking skills are consistent with Selman and colleagues’ (1986) assertion that although social perspective taking skills are conceptualized as four developmental levels, an individual may not consistently function at one particular level across all interpersonal contexts (Selman et al., 1986).

The finding that adolescents with ADHD demonstrated poorer social perspective taking skills in the dilemma involving a romantic partner is consistent with an emerging body of research demonstrating that they have impaired romantic relationships (e.g., Babinski et al., 2011; Rokeach & Wiener, 2014). Female young adults with ADHD have fewer romantic partners than those without ADHD (Babinski et al., 2011). Male adolescents with ADHD, however, have significantly more romantic partners than adolescents without ADHD (Rokeach & Wiener, 2014). Compared to typically developing adolescents, female adolescents with ADHD reported shorter romantic relationships, male adolescents with ADHD indicated that their age of first intercourse was earlier, and both males and females with ADHD had a significantly greater number of sexual partners (Rokeach & Wiener, 2014). Based on the findings of the present study, it is plausible that the difficulties with social perspective taking demonstrated by adolescents with ADHD may contribute to difficulty navigating and sustaining romantic relationships. This may be because romantic relationships require intimacy and caring to a greater extent than what is necessary for friendships, which may rely more on companionship and cooperation (Collins, Welsh, & Furman, 2009).
Compared to adolescents without ADHD, adolescents with ADHD demonstrated poorer social perspective taking in the hypothetical dilemma with a parent. This finding may be associated with previous research indicating that families with an adolescent with ADHD have higher levels of conflict according to adolescent, mother, and father report (Barkley, Anastopoulos, Guevremont, & Fletcher, 1992; Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001; Markel & Wiener, 2014). In terms of the nature of conflict, mothers of adolescents with ADHD reported experiencing more anger during conflict and more negative communication patterns than mothers of adolescents without ADHD (Barkley et al., 1992). Additionally, in some cases, levels of conflict and problematic patterns of communication are even higher for families with adolescents with ADHD and Oppositional Defiant Disorder (ODD) compared to those with adolescents with ADHD alone (Barkley et al., 1992). Based on the findings of the present study, it is possible that the difficulties with social perspective taking (e.g., understanding feelings of the other person, selecting effective solutions to problems) contribute to these experiences of anger and negative communication.

When presented with an interpersonal conflict with an employer, adolescents with and without ADHD did not differ in their social perspective taking skills. However, social perspective taking scores on this dilemma were lower than on the dilemmas involving friends, romantic partners and parents for both the adolescents with ADHD and their typically developing peers. This finding is consistent with previous research demonstrating that adolescents have higher levels of social perspective taking skills when negotiating with peers (rather than with adults) and in personal relationships (rather than work relationships; i.e., with parents and with boyfriends or girlfriends rather than with bosses or co-workers) (Selman et al., 1986).

Although ADHD status and parent-reported oppositionality explained variance in social perspective taking, they explained shared variance. It may be that a subset of the ADHD group with elevated parent-reported oppositionality has less advanced social perspective taking skills than adolescents with ADHD who do not display oppositional behaviours. This is consistent with research demonstrating that social difficulties among children and adolescents with ADHD tend to be greater if comorbid ODD is present (Becker, Luebbe, & Langberg, 2012; Kuhne, Schachar, & Tannock, 1997; Wehmeier, Schacht, & Barkley, 2010). Some research has demonstrated an association between poor social perspective taking and behavioural problems such as externalizing problems (Cohen et al., 1985) and delinquent behaviour (Leadbeater et al.,
1989). However, a majority of the research assessing the association between behavioural problems and social cognition has been conducted with aggressive children using the Social Information Processing model (Crick & Dodge, 1994). This model, similar to the functional dimension of the INS model, delineates how children process social cues by encoding and interpreting cues, clarifying goals, generating responses, and selecting and enacting a response. Research has shown that aggressive children seek and use less information about social situations before drawing a conclusion, identify non-hostile intentions as hostile and generate solutions that are more physical, manipulative or ineffective (Mize & Pettit, 2008). As most research examining the association between social behaviour and ADHD has been cross-sectional, longitudinal studies are needed to disentangle the way comorbid oppositionality may interact with ADHD leading to social cognitive deficits and impairment in peer relations (Nijmeijer et al., 2008).

3.4.2 Social Skills

Consistent with predictions and previous research (Hinshaw et al., 2006; Owens et al., 2009; Murray-Close et al., 2010), adolescents with ADHD demonstrated poorer social skills than adolescents without ADHD. More specifically, adolescents with ADHD and their parents reported impairment in the domains of communication, cooperation and responsibility. Additionally, according to parent- (but not self-) report, adolescents with ADHD demonstrated lower engagement, self-control and empathy. This pattern of results is consistent with research indicating that children with ADHD have difficulty effectively participating in social exchanges such as sharing, cooperating, and turn taking, and they show less reciprocity during communication (e.g., talk more but less likely to respond to peers’ questions or verbal interactions) (Barkley, 2006; Wehmeier et al., 2010). Additionally, the empathy findings are consistent with Marton et al. (2009) who found that children with ADHD were rated as less empathic by their parents, while self-reported levels of empathy did not differ between children with and without ADHD. It should be noted that while empathy is more frequently viewed as a social-cognitive construct, it is discussed as a social skill in the present study because the SSIS measures empathy behaviourally (e.g., I help my friends when they are having a problem, I try to make others feel better, I try to think about how others feel).

Although adolescents with ADHD reported lower levels of social skills than adolescents without ADHD in some domains, mean self-reported social skills ratings for both adolescents with and
without ADHD fell within the Average range compared to a normative sample of adolescents (Gresham & Elliot, 2008). In contrast, parents rated adolescents with ADHD as falling in the Below Average range for communication, cooperation, self-control and responsibility skills (Gresham & Elliot, 2008). This is consistent with previous research indicating that although adolescents with ADHD demonstrate an awareness of their social problems compared to typically developing adolescents, they underestimate their social problems in comparison to parents’ ratings (Varma, 2013).

Similar to social perspective taking, the relationship between social skills and peer status among adolescents with ADHD may be cyclical, such that deficits in social skills leads to peer rejection and fewer friendships, which in turn limits the opportunity for further development of social skills. Indeed, longitudinal research in children and adolescents with ADHD has found that lower social skills were associated with subsequent peer rejection and peer rejection was also associated with subsequent impairment in social skills (Murray-Close et al., 2010).

Consistent with predictions and previous research (Marton, 2008), several domains of social skills (e.g., communication, cooperation, assertion, engagement, self-control, empathy and responsibility) were negatively correlated with ADHD status and positively correlated with social perspective taking (though differences occurred between self- and parent-report).

Although hierarchical regressions indicated that social perspective taking predicted social skills in some domains, this association was more pronounced for self-reported social skills and among adolescents without ADHD.

In terms of self-reported social skills, hierarchical regressions demonstrated that social perspective taking explained unique variance in cooperation, assertion, empathy and responsibility over and above the variance attributed to ADHD status. In contrast, for self-reported communication and engagement, social perspective taking moderated the relationship between ADHD and social skills. Adolescents with ADHD demonstrated similar levels of communication and engagement skills, irrespective of social perspective taking level. Conversely, for adolescents without ADHD, higher social perspective taking was associated with higher self-reported skills in each of these areas. Thus, the present findings indicate that social perspective taking is a predictor of self-reported social skills in all domains for adolescents without ADHD. For adolescents with ADHD, social perspective taking is a predictor of self-reported social skills in some domains but not in others. It may be that these moderation effects are the result of the difficulty that adolescents with ADHD have in rating
their own social skills (Varma, 2013). More specifically, social perspective taking may predict self-reported social skills more consistently in adolescents without ADHD because those adolescents are better able to accurately rate their own social skills than adolescents with ADHD.

In terms of parent-reported social skills, ADHD status was the only significant predictor for most domains (communication, cooperation, self-control, engagement, empathy). For one domain of parent-reported social skills (responsibility), social perspective taking predicted significant variance (5%) over and above the variance accounted for by ADHD status (27%). This finding is partially consistent with previous research examining teacher-reported social skills (Marton, 2008), which found that social perspective taking did not predict social skills above the variance accounted for by ADHD status. It is unclear why social perspective taking explains unique variance above ADHD status/symptomatology for several domains of self-reported social skills, but not for most domains of parent-reported social skills and not for teacher-reported social skills. One possibility is that ADHD status/symptomatology is a much stronger predictor of teacher- and parent-reported social skills than self-reported social skills. In the present study, when ADHD status was entered as the first predictor, it accounted for variance in self-reported social skills ranging from 0% to 7%. In contrast, the variances in parent-reported social skills explained by ADHD status ranged from 17% to 32%. Similarly, Marton (2008) found that ADHD symptomatology explained 35% of the unique variance in overall teacher-reported social skills.

