How Do Children with ADHD (Mis)manage Their Real-Life Dyadic Friendships?

A Multi-Method Investigation

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Abstract

This multi-method study provides detailed information about the friendships of 87 children with ADHD (77.0% boys) and 46 comparison children (73.9% boys) between the ages of 7 and 13. The methods used in the study included parent and teacher ratings, self-report measures, and direct observation of friends' dyadic behaviours in three structured analogue tasks. Results indicated that, in contrast with comparison children, children with ADHD had friends with high levels of ADHD and oppositional symptoms; they perceived fewer positive features and more negative features, and were less satisfied in their friendships. Observational data indicated that children with ADHD performed both more legal and more illegal manoeuvres than comparison children in a fast-paced competitive game. While negotiating with their friends, children with ADHD made more insensitive and self-centred proposals than comparison children. In dyads consisting of one child with ADHD and one typically developing child, children with ADHD were often more controlling than their non-diagnosed friends. Globally, these results were robust and did not seem to be affected by age differences, ADHD subtypes, comorbidities, and medication status. Given the increased recognition of ADHD in adolescence and adulthood as well as the fact that negative peer reputation in childhood very strongly predicts mental-health status by early adulthood, this research may lead to the discovery of meaningful ways to help people with ADHD achieve improved mental health and happiness over their lifespan.

How Do Children with ADHD (Mis)manage their Real-Life Dyadic Friendships?

A Multi-Method Investigation

Attention-Deficit/Hyperactivity Disorder (ADHD) affects 3-7% of children (American Psychiatric Association, 2000) and is among the most common problems in primary care settings (American Academy of Pediatrics, 2001), special education settings (Dupaul & Stoner, 2003), and mental health settings for children (Pelham, 2008) in North America. Gender differences have been documented in studies of ADHD prevalence (Gershon, 2002), with a male to female ratio ranging from 3:1 to 10:1, depending on the sample (Gaub & Carlson, 1997). Although ADHD is a disorder with a childhood onset, its symptoms typically have a chronic course, often persisting from childhood through adolescence and into adulthood with varying manifestations and degrees of severity in multiple settings (American Psychiatric Association, 2000; Barkley, 2006; Barkley, Murphy, & Fischer, 2008). According to the revised fourth edition of the Diagnostic and Statistical Manual (DSM-IV-TR), ADHD is characterized by developmentally inappropriate levels of inattention, impulsivity/hyperactivity, or both (American Psychiatric Association, 2000). Each of these symptoms is multidimensional with a variety of possible behavioural expressions. Inattention symptoms, for example, may be manifested not only by difficulties sustaining attention to tasks, but also by careless mistakes in schoolwork and failure to pay close attention to details. Other possible inattention symptons include difficulty following instructions, failure to organize and finish tasks, forgetfulness in daily activities, as well as a tendency to lose items and be easily distracted (American Psychiatric Association, 2000). Hyperactivity symptoms, often referred as overactivity, may often take the form of restlessness, fidgetiness, difficulty remaining seated, difficulty playing quietly, and excessive talking (American Psychiatric Association, 2000). Impulsivity may be

apparent in behaviours such as blurting out answers before questions have been completed, showing difficulty waiting one's turn, and interrupting or intruding into others' conversations, play, or work (American Psychiatric Association, 2000).

ADHD Subtypes

Although ADHD is commonly described as having the three core symptoms outlined above, factor analytic studies strongly suggest that the disorder actually comprises two dimensions: *inattention* and *hyperactivity-impulsivity* (for a recent meta-analysis, see Wilcutt et al., under review). Children with ADHD display substantial variation in the patterning as well as the severity of their symptoms across these two dimensions (e.g., Barkley, 2006). To address this variability in symptom presentation, the DSM-IV-TR specifies three diagnostic subtypes formed by the different combinations of the 18 symptoms (nine from each dimension). The first subtype, primarily Inattentive (ADHD-I), requires at least six symptoms of inattention but less than six symptoms of hyperactivity/impulsivity. The second, primarily Hyperactive/impulsive (ADHD-H), requires at least six symptoms of hyperactivity/impulsivity but less than six symptoms of inattention). And finally, the third subtype of ADHD, Combined (ADHD-C), requires at least six symptoms from both domains (DSM-IV-TR; American Psychiatric Association, 2000).

Subsequent to the publication of DSM-IV, questions have been raised about the longitudinal stability of the subtypes (e.g., Lahey, Pelham, Loney, Lee, & Willcutt, 2005; Lahey & Willcutt, 2010; Todd et al., 2008; Wilcutt et al., under review), the validity of ADHD-H in older children (e.g., Willcutt, Chhabildas, & Pennington, 2001), and the extent to which the criteria for ADHD-I effectively capture a hypothesized inattentive group without hyperactivity (e.g., McBurnett, Pfiffner, & Ottolini, 2000; Milich, Balentine, & Lynam, 2001).

Other researchers have argued that ADHD-I may in fact represent a separate disorder from ADHD (e.g., Carr, Henderson, & Nigg, 2010; Milich et al., 2001), while others have argued that this distinction may be either premature (Hinshaw, 2001; Lahey, 2001) or not particularly important to treatment planning (Pelham, 2001). In their recent comprehensive literature review and meta-analysis of 431 studies conducted to evaluate the validity of the DSM-IV subtypes, Wilcutt and his colleagues concluded that DSM-IV subtypes do not identify discrete subgroups with long-term stability (Wilcutt et al., under review). The results of this review suggest that the DSM-IV ADHD subtype model may not be the best nosology system for ADHD. The complex task of finding an optimal diagnostic system that would enable clinicians and researchers to recognize and describe meaningful heterogeneity in ADHD remains a matter of current debate (Carr, Henderson, & Nigg, 2010; Lahey & Wilcutt, 2010; Nigg, Tannock, Rohde, 2010; Schmitz, Ludwig, & Rohde, 2010; Valo & Tannock, 2010).

Comorbid Disorders and Correlates of ADHD

Youth with ADHD are also at an increased risk for developing other comorbid conditions (Barkley, 2006). Researchers have shown that 44% of children with ADHD recruited from community-derived samples (Szatmari, Offord, & Boyle, 1989) and up to 87% of clinically referred children with ADHD may have at least one other disorder (e.g., Kadesjö & Gillberg, 2001; Wilens et al., 2002). Among these comorbid conditions, the most prevalent ones in school-age children with ADHD are oppositional defiant disorder, 59% (Wilens et al., 2002), conduct disorder, 20-50% (Loeber, Burke, Lahey, Winters, & Zera, 2000), anxiety disorders, 25-35% (Tannock, 2000), major depression, 25-30% (Spencer, Wilens, Biederman, Wozniak & Harding-Crawford, 2000), learning disorders, 8-39% in reading, 12-27% in spelling, and 12-30% in mathematics, (Barkley, 2006), and bipolar disorder, 18% (Wilens et al., 2002). ADHD

also had a tendency to be related to other significant difficulties such as intellectual and neuropsychological deficits (Frazier, Demaree, & Youngstrom, 2004), poor academic achievement (Brock & Knapp, 1996), deficits in adaptive functioning (Greene, Biederman, Faraone, Ouellette, Penn, & Griffin, 1996), injuries resulting from risky behaviours, and driving accidents (for reviews see Barkley, 2001, and Barkley & Cox, 2007). Children with ADHD are also impaired in various functional domains that include problems in school (DuPaul & Stoner, 2003), with family (Johnston & Mash, 2001) and with peer functioning (Hoza, 2007).

Peer Relationships of Children with ADHD

Many studies since the late 1970s have documented that the peer relationships of children with ADHD are pervasively and persistently impaired, according to parents, teachers, peers, and independent observers (see Campbell & Paulauskas, 1979 and Whalen & Henker, 1985, for early authoritative reviews). Given that the disturbed peer relations of children with ADHD are highly prevalent and stable over time (e.g., Bagwell, Schmidt, & Hoza, 2001; Hoza, Mrug et al., 2005), they have come to be seen as a central and persistent functional problem associated with the disorder (Erhardt & Hinshaw, 1994; Landau & Moore, 1991). Researchers estimate that 50-80% of children with ADHD are socially rejected by their peer groups at school (Bagwell, Schmidt et al., 2001; Hoza, 2007; Hoza, Mrug et al., 2005; Pelham & Bender, 1982). In fact, negative peer perceptions towards children with ADHD can develop very rapidly, after periods of social contact as brief as a day or even minutes (Erhardt & Hinshaw, 1994; Pelham & Bender, 1982). Some researchers have suggested that the impaired peer relationships in children with ADHD may be more highly associated with the features of ADHD than with the features of other disruptive behavior problems, such as aggression (Bierman & Wargo, 1995; Pope & Bierman, 1999; Waschbusch, Willoughby, & Pelham, 1998).

In their recent observational study conducted with 259 school-aged children, Mrug and her colleagues (2007) found that not following activity rules, complaining, whining, teasing, and inattention to others predicted peer rejection in children with ADHD two months later, at the end of a summer camp (Mrug, Hoza, Pelham, Gnagy, & Greiner, 2007).

Boys and girls with ADHD appear similar in overall levels of social impairment (Gaub & Carlson, 1997; Greene et al., 2001). A growing corpus of research suggests that these social difficulties may be different according to ADHD subtypes. Children with the Combined type of ADHD are more likely to be actively rejected, to exhibit more intense positive and negative emotional reactions, to be rated as aggressive, and to make more hostile comments than children with the inattentive type. In contrast, children with the inattentive type of ADHD are more likely to be socially isolated, to be rated by peers as passive and shy, and to have difficulty participating in and remembering conversations than children with the Combined type (e.g., Hinshaw, 2002; Mikami, Huang-Pollock, Pfiffner, McBurnett, & Hangai, 2007).

Current state-of-the-art multimodal treatments of ADHD (medication management, behaviour therapy, or combined treatment) fail to *normalize* the peer relationships of children with ADHD , as shown in a study featuring a 14-month follow-up by Hoza and her colleagues (Hoza, Gerdes, et al., 2005). In other words, children with ADHD from all treatment groups remained significantly impaired in their peer relationships, despite evidence of improvement in other areas (e.g., ADHD symptoms; MTA Cooperative Group, 1999). Although ADHD medication can help reduce negative social behaviours, it does not seem to lead to a corresponding increase in prosocial behaviours and has little impact on peer ratings of likeability and popularity (e.g., Hinshaw, Henker, Whalen, Erhardt, & Dunnington, 1989). Furthermore, social-skills training approaches—with or without accompanying medication—do

not lead to the normalization of peer relationships in children with ADHD (Landau, Milich, & Diener, 1998; Pelham & Fabiano, 2008; Hoza, Mrug et al., 2005).

It is now evident that current treatment options are not sufficient to effectively tackle the peer problems of children with ADHD (McQuade & Hoza, 2008). This, in turn, leaves them at a greater risk of negative developmental outcomes associated with peer rejection such as substance abuse, academic problems, dropping out of school, increased feelings of loneliness, psychopathology, delinquency, and criminality (for a comprehensive review, see Rubin, Bukowski, Parker, 2006). The goal of reversing negative reputations in peer groups may in fact be unrealistic (Schneider, 1991). Peer reputations change slowly because they are heavily influenced by stereotypes that peers are known to hold about ADHD (e.g., Harris, Milich, & Johnston, 1990) and by first impressions (e.g., Hoza, Mrug, Pelham, Greiner, & Gnagy, 2003). Enhancing close friendship may be a more viable intervention goal (Hoza, 2007; Normand, Schneider, & Robaey, 2007). However, very little is known about the exact ways in which children with ADHD may mismanage interactions with the friends they do have.