Responsibility was the only parent-reported social skill domain that was predicted by social perspective taking over and above that variance attributed to ADHD status. One possible explanation for this association is that both social perspective taking and parent-reported responsibility skills are associated with oppositionality. In the present study, parent-reported oppositionality was a significant predictor of social perspective taking. When considering the items on the responsibility scale, many are consistent with symptoms of oppositionality (e.g., takes responsibility for her/his own mistakes, is well-behaved when unsupervised, does what he/she promises). This interpretation was confirmed by exploratory analyses, which found that social perspective taking was no longer a significant predictor of parent-reported responsibility once the variance attributed ADHD (27%; step 1) and parent-reported oppositionality (16%; step 2) were accounted for. This further highlights that adolescents with both ADHD and oppositional behaviours have particularly impaired interpersonal functioning.
3.4.3 Limitations and Future Research

The present study has a number of limitations and highlights opportunities for further research. Due to both the purposes of the present study and time constraints, two modifications were made to the INS procedure. First, questions pertaining to identifying and overcoming obstacles to successful strategy implementation were omitted. Second, the hypothetical interpersonal dilemmas used in the present study included situations taken directly from the INS manual and situations modified for the purposes of this study. As such, a scoring manual for the present dilemmas was developed. The use of fewer interview questions, the altered dilemmas and the modifications made to the scoring procedure limit the ability to make direct comparisons with findings from other studies (Bailey, 2013).

Results of the present study found that language, when entered into a regression in the first step, significantly predicted social perspective taking skills, which was consistent with previous research on adolescence (Cohen et al., 1998; Im-Bolter et al., 2013). However, when intelligence was entered into the model as the second predictor, it did not explain additional variance. This is inconsistent with research on children with ADHD (Marton et al., 2009), which found that both language (predicted 18%) and intelligence (predicted 4%) were significant predictors of social perspective taking skills. A possible explanation for these findings was the brevity of measures used to estimate language (WASI Vocabulary subtest) and intelligence (WASI Matrix Reasoning subtest) in the present study. In previous research examining social perspective taking, language was assessed using more comprehensive assessment tools such as the Clinical Evaluation of Language Fundamentals (CELF), Test of Language Competence and other standardized language tests (Cohen et al., 1998; Im-Bolter et al., 2013; Marton et al., 2009). Similarly, previous research demonstrating an association between intelligence and social perspective taking used more comprehensive intelligence measures including the Wechsler Intelligence Scale for Children (WISC), Wechsler Adult Intelligence Scale (WAIS), and Wechsler Abbreviated Scale of Intelligence (WASI, Full scale score) (Beardslee et al., 1987; Marton et al., 2009; Selman et al., 1986). Thus, it is possible that the use of brief estimates for language and intelligence was the reason that these variables were significantly correlated with SPT, but did not account for as much of the variance as in previous research.
The present study has highlighted a number of opportunities for future research. In terms of social perspective taking, future research should examine the longitudinal relationships between ADHD, oppositionality, and social perspective taking. Additionally, the present study found that both ADHD status and social perspective taking were associated with social skills. Future research should examine the relationship between social perspective taking, social skills and social relationships in various interpersonal contexts (e.g., peer acceptance/rejection, friendships, parent-adolescent relationships, romantic relationships and interactions with employers).

### 3.4.4 Clinical Implications

The findings from the current study have implications for clinicians, educators and parents of adolescents with ADHD. In terms of clinical work, an understanding of the social perspective taking and social skill impairments faced by adolescents with ADHD may contribute to interventions designed to improve their social interactions within families, peer groups and employment settings (Sibley et al., 2010; Uekermann et al., 2010). There are a number of intervention strategies, which may be beneficial in terms of targeting the challenges identified in the present study.

Adolescents with ADHD, particularly those with co-morbid oppositionality, may benefit from interventions that target the difficulties underlying their impairments in social functioning. The results of the present study indicate that difficulties with social perspective taking and social skills may be examples of such underlying difficulties. A recent review of social skills training for children with ADHD (de Boo & Prins, 2007) concluded that social skills training improved some aspects of social functioning in children with ADHD. However, interventions were classified as “experimental” rather than “well established” or “probably efficacious” (which require more rigorous research support). Interventions included behavioural techniques (e.g., skills training), cognitive behavioral elements (i.e., problem solving, recognizing and dealing with emotions) and parent/teacher components (e.g., psychoeducation, information about children’s treatment). However, it was not yet possible to determine what the necessary components of effective social skills training programs were. While mediators of social skills training have not been empirically examined, de Boo and Prins (2007) highlighted the importance of considering various factors underlying the social difficulties of individuals with
ADHD including cognitive deficits, emotion regulation, self-control, inattention and impulsivity. In light of the findings of the present study, it appears that deficits in social perspective taking and social skills may underlie the social problems faced by some adolescents with ADHD. As such, clinicians working with adolescents with ADHD may benefit from taking a comprehensive assessment of the factors that may be underlying an adolescent’s interpersonal challenges, including social perspective taking and social skills.

In addition to intervening on social functioning with peers, the present study also highlights the need to address interpersonal communication and perspective taking within the families of adolescents with ADHD. More specifically, adolescents with ADHD used less advanced social perspective taking in a hypothetical interaction with a parent than adolescents without ADHD. In terms of parent-adolescent interactions, research has demonstrated that mindfulness-based cognitive therapy is a promising intervention for families with an adolescent with ADHD (Haydicky, Shecter, Wiener, & Ducharme, 2013). After adolescents with ADHD and their parents participated in eight weekly parallel group sessions, parents reported reductions in adolescents’ inattention, conduct problems and peer relations problems, reductions in parenting stress and increases in mindful parenting (Haydicky et al., 2013). During qualitative interviews about the mindfulness intervention, adolescents with ADHD and their parents reported greater awareness of the thoughts and feelings of family members (e.g., increases in empathy and perspective taking), more adaptive communication patterns (e.g., listening without judgment, sharing openly) and reduced conflict (Haydicky, 2014). As such, this type of intervention may be beneficial in supporting adolescents with ADHD in developing their social cognitive skills, social skills, peer relationships and parent-adolescent relationships.
### Table 3.1

Descriptive Information about Sample

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* p<.05, **p<.01

Parental education was measured on an 11-point scale from 1=no school to 11= doctoral degree; a rating of 8 corresponds with having attended some university and 9 corresponds with having completed an undergraduate degree.
Table 3.2

Univariate Analyses of Social Perspective Taking (INS) and Multivariate Analyses of Social Skills Raw Scores (SSIS) by ADHD Status and Gender

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Self-reported Social Skills (SSIS)

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<td>Empathy</td>
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Parent-reported Social Skills (SSIS)

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*p<.05, **p<.01
Table 3.3
Multivariate Analysis of Interpersonal Negotiation Strategies (INS) Step and Dilemmas (ADHD Group Effect)

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<th>p</th>
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Table 3.4

Hierarchical Regressions Predicting Total Interpersonal Negotiation Strategies (INS) Score

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<th>SE (B)</th>
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* $p<.05$, **$p<.01$
### Table 3.5

Hierarchical Regressions Predicting Self-reported Social Skills (SSIS)

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| Step 2                      |                   | 0.07   | 0.00        |      |                   |
| Gender                      |                   | -1.881 | 0.654       | -0.268**|               |
| ADHD status                |                   | -0.068 | 0.668       | -0.010|                   |
| SPT                         |                   | 3.196  | 1.282       | 0.242*|                   |
| Step 4                      |                   | 0.12   | 0.05*       |      |                   |
| Gender                      |                   | -1.628 | 0.665       | -0.232*|               |
| ADHD status                |                   | 0.428  | 0.683       | 0.061 |                   |
| SPT                         |                   | 3.216  | 1.288       | 0.244*|                   |
| ADHD Status x SPT           |                   | -0.137 | 0.341       | -0.037|                   |

| **Responsibility**          |                   | 0.07   | 0.07**      |      |                   |
| Step 2                      |                   | 0.14   | 0.07**      |      |                   |
| ADHD status                |                   | -1.724 | 0.605       | -0.266**|               |
| SPT                         |                   | -1.176 | 0.617       | -0.181 |                  |
| Step 3                      |                   | 0.14   | 0.01        |      |                   |
| ADHD status                |                   | -1.150 | 0.619       | -0.177 |                  |
| SPT                         |                   | 3.331  | 1.168       | 0.272**|                   |
| ADHD Status x SPT           |                   | -0.266 | 0.312       | -0.077|                   |

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*p < .05, **p < .01
Figures

Figure 3.1 Interpersonal Negotiation Strategies Model

![Interpersonal Negotiation Strategies Model Diagram]
Moderation of ADHD status on Self-reported Communication skills by SPT

- Low Social Perspective Taking
- High Social Perspective Taking
Figure 3.3

Moderation of ADHD status on Self-reported Engagement skills by SPT

Self-reported Engagement Skills

ADHD
Comparison

Low Social Perspective Taking
High Social Perspective Taking
Chapter 4
Conclusions and Implications

4.1.1 Conclusions and Future Research

The overarching goal of this dissertation was to examine the social impairment of 13- to 18-year-old adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). More specifically, I sought to examine several aspects of their social impairment (e.g., bullying, social skills, social perspective taking) and to examine how social perspective taking is related to social skills. Three main conclusions can be derived from this research. First, adolescents with ADHD were more likely to be victimized by peers than adolescents without ADHD. However, the patterns of victimization that they experience were normative. Second, adolescents with ADHD displayed impairments in social perspective taking and self- and parent-reported social skills. Third, hierarchical regressions indicated that social perspective taking predicted social skills in some domains. However, this association was more pronounced for self-reported social skills and among adolescents without ADHD.

The findings of the present study contribute to our understanding of the social impairment of adolescents with ADHD by strengthening our knowledge of difficulties they face in their social relationships, as well as identifying skill deficits that may be associated with these difficulties. As seen in Figure 4.4, three of the main domains to consider when discussing social functioning are social relationships (e.g., peer status, bullying and friendships), social skills (e.g., cooperation, assertion, self-control) and social cognition (e.g., social perspective taking, empathy and theory of mind). In addition to examining these constructs individually, a comprehensive understanding of social functioning requires knowledge about the connections between them. While earlier research conceptualized social cognition and social skills as contributing to social relationships (also called ‘social outcomes’; Gresham, 1986), more recently there is an indication that the associations between these constructs are bidirectional (e.g., Murray-Close et al., 2010). The aim of this chapter is to discuss the key findings of the present dissertation within the context of the existing knowledge base regarding the social functioning of adolescents with ADHD. First, the present findings will be related to the existing literature in each domain. Next, preliminary research and speculative hypotheses regarding the
connections between some domains are discussed. Future research and additional factors to consider (e.g., emotion regulation) are addressed.

In terms of social relationships, adolescents with ADHD have higher levels of peer rejection, lower levels of peer acceptance, and fewer close friends (Bagwell et al., 2001; Marshal et al., 2003; Sciberras et al., 2012; Sibley et al., 2010). The present findings expand our understanding of their social relationships by demonstrating that approximately 30% of adolescents with ADHD have experienced peer victimization, which is nearly double the rate found in a large-scale prevalence study of middle and high school students (Nansel et al., 2001). This increased risk for peer victimization is consistent with previous research on children (Cardoos & Hinshaw, 2011; Holmberg & Hjern, 2008; Twyman et al., 2010; Unnever & Cornell, 2003; Wiener & Mak, 2009) and adolescents (Sciberras et al., 2012; Timmermanis & Wiener, 2011) with ADHD and it is concerning in light of the long-term social, emotional and academic consequences associated with chronic peer victimization (Card & Hodges, 2008; Nakamoto & Swartz, 2010; Olweus, 1995; Reijntjes et al., 2010; Rigby, 2003). For a review on the long-term outcomes of peer victimization, the reader is directed to a recent review by McDougall and Vaillancourt (2015).
While the rates of victimization by peers were higher among adolescents with ADHD, the patterns of victimization they reported were normative. Adolescents with and without ADHD reported that the most common types of victimization they experienced were verbal and relational. When participants were asked who victimized them, adolescents with and without ADHD reported that their classmates and friends were most often the perpetrators. This is important because victimization within friendships is associated with confusion about how to interpret the behaviour and how to respond (Mishna et al., 2008). When asked why they thought they had been victimized, the reasons identified by adolescents with and without ADHD shared many of the same themes including being different (e.g., behaving differently than others), physical appearance (e.g., appearance/body shape), internalizing problems (e.g., seeming sad or withdrawn) and learning difficulties (e.g., having difficulty in school).

While many of the reasons endorsed were consistent between groups, several adolescents with ADHD (22%) and their parents (31%) also endorsed “having ADHD” as one of the top reasons as to why the adolescents had experienced victimization. While this issue merits further investigation, two explanations for this finding should be considered. Firstly, it is possible that “having ADHD” refers to the perception that a diagnosis of ADHD is somehow stigmatizing and elicits victimization from peers. Alternatively, it is possible that adolescents with ADHD and their parents perceive that behaviours associated with ADHD are the reason that the adolescents experienced victimization. The latter would be consistent with previous research indicating that parents of children with ADHD identified behaviours associated with ADHD (e.g., loud, bossy, short attention span) and emotional dysregulation as reasons their children were victimized (Shea & Wiener, 2003). This is an important direction for future research as the association between peer victimization and psychosocial maladjustment is partially mediated by the attributions an individual makes as to why they were victimized (Harper, 2012).

In terms of bullying others, the findings of the present dissertation reveal discrepancies across informants, consistent with previous findings (e.g., Wiener & Mak, 2009). Adolescents with (16%) and without (19%) ADHD reported rates of bullying others that were comparable to a large-scale prevalence study (19%; Nansel et al., 2001). In contrast, parents of adolescents with ADHD reported higher rates of bullying (33%) and parents of adolescents without ADHD reported lower rates of bullying (7%). Particularly relevant to our understanding of the social relationships of adolescents with ADHD is the discrepancy between self- and parent-reported
bullying rates. There are number possible reasons for this discrepancy. Firstly, it is possible that adolescents with ADHD are underreporting bullying for social desirability reasons (Pellegrini, 2001). Additionally, youth involved in bullying often do not report this to adults to protect themselves (e.g., concerned about how others would perceive them), to protect others (e.g., not wanting to be burden or get others in trouble) or because they fear adults’ help/advice will not be beneficial (Mishna, Schwan, Lefebvre, Bhole, & Johnston, 2014). Another interpretation for the discrepancy is that certain aggressive behaviours are occurring, but adolescents with ADHD and their parents are interpreting those behaviours differently. For example, it is possible that an adolescent with ADHD may make a verbally aggressive comment, either impulsively or because he or she is feeling very intense emotions (e.g., shame, frustration). The adolescent’s parent may identify the comment as bullying. However, it may be that the adolescent would not describe the comment as bullying because they perceive no power imbalance or had no intent to harm the other person. Rather, they may have made the comment and subsequently felt guilt and shame about having done so. These discrepancies highlight the need for future research to examine self- and parent-reported frequencies of bullying behaviour, particularly in terms of how behaviours are interpreted (e.g., intentionally harmful or not) as this has important implications for the assessment and intervention of these behaviours.

In terms of social cognition and self- and parent-reported social skills, the present findings indicated that adolescents with ADHD demonstrated impairments in both areas. Consistent with theoretical predictions (Marton et al., 2009; Mikami, 2010; Sibley et al., 2010) and empirical findings among children with ADHD (Marton et al., 2010), adolescents with ADHD demonstrated lower levels of social perspective taking skills, suggesting that they have difficulty considering multiple perspectives and coordinating their perspectives with others in social situations. Additionally, it may be a subset of the adolescents with ADHD with elevated oppositionality who have less advanced social perspective taking. With regard to social skills, adolescents with ADHD and their parents reported impairment in the domains of communication, cooperation and responsibility skills and their parents also reported that adolescents with ADHD demonstrated lower engagement, self-control and empathy skills. These domain specific findings expand on previous research demonstrating that adolescents with ADHD have poorer overall social skills (Hinshaw et al., 2006; Owens et al., 2009; Murray-Close et al., 2010). To further understand the deficits in social cognition and social skills, it is
important to consider that these skills may vary based on the relationship context and other interfering factors.