The Uniqueness of Children's Friendships

While the importance of peer relationships at the group level (e.g., peer acceptance/rejection, peer liking, popularity) is obvious, many theorists and researchers have pointed out the unique importance of dyadic friendships in children's social, emotional, and cognitive development (e.g., Bukowski, Newcomb, & Hartup, 1996; Hartup & Stevens, 1997; Newcomb & Bagwell, 1995; Piaget, 1932; Rubin et al., 2006; Sullivan, 1953). Whereas peer acceptance is a unilateral construct that refers to the group's perception of a particular child, friendship is a voluntary bond co-created by two friends who expect to share safe, intimate, and mutually rewarding experiences, with mutual commitment, support, and validation of each

other's selves (Bukowski & Hoza, 1989; Schneider, Wiener & Murphy, 1994). The voluntary and egalitarian nature of friendships during childhood is also a distinctive aspect that distinguishes these friendships from the bonds formed in parent-child and sibling relationships (Laursen & Bukowski, 1997; Newcomb & Bagwell, 1995). Close friendship represents an advanced stage of social development because it invokes the regulation of cooperation and competition as well as the juxtaposition of one's own and one's friends' beliefs and expectancies (Schneider, 2000). Early theorists viewed children's friendships as too unstable to merit serious study (see review by Schneider et al., 1994). However, more recent evidence indicates quite clearly that the majority of children have reciprocated friendships that last for at least six months to a year (Berndt, Hawkins, & Hoyle, 1986; Bowker, 2004; Ladd et al., 1996).

Friendship formation. Typically, children are selective when they choose other children as friends. Children and their friends generally share similar demographic characteristics (Hartup, 1983) such as age (Hartup, 1970), sex (Howes & Phillipsen, 1992), geographical location (Clark & Drewry, 1985), and race (Graham & Cohen, 1997). Furthermore, friends usually share similar attitudes, beliefs, personalities, and interactional styles (Epstein, 1989). For example, new friends may be drawn to each other by behavioural similarity, compatible interests and pastimes, sense of humour, athletic skills, and other stimulating traits (e.g., Asher, Parker, & Walker, 1996; Price & Ladd, 1986). Poulin and his colleagues (1997) found that third graders tended to be friends with peers who displayed similar play behaviour patterns including aggression, shyness, leadership, and rough-and-tumble play (Poulin et al., 1997).

Other researchers have argued that the formation of friendships is a more complex phenomenon. Although selective affiliation may help explain the initial attraction with potential friends, it is not sufficient to explain friendship formation (Parker, 1986). Gottman (1983)

investigated whether specific conversational processes would predict the extent to which pairs of unacquainted preschoolers would progress toward friendship over time. After recording the interactions of many pairs of preschoolers, Gottman (1983) found six conversational processes that emerged as critical predictors for friendship formation: (1) connectedness and clarity of information; (2) information exchange; (3) establishment of common ground; (4) conflict resolution; (5) positive reciprocity; and (6) self-disclosure. The importance of these findings was further illustrated by the fact that Gottman (1983) found that these processes could account for more than 80% of the variance in children's progress toward friendship over time (Gottman, 1983). Children who were successful at making friends were able to execute many of these conversational skills.

In line with these findings, friendship researchers have delineated over the past decades the expectations that children of various ages have of their friends. Young children expect their friends to be good companions who share things appropriately and who provide reliable and enjoyable companionship (Price & Ladd, 1986; Schneider et al., 1994). Excessive emotionality is a known impediment to friendship (Stocker & Dunn, 1990). As they get older, youngsters are more discriminating in their choice of friends as they begin to understand others in terms of their psychological traits and to select friends on the basis of the qualities they expect to endure as the relationship continues and grows (Epstein, 1983). Rewarding, even exciting companionship remains a building block of friendship, as it is for younger children, although simply being an accessible playmate does not lead as readily to friendship formation as in the younger years (Berndt et al., 1986). Fairness in play and respect for the rules of a game are now among the features that make for enjoyable company (Fonzi et al., 1997). Psychological support variables such as intimacy, reciprocity, sensitivity to feelings, cooperation, help,

self-disclosure, and trust assume greater roles in the formation of friendships in preadolescence (Berndt & Perry, 1986; Bukowski & Kramer, 1986; Buzzelli, 1988; Hartup, 1989; McGuire & Weisz, 1982). Until recently, researchers and clinicians often differentiated children from one another mainly on the basis of whether or not they had friends. However, current evidence indicates that friendships strikingly differ from one another qualititavely and that predicting developmental outcome requires knowing about these qualitative features (Hartup, 1996; Berndt, 1996; 2002).

Friendship quality. Berndt (1996; 2002) defines friendship quality as the sum of positive (e.g., intimacy, caring and support, conflict resolution, emotional proximity, validation) and negative (e.g., conflict and aggression) features that characterize a friendship. Intimacy is viewed as the most important positive feature of friendship in middle childhood, adolescence, and adulthood (Schneider, 2000; Sullivan, 1953) and is often seen as the defining characteristic of best friendship (Berndt, 2002). In contrast, theorists generally regard conflict as a negative feature of friendship (Crick & Grotpeter, 1996). Intimacy and conflict are generally modestly and negatively correlated to one another (Berndt, 2002). Although conflict is part of any close relationship including friendships, close friendships are characterized by lower levels of conflicts than acquaintanceships (Berndt, 2002). Corsaro (1992) argues that conflicts are important in friendships as they allow children, by negotiation and problem solving, to learn about themselves, their friends and what is important in their friendships. In line with Corsaro's contentions, researchers have found that friends show greater concern for the resolution of conflict (Newcomb & Bagwell, 1995) and, in dealing with conflict, show greater sensitivity to the needs of their friends than do non-friends (e.g., Fonzi, Schneider, Tani, & Tomada, 1997). Friendship quality is positively related to satisfaction in relationships and friendship stability

(e.g., Ladd, Kochenderfer, & Coleman, 1996; Schneider, Fonzi, Tomada, & Tani, 2000). For instance, Bagwell and colleagues (Bagwell, Bender, Andreassi, Kinoshita, Montarello, & Muller, 2005) found a positive link between friends' ratings of positive features in a friendship and their overall satisfaction with that friendship. Finally, Ladd and his colleagues (1996) found that high perceptions of validation and low perceptions of conflict predicted the continuation of friendship over the course of a school year.

Friendship satisfaction. Given the voluntary and egalitarian nature of friendships during childhood, these relationships are potentially impermanent (Laursen & Bukowski, 1997). Faced with the potential threat of relationship dissolution, friends have to cooperate to establish, monitor, and revise the rules of exchange in order to ensure that both of their needs are equally satisfied (Laursen & Bukowski, 1997). These behaviours are coherent with the *social exchange theory*, which states that a stable relationship should be characterized by more or less equal distribution of rewards, with each partner perceiving the benefits of the relationship as outweighing the costs (e.g., Nisbett & Ross, 1980). Satisfaction with a friendship is threatened when one friend fails to sustain the exchange of mutually positive rewards. Friendship satisfaction is consistently linked to perceptions of friendship quality. Friendship satisfaction is positively associated with friendship features such as validation and disclosure, while it is negatively associated with features such as conflict (Ladd et al., 1996; Parker & Asher, 1993). Greater relationship satisfaction is probable when children resolve their conflict amicably (Hartup, 1992) because this is what children expect from their friends (Berndt, 1982). Not resolving conflict is related to overall unhappiness within the friendship (Katz, Kramer, & Gottman, 1992). Excessive conflict or conflict resolution tactics that are inflexible or

contentious jeopardize the satisfaction, and thus the continuation, of the friendship (Hartup, Laursen, Stewart & Eastenson, 1988).

Sex differences in children's friendships. One of the most striking results is that, across cultures, almost all children have same-sex friends, a preference that starts in preschool and increases in elementary school (Maccoby, 1998; Ramsey, 1995). Jeffrey Parker and his colleagues (Kovacs, Parker, & Hoffman, 1996) showed in a study of more than 700 children in grades 3 and 4 that cross-sex friendships represented less than 5% of reciprocal friendships. In fact, the researchers also found that children who display a preference for cross-sex friendships are likely to be rejected by their peers. Maccoby (1998) argued that this gender segregation reflects different play styles and activities. Observational research has shown that boys prefer rough-and-tumble play, fights, and sports whereas girls prefer having intimate discussions with their friends (e.g., Moller, Hymel, & Rubin, 1992). Interestingly, research findings on the sex differences of friendship quality have been contradictory: whereas some researchers have found that girls' friendships are usually characterized by higher levels of validation, intimacy, support, and positive conflict resolution than boys' friendships (e.g., Berndt & Perry, 1986; Diaz & Berndt, 1982), others did not (e.g., Buhrmester & Furman, 1987; Parker & Asher, 1993). It is also interesting to note that satisfaction in friendship is usually similar for boys and girls (Parker & Asher, 1993).

The Developmental Importance of Close Dyadic Friendships

According to Sullivan's influential theory (Sullivan, 1953), having a same-sex close friend or "chum" is critical for preparing children and adolescents for intimate relationships in adulthood. Sullivan also believed that having a friend fosters empathy for others and helps children to mutually validate their respective personal value (Rubin et al., 2006). Recent studies

have shown that friendships, as well as the quality of these friendships, are important predictors of children's emotional health (Bukowski, & Hoza, 1989; Bukowski, Newcomb, & Hartup, 1996; Parker & Asher, 1993; see Rubin et al. 2006, for a comprehensive review) and their adjustment during childhood and early adulthood (Bagwell, Newcomb, & Bukowski, 1998; Kochenderfer et al., 1996; Ladd, 1990; Ladd et al. 1996; Ladd & Troop-Gordon, 2003). Close friendships in childhood have been associated with a positive self-image (e.g., Berndt & Burgy, 1996), greater perceived social support (Ladd et al., 1996), less loneliness (Parker & Asher, 1993; Parker & Seal, 1996), less victimization experiences (Hodges et al., 1999), higher self-esteem (Keefe & Berndt, 1996), a better adjustment after a school transition (Ladd, 1990), and better grades (Epstein, 1989). Although having a close friend mitigates the consequences of peer rejection (Parker & Asher, 1993) and is associated with important indicators of overall well-being (Newcomb & Bagwell, 1995), these outcomes may be influenced by the quality of the particular friendship (Ladd et al., 1996). Researchers have found measures of friendship quality to be related to indicators of adjustment in middle childhood. Correlational-designed studies suggest that friendship quality is negatively related to loneliness (Parker & Asher, 1993), depression (Nangle, Erdley, Newman, Mason & Carpenter, 2003), aggressive and disruptive behaviours (Bagwell & Coie, 2004), victimization (Bollmer, Milich, Harris, & Maras, 2005), low engagement in school (Leary & Katz, 2005), and friendship termination (e.g., Rose, Swenson, & Carlson, 2004), but positively related to positive self-esteem, greater peer acceptance (Keefe & Berndt, 1996), social perspective taking skills and altruism (McGuire & Weisz, 1982), sociability and leadership (Berndt, Hawkins, & Jiao, 1999), school liking (Ladd et al., 1996), and overall adjustment (Waldrip, Malcolm, & Jensen-Campbell, 2008).

Some longitudinal studies confirm a relationship between stable high-quality friendships and social adjustment in children (Ladd, 1990; Berndt et al., 1999). For instance, having many friends in kindergarten, having stable and close friends, and making new friends are associated with the development of positive attitudes toward school and an increase in school performance the next year (Ladd, 1990; Ladd et al., 1996). Similar results have been found during the high school transition: children with stable high-quality friendships were better adjusted in high school than friendless children (Berndt et al., 1999). Bagwell and her colleagues (Bagwell, Newcomb, & Bukowski, 1998) compared the adjustment of young adults who had a stable, reciprocal best friend in fifth grade to others who did not. These researchers found that friended preadolescents, compared to friendless children, were better adjusted both in grade 5 and later on in life as adults for a variety of indicators, which include trouble with the law, family life, and overall adjustment. Friendship status at age ten was uniquely predictive of depressive symptoms and self-esteem at age 22 (Bagwell et al., 1998).