While there was a statistical difference between groups in overall social perspective taking level, adolescents with and without ADHD were not at qualitatively different steps and there was variability across dilemmas. For example, across groups, adolescents had lower scores on the dilemma involving an employer than dilemmas involving a peer, a romantic partner or a parent. This finding is likely attributable to the limited experience that most adolescents have in employment settings (Selman et al., 1986). Additionally, adolescents with ADHD demonstrated poorer social perspective taking than adolescents without ADHD on dilemmas involving a romantic partner or a parent, but not a peer or an employer. Thus, it is important to recognize that while, overall, adolescents with ADHD demonstrated impairment in this domain, social perspective taking skills are dependent on the nature of the relationship (e.g., familiarity, power imbalance) (Selman et al., 1986). While not examined in the present dissertation, it is likely that this variability of skill across interpersonal relationship also applies to social skills. Adolescents and their parents were asked about the adolescents’ social skills in general, rather than in specific relationships. In light of the relationship-specific findings for social perspective taking, it will be important to explore if adolescents with ADHD demonstrate specific social skills domains deficits in certain relationships. For example, in the present study, adolescents with ADHD and their parents reported poorer communication skills than adolescents without ADHD. It is possible that these communication difficulties may be more pronounced and impairing in romantic relationships (where intimacy and disclosure are important) than in their relationships with employers (which may require less in depth conversation).

In the present study, impairments in social perspective taking were demonstrated while discussing hypothetical interpersonal conflicts in a controlled research environment. As such, responses were unlikely to have been impacted by elevated emotions. This contributes to our understanding of the nature of these social cognitive deficits, by demonstrating that adolescents with ADHD have a skill acquisition deficit (absence of knowing how to perform a given skill) in social perspective taking (Gresham et al., 2006; Gresham et al., 2010). However, it is possible that their ability to use social perspective taking skills and social skills in actual interpersonal situations may also be impacted by performance deficits (failure to perform given skills despite knowing what to do). It has been posited that individuals with ADHD may not merely have
lower levels of social cognition and social skills, but rather they may also fail to perform those skills when needed, possibly due to emotional dysregulation or difficulty inhibiting impulses (de Boo & Prins, 2007). As such, future research should examine how factors such as impulsivity and emotion regulation interfere with the ability of adolescents with ADHD to use social perspective taking skills and social skills in real life interactions.

In addition to examining the impairments that adolescents with ADHD have in their social relationships, social cognition and social skills, it is important that we understand the connections between these domains. Both theoretical predictions (Marton et al., 2009) and empirical findings (Murray-Close et al., 2010) indicate the associations between domains are likely bidirectional and cyclical. Marton et al. (2009) theorized that social perspective taking might be partially responsible for the difficulties that adolescents with ADHD face in their social relationships. Additionally, having fewer friends and being rejected by peers may mean that individuals with ADHD have less opportunity to develop interpersonal problem solving skills and develop a repertoire of solutions to social dilemmas during childhood and adolescence. Similarly, longitudinal research among children and adolescents with ADHD found that impaired social skills were associated with subsequent peer rejection and peer rejection was also associated with subsequent impairment in social skills (Murray-Close et al., 2010).

More generally, it is postulated that individuals with ADHD experience early deficits in social perspective taking and social skills, which limit their positive social relationships (e.g., supportive friendships and romantic relationships, peer acceptance) and increase their negative social relationships (e.g., peer rejection, conflictual friendships and romantic relationships, bullying). This, in turn, reduces their opportunities to further observe, practice and develop appropriate social perspective taking skills and social skills. While path analyses examining trends in all of these constructs will be important in providing a comprehensive understanding of the developmental pathways, the results of the present study shed light on some of the connections between these constructs. In particular, the present discussion will focus on the connection between social perspective taking, certain domains of self- and parent-reported social skills, and victimization.
One of the goals of the present dissertation was to examine the association between social perspective taking and self- and parent-reported social skills. Whereas hierarchical regressions indicated that social perspective taking predicted social skills in some domains, this association was more pronounced for self-reported social skills and among adolescents without ADHD.

Social perspective taking was a predictor of self-reported cooperation, assertion, empathy and responsibility skills, above the variance accounted for by ADHD status. This demonstrates that how adolescents think about social situations (social perspective taking) is linked to their self-reported actions in social situations (social skills). That is, adolescents who performed better on a social perspective taking task also described themselves as more cooperative, assertive, empathic and responsible. When considering the socially skilled behaviours that make up these domains, it can be seen how being able to coordinate another person’s thoughts, feelings and desires with one’s own could be necessary for these skills. For example, assertiveness behaviours (e.g., *showing others how I feel, asking for help when needed*) require the ability to communicate one’s own feelings and desires to the other person. Conversely, empathetic behaviours (e.g., *trying to make others feel better, trying to think about how others feel*) require the ability to understand the emotions that another person is feeling during an interpersonal conflict, as well as the ability to understand how that person might feel about possible hypothetical solutions to that conflict. Additionally, cooperative behaviours (e.g., *paying attention when others present their ideas, doing what I’m asked to do*) require the ability to attend to and understand the desires and wishes of another person, and coordinate them with one’s own.

For two other domains of self-reported social skills (communication and engagement), social perspective taking moderated the relationship between ADHD and social skills. That is, adolescents with ADHD demonstrated similar levels of communication and engagement skills, irrespective of social perspective taking level. In contrast, for adolescents without ADHD, higher social perspective taking was associated with higher self-reported communication and engagement skills. Thus, the present findings indicated that social perspective taking is a predictor of self-reported social skills in all six domains for adolescents without ADHD, while for adolescents with ADHD, social perspective taking is a predictor of some self-reported social skills domains but not others. It may be that social perspective taking is more consistently associated with self-reported social skills among adolescents without ADHD, because these
adolescents are better able to accurately rate their own social skills, whereas adolescents with ADHD have more difficulty in rating their own social skills (Varma, 2013).

In terms of parent-reported social skills, ADHD status was the only significant predictor for most domains (e.g., communication, cooperation, self-control, engagement and empathy). Social perspective taking explains unique variance above ADHD status when examining several domains of self-reported social skills, but not for most domains of parent-reported social skills and not for teacher-reported social skills (Marton et al., 2009). It is possible that this is because ADHD status/symptomatology is a much stronger predictor of teacher- and parent- reported social skills than adolescent-reported social skills. For parent-reported responsibility skills, social perspective taking predicted significant variance (5%) over and above the variance accounted for by ADHD status (27%). Further analyses indicated that one possible explanation for this association was that both social perspective taking and parent-reported responsibility skills (e.g., takes responsibility for her/his own mistakes, is well-behaved when unsupervised, does what he/she promises) are associated with oppositional behaviours. Indeed, social perspective taking was no longer a significant predictor of parent-reported responsibility, once that variance predicted ADHD status and parent-reported oppositionality was accounted for. Thus further highlights that adolescents with both ADHD and oppositional behaviours are at an even high risk for impaired social functioning.

Generally speaking, social perspective taking and social skills domains such as assertion and cooperation represent the capacity to simultaneously assert one’s own needs while attending to the needs of another. While speculative, it is possible that deficits in these areas may be associated with experiences of peer victimization and may explain the increased risk for victimization faced by adolescents with ADHD.

A bullying interaction is, by definition, characterized by an imbalance of power in which the victim cannot defend him- or herself. As such, it follows that individuals who are low in assertiveness would be more susceptible to such interactions, as they are not able to respond appropriately when they are mistreated. For example, they may respond to bullying by withdrawing or displaying a strong emotional reaction. Additionally, chronic victimization may impair the development of assertion skills. In children, a link between low levels of assertiveness and being victimized by peers has been found in longitudinal and cross-sectional studies (Schwartz, Dodge, & Coie, 1993; Fox & Boulton, 2006b). It is important to note that, in
the present study, neither adolescents with ADHD nor their parents reported differences in levels of assertiveness compared to adolescents without ADHD. As such, although it is likely that assertion is associated with an increased risk of victimization, the prevalence of this risk factor appears to be comparable in adolescents both with and without ADHD.

Another skill that may be associated with peer victimization is cooperation and the ability to attend to the needs of others. Previous research has demonstrated that older children (Champion et al., 2003) and adolescents (Rigby et al., 1997) who exhibited lower levels of cooperation were more likely to experience peer victimization. In the present study, both adolescents with ADHD and their parents reported that these adolescents demonstrated lower levels of cooperation than adolescents without ADHD. As such, it may be the case that adolescents with ADHD are at an increased risk for victimization due to their increased difficulties with cooperation and balancing other people’s perspectives with their own.