The consequences of not having friends. Researchers have also demonstrated that friendship problems—such as being friendless, having low-quality friendships, having short-lived or unstable friendships, or having antisocial friends—are associated with children's academic, behavioural, and socio-emotional adjustment (for a review, see Rose & Asher, 2000). Children with such friendship problems are more likely to experience difficulties in school (e.g., Ladd et al., 1996), to seek assistance for emotional and behavioural problems (Garmezy & Rutter, 1983), to engage in deviant behaviour (see Boivin, Vitaro, & Poulin, 2005), to tease or boss others (Newcomb & Bagwell, 1995), to have poorer social skills (Newcomb & Bagwell, 1996), to be victimized by bullies (e.g., Hodges et al., 1999), and to feel lonely (e.g., Parker & Seal, 1996) than children without friendship difficulties.

The dark side of friendships. Although the presence and quality of friendships are generally related to positive developmental outcomes, some researchers have found that certain friendships may in fact have detrimental developmental effects. These effects are related to the socialization and reinforcement processes central in friendship relationships. Given the mutual socialization processes between friends, it is not surprising that similarity between friends tends to increase over time (Aboud & Mendelson, 1996; Bagwell & Coie, 2004; Kandel, 1978). For example, researchers have found that, over time, children with aggressive friends tend to behave more aggressively (Vitaro, Tremblay, Kerr, Pagani-Kurtz & Bukowski, 1997). Cairns and colleagues (1988) found that children rated as high in aggression are more likely than others to have a best friend who is likewise rated as high in aggression (Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988). In their observational study of aggressive friends, Dishion and colleagues (Dishion, Andrews, & Crosby, 1995) found that dyads of aggressive youths display bossier and more coercive behaviours than dyads of non-aggressive youths. These results are particularly concerning given the well-documented detrimental effects of having an aggressive friend (e.g., Vitaro, Tremblay, & Bukowski, 2001). These mutually reinforcing effects of having an aggressive friend have also been observed in studies on deviancy training (e.g., Dishion, McCord, & Poulin, 1999) in which preadolescent boys who had fun commenting on delinquent acts with a friend were at higher risk for problematic behaviours over time than preadolescent boys in non-delinquent dyads (Dishion, Spracklen, Andrews, & Patterson, 1996). These results highlight the importance of better understanding the behavioural characteristics of children's friends and the processes involved in these friendships in order to prevent deviancy training phenomenon.

Previous Studies on the Friendships of Children with ADHD

Inattention, hyperactivity, and impulsivity—the "classic" triad of symptoms of ADHD—are likely to interfere with the communication skills needed to establish and consolidate any social relationship, especially a friendship (de Boo & Prins, 2007; Hoza, 2007). Inattention is likely to impair the ability of children to attend to and act upon important social information such as the needs, wishes, and feelings of others, or to respect the rules of play. Hyperactivity and impulsivity may result in behaviour that is overbearing and insensitive, as well as emotionally charged and even aggressive. This may detract from their companions' enjoyment of the time spent with them. As the symptomatology of ADHD manifests itself differently as children reach preadolescence and adolescence (Barkley, Fischer, Edelbrock, & Smallish, 1989), impulsivity and hyperactivity may no longer be the primary obstacles to friendship. Rather, inattentiveness may become a very substantial liability. In addition, inattention to the needs and feelings of the friend or potential friend may impede the reciprocity, sensitivity, conflict resolution, and commitment required to form and maintain high-quality friendships.

Most published studies to date deal with the *existence* of friendships among youth with ADHD, but do not address friendship quality, real-life friendship interactions, or the characteristics of the friend (see Mikami, 2010 and Normand, Schneider, & Robaey, 2007, for recent reviews on the importance of friendships for youth with ADHD). Typically, peers are asked to indicate which of their associates they would consider friends. However, should the respondents not understand friendship as an intimate and mutually satisfying dyadic relationship, the responses may indicate little more than the liking of an individual. The results of such studies invariably indicate that children and adolescents with ADHD have fewer mutual

friendships than non-diagnosed children (Blachman & Hinshaw, 2002; Erhardt & Hinshaw, 1994; Gresham, MacMillan, Bocian, Ward, & Forness, 1998; Hoza, Mrug et al, 2005). Parent reports collected by Dumas and Guevremont (1997) indicate that 40% of adolescents with ADHD have difficulty making friends and 53% have difficulty keeping friends. Gresham and colleagues (1998) found that 70% of elementary school children with comorbid ADHD and conduct problems had no reciprocated friends in their school classes (Gresham et al., 1998). A recent investigation exploring the peer relationships of 7- to 9-year-old children with ADHD from the Multimodal Treatment Study of Children with ADHD (MTA) found that 56% of children with ADHD (vs. 32% of comparison children) had no dyadic friends (Hoza, Mrug et al., 2005). A few studies indicate that these reciprocal friendships are very short lived (e.g., Blachman & Hinshaw, 2002; Kuhne, 2000).

Although many children with ADHD do have friends, their friends may not be models of prosocial behaviour. Some authors have described children with ADHD as "negative social catalysts" because of the negative social behaviours that they elicit from their peers (Whalen & Henker, 1985). While some researchers have not found that children with ADHD tend to choose other disliked peers as friends (Hoza, Mrug et al., 2005), others did. Whalen and Henker (1985) found that the peers nominated most often as "liked" by children with ADHD were also more likely to receive ratings of "causes trouble" from their classmates. Preliminary evidence suggests that girls with ADHD are more likely to befriend other girls with ADHD than comparison girls (Blachman & Hinshaw, 2002). Other researchers have found that adolescents with ADHD report that their friends are more likely to engage in substance abuse than comparison adolescents (Bagwell, Schmidt et al., 2001; Marshal, Molina, & Pelham, 2003).

Therefore, it is critical to consider the behavioural characteristics of the friends children with ADHD do have.

The few extant studies that include friendship ratings by children with ADHD reveal that the friendships of youth with ADHD are characterized by less intimacy and reciprocity and by more negative features as compared with their non-disordered counterparts. Two Canadian theses indicate that children with attention problems report having friendships that lack in intimacy and feelings of validation (Kuhne, 2000; Rielly, 2004). In contrast, ratings of the friendships by the girls with ADHD studied by Blachman & Hinshaw (2002) indicate relational aggression between the friends but no significant shortcomings in companionship, validation, or support. These results may not generalize the full population of children with ADHD, but only a small minority of which are girls. However, similar results emerged from a study by Tyler conducted with both boys and girls (Tyler, 1998). Unfortunately, these researchers reported neither observational data nor friendship ratings by the *friends* of children with ADHD. The exclusive reliance on self-reports is insufficient for measuring friendship in any population, and is particularly problematic when studying children with externalizing disorders such as ADHD. Researchers typically find minimal concordance between ratings of friendship by children with ADHD and other reliable sources of information (e.g., Hinshaw, 2002; Bagwell, Schmidt, et al., 2001; Hoza, Mrug et al., 2005; Smith, Pelham, Gnagy, Molina, & Evans, 2000). These findings are consistent with other published research that shows children with ADHD displaying an impaired sensitivity towards their own social deficits (Hoza, Mrug et al. 2005; Hoza, Waschbusch, Pelham, Molina, & Milich, 2000; see Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007).

Probably the only detailed observational data on children with ADHD in *interaction with their real-life friends* come from a comparison by Tyler (1993) of 12 dyads of school-age friends, neither of whom had ADHD, and 12 other dyads consisting of one child with ADHD and his friend. Tyler invited each of the initial participants to recruit a good friend to play with for the purposes of the project. The non-ADHD dyads progressed from playing on their own to cooperating, whereas the ADHD-friend dyads did not, often regressing away from associative play. In the non-ADHD dyads, intimate sharing by one friend was frequently matched by subsequent sharing by the other; however, this did not occur in the ADHD-friend dyads. These and other findings suggest that the friendships of children with ADHD are characterized by less intimacy and reciprocity, and that their play is less associative and cooperative, as compared to their non-disordered peers. Tyler's study (1993), though seminal, is limited by its small sample size, single time point, exclusive reliance on externally observable behaviour, and non-inclusion of participants on medication.

In summary, although children and early adolescents with ADHD tend to be excluded from close friendship, the data on the features of the friendships they do have are too limited and too flawed to permit conclusions about patterns of interaction between children with ADHD and their friends. Although children with ADHD have difficulty keeping the friends they do have, few data are available to indicate why this happens.

The Present Study

The main objective of the present study is to explore in detail the friendships of children with ADHD, emphasizing the perspectives of both members of the friendship dyad. The main research questions were: Who are the friends of children with ADHD in terms of demographic and behavioural characteristics? Do children with ADHD perceive less friendship quality and

less overall satisfaction with their friendship than comparison children? Do the friends of children with ADHD perceive less friendship quality and less overall satisfaction with their friendships than the friends of comparison children? Are children with ADHD more likely to violate rules during a competitive game than comparison children? How do children with ADHD solve problems and negotiate with their friends? For instance, are children with ADHD as sensitive to their friends' preferences as comparison children are? Are children with ADHD as able to respect the principles of equity and mutual satisfaction during negotiations as comparison children are? Are children with ADHD more likely to demonstrate more intense positive and negative emotional reactions than comparison children? Globally, do these different friendship processes vary depending on age, ADHD subtypes, comorbidities, or medication-status differences? In situations where a child with ADHD has a non-ADHD friend, is the friend without ADHD more likely to be controlled by his/her friend and display more negative affect than the child with ADHD? Similarly, is the friend without ADHD more likely to report more negative friendship features, less positive friendship features, and less satisfaction with the relationship than the child with ADHD?

Individual-Level Hypotheses

1. We expected that the friends of referred children with ADHD would receive higher parent and teacher ratings of ADHD and oppositional symptoms and higher levels of peer problems than the friends of comparison children.
2. We also expected that participants with ADHD would report more negative friendship features, less positive friendship features, and less overall satisfaction with their friendship than comparison children.

3. Similarly, we expected that the friends of children with ADHD would report more negative friendship features, less positive friendship features, and less overall satisfaction with their friendship than the friends of referred comparison children.
4. In a fast-paced competitive car-race task, we expected that referred children with ADHD would commit more rule violations than comparison children.
5. During card-negotiation and game-choice tasks with their friend, we expected that referred children with ADHD would make more self-centred and insensitive proposals and fewer inquiries about their friends' preferences, would refuse more of their friends' proposals, and would be more likely to have an unequal balance of power in the dyad than comparison children.
6. We expected that children with ADHD would also be more likely to demonstrate more intense positive and negative emotional reactions than comparison children in all of these three observational tasks, as they involve situations of potential conflict.
7. We predicted that children with Combined-type ADHD (displaying impairing levels of both inattention and hyperactivity/impulsivity symptoms) would have the most marked difficulties in their interactions with friends.

Dyadic-Level Hypotheses

8. We also expected that dyads comprising two children with ADHD (i.e., ADHD/ADHD dyads) would report more negative friendship features, less positive friendship features, and less overall satisfaction with their friendship than ADHD/non-ADHD dyads (i.e., "mixed" dyads) and comparison dyads.
9. In a fast-paced competitive car-race task, we expected that ADHD/ADHD dyads would commit more rule violations than mixed and comparison dyads.

10. During card-negotiation and game-choice tasks with their friend, we expected that ADHD/ADHD dyads would make more self-centred and insensitive proposals and fewer inquiries about their friends' preferences, would refuse more of their friends' proposals, and would be more likely to have an unequal balance of power in the dyad than mixed and comparison dyads.
11. We expected that ADHD/ADHD dyads would also be more likely to demonstrate more intense positive and negative emotional reactions than mixed or comparison dyads in all of these three observational tasks, as they involve situations of potential conflict.
12. In mixed dyads, we predicted that the friend without ADHD would be more likely to be controlled by his/her friend and display more negative affect than the child with ADHD.
13. Similarly, in mixed dyads, we predicted that the friend without ADHD would report more negative friendship features, less positive friendship features, and less satisfaction with the relationship than the child with ADHD.

Method

Participants

We recruited 133 referred children and their respective 133 invited friends from the Ottawa-Gatineau region in Canada over a two-year period. Thus, including the friends, there were a total of 266 participating children. Of the referred children, 87 children had been assigned a diagnosis of ADHD (67 boys, 20 girls) and 46 children without diagnosis constituted our comparison group (34 boys, 12 girls). All referred children were aged between 7 and 13 years. We asked the referred children in each group to invite their best friends, with parent permission, to participate in the study. Of the referred children, 125 (94.0%) came with a same-sex friend. The average age of the participants was 10.33 years (SD=1.92) and 198 of the 266

(74.4%) participants were boys. French was the language of instruction of 230 (86.5%) of the participants. Whereas the sample mainly consisted of Caucasian children (*n*=214; 90.6%), other cultural backgrounds included Latin-American (*n*=9; 3.4%), Arabic (*n*=7; 2.6%), African (*n*=5; 1.9%), and Asian (*n*=4; 1.5%). A total of 211 (79.3%) of the participants were living in two-parent households and the median yearly family income was $81,000, with a range from less than $43,709 to $129,840. Throughout this study, we refer to four groups of participants: (1) "children with ADHD" denotes children with ADHD who were directly referred to the study; (2) "comparison children" denotes children without ADHD who were also referred to the study; (3) "friends of children with ADHD" were invited by the children with ADHD; and (4) "friends of comparison children" were invited by children without ADHD.

Children with ADHD were recruited from various paediatric and/or ADHD clinics and community schools. Both informed parental consent and child assent were required for participation. There were two inclusion criteria for the ADHD group, adapted from procedures used by Ohan and Johnston (2007). First, children had to have been diagnosed with ADHD by a qualified health care professional (e.g., psychologist, paediatrician, psychiatrist or family physician). Parents of children with ADHD granted access to the clinical charts and all the diagnoses were verified. Second, *both* parents' and teachers' *T*-scores on the Conners Rating Scale-Revised: Long Form (CRS-R:L DSM-IV inattention and/or the DSM-IV hyperactivity-impulsivity subscales; Conners, Sitarenios, Parker & Epstein, 1998a; Conners, Sitarenios, Parker & Epstein, 1998b) had to be equal to or higher than 65. A *T*-score of 65 (1.5 standard deviation above the mean) was used in defining the clinical range as it is the cut-off recommended by Conners (2000) for this instrument. We used the same cut-off in supplementary analyses of subtypes and comorbidities, blending the Conners parent and teacher rating scales' *T*-scores.

Because many medicated children with ADHD continue to show impairment in their peer relationships (Hoza, Gerdes et al., 2005), these children were not excluded from the study or asked to suspend their medication prior to participation. In our clinical sample, 71 (81.6%) of children with ADHD were medicated during the research session (long-acting stimulants: *n*=54; 76.1%, short-acting stimulants: *n*=9; 12.7%, and non-stimulants: *n*=8; 11.3%).

Children in the comparison group were recruited from local schools and community organizations (e.g., Scouts) from the same catchment areas served by the clinics. For inclusion in the comparison group, parents' and teachers' Conners *T*-scores had to be below 60 (i.e., below 1 standard deviation above the mean) on the DSM-IV inattention and the DSM-IV hyperactivity-impulsivity subscales.

Exclusion criteria for both referred groups included an age outside of the range of 7 to 13 years, a previously administered Full Scale IQ of less than 80 (available for 77% of the referred children with ADHD), pervasive developmental disorder, psychosis, inability to read/understand the instructions, not being enrolled in a regular classroom, and not having a friend who was willing to participate. A total of 29 potential members (27 children with ADHD and two comparison children), not included in the 133 participants reported above, could not participate because they reported that they had no good friends with whom to participate. Common ADHD comorbidities (e.g., oppositional defiant disorder, conduct disorder, learning disabilities, anxiety disorders, depression; Wilens et al., 2002) were not excluded to promote generalizability. According to the information available in the medical/clinical charts, 17 (19.5%) referred children with ADHD also had a learning disability, 13 (14.9%) also had an oppositional defiant disorder, 2 (2.2%) also had an anxiety disorder, 2 (2.2%) also had a developmental coordination disorder, and 1 (1.1%) also had an attachment disorder.

We calculated the socioeconomic status (SES) index score from the 1981 socioeconomic index for occupations in Canada (Blishen, Carroll, & Moore, 1987). Each SES score represents the average parental SES score for each child. Median annual family incomes were obtained using postal codes and the Census Tract Profiles, 2006 Census (Statistics Canada, 2010). As indicated in Table 1, there were no significant differences between the referred ADHD and comparison groups in terms of most demographic variables. Although referred children with ADHD (considered as a group) did not tend to participate in the current study with younger friends than the friends of comparison children, the friends they brought for the research session were characterized by a broader age range than that of the friends of comparison children, as evidenced by a greater standard deviation. Children with ADHD were also slightly more likely than comparison children to be instructed in English and to live in single-parent families (see Table 1). This was not surprising given that children with ADHD are known to be more likely than typically developing children to live in a family with only one biological parent (Wymbs, Pelham, Molina, Gnagy, Wilson, & Greenhouse, 2008).

Procedure

Parents who were interested in having their child participate completed and submitted an information request form. A member of the research team contacted these parents to provide further details about the study and to assess their child's eligibility. Parents of eligible children were then sent an information package that included a study brochure and copies of the consent forms for themselves and for the parents of their child's friend. The parental consent also allowed us to contact their child's teacher to complete the study questionnaire. The referred children and their friends gave their verbal assent at the beginning of the research session. Both

parent consent and child assent were required, as specified in the ethics approval received from the ethics boards of the University of Ottawa and Children's Hospital of Eastern Ontario.

The referred children and their invited friends were initially separated while assent was obtained and while different research assistants administered the friendship nominations and the friendship-quality questionnaires. In order to ensure comprehension of the questionnaire, the research assistants read each question aloud. All measures were administered in either French or English. Parents and teachers completed a questionnaire about the children's behaviour; parents also completed a questionnaire with demographic information. Referred children and their friends were then videotaped with two cameras while performing observational tasks together.

The videos were coded by trained graduate and undergraduate students, blind to the identity and diagnosis of the participants. Training included didactic lessons, quizzes, and scoring of videotapes. The car-race task and the affect categories of all three observational tasks were coded using the Observer XT (Version 7) software from Noldus Information Technology (www.noldus.com). The negotiation tasks were coded with the videos and transcripts because they often involved subtle verbal interactions. Other coders, blind to the identity and diagnosis of the participants, recoded a random sample of 20% of the sessions independently in order to establish inter-rater reliability. Category definitions and their respective inter-rater reliability statistics are reported in Tables 3 and 4.

Measures

Rationale. We used several criteria in selecting instruments for measuring friendship in our research. First of all, we emphasized multiple sources of information, as is optimal for measuring friendship in any population, especially children with externalizing disorders, whose

self-reports are known to be distorted, as mentioned earlier. In our assessment of friendship, we included, first of all, measures that assess the perceptions of the relationship by both friends in each dyad. We selected the questionnaires to be used for this purpose on the basis of their theoretical relevance to the hypotheses, sound psychometric properties, and successful previous use with children and early adolescents with externalizing disorders (e.g., Blachman & Hinshaw, 2002; Dishion et al., 1995; Grotpeter and Crick, 1996). Importantly, the measures had to be applicable and enjoyable across the age range of the participants.

To verify that our measures were appropriate for children between the ages of 7 and 13, we conducted three pilot sessions with dyads of different ages (i.e., 7, 10, and 13 years). In addition to ensuring that the optimal sequence of our research tasks was used, we also examined the best methods for obtaining written consent from parents and verbal assents from children. Moreover, we practised administrating the friendship questionnaires to children, making sure that they understood each question. We also practised giving effective instructions to parents about the two questionnaires, one of which they were asked to complete and the other, which they were to give to their child's teacher. Finally, we tested and made improvements to our instructions for the observational tasks and verified that both cameras used to film the tasks were set at the best angles.

Our observational measures had also been used successfully in previous research on the dyadic interactions of delinquent adolescents (e.g., Dishion, Eddy, Haas, Li, & Spracklen, 1997), socially anxious early adolescents (Schneider, 2009), aggressive children (Dane, 2001), and "normal" school-aged children (e.g., Fonzi et al., 1997). These tasks were designed to mirror the real-world interactions of friends and to elicit a variety of social interactions. The *car-race task* is a competitive, fast-paced game that is generally non-verbal and analogous to

the types of games that children play together. The *card-negotiation task* is designed to elicit the negotiation processes used by friends in deciding how they will share a limited resource. The *game-choice task* requires participants to select a game together that they will play at the end of the research session. These tasks were conducted in random order in a room either at the University of Ottawa or in a classroom at a local school. The children's negotiation tasks (card-sharing and game-choice tasks) were transcribed for coding purposes.

Conners Parent and Teacher Rating Scales-Revised – Long Forms (CPRS-R:L and CTRS-R:L). The well-validated CPRS-R-L (80 items) and CTRS-R:L (59 items; Conners et al., 1998a; 1998b) were used to assess symptoms of ADHD (inattentiveness, impulsiveness, hyperactivity scales), other disruptive behaviours, and general peer problems in referred children and their friends[1]. In both the parent and the teacher versions, there are six concordant subscales pertaining to *Cognitive Problems* (e.g., "Avoids, expresses reluctance about, or has difficulties engaging in tasks that require sustained mental effort such as schoolwork or homework"); *Oppositional* (e.g., "Argues with adults"); *Hyperactivity-Impulsivity* (e.g., "Is always on the go or acts as if driven by a motor"); *Anxious-shy* (e.g., "Timid, easily frightened"); *Perfectionism* (e.g., "Things must be done the same way every time"); and *Social Problems* (e.g., "Has no friends"). A seventh factor entitled as *Psychosomatic* (e.g., "Gets aches and pains or stomach-aches before school") completes the factorial structure of CPRS-R L. The range of internal consistency is acceptable in both versions: α varies from .75 to .94 (CPRS-R L) and from .73 to .95 (CTRS-R L). Correlations between the two versions on the subscales of

[6] We substituted the Conners Rating Scales-Revised sub-scales (DSM-IV inattention, DSM-IV hyperactivity, Opposition, and Peer Problems) with the corresponding Conners-3 (Gallant, Conners, Rzepa, Pitkanen, Marocco, & Sitarenios, 2007) versions for a small number of referred children (parent version, *n*=18; teacher version, *n*=9) and friends (parent version, *n*=22; teacher version, *n*=16) because the Conners 3 version became available during the course of the present study and that some parents/teachers had already completed this version during the past months.

interest ranged between .57 and 1.00 (Conners, 2000). Conners and colleagues (1998a, 1998b) reported the overall correct classification rate for the CPRS-R and the CTRS-R as 93.4% and 87.4%, respectively. Following the procedure used by Blachman and Hinshaw (2002), we used only parental ratings in situations where teachers had seen children exclusively on medication (*n*=24 or 27.6% of the ADHD sample).

Friendship Nominations (see Appendix A). Prior to the interaction session and in order to confirm the presence of a reciprocal friendship and to document when and where the friendship started, children and their friends completed a friendship nomination form. The format was based on the instrument used by Parker and Asher (1993) and by Schneider, Dixon and Udvari (2007). We asked participants to indicate the names of their friends, the duration of each friendship, where they first met, and to specify which friend is "their very best friend in the whole world". Referred children in all groups retrospectively perceived their friendships as quite stable (Children with ADHD: *M*= 4.33 years, *SD*= 2.99 years; Comparison children: *M*= 4.80 years, *SD*= 3.12 years). The majority of referred children participated in the research session with their very best friend (Children with ADHD: 83.9%; Comparison children: 89.1%). The majority reported starting these friendships at school (Children with ADHD: 58.6%; Comparison children: 58.7%). The others either met their friends in the neighbourhood (Children with ADHD: 19.5%; Comparison children: 19.6%), elsewhere (Children with ADHD: 17.2%; Comparison children: 17.4%), or did not remember where (Children with ADHD: 4.6%; Comparison children: 4.3%).