This can perhaps be understood through one of the scenarios on the INS in which Raj and Peter are working on a science project. The dilemma is that they have two days to finish the project and Peter wants to relax after school while Raj wants to begin working on the project immediately. In this hypothetical interpersonal conflict, Raj could solve the problem by engaging Peter in a collaborative discussion to mutually develop a solution that addresses both of their concerns. Alternatively, Raj could behave in an uncooperative manner that does not take into account Peter’s perspective. For example, some participants in the present study suggested that Raj could solve the problem by using physical means (e.g., unplugging the TV, taking the remote away), avoidance (e.g., rejecting Peter and getting a new partner), threats (e.g., telling Peter that he will tell teacher/parent that Peter did nothing) or anger (e.g., “exploding” at Peter and getting really mad at him). It is possible to see how such uncooperative behaviour and disregard for Peter’s perspectives and desires could invite aggression from Peter. For example, in the future, Peter may engage in making hurtful comments toward Raj or intentionally excluding him from future group work or social gatherings. Additionally, should Raj have behaved this way in previous interpersonal interactions with peers, he may have few friends and be rejected by the peer group, further increasing his risk for victimization.

While this discussion highlights the potential role of assertion and cooperation in predicting victimization, it is important to remember that victimization by peers is best understood from a social-ecological perspective in which the characteristics of the victim are considered alongside
the characteristics of the bully and the ongoing interactions between these individuals, their families, friends, classmates, school and community (Espelage & Swearer, 2010; Swearer & Hymel, 2015).

4.1.2 Clinical Implications

The present findings have implications for mental health professionals who engage in assessment and intervention. Mental health professionals working with adolescents with ADHD should comprehensively assess their social functioning including the number and quality of their social relationships (e.g., peer acceptance, friendships, romantic relationships and involvement in bullying). The results of the present study highlight the need to assess experiences of victimization and associated psychosocial maladjustment. Practitioners should be cognizant that victimization often occurs among friends and that these experiences are particularly challenging for youth to comprehend and navigate. Furthermore, if adolescents with ADHD are experiencing difficulties with their social relationships, practitioners should assess factors that may be associated with these difficulties including impairments in social perspective taking and social skills (e.g., communication, cooperation, engagement and self-control). A comprehensive multi-informant approach to assessing these areas of social functioning is important, as adolescents, their parents and their teachers often offer differing perspectives.

Interventions targeting the social impairment of children and adolescents with ADHD typically include behavioural techniques (e.g., skills training), cognitive behavioural elements (e.g., problem solving, recognizing and dealing with emotions) and parent/teacher components (e.g., psychoeducation, information about children’s treatment) (de Boo & Prins, 2007). While these social skills programs improve some aspects of social functioning in children with ADHD, it is not yet clear which are the necessary components (de Boo & Prins, 2007). The results of the present study highlight that the social impairment of adolescents with ADHD is multifaceted and includes difficulties with social perspective taking skills, multiple domains of social skills, peer victimization and victimization within friendships. As such, it is likely that adolescents with ADHD may benefit from various components of social skills interventions, depending on their specific social needs. Prior to engaging in intervention, a comprehensive assessment should be conducted to determine an adolescent’s areas of difficulty as well as strength and whether the
adolescent needs to be taught skills (due to an acquisition deficit) or needs assistance in performing skills in the moment (due to a performance deficit).

Based on difficulties identified in the present study, adolescents with ADHD may benefit from interventions that develop their skills in 1) attending to social interactions, 2) coordinating the thoughts, emotions and needs of themselves and others and 3) subsequently engaging in appropriate social behaviours. Interventions employing interpersonal problem solving and mindfulness-based techniques have shown promise in terms of enhancing children’s and adolescents’ awareness of the feelings of others and capacity to balance their own needs with the needs of others (e.g., Collaborative Problem Solving; Pollastri, Epstein, Heath, & Ablon, 2013; Dialectical Behaviour Therapy; Rathus & Miller, 2014; Mindfulness-Based Cognitive Therapy (MBCT), Haydicky, 2014). For example, during qualitative interviews about MBCT, adolescents with ADHD and their parents reported greater awareness of the thoughts and feelings of family members (e.g., increases in empathy and perspective taking), more adaptive communication patterns and reduced conflict (Haydicky, 2014). Future research among adolescents with ADHD is needed to determine if such interventions impact their thoughts and actions in social interactions and whether that is associated with improvements in their social relationships.
References


Appendix

Appendix A: Comprehensive Bullying Measure (Adolescent Version)

Students can be very mean to one another at school. Mean and negative behaviour can be especially upsetting and embarrassing when it happens over and over again, either by one person or by many different people in the group. We want to know about times when students use mean behaviour and take advantage of other students who cannot defend themselves easily. Please read each questions carefully and check the response that applies to you.

In the past 2 months, how often have you taken part in being mean or negative to others?

1. By pushing, hitting, kicking, or physically hurting them?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

2. By stealing things from them or damaging their property?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

3. By teasing, calling them names, threatening them verbally, or saying mean things to them?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

4. By spreading rumours, gossiping behind their back or getting others not to like them?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week
5. By excluding them from a group, ignoring them or leaving them out of things on purpose?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

6. By making sexual comments or gestures at them?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

7. By using e-mail, social network sites or text messages?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

Who were these mean and negative behaviours directed toward? (Check any that are true for you)
   - Strangers
   - Classmates
   - Friends
   - Boyfriend/Girlfriend
   - Other: ______________________

What was the age and gender of people these mean and negative behaviours were directed toward? (Check any that are true for you)

Age:
   - Younger than you
   - The same age as you
   - Older than you

Gender:
   - Male
   - Female
In the past 2 months, how often have other students been mean or negative to you?

8. By pushing, hitting, kicking, or physically hurting you?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

9. By stealing things from you or damaging your property?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

10. By teasing, calling you names, threatening you verbally, or saying mean things to you?
    - Never in the last 2 months
    - Once
    - Two to three times
    - About once a week
    - Several times a week

11. By spreading rumours, gossiping behind your back or getting others not to like you?
    - Never in the last 2 months
    - Once
    - Two to three times
    - About once a week
    - Several times a week

12. By excluding you from a group, ignoring you or leaving you out of things on purpose?
    - Never in the last 2 months
    - Once
    - Two to three times
    - About once a week
    - Several times a week

13. By making sexual comments or gestures at you?
    - Never in the last 2 months
    - Once
    - Two to three times
    - About once a week
    - Several times a week
14. By using e-mail, social network sites or text messages?
   - Never in the last 2 months
   - Once
   - Two to three times
   - About once a week
   - Several times a week

Who was mean and negative to you in these ways? (Check any that are true for you)
   - Strangers
   - Classmates
   - Friends
   - Boyfriend/Girlfriend
   - Other: _______________________

What were the age and gender of people who were mean and negative to you in these ways? (Check any that are true for you)

Age:                         Gender:
   - Younger than you        - Male
   - The same age as you     - Female
   - Older than you

Why do you think people did these mean and negative things to you? (Check any that are true for you)
   - Because of your religion?
   - Because of the colour of your skin?
   - Because of the country you or your family came from?
   - Because you have ADHD? (Do people know you have ADHD? Yes / No)
   - Because you have a learning disability?
   - Because of a physical disability?
   - Because you are a boy or girl?
   - Because of your sexual orientation?
   - Because you do well in school?
   - Because school is hard for you?
   - Because of your weight?
   - Because of the way you look, your height, or your body shape?
   - Because of how you dress?
• Because you behave differently from other people?
• Because you have interests that are different from most other students?
• Because of how little money you have?
• Because of your physical weakness?
• Because you seem to be anxious and fearful?
• Because you seem to be sad or withdrawn?
• Because the other people in your school are really mean?
• Because this sort of thing happens at your school all the time?
• Because teachers and principals do nothing to prevent this from happening?
• Because your school has a lot of tough kids?
• Because some other people in your school think it's funny to hurt people?
• Because the person who did this to you wanted to feel powerful and popular?
• Other (please specify) ________________________________

Think of the last time people did mean or negative things to you? What did you do? (Check any that are true for you)

• I ignored it.
• I burst into tears.
• I told a friend about it.
• I asked a conflict mediator to help me with it.
• I told my parents about it.
• I told my brother or sister about it.
• I told an adult outside of school about it (such as a coach, neighbour, police).
• I told another student about it.
• I skipped school for one or more days.
• I fought back by hitting, kicking, or trying to physically hurt the person.
• I fought back by arguing, yelling, or saying hurtful things to the person.
• I fought back by sending out mean messages on a social networking site or email.
• I got someone to help stop it.
• I got back at them later.
• I told an adult at school about it.