Consistent with the criteria for mutual friendship proposed by Bukowski and Hoza (1989) and used in previous friendship studies (e.g., Fonzi et al., 1997; Parker & Hererra, 1996), dyads in which one or both participants failed to nominate his or her partner as a friend

were not included in the final analyses. In the present study, 11 dyads (7 ADHD dyads and 4 comparison dyads) not included in the 133 participants reported above failed to nominate each other as friends and were thus excluded from the final analyses. As the referred child's parents contacted the parents of the friend, these 11 dyads of children may have been only neighbours or the children of their parents' friends. These children were slightly younger than children in reciprocal friendships. However, children with ADHD with and without reciprocal friendships did not differ significantly in terms of ADHD symptoms or SES.

The *Friendship Qualities Measure (FQM;* Grotpeter & Crick, 1996; see Appendix B) is a 43-item instrument developed to assess the quality of children's best friendships. The original instrument consisted of 14 subscales including (1) Validation and Caring (3 items); (2) Companionship and Recreation (3 items); (3) Help and Guidance (3 items); (4) Intimate Exchange I (Subject Intimacy) (3 items); (5) Intimate Exchange II (Friend Intimacy) (3 items); (6) Ease of Conflict Resolution (3 items); (7) Relational Aggression within the Friendship (4 items); (8) Overt Aggression within the Friendship (3 items); (9) Relational Aggression toward Others (3 items); (10) Overt Aggression toward Others (3 items); (11) Exclusivity I (Subject Desire for Exclusivity (3 items); (12) Exclusivity II (Friend Demands of Exclusivity) (3 items); (13) Conflict I (Subject Conflict) (3 items); and (14) Conflict II (Friend Conflict) (3 items). Scores on the response scale ranged from 1 (*Not at all true*) to 5 (*Almost always true*), and 14 subscale scores were determined by summing and averaging responses for each subscale.

This measure has already been successfully used with children with ADHD as young as 6 years old (Blachman & Hinshaw, 2002). Internal consistency of the original subscales was reported in previous studies as ranging from adequate (exclusivity, $\alpha = .61$) to good (conflict, $\alpha = .87$), with a satisfactory average of .74 (Grotpeter & Crick, 1996). Blachman and Hinshaw

(2002) reduced the original FQM subscales to two factors, both with good reliability: positive friendship features (18 items, $\alpha = .91$) and negative friendship features (25 items, $\alpha = .86$). Construct validity has also been supported by findings demonstrating that the friendships of relationally aggressive (greater exclusivity, relational aggression within friendships) and overtly aggressive (elevated levels of overt aggression toward third parties; lower levels of intimacy) children were characterized by greater indications of social maladjustment than were the friendships of non-aggressive children (Grotpeter & Crick, 1996). This measure of friendship quality, which includes subscales pertaining to intimacy, conflict, as well as friendship exclusivity, overt aggression, and relational aggression, seemed to be particularly appropriate for this study given the growing body of research linking overtly aggressive and relationally aggressive behaviours, that is, behaviour aimed at harming the social relationships or inclusion of others, to ADHD (Bagwell, Schmidt et al., 2001; Blachman & Hinshaw, 2002; Clark, Cheyne, Cunningham & Siegel, 1988; Crick & Grotpeter, 1995; Erhardt & Hinshaw, 1994). The FQM is composed of items from Parker and Asher's (1993) well-established measure of friendship quality, which includes six subscales tapping validation and caring, conflict and betrayal, companionship, help and guidance, intimate exchange, and ease of conflict resolution. Grotpeter and Crick (1996) added additional subscales to obtain more specific information about negative interactions (e.g., aggression within friendships) and coalitional features (e.g., aggression by friends toward others, preferences to play exclusively with one's friend) that aggressive children might experience in their friendships. For additional details regarding the construction of this scale, see Grotpeter and Crick (1996).

For the present study, we reduced the original 14 subscales to two global factors: positive friendship features (18 items, $\alpha = .83$) and negative friendship features (25 items, $\alpha =$

.80). Higher-order factor analysis using principal axis factorial analysis with varimax rotation revealed two factors, explaining cumulatively 51.16% of the variance (32.21 and 18.95%, respectively). These pertained to 1) negative friendship features, and 2) positive friendship features. Loadings for the two constructed factors are displayed in Table 2[2]. The correlation between these dimensions was moderately high (r = -.33, p < .01), indicating that are related but independent aspects of friendship quality. In order to gauge overall friendship satisfaction, we added two additional items (*How is this friendship going? How happy are you with this friendship?*). Scores on the response scale ranged from 1 (*It's going really badly; Very unhappy*) to 5 (*It's going really well; Very happy*).

The *car-race task* (Fonzi et al., 1997) simulates interaction between children in a fast-paced and engrossing game. This game permits the distinction between fine competition that is friendly, enjoyable, and fair and competition that is less amicable in tone and that might involve cheating. It requires no previous training and does not favour children with any particular type of ability. The goal of the game is to be quicker than the opponent in transporting five 4-cm X 3.5-cm X 5.5-cm wooden blocks from one end of the game table to the other. Participants do this by transporting the blocks one at a time in trunk of a 33-cm X 21-cm X 15-cm toy truck. The truck must travel down a 180-cm X 36-cm runway with walls 4.5 cm high from a starting mark to a finish line and back. The runway cannot accommodate both trucks side by side, and the rules prohibit the players from lifting their wheels from the runway. A player can thus: (1) compete energetically but without breaking the rules, e.g., by blocking or pushing against the opponent's car; (2) compete in violation of the rules, e.g., by lifting one's own car over the

[2] Despite various exploratory or confirmatory factor analyses, we were not able to replicate Grotpeter and Crick's (1996) 14 original factors or to find another logic factor structure other than the two-factor structure reported here. This result is, however, not surprising as these two constructed dimensions are consistent with previous empirical evidence (e.g. Berndt & Keefe, 1995; Bukowski, Boivin, & Hoza, 1994; Parker & Asher, 1993; see Berndt, 1996 and Furman, 1996, for rationale and discussions).

partner's; or (3) avoid conflicts with their opponents even if this reduces their own chances of winning, e.g., by going in reverse, allowing one's partner to proceed.

Scoring procedures were similar to those used by Fonzi and colleagues (Fonzi et al., 1997). Definitions of the car-race categories, data on inter-rater reliability, and the intraclass (i.e., between dyad members) correlations appear in Table 3. Fonzi and her colleagues (Fonzi et al., 1997) found that this task successfully discriminated friendships that would continue six months later from friendships that would terminate.

Card-sharing task (Dane, 2001). We presented each dyad with a selection of 15 trading cards. We selected cards that were appealing to children of both sexes and different ages, featuring a variety of sports athletes, cartoon characters, and popular artists. We asked the participants to select five cards from the initial 15 that they both agreed that they liked. We then instructed them to decide together how they would share the 5 cards. The friends were allowed to share them any way that they chose, so long as both parties agreed. No time limits were imposed.

Game-choice task. We then provided participants with four board games and asked them to choose together the games they would play at the end of the research session. A variety of age-appropriate board games were presented to the participants. Participants notified the research assistant once they had reached a consensus. No time limits were imposed.

To code both these tasks, we used categories similar to those used in a negotiation task used by Fonzi and colleagues (Fonzi et al., 1997) to describe the quality of the negotiations. Raters coded interactions for proposals (self/other interest-based and sensitivity), expressions and inquiries of personal preferences, responses (acceptance or refusal), and balance of power. See Table 4 for definitions, data on inter-rater reliability, and the intraclass correlations.

Independent raters also coded the video data for the affect displayed by each participant at 5-second intervals during the three tasks, using a scale ranging from positive to neutral to negative. In order to detect differences in affect intensity, positive and negative affect were also coded as 1, 2, or 3, depending on the level of intensity. Affect category definitions, data on inter-rater reliability, and the intraclass correlations appear in Tables 3 and 4. The positive and negative affect indices represent the rate per minute of each affect category multiplied by its intensity (1, 2 or 3). The neutral affect index represents the total frequency of occurrence of neutral affect per minute.

Parents of all participants provided demographic information about each child's date of birth, sex, language of education, medication (related to the treatment of ADHD), number of caretakers, and the occupation of the parents.

Results

Data Analytic Strategy

Several approaches were used in order to determine using maximum power, whether or not the friendships of children with ADHD were distinguishable from those of comparison children, and whether or not these differences were present in either the questionnaire or observational categories. The average intraclass correlations (i.e., between the two friends) for the car-race, the card-sharing, and the game-choice tasks were .33, .56, and .45, respectively, indicating that the behaviours of each friend were not extensively influenced by the behaviour of the other friend. We therefore conducted the main analyses at the individual level first, allowing for maximum power. We re-analyzed the friendship-quality questionnaire and friendship-observation data, first without the girls (n = 32), and then without the cross-gender friendships

data (n = 8). As the overall pattern of results was virtually identical to the one with all the referred participants, the results reported below included all these cases.

We subsequently examined potential age, subtype, comorbidity, and medication-effect differences at the individual level. We then performed a second wave of data analyses at the dyadic level using the means of the combined data of each dyad. Although preliminary analyses indicated significant gender differences in the categories pertaining to the referred children's perceived friendship positive features, expression of preferences, and inquiries of personal preferences (see Tables 6 and 7), there were no significant sex X ADHD status interaction effects. Thus, even though boys and girls differed on these three variables (referred children's perception of friendship positive features, expression of preferences, and inquiries of personal preferences), there were no gender differences within the referred ADHD group in any of our friendship variables. Nevertheless, we decided to enter both sex and ADHD status as fixed factors in the MANOVAs and ANOVAs (with Tukey post hoc comparisons). Age, subtype, comorbidity, medication-effect, and dyadic status were also individually entered as a third fixed factor (with sex and ADHD status) in the supplementary MANOVA and ANOVA analyses (with Tukey post hoc comparisons).

Intercorrelations of Observation Measures

Among the 240 intercorrelations among the three observation measure variables, only 42 (17.5%) were significant (ranging from .19 to .49); and, only 9 cross-task correlations were above .30 in absolute value. More specifically, significant correlations were distributed as follows: 16 of the 60 correlations among the car-race and the card-sharing categories (ranging from .20 to .37); 11 of the 50 correlations among the car-race and the game-choice categories (ranging from .19 to .49); and 15 of the 130 correlations among the card-sharing and game-

choice categories (ranging from .18 to .48). We therefore performed the analyses separately for the data pertaining to each task.

Behavioural and Social Characteristics of the Invited Friends (Hypothesis #1)

Descriptive statistics for the behavioural and social characteristics of all participants are presented in Table 5. The subscales that appear in this table were from the CRS-R:L because 1) they were directly related to our hypotheses, and 2) their content was identical or very similar across the two Conners versions (CRS-R:L and Conners-3), thus allowing for more statistical power. The overall multivariate F values were significant both for parent $F12,771 = 16.98$; $p < 0.001$, partial $\eta^2 = .21$, and teacher $F12,705 = 10.07$; $p < .001$, partial $\eta^2 = .15$ ratings. As detailed in Table 5, follow-up analyses and post-hoc Tukey HSD tests revealed significant differences between the friends of children with ADHD and the friends of comparison children on the parent and teacher DSM-IV Inattention and Hyperactivity/Impulsivity subscales—the friends of children with ADHD being rated as more inattentive and hyperactive/impulsive than the friends of comparison children. As displayed in Table 5, effect sizes for differences between the ADHD and comparison groups were greater for parents' than teachers' ratings on all Conners subscales. For both parent and teacher ratings used in the analyses of differences between the ADHD and comparison groups, there were larger effect sizes for the DSM-IV inattention and hyperactivity/impulsivity subscales than all other subscales. Interestingly, 22 (25.2%) of the 87 friends of children with ADHD also displayed ADHD symptoms in the clinical range (T-scores > 65 on the Conners parent *and* teacher DSM-IV Inattention and/or Hyperactivity/Impulsivity scales). None of the friends of comparison children had clinically elevated ADHD symptoms. Teachers also rated the friends of children with ADHD as higher in oppositionality than the friends of comparison children. The parent ratings of opposition

symptoms ($p = 0.066$) and peer problems ($p = 0.059$) tended to be slightly higher for the friends of children with ADHD than the friends of comparison children, but these differences did not correspond to conventional levels of statistical significance. Teacher ratings did not reveal group differences in the friends' peer problems.

Friendship Quality (Hypotheses #2 and #3)

We conducted one-way MANOVA (by ADHD status), with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 6, indicated several significant differences between the perceptions of friendship quality of (1) children with ADHD and comparison children and of (2) the friends of children with ADHD and the friends of comparison children. Only differences that remained significant after Bonferroni correction are discussed in this paragraph. With regard to the referred children's ratings, there was a significant multivariate effect for ADHD status ($F2, 128 = 4.20$; $p < .05$, partial $\eta^2 = 0.06$) for both the positive and negative subscales. Children with ADHD perceived less positive features and more negative features than comparison children.

The analyses also revealed a significant multivariate ADHD-status effect for the invited friends' ratings: $F2, 127 = 6.08$; $p < .01$; partial $\eta^2 = 0.09$). Univariate analyses showed that this difference was specific to the positive friendship features: the friends of children with ADHD perceived less positive friendship features in their relationship than did the friends of comparison children. As detailed in Table 6, there was a larger effect size in the analysis of differences between the ADHD and comparison groups for the positive friendship features perceived by the invited friends than for all other friendship-quality subscales. Both children with ADHD and their invited friends were significantly less satisfied in their friendships than were comparison children and their respective friends (see Table 6).

Observation Data (Hypotheses #4, #5, and #6)

Car-race task. Multivariate analysis of variance indicated a significant difference between the ADHD and comparison children in compliance with rules ($F2,128 = 10.07$; $p < 0.001$, partial $\eta^2 = 0.14$); see Table 7. Follow-up univariate ANOVAs indicated that children with ADHD exhibited both more legal and illegal manoeuvres during the car-race task than comparison children. Children with ADHD made fully twice as many illegal moves as comparison children. There were no significant findings with regard to the affect displayed by the two groups on this task ($F3,127 = 1.56$; $p = 0.20$, partial $\eta^2 = 0.04$). As detailed in Table 7, there was a larger effect size in the analysis of differences between the ADHD and comparison groups for illegal manoeuvres performed by referred children than all other car-race categories.

Card-sharing task. MANOVA indicated significant between-group differences in terms of self vs. other interest-based proposals ($F3,127 = 5.95$; $p < 0.001$, partial $\eta^2 = 0.12$) and proposal sensitivity ($F3,127 = 6.36$; $p < 0.001$, partial $\eta^2 = 0.13$; see Table 7). Univariate follow-up analyses indicated that children with ADHD made more insensitive and self-centred proposals but fewer sensitive proposals than comparison children. In contrast, there were no significant univariate differences between referred groups in the number of altruistic, neutral, or new proposals. There was also a significant multivariate effect in terms of communication regarding personal preferences ($F2,128 = 10.60$; $p < 0.001$, partial $\eta^2 = 0.14$); children with ADHD asked their friends' preference for trading cards to be shared less frequently than did the comparison children. There was no univariate difference in the number of preference statements expressed. There were no significant multivariate group differences in the acceptance/refusal category ($F2,128 = 1.90$; $p = 0.15$, partial $\eta^2 = 0.03$) or affect indices ($F3,127 = 1.13$; $p = 0.34$, partial $\eta^2 = 0.03$). Chi-square tests indicated significant differences in the balance of power:

children with ADHD were more likely than comparison children to be involved in a friendship where the power was unequally balanced (see Table 7). More specifically, children with ADHD were controlling in 36 out of 45 (80.0%) of these unbalanced dyads. In the analysis of differences between the ADHD and comparison groups, there were larger effect sizes for balance of power, preference inquiry, and self-centred proposals than for all other card-sharing categories. It is interesting to note that 7 of the 133 dyads did not reach a final agreement as to how to divide the five liked cards with their friend; and, 100% of these dyads involved a child with ADHD and his/her friend ($\chi^2_{1,133} = 3.91$; $p < 0.05$).

Game-choice task. MANOVA revealed a significant difference in the number of sensitive proposals ($F3,127 = 2.69$; $p < 0.05$, partial $\eta^2 = 0.06$) made by children with ADHD versus comparison children (see Table 7). Univariate follow-up analyses indicated that children with ADHD made more insensitive proposals than comparison children. In contrast, there were no significant univariate differences between groups in the number of sensitive and new proposals. There was a significant multivariate between-group effect in terms of acceptance/refusal ($F2,128 = 3.18$; $p < 0.05$, partial $\eta^2 = 0.05$); children with ADHD refused their friends' proposals more often than did comparison children. Finally, there were no significant multivariate group differences in the number of preference expressions/inquiries ($F2,128 = 1.31$; $p = 0.27$, partial $\eta^2 = 0.02$) or in the affect indices ($F3,127 = 1.77$; $p = 0.16$, partial $\eta^2 = 0.04$). All effect sizes were small for this task.

Supplementary Analyses

We re-analyzed the data, entering age, subtype, comorbidity, medication-effect, and dyadic status individually as a third fixed factor (with sex and ADHD status) in the supplementary MANOVA and ANOVA analyses (with Tukey post hoc comparisons). There

were no significant three-way interaction effects (i.e., sex X ADHD status X age, subtype, comorbidity, medication, or dyadic status) on any of the friendship-questionnaire or observation data. The significant multivariate or univariate differences among the comparison and ADHD groups are not detailed in the text here because differences among ADHD and non-ADHD groups are tested with greater power in the main analyses.

Age differences. We re-analyzed the friendship-questionnaire and friendship-observation data adding a variable pertaining to age differences, with age dichotomized into two blocks, 7 years, 0 months to 10 years, 11 months (ADHD, $n = 48$ including 12 girls [14%]; Comparison, $n = 26$ including 9 girls [20%]) and 11 years, 0 months to 13 years, 11 months (ADHD, $n = 39$ including 8 girls [9%]; Comparison, $n = 20$ including 3 girls [7%]). First, we conducted one-way MANOVA (by age group) with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 8, did not indicate any significant multivariate difference in terms of friendship quality (1) among younger children with ADHD, older children with ADHD, younger comparison children, and older comparison children ($F2,124 = 0.88$; $p = 0.42$, partial $\eta^2 = 0.01$), and (2) among the friends of younger children with ADHD, the friends of older children with ADHD, the friends of younger comparison children, and the friends of older comparison children ($F2,123 = 1.24$; $p = 0.29$, partial $\eta^2 = 0.02$). Similarly, ANOVAs did not reveal any significant differences in friendship satisfaction (1) among younger children with ADHD, older children with ADHD, younger comparison children, and older comparison children, and (2) among the friends of younger children with ADHD, the friends of older children with ADHD, the friends of younger comparison children, and the friends of older comparison children (see Table 8).

Multivariate analyses of variance indicated no significant difference in all the car-race-task categories among younger children with ADHD, older children with ADHD, younger comparison children, and older comparison children (compliance with rules: $F2,124 = 0.49$; $p = 0.62$, partial $\eta^2 = 0.01$; affect: $F3,123 = 1.99$; $p = 0.12$, partial $\eta^2 = 0.05$; see Table 9). Similarly, we did not find any multivariate difference in all the card-sharing-task categories among younger children with ADHD, older children with ADHD, younger comparison children, and older comparison children (self/other interest-based proposals: $F3,123 = 1.30$; $p = 0.28$, partial $\eta^2 = 0.03$; proposal sensitivity: $F3,123 = 0.53$; $p = 0.66$, partial $\eta^2 = 0.01$; communication regarding personal preferences: $F2,124 = 0.02$; $p = 0.98$, partial $\eta^2 = 0.00$; acceptance/refusal: $F2,124 = 1.11$; $p = 0.33$, partial $\eta^2 = 0.02$; and affect: $F3,123 = 0.69$; $p = 0.56$, partial $\eta^2 = 0.02$; see Table 9). Chi-square tests did not indicate significant differences in terms of balance of power during the card-sharing task among younger children with ADHD, older children with ADHD, younger comparison children, and older comparison children (see Table 9). Again, MANOVAs indicated no significant differences in any of the game-choice-task categories among younger children with ADHD, older children with ADHD, younger comparison children, and older comparison children (proposal sensitivity: $F3,123 = 1.60$; $p = 0.19$, partial $\eta^2 = 0.04$; communication regarding personal preferences: $F2,124 = 2.43$; $p = 0.09$, partial $\eta^2 = 0.04$; acceptance/refusal: $F2,124 = 0.73$; $p = 0.48$, partial $\eta^2 = 0.01$; and affect: $F3,123 = 0.78$; $p = 0.51$, partial $\eta^2 = 0.02$; see Table 9).

ADHD subtypes (Hypothesis #7). It was decided a priori to exclude children with the Hyperactive subtype of ADHD ($n = 3$) from these supplementary analyses as this subtype is more often found in preschool children. Our sample therefore consisted of 66 children (19 girls; 28.8%) with the Combined subtype of ADHD (ADHD-C), 18 children (1 girl; 5.6%) with the

Inattentive subtype ADHD (ADHD-I), and 46 comparison children (13 girls; 26.1%). Although there were no statistically significant differences among the three remaining groups (n = 130; ADHD-C, ADHD-I, Comparison) in terms of sex ($\chi^2_{(2)} = 4.20$; $p = 0.12$) or age ($F2,127 = 0.11$; $p = 0.90$), we nevertheless compared subgroups of 18 referred children, randomly matched for age and sex as recommended by Tabachnick and Fidell (2007), because of the difference in the proportions of girls between the subtype groups. We first conducted one-way MANOVA (by subtype group) with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 10, did not indicate any significant multivariate difference in terms of friendship quality (1) among children with ADHD-I, children with ADHD-C, and comparison children ($F2,47 = 0.63$; $p = 0.54$, partial $\eta^2 = 0.03$), and (2) among the friends of children with ADHD-I, the friends of children with ADHD-C, and the friends of comparison children ($F2,47 = 1.19$; $p = 0.31$, partial $\eta^2 = 0.05$). Similarly, ANOVAs did not reveal any significant difference in friendship satisfaction (1) among children with ADHD-I, children with ADHD-C, and comparison children, and (2) among the friends of children with ADHD-I, the friends of children with ADHD-C, and the friends of comparison children (see Table 10).