What was the role of the adult at school?

• Teacher
• Educational Assistant
• Special education teacher
• Guidance counsellor
• Secretary
• Social worker or psychologist

Other thing you did (please specify) ________________________________
If you did not do anything, what was the reason?

- I was afraid or felt threatened.
- I did not know what to do or who to talk to.
- Nobody would do anything about it if I told someone.
- It wasn’t so bad.
- If I told someone, it would have gotten worse
Appendix B: Parent Consent Letter, Parent Consent Form, Adolescent Consent Letter, Adolescent Consent Form, Parent Consent for Release of Information

PARENT CONSENT LETTER

Dear ____________________:

My name is Dr. Judith Wiener, and I am a professor at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT). Together with my colleague (Dr. Maria Rogers), and my graduate students, I am doing a research project on teenagers with Attention-Deficit Hyperactivity Disorder (ADHD). We are writing to ask you if you would give permission for your son/daughter to take part in this research. For this, we need the participation of teenagers who have been diagnosed with ADHD and teenagers who do not have ADHD. We are asking you and your son/daughter to take part in this research because we believe that your feelings and opinions and theirs are valuable information that can help adolescents with ADHD achieve in school and have healthy relationships with parents and peers.

Purpose of the Research

We want to learn more about the peer and family relationships of adolescents with ADHD. So far, there is very little research on this. We believe that knowing more about the peer and family relations of teens with ADHD is important because it will help us develop strategies for teens to help themselves get along with parents and friends, and suggest strategies for parents, teachers, and other professionals to help the teens. This research has been funded by the Social Sciences and Humanities Research Council.

Description of the Research

If your son/daughter takes part in this research study, the testing session will take about 3 to 4 hours. The session will take place in a quiet room at OISE/University of Toronto. During the session, a research assistant will ask your son/daughter to answer some questions about him/herself, such as the first name of his/her friends, how often he/she spends time with them, and whether he/she has been bullied or bullies others. Other questionnaires will also ask him/her whether or not they have ever been involved in a romantic relationship. If yes, the questionnaire will continue to ask for some details of his/her relationship, such as conflicts or arguments in their relationship, intercourse, birth control, and characteristics they find important in a romantic partner. Lastly, the research assistant will also ask him/her about arguments he/she sometimes has with his/her parents and his/her beliefs about why they happen. You will be asked to fill out a questionnaire about this as well. We will also ask you and your son/daughter about your involvement in his/her education. In addition, the research assistant will ask your son/daughter to listen to some descriptions of social problems that teens often have and ask him/her how he/she would solve them. Sometimes the research assistant asks him/her questions and writes down the answer. Other times, your son/daughter fills out a questionnaire by checking off or circling a number. He/she can read the questionnaires him/herself or ask the research assistant to read them to him/her. He/she will also do some short reading, writing, and math, vocabulary, and problem-solving activities. We will give him/her breaks, including a lunch break if it is lunchtime. We will also send questionnaires to you and your son/daughter’s teacher to fill out and send back to us. The questionnaires will take the teacher about a half hour to fill out. Your questionnaires will likely take about an hour and a half to complete.
Benefits

The main benefit of this study is that it will help us learn more about peer and family relationships of adolescents with ADHD. We want to listen to what your son/daughter and you say and think, and then use that information to help teens with ADHD. A second benefit is that your son/daughter would learn a bit about how research in psychology is done.

Another benefit from this study is that your son/daughter’s answers to the questions from the reading, writing, and math activities and some of the questionnaires that he/she and you and the teacher fill out will let us know what his/her strengths are and what areas require support. About three months after he/she take part in the study and we receive all of the questionnaires back from you and the teacher, we will mail a report to you and your son/daughter about his/her behaviours and his/her skills in reading, writing, and math, and list some strategies that might help him/her achieve in school and behave appropriately at home, in school, and with friends. Although this is not a complete psychoeducational assessment, the report is often useful for developing an individual educational plan (IEP) in high school and for obtaining accommodations in postsecondary institutions.

Potential Harms and Withdrawal

There are no harms associated with taking part in the study. The only thing that might happen is that your son/daughter may feel a little uncomfortable talking about him/herself and how he/she feels about some things. If he/she feels that he/she doesn’t want to answer some of the questions, he/she can tell the research assistant, and talk about it. He/she may also say that he/she wants to stop, skip a question, or that he/she needs a break and wants to continue some other time. Also, if he/she says that he/she will take part in the study and then changes his/her mind that is okay. He/she can decide at any time to stop taking part in the study. The same applies to you – you can withdraw from the study at any time. The only consequence is that if you do not complete the questionnaires, we will not have the information needed to write the report on your son/daughter’s skills described above.

Confidentiality

All of the data will be confidential – it will only be accessed by Dr. Wiener and her research assistants. No information that reveals your identity or that of your son/daughter will be released without consent unless required by law. The information that we collect from you, your son/daughter, and his/her teacher will be analyzed and stored in locked files in a locked office. The questionnaires will not have your name or that of your son/daughter on them. All of the data will be kept at OISE/UT in locked files for 5 years after we publish an article in a journal or book on the research. The report that we write about your son/daughter and the test protocols on which this report is based will be kept for 10 years after his/her 18th birthday. A number code will be used in place of the names. We would need your permission and signed consent if you want to send these scores to another professional.

The results of the questionnaires and activities described above will be used for research purposes only. We will analyze the information, talk about it at conferences, and write about it so that youth, parents, teachers, and other professionals such as doctors and psychologists can learn from what we have found. Because we are working with many teenagers on this project, people hearing our presentations or reading what we write will not know which teenager said what. When we do this, or when we publish our research in academic
journals/books, we will only present group information. We will not tell anyone your son/daughter’s or your name or give any information that could help people know who you are.

We will not be able to provide you with your responses on some of the questionnaires and interviews because they were developed for the purpose of the research. We will not tell your son/daughter the specific answers that you gave to the questions, but, as discussed above, we will write a report about how your son/daughter did and mail it to him/her and you.

The only time that we would have to tell somebody something you or your son/daughter said is if he/she or you say that he/she would do serious harm to him/herself or someone else, or someone is seriously harming him/her or you (for example: abuse, that they are dating someone much older or younger than them, or that you or your child are having suicidal ideations). In that case, as required by law, we would have to make sure he/she gets help by contacting and informing appropriate mental health, child protection, or law enforcement professionals of the clear and imminent danger only. Otherwise, everything he/she, you or the teacher say or write is kept confidential (e.g., information pertaining to your child’s sexual behaviour would not be shared with you or other parties).

Compensation

Participation in research is voluntary for both you and your son/daughter. If you and your son/daughter do decide to take part in the study, he/she can choose between getting $30.00 for his/her participation or (for teenagers in high school) the time he/she spends taking part in the study can be counted towards his/her community service hours; we will give him/her a certificate.

Access to Results

We will write a summary of the results of the study when we are finished and put it on our website. We will send you the link when it is ready. You and your son/daughter can read this.

You may contact Dr. Judith Wiener, ________________ (graduate student) or ______________ (lab manager) with any questions you may have about the study. We will try to answer all of these questions.

Sincerely,

Ph.D. Student
(416) 978-0933
Lab Manager
(416) 978-0933
Judith Wiener, Ph. D
Professor
School and Clinical Child Psychology
(416) 978-0935

Department of Human Development and Applied Psychology
Ontario Institute for Studies in Education of the University of Toronto (OISE/UT)
Toronto, Ontario M5S 1V6
PARENT CONSENT FORM

“I acknowledge that the research procedures described above have been explained to me and that any questions that I have asked have been answered to my satisfaction. As well, the potential harms and discomforts have been explained to me and I also understand the benefits of participating in the research study. I know that I may ask now, or in the future, any questions that I have about the study. I have been assured that no information will be released or printed that would disclose my identity without my permission, unless required by law. I understand that I will receive a copy of this signed consent. I understand that participation is voluntary and I can withdraw at any time.”

I hereby consent to take part in this research.