Multivariate analyses of variance indicated no significant difference in any of the car-race-task dependent variables among children with ADHD-I, children with ADHD-C, and comparison children (compliance with rules: $F2,47 = 0.06$; $p = 0.94$, partial $\eta^2 = 0.00$; affect: $F3,46 = 0.15$; $p = 0.93$, partial $\eta^2 = 0.01$; see Table 11). Similarly, we did not find any multivariate difference in all the card-sharing task categories among children with ADHD-I, children with ADHD-C, and comparison children (self/other interest-based proposals: $F3,46 = 0.34$; $p = 0.80$, partial $\eta^2 = 0.02$; proposal sensitivity: $F3,46 = 0.27$; $p = 0.85$, partial $\eta^2 = 0.02$; communication regarding personal preferences: $F2,47 = 1.00$; $p = 0.38$, partial $\eta^2 = 0.04$;

acceptance/refusal: $F2,47 = 1.28$; $p = 0.29$, partial $\eta^2 = 0.05$; and affect: $F3,46 = 1.09$; $p = 0.36$, partial $\eta^2 = 0.07$; see Table 11). Chi-square tests did not indicate significant difference in terms of balance of power during the card-sharing task among children with ADHD-I, children with ADHD-C, and comparison children (see Table 11). Again, MANOVAs indicated no significant difference in any of the grame-choice-task categories among children with ADHD-I, children with ADHD-C, and comparison children (proposal sensitivity: $F3,46 = 0.24$; $p = 0.87$, partial $\eta^2 = 0.02$; communication regarding personal preferences: $F2,47 = 2.05$; $p = 0.14$, partial $\eta^2 = 0.08$; acceptance/refusal: $F2,47 = 0.45$; $p = 0.64$, partial $\eta^2 = 0.02$; and affect: $F3,46 = 0.27$; $p = 0.84$, partial $\eta^2 = 0.02$; see Table 11).

Comorbidities. We compared children with ADHD whose Conners parent *and/or* teacher ratings indicated comorbid anxiety and/or oppositionality (T-score > 65) with children with ADHD only (who had high scores on the ADHD scales only). We initially looked at comordidity with anxiety, our sample consisting of 45 children with ADHD only (10 girls; 22.2%), 42 children with ADHD+anxiety (10 girls; 23.8%), and 46 comparison children (12 girls; 26.1%). There were no statistically significant differences among the three groups in terms of sex ($\chi^2_{(2)} = 0.19$; $p = 0.91$) or age ($F2,130 = 1.90$; $p = 0.15$). First, we conducted one-way MANOVA (by comorbid anxiety groups) with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 12, did not indicate any significant multivariate difference in terms of friendship quality (1) among children with ADHD only, children with ADHD+anxiety, and comparison children ($F2,126 = 0.37$; $p = 0.69$, partial $\eta^2 = 0.01$), and (2) among the friends of children with ADHD only, the friends of children with ADHD+anxiety, and the friends of comparison children ($F2,125 = 0.35$; $p = 0.71$, partial $\eta^2 = 0.01$). ANOVA analyses revealed a significant difference in friendship satisfaction among

children with ADHD only, children with ADHD+anxiety, and comparison children, but this difference pertained among the comparison group and the ADHD groups (see Table 12). An ANOVA did not reveal any significant difference in friendship satisfaction among the friends of children with ADHD only, the friends of children with ADHD+anxiety, and the friends of comparison children (see Table 12).

Multivariate analyses of variance indicated no significant difference in any of the car-race-task dependent variables among children with children with ADHD only, children with ADHD+anxiety, and comparison children (compliance with rules: $F2,126 = 2.82$; $p = 0.06$, partial $\eta^2 = 0.04$; affect: $F3,125 = 1.08$; $p = 0.36$, partial $\eta^2 = 0.03$; see Table 13). In contrast, we found a multivariate difference in terms of self/other interest-based proposals during the card-sharing task among children with ADHD only, children with ADHD+anxiety, and comparison children ($F3,125 = 3.42$; $p < 0.05$, partial $\eta^2 = 0.08$). Follow-up univariate analyses indicated that children with ADHD only made more self-centred proposals than children with ADHD+anxiety in the card-sharing task (see Table 13). Chi-square tests indicated a significant difference in terms of balance of power during the card-sharing task among children with ADHD only, children with ADHD+anxiety, and comparison children. Follow-up chi-square tests however did not reveal a significant difference specifically among children with ADHD only and children with ADHD+anxiety in terms of balance of power ($\chi^2_{(1,87)} = 1.98$; $p = 0.16$; see Table 13). We did not find any other multivariate differences in the other card-sharing-task variables among children with ADHD only, children with ADHD+anxiety, and comparison children (proposal sensitivity: $F3,125 = 0.80$; $p = 0.50$, partial $\eta^2 = 0.02$; communication regarding personal preferences: $F2,126 = 2.88$; $p = 0.06$, partial $\eta^2 = 0.04$; acceptance/refusal: $F2,126 = 2.41$; $p = 0.09$, partial $\eta^2 = 0.04$; and affect: $F3,125 = 1.60$; $p = 0.19$, partial $\eta^2 = 0.04$;

see Table 13). MANOVAs indicated one significant difference in terms of affect in the game-choice task among children with ADHD only, children with ADHD+anxiety, and comparison children ($F3,125 = 3.55$; $p < 0.05$, partial $\eta^2 = 0.08$). Follow-up univariate analyses, however, again indicated no significant difference among children with ADHD only and children with ADHD+anxiety in terms of affect (see Table 13). MANOVAs did not indicate any other significant difference in the remaining game-choice variables among children with ADHD only, children with ADHD+anxiety, and comparison children (proposal sensitivity: $F3,125 = 1.67$; $p = 0.18$, partial $\eta^2 = 0.04$; communication regarding personal preferences: $F2,126 = 1.21$; $p = 0.30$, partial $\eta^2 = 0.02$; and acceptance/refusal: $F2,126 = 1.06$; $p = 0.35$, partial $\eta^2 = 0.02$; see Table 13).

We then looked at oppositional behaviour as a comordidity, our sample consisting of 24 children with ADHD only (5 girls; 20.8%), 63 children with ADHD+opposition (15 girls; 23.8%), and 46 comparison children (12 girls; 26.1%). There were no statistically significant differences among the three groups in terms of sex ($\chi^2_{(2)} = 0.24$; $p = 0.89$) or age ($F2,130 = 0.20$; $p = 0.82$). We first conducted one-way MANOVA (by comorbid opposition group) with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 14, did not indicate any significant difference in terms of friendship quality (1) among children with ADHD only, children with ADHD+oppositionality, and comparison children ($F2,126 = 1.32$; $p = 0.27$, partial $\eta^2 = 0.02$), and (2) among the friends of children with ADHD only, the friends of children with ADHD+oppositionality, and the friends of comparison children ($F2,125 = 0.72$; $p = 0.49$, partial $\eta^2 = 0.01$). ANOVAs revealed a significant difference in friendship satisfaction among children with ADHD only, children with ADHD+oppositionality, and comparison children, but this difference pertained among the

comparison group and one of the ADHD groups (see Table 14). ANOVA analyses did not reveal any significant difference in friendship satisfaction among the friends of children with ADHD only, the friends of children with ADHD+oppositionality, and the friends of comparison children (see Table 14).

MANOVAs indicated no significant difference in any of the car-race-task categories among children with ADHD only, children with ADHD+oppositionalty, and comparison children (compliance with rules: $F2,126 = 1.42$; $p = 0.25$, partial $\eta^2 = 0.02$; affect: $F3,125 = 2.12$; $p = 0.10$, partial $\eta^2 = 0.05$; see Table 15). Similarly, we did not find any multivariate difference in any of the card-sharing-task categories among children with ADHD only, children with ADHD+oppositionality, and comparison children (self/other interest-based proposals: $F3,125 = 1.63$; $p = 0.19$, partial $\eta^2 = 0.04$; proposal sensitivity: $F3,125 = 1.17$; $p = 0.32$, partial $\eta^2 = 0.03$; communication regarding personal preferences: $F2,126 = 0.53$; $p = 0.59$, partial $\eta^2 = 0.01$; acceptance/refusal: $F2,126 = 1.84$; $p = 0.16$, partial $\eta^2 = 0.03$; and affect: $F3,125 = 0.27$; $p = 0.84$, partial $\eta^2 = 0.01$; see Table 15). Chi-square tests did not indicate significant differences in terms of balance of power during the card-sharing task among children with ADHD only, children with ADHD+oppositionality, and comparison children. Similarly, MANOVAs indicated no significant difference in any of the game-choice-task categories (proposal sensitivity: $F3,125 = 1.19$; $p = 0.32$, partial $\eta^2 = 0.03$; communication regarding personal preferences: $F2,126 = 2.64$; $p = 0.08$, partial $\eta^2 = 0.04$; acceptance/refusal: $F2,126 = 0.14$; $p = 0.87$, partial $\eta^2 = 0.00$; and affect: $F3,125 = 1.15$; $p = 0.33$, partial $\eta^2 = 0.03$; see Table 15).

Medication status. We offered no hypothesis regarding medication effects, which we could not manipulate. Nevertheless, for heuristic purposes, we compared the 27 children with ADHD who were not on medication with the 60 children with ADHD who were on medication

during the research session. The scores were virtually identical between the two ADHD groups on the CPRS-R DSM-IV-Inattention scale (non-medicated children with ADHD: *M*=74.83, *SD*=8.33; medicated children with ADHD: *M*=74.14, *SD*=7.93), the CPRS-R DSM-IV-Hyperactivity/Impulsivity scale (non-medicated children with ADHD: *M*=72.26, *SD*=16.02; medicated children with ADHD: *M*=71.30, *SD*=12.75), the CTRS-R DSM-IV-Inattention scale (non-medicated children with ADHD: *M*=64.91, *SD*=11.30; medicated children with ADHD: *M*=64.56, *SD*=10.89), and the CTRS-R DSM-IV-Hyperactivity/Impulsivity scale (non-medicated children with ADHD: *M*=63.83, *SD*=13.71; medicated children with ADHD: *M*=61.02, *SD*=13.81; $F4,75 = 0.21$; $p = 0.93$, partial $\eta^2 = 0.01$). In addition, although there were no statistically significant differences among the three groups in terms of sex ($\chi^2_{(2)} = 4.39$; $p = 0.11$) or age ($F2,130 = 0.70$; $p = 0.93$, partial $\eta^2 = 0.01$), we nevertheless compared subgroups of 27 referred children, randomly matched for age and sex (Tabachnick & Fidell, 2007), because of the difference in the proportions of girls in the medication status groups ($n = 10$, 37.0% in the non-medicated group vs. $n = 10$, 16.7% in the medicated group). We first conducted one-way MANOVA (by medication status group) with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 16, did not indicate any significant difference in terms of friendship quality (1) among non-medicated children with ADHD, medicated children with ADHD, and comparison children ($F2,74 = 0.15$; $p = 0.87$, partial $\eta^2 = 0.00$), and (2) among the friends of non-medicated children with ADHD, the friends of medicated children with ADHD, and the friends of comparison children ($F2,74 = 0.17$; $p = 0.85$, partial $\eta^2 = 0.01$). ANOVAs revealed a significant difference in friendship satisfaction among non-medicated children with ADHD, medicated children with ADHD, and comparison children, but this difference pertained among the comparison group and one of the

ADHD groups (see Table 16). ANOVAs did not reveal any significant difference in friendship satisfaction among the friends of non-medicated children with ADHD, medicated children with ADHD, and the friends of comparison children (see Table 16).