___________________________________
Name of Parent/Guardian

___________________________________
Signature

___________________________________
Date

___________________________________
Name of person who obtained consent

___________________________________
Signature

The person who may be contacted about this research is:

___________________________________

who may be contacted at:
(416) 978-0933

“I agree to be contacted in the future regarding other studies being conducted by the ADHD Laboratory at OISE/UT.”

___________________________________
Signature

“I agree that the information collected about my son/daughter in this study can be used for future data analysis provided that all identifying is removed and that he/she cannot be identified.”

___________________________________
Signature
Dear:

My name is Dr. Judith Wiener, and I am a professor at the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT). My colleague (Dr. Maria Rogers), together with our graduate students are doing a research project on teenagers with Attention-Deficit Hyperactivity Disorder (ADHD). We are writing to ask you if you would like to take part in this research. For this, we need the participation of teenagers who have been diagnosed with ADHD and teenagers who do not have ADHD. We are asking you to take part in this research because we believe that your feelings and opinions and those of your parents are valuable information that can help adolescents with ADHD achieve in school and have healthy relationships with parents and peers.

Purpose of the Research
We want to learn more about the peer and family relationships of adolescents with ADHD. So far, there is very little research on this. We believe that knowing more about the peer and family relations of teens with ADHD is important because it will help us develop strategies for teens to help themselves get along with parents and friends, and suggest strategies for parents, teachers, and other professionals to help the teens. This research has been funded by the Social Sciences and Humanities Research Council.

Description of the Research
If you take part in this research study, the testing session will take about 3 to 4 hours. The session will take place in a quiet room at OISE/University of Toronto. During the session, a research assistant will ask you to answer some questions about yourself, such as the first name of your friends, how often you spend time with them, and whether you have been bullied or bully others. Other questionnaires will also ask you whether or not you have ever been involved in a romantic relationship. If yes, the questionnaire will continue to ask about some details of your relationship, such as conflicts or arguments in your relationship, intercourse, birth control, and characteristics you find important in a romantic partner. Lastly, the research assistant will also ask you about arguments you sometimes have with your parents and your beliefs about why they happen. Your parents will also fill out a questionnaire about this. We will also ask you and your parents about how your parents are involved with your education. In addition, the research assistant will ask you to listen to some descriptions of social problems that teens often have and ask you how you would solve them. Sometimes the research assistant asks you questions and writes down the answer. Other times, you fill out a questionnaire by checking off or circling a number. You can read the questionnaires yourself or ask the research assistant to read them to you. You will also do some short reading, writing, math, vocabulary, and problem-solving activities. We will give you breaks, including a lunch break if it is lunchtime. We will also send questionnaires to your parents and teachers to fill out and send back to us. The questionnaires will take the teacher about a half hour to fill out. The questionnaires for your parents will likely take about an hour and a half to complete.

Benefits
The main benefit of this study is that it will help us learn more about adolescents with ADHD. We want to listen to what you say and think, and then use that information to help other teens with ADHD. A second benefit is that you would learn a bit about how research in psychology is done.
Another benefit about this study is that your answers to the questions from the reading, writing, and math activities and some of the questionnaires will let us know what your strengths are and what areas you need to work on. About three months after you take part in the study and we receive all of the questionnaires back from your parents and teacher, we will mail a report to you and your parents about your behaviors and your skills in reading, writing, and math, and list some strategies that might help you achieve in school and behave appropriately at home, in school, and with friends. Although this is not a complete psychoeducational assessment, the report is often useful for developing an individual educational plan (IEP) in high school and for obtaining accommodations in postsecondary institutions.

**Potential Harms and Withdrawal**
There are no harms associated with taking part in the study. The only thing that might happen is that you may feel a little uncomfortable talking about yourself and how you feel about some things. If you feel that you don’t want to answer some of the questions, you can tell the research assistant, and talk about it. You may also say that you want to stop, skip a question, or that you need a break and want to continue some other time. Also, if you say that you will take part in the study and then change your mind, that is okay. You can decide at any time to stop taking part in the study. The only consequence is that we would not have the information we need to write the report that we described above.

**Confidentiality**
Everything you tell the research assistant in the session will stay between you, the research assistant, and Dr. Wiener. No information that reveals your identity will be released without consent unless required by law. The information that we collect from you, your parents, and teacher will be analyzed and stored in locked files in a locked office. The questionnaires will not have your name on them. A number code will be used in place of your name. The data will be kept at OISE/UT in locked files for 5 years after we publish an article in a journal or book on the research. The report we write about you and the test protocols we use to write it will remain in the locked files for 10 years after your 18th birthday. We would need your permission and signed consent and the consent of your parents if you are under 18 if you want to send these scores or your report to another professional, your school, or postsecondary institution.

The results of the questionnaires and activities described above will be used for research purposes only. We will analyze the information, talk about it at conferences, and write about it, so that parents, teachers, and other professionals such as doctors and psychologists can learn from what we have found. Because we are working with many teenagers on this project, people hearing our presentations or reading what we write will not know which teenager said what. When we do this, or when we publish our research in academic journals/books, we will only present group information. We will not tell anyone your name or give any information that could help them know who you are.

We will not be able to provide you with your responses on some of the questionnaires and interviews, because they were developed for the purpose of the research. We will not tell your parents the specific answers that you gave to the questions, but we will write a report about how you did and mail it to you and them.

The only time that we would have to tell somebody something you have said is if you tell us that you will do serious harm to yourself or someone else, or someone is seriously harming you (for example if you reveal abuse, that you are dating someone much older or younger than you, or are having suicidal ideations). In that case, as required by law, we would have to make sure you get help by contacting and
informing appropriate mental health, child protection, or law enforcement professionals of the clear and imminent danger only. Otherwise, everything else you say is kept confidential (e.g., information pertaining to sexual behaviour would not be shared with your parents or other parties).

**Compensation**
Participation in research is voluntary – you can decide. If you and your parents decide to take part in the study, you can choose between getting $30.00 for your participation or (for teenagers in high school) the time you spend taking part in the study can be counted towards your community service hours; we will give you a certificate.

**Access to Results**
We will write a summary of the results of the study when we are finished and put it on our website. We will send you the link when it is ready. You and your parents can read this.

You may contact Dr. Judith Wiener, _______________ (graduate student) or _______________ (lab manager) with any questions you may have about the study. We will try to answer all of these questions.

Sincerely,

_________________________  ___________________________  ___________________________
Ph.D. Student              Lab Manager               Judith Wiener, Ph. D
(416) 978-0933            (416) 978-0933           Professor
School and Clinical Child Psychology
(416) 978-0935

Department of Human Development and Applied Psychology
Ontario Institute for Studies in Education of the University of Toronto (OISE/UT)
Toronto, Ontario M5S 1V6
ADOLESCENT CONSENT FORM

“I acknowledge that the research procedures described above have been explained to me and that any questions that I have asked have been answered to my satisfaction. As well, the potential harms and discomforts have been explained to me and I also understand the benefits of participating in the research study. I know that I may ask now, or in the future, any questions that I have about the study. I have been assured that no information will be released or printed that would disclose my identity without my permission, unless required by law. I understand that I will receive a copy of this signed consent. I understand that participation is voluntary and I can withdraw at any time.”

I hereby consent to take part in this research.

___________________________________
Name of Adolescent

___________________________________
Signature

___________________________________
Date

___________________________________
Name of person who obtained consent

___________________________________
Signature

The person who may be contacted about this research is:

___________________________________
who may be contacted at:
(416) 978-0933

“I agree to be contacted in the future regarding other studies being conducted by the ADHD Laboratory at OISE/UT.”

___________________________________
Signature

“I agree that the information collected about me in this study can be used for future data analysis provided that all identifying is removed and that I cannot be identified.”

___________________________________
Signature
**Parent Consent Form for the Release of Information**

I, ____________________________, give permission for a research assistant from (print full name of parent) Dr. Judith Wiener’s research lab to send a questionnaire to my son/daughter, ___________________________’s teacher to complete. I understand that this questionnaire will provide information about my son/daughter’s academic and social functioning.

Parent or Guardian Signature: ____________________________
Date: ____________________________

Please complete all forms and give it to your son/daughter to bring in on the date of testing.
Appendix C

Age and gender effects on overall bullying and victimization

<table>
<thead>
<tr>
<th>Bullying Category</th>
<th>Victimization Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bullies n(%)</td>
<td>NonBullies n(%)</td>
</tr>
<tr>
<td>Bullies n(%)</td>
<td>NonBullies n(%)</td>
</tr>
<tr>
<td>Self-reported</td>
<td></td>
</tr>
<tr>
<td>Younger</td>
<td>6 (15.8)</td>
</tr>
<tr>
<td>Older</td>
<td>13 (18.1)</td>
</tr>
<tr>
<td>Male</td>
<td>14 (22.2)</td>
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<tr>
<td>Female</td>
<td>5 (10.6)</td>
</tr>
<tr>
<td>Parent-reported</td>
<td></td>
</tr>
<tr>
<td>Younger</td>
<td>8 (24.2)</td>
</tr>
<tr>
<td>Older</td>
<td>11 (18.6)</td>
</tr>
<tr>
<td>Male</td>
<td>12 (23.5)</td>
</tr>
<tr>
<td>Female</td>
<td>7 (17.1)</td>
</tr>
</tbody>
</table>

* p<.05, **p<.01

*Based on criteria of approximately “2 or more times per month”

5 40 participants were categorized in “younger” grades (Grade 7, 8 or 9)

6 72 participants were categorized “older” grades (Grade 10, 11, 12 or graduated from high school within the last year)
## Appendix D

Gender effects on subtypes of bullying and victimization

<table>
<thead>
<tr>
<th></th>
<th>Perpetrated bullying</th>
<th></th>
<th></th>
<th></th>
<th>Experienced Victimization</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>df, N</td>
<td>$X^2$</td>
<td>Male</td>
<td>Female</td>
<td>df, N</td>
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<tr>
<td>Self-reported</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>18 (29.0)</td>
<td>4 (8.5)</td>
<td>1,109</td>
<td>6.99**</td>
<td>18 (29.5)</td>
<td>5 (10.6)</td>
<td>1,108</td>
</tr>
<tr>
<td>Relational</td>
<td>47.6 (30)</td>
<td>17 (36.2)</td>
<td>1,110</td>
<td>1.44</td>
<td>21 (34.4)</td>
<td>18 (38.3)</td>
<td>1,108</td>
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<tr>
<td>Verbal</td>
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<td>10 (22.2)</td>
<td>1,108</td>
<td>3.65</td>
<td>29 (46.8)</td>
<td>20 (42.6)</td>
<td>1,109</td>
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<td>Cyberbullying</td>
<td>9 (14.3)</td>
<td>5 (10.6)</td>
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<td>.32</td>
<td>12 (19.4)</td>
<td>3 (6.5)</td>
<td>1,108</td>
</tr>
<tr>
<td>Parent-reported</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
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<td>.03</td>
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<td>5 (12.8)</td>
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<td>.44</td>
<td>18 (36.0)</td>
<td>11 (28.2)</td>
<td>1,89</td>
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<td>Verbal</td>
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<td>2.46</td>
<td>14 (28.6)</td>
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<td>1,90</td>
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<td>2 (4.9)</td>
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<td>2.74</td>
<td>9 (17.6)</td>
<td>4 (10.0)</td>
<td>1,91</td>
</tr>
</tbody>
</table>

* $p<.05$, **$p<.01$

*Based on whether the subtype had “ever” been perpetrated or experienced (irrespective of frequency)
Appendix E: Interpersonal Negotiation System

Interpersonal Dilemmas

**Relationship Partner**  Mohammed (Selena) and Sarah (Ethan) have been going out together for some time and are out on a date. Sarah (Ethan) has said that she/he wants them to be exclusive (not dating other people), but Mohammed (Selena) still wants to date other people.

**Parent**  Ben’s (Tina’s) mother thinks that he (she) needs to spend more time working on his (her) homework. His (her) mother said that she wants Ben (Tina) not to use his (her) cell phone/email/facebook while doing homework, but Ben(Tina) doesn’t think that is fair.

**Friend**  Raj (Jennifer) and Peter (Monique) are friends. They have been assigned to work together on a science project in school and only have two days to finish the project. They meet after school and Raj (Jennifer) says he (she) wants to start working on the project right away, but Peter (Monique) wants to watch TV first.

**Employer**  Shawn (Olivia) works in a grocery store after school. He (she) is only supposed to work for 10 hours a week, but his (her) boss keeps asking him (her) at the last minute to work really late on Friday nights. Even though the boss pays him (her) for the extra time, Shawn (Olivia) doesn’t like to be asked to work at the last minute.

INS Interview Questions and Follow-Up Probes

**Q1. Definition of Problem**
- What is the problem here?
- Why is that a problem?

**Q2. Feelings about Problem**
- How of you think (the protagonist) feels?
- Why does he (she) feel that way?
- How do you think (the other person) feels?
- Why does he (she) feel that way?

**Q3. Alternative Strategies**
- What are all the things you can think of that (the protagonist) can do to solve his (her) problem with (the other person)?
- How would that solve the problem? What else could he (she) do?
- Why would he (she) do that?

**Q4. Selecting the Best Strategy**
- What would be the best way for (the protagonist) to solve his (her) problem with (the other person)?
Why is that the best way to solve the problem?

**Q5. Feelings about Solution**
How would (the protagonist and the other person) feel if (the protagonist) did that?
Why would they feel like that?

**(Omitted) Overcoming Obstacles**
What could go wrong with (the protagonist’s) solution of ________?
Why might that mess it up?
What would (the protagonist) do next if that happened?
Why would he (she) do that?

**Q6. Evaluating Outcomes**
How would (that protagonist) know if he (she) had really solved the problem?
Appendix F: Sample items from the Social Skills Improvement Scales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Self-report</th>
<th>Parent-report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td><em>I take turns when I talk with others.</em>&lt;br&gt;<em>I say “thank you” when someone helps me.</em>&lt;br&gt;<em>I look at people when I talk to them.</em></td>
<td><em>Takes turn in conversations.</em>&lt;br&gt;<em>Says “thank you”.</em>&lt;br&gt;<em>Makes eye contact when talking.</em></td>
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<tr>
<td><strong>Cooperation</strong></td>
<td><em>I pay attention when others present their ideas.</em>&lt;br&gt;<em>I do what the teacher asks me to do.</em>&lt;br&gt;<em>I work well with my classmates</em></td>
<td><em>Pays attention to your instructions.</em>&lt;br&gt;<em>Follows your directions.</em>&lt;br&gt;<em>Works well with family members.</em></td>
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<tr>
<td><strong>Assertion</strong></td>
<td><em>I show others how I feel.</em>&lt;br&gt;<em>I let other people know when there’s a problem.</em>&lt;br&gt;<em>I ask for information when I need it.</em></td>
<td><em>Expresses feelings when wronged.</em>&lt;br&gt;<em>Says when there is a problem.</em>&lt;br&gt;<em>Asks for help from adults.</em></td>
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<tr>
<td><strong>Responsibility</strong></td>
<td><em>I tell people when I have made a mistake.</em>&lt;br&gt;<em>I do my part in a group.</em>&lt;br&gt;<em>I keep my promises.</em></td>
<td><em>Takes responsibility for her/his own mistakes.</em>&lt;br&gt;<em>Is well-behaved when unsupervised.</em>&lt;br&gt;<em>Does what he/she promises.</em></td>
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<tr>
<td><strong>Empathy</strong></td>
<td><em>I help my friends when they are having a problem.</em>&lt;br&gt;<em>I try to make others feel better.</em>&lt;br&gt;<em>I try to think about how others feel.</em></td>
<td><em>Tries to comfort others.</em>&lt;br&gt;<em>Tries to make others feel better.</em>&lt;br&gt;<em>Tries to understand how others feel.</em></td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td><em>I make friends easily.</em>&lt;br&gt;<em>I ask others to do things with me.</em>&lt;br&gt;<em>I ask to join others when they are going things I like.</em></td>
<td><em>Makes friends easily.</em>&lt;br&gt;<em>Invites others to join in activities.</em>&lt;br&gt;<em>Joins activities that are already started.</em></td>
</tr>
<tr>
<td><strong>Self-Control</strong></td>
<td><em>I stay calm when dealing with problems.</em>&lt;br&gt;<em>I stay calm when others bother me.</em>&lt;br&gt;<em>I stay calm when people point out my mistakes.</em></td>
<td><em>Resolves disagreements with you calmly.</em>&lt;br&gt;<em>Tolerates peers when they are annoying.</em>&lt;br&gt;<em>Takes criticism without getting upset.</em></td>
</tr>
</tbody>
</table>