Multivariate analyses of variance did not indicate any significant difference in any of the car-race-task categories among non-medicated children with ADHD, medicated children with ADHD, and comparison children (compliance with rules: $F2,74 = 0.20$; $p = 0.82$, partial $\eta^2 = 0.01$; affect: $F3,73 = 1.34$; $p = 0.27$, partial $\eta^2 = 0.05$; see Table 17). In contrast, we found a significant multivariate difference in terms of proposal sensitivity during the card-sharing task among non-medicated children with ADHD, medicated children with ADHD, and comparison children ($F3,73 = 3.14$; $p < 0.05$, partial $\eta^2 = 0.11$; see Table 17). Follow-up univariate analyses indicated that non-medicated children with ADHD made more new proposals than medicated children with ADHD in the card-sharing task (see Table 17). We did not find any other multivariate difference in any of the other card-sharing task categories among non-medicated children with ADHD, medicated children with ADHD, and comparison children (self/other interest-based proposals: $F3,73 = 2.04$; $p = 0.12$, partial $\eta^2 = 0.08$; communication regarding personal preferences: $F2,74 = 0.22$; $p = 0.80$, partial $\eta^2 = 0.01$; acceptance/refusal: $F2,74 = 0.70$; $p = 0.50$, partial $\eta^2 = 0.02$; and affect: $F3,73 = 1.19$; $p = 0.32$, partial $\eta^2 = 0.05$; see Table 17). Chi-square tests indicated a significant difference in terms of balance of power among non-medicated children with ADHD, medicated children with ADHD, and comparison children. Follow-up chi-square tests, however, did not reveal a significant difference among non-medicated children with ADHD and medicated children with ADHD in terms of balance of power during the card-sharing task ($\chi^2_{(1,54)} = 1.86$; $p = 0.17$; see Table 17). MANOVAs indicated no significant difference in any of the game-choice categories among non-medicated

children with ADHD, medicated children with ADHD, and comparison children (proposal sensitivity: $F3,73 = 0.61$; $p = 0.61$, partial $\eta^2 = 0.03$; communication regarding personal preferences: $F2,74 = 0.46$; $p = 0.64$, partial $\eta^2 = 0.01$; acceptance/refusal: $F2,74 = 2.04$; $p = 0.14$, partial $\eta^2 = 0.05$; and affect: $F3,73 = 0.46$; $p = 0.71$, partial $\eta^2 = 0.02$; see Table 17).

Dyadic Analyses (Hypotheses #8 to #13). We supplemented the individual-level analyses with analyses based on the means of the combined data of the two members each dyad. The major purposes for this were 1) to compare dyads in which there was only one child with ADHD within ADHD/ADHD dyads and 2) to determine the balance of power, affect, friendship quality, and satisfaction with the friendship in situations where a child with ADHD had befriended an undiagnosed child (″mixed dyads″).

There were 22 ADHD/ADHD dyads (7 girls; 31.8%) and 65 mixed dyads (13 girls; 20.0%). Although there were no statistically significant differences between these groups in terms of sex ($\chi^2_{(2)} = 1.42$; $p = 0.49$) or age ($F2,130 = 0.63$; $p = 0.54$), we nevertheless compared subgroups of 22 dyads, each randomly matched for age and sex (Tabachnick & Fidell, 2007), because of the difference in the proportion of girls. First, we conducted one-way MANOVAs (by dyadic status group) with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 18, did not indicate any significant difference in terms of friendship quality among the ADHD/ADHD, mixed, and comparison dyads ($F2,59 = 2.10$; $p = 0.13$, partial $\eta^2 = 0.07$). ANOVAs did not reveal any significant difference in friendship satisfaction among the ADHD/ADHD, mixed, and comparison dyads (see Table 18).

MANOVAs indicated no significant differences in any of the car-race-task categories among the ADHD/ADHD, mixed and comparison dyads (compliance with rules: $F2,59 = 2.78$; $p = 0.07$, partial $\eta^2 = 0.09$; affect: $F3,58 = 1.04$; $p = 0.38$, partial $\eta^2 = 0.05$; see Table 19).

Similarly, we did not find any multivariate difference in any of the card-sharing variables among the ADHD/ADHD, mixed, and comparison dyads (self/other interest-based proposals: $F3,58 = 2.12$; $p = 0.11$, partial $\eta^2 = 0.10$; proposal sensitivity: $F3,58 = 0.41$; $p = 0.75$, partial $\eta^2 = 0.02$; communication regarding personal preferences: $F2,59 = 0.16$; $p = 0.85$, partial $\eta^2 = 0.01$; acceptance/refusal: $F2,59 = 0.02$; $p = 0.98$, partial $\eta^2 = 0.00$; and affect: $F3,58 = 0.57$; $p = 0.89$, partial $\eta^2 = 0.04$; see Table 19). Chi-square tests indicated significant differences in terms of balance of power among the ADHD/ADHD, mixed, and comparison children. Follow-up chi-square tests however did not reveal a significant difference in terms of balance of power during the card-sharing task between the ADHD/ADHD and mixed dyads ($\chi^2_{(1,44)} = 0.83$; $p = 0.36$; see Table 19). MANOVAs indicated no significant difference in any of the game-choice-task variables among the ADHD/ADHD, mixed, and comparison dyads (proposal sensitivity: $F3,58 = 0.57$; $p = 0.64$, partial $\eta^2 = 0.03$; communication regarding personal preferences: $F2,59 = 0.64$; $p = 0.65$, partial $\eta^2 = 0.04$; acceptance/refusal: $F2,59 = 1.70$; $p = 0.19$, partial $\eta^2 = 0.06$; and affect: $F2,59 = 0.00$; $p = 1.00$, partial $\eta^2 = 0.00$; see Table 19).

We also examined the data from the 65 mixed dyads only to determine whether there was a significant difference between the members with and without ADHD of these dyads in terms of friendship quality, satisfaction with the friendship, and all of the observation variables. First, we conducted paired sample *T*-tests (by ADHD status in mixed dyads; i.e., members with or without ADHD) with the FQM positive and negative dimensions as the dependent variables. The results, detailed in Table 20, indicated one significant difference (after Bonferroni correction). Contrary to predictions, the members without ADHD perceived significantly more positive features in the relationship than did their friends with ADHD. There were no

statistically significant differences in friendship satisfaction between the members with and without ADHD of mixed dyads (see Table 20).

Paired sample *T*-tests also indicated several significant differences between members with and without ADHD in the friendship observation data. In the car-race task, the members with ADHD of mixed dyads exhibited both more legal and more illegal manoeuvres and displayed higher levels of positive affect than the members without ADHD (see Table 21). Paired sample *T*-tests indicated a significant between-group difference during the card-sharing task in terms of sensitivity and self vs. other interest proposals: members with ADHD made more insensitive and self-centred proposals but fewer sensitive proposals than members without ADHD. In contrast, there were no significant differences between the members with and without ADHD (1) in the number of altruistic, neutral, or new proposals; (2) in the number of preference statements expressed or preference inquiries made; and (3) in the number of acceptances and refusals made (see Table 21). Power was balanced unequally in 34 out of 65 (52.3%) mixed dyads; and, in 25 of these 34 (73.5%), the child with ADHD was controlling. There were no significant findings with regard to the affect displayed by the two groups on this task. As detailed in Table 21, paired sample *T*-tests indicated that members without ADHD displayed significantly more neutral affect than members with ADHD in this task. There were no significant group differences in any other variable during the game-choice task.

Discussion

This multi-method study provides detailed information regarding the exact ways in which children with ADHD mismanage interactions with the friends they have using analogue tasks specifically designed to mirror the real-world interactions of friends and to elicit a variety of social interactions. Furthermore, it is one of the first known reports on the behavioural

characteristics of friends of children with ADHD and about these *friends'* perceptions of the relationships. Taken together, these results suggest that children with ADHD mismanage their friendships in several different ways.

Who are the Friends of Children with ADHD?

Referred children with ADHD, when considered as a group, did not tend to participate in the present study with younger friends than the comparison children. However, children with ADHD brought friends from a broader age range than comparison children. Referred children with ADHD had friends with higher levels of ADHD symptoms (at home and at school) and oppositional behaviour (at school) than did comparison participants. A quarter of the friends of children with ADHD displayed ADHD symptoms in the clinical range on both the parent and teacher ratings—this was not observed in any of the comparison children's friends. Parent ratings of oppositional symptoms and peer problems *tended* to be slightly higher for the friends of children with ADHD than the friends of comparison children (although not reaching conventional levels of statistical significance). Globally, these results are not surprising given the homophily in children's choices of friends (e.g., Aboud & Mendelson, 1996; Kandel, 1978). The results also complement those of Blachman and Hinshaw (2002), who found that girls with ADHD prefer other girls with ADHD as friends. They are also in line with previous findings indicating that children and adolescents with ADHD may better like peers who exhibit more disruptive behaviours and engage in deviant activities (e.g., Bagwell, Schmidt et al., 2001; Marshal et al., 2003; Whalen & Henker, 1985). Different reasons may explain why children with ADHD tend to befriend other children with disruptive behaviour problems. Some children with ADHD may prioritize social goals such as sensation seeking and fun over compliance with rules and equity (Melnick & Hinshaw, 1996). Children with ADHD may share these goals with

other children who are disruptive, leading to greater affiliation. Alternatively, children with ADHD may not have access to better models of prosocial behaviour. Because children with ADHD tend to be disliked by popular peers (Hoza, Mrug et al., 2005) and because parents of potential friends may prevent their children from spending time with children who display disruptive behaviour, their pool of potential friends may be limited.

Quality of the Friendships of Children with ADHD

Children with ADHD perceived *both* fewer positive features (such as conflict resolution, validation/caring, intimacy, help/guidance, and companionship/recreation) *and* more negative features (such as conflict, friendship exclusivity, overt aggression toward friends or others, and relational aggression toward friends or others) than comparison children. These results clearly indicate that, even according to self-reports, the friendships of children with ADHD tend to be more problematic than those children without ADHD. This finding seems central and could perhaps explain why children with ADHD may lose friends over time as friendship stability mainly depends on friendship quality (Berndt et al., 1986; Bukowski et al., 1994; Schneider et al., 2000). This is further highlighted by the finding that children with ADHD were significantly less satisfied in their friendship than comparison children. Similarly, the friends of children with ADHD were significantly less satisfied in their friendship than the friends of comparison children. However, no differences were noted in terms of friendship satisfaction between children with ADHD and their *own* friends. It is possible that children with ADHD and their friends are less satisfied in their friendships because these relationships are marked by persistent violations of rules during activities and less equitable and sensitive exchange of rewards. This remains an empirical question to be tested longitudinally.

The results of this study may help explain why the friends of children with ADHD are less satisfied with their friendship than the friends of comparison children and why the friends of children with ADHD perceived fewer positive friendship features *but not* more negative friendship features in their relationships than did the friends of comparison children. Given that we found a tendency for children with ADHD and other disruptive children to mutually select themselves as friends, it is therefore possible that the friends of children with ADHD are less sensitive to (or more tolerant of) negative aspects of friendships. This could be because children with ADHD and their friends may share similar behavioural characteristics and social goals (e.g., sensation seeking, fun). This explanation would be in line with *social exchange theory*, which states that a stable relationship should be characterized by more or less equal distribution of rewards, with each partner perceiving the benefits of the relationship as outweighing the costs (e.g., Nisbett & Ross, 1980).

Children with ADHD in Interaction with their Friends

Our results indicated that children's behaviours during dyadic friendship interactions were valuable in distinguishing the two groups. In a fast-paced competitive game, children with ADHD performed more total moves and more illegal manoeuvres, indicating that they were not only generally more invested in the game, but also more likely to violate its rules than comparison children. These findings are particularly worrisome given that it is now known that not following activity rules is one of the most important predictor of peer rejection in children with ADHD (Mrug et al., 2007). A partial explanation for this may lie in the fact that the children with ADHD made more moves of all kinds, both legal and illegal, which may be reflective of their hyperactivity and, for about half the sample, comorbid anxiety. Nevertheless, it is important to remember that the children with ADHD made fully twice as many illegal

moves as members of the comparison group. This may be an important reason why children with ADHD are more likely to lose their friends over time as fairness in play and respect for the rules of a game are among the features that make for enjoyable company (Fonzi et al., 1997). This, however, again remains to be investigated prospectively.

The self-centred and insensitive approach of the children with ADHD in their negotiations with friends is also troublesome. While negotiating the sharing of either a limited resource or a game to play with their friend, children with ADHD made more insensitive and self-centred proposals, reflecting again their general inability to acknowledge and respond to their friends' social cues, needs, and preferences. They were also less likely to query their friends about their preferences in the card-sharing task and more likely to refuse their friends' proposals in the game-choice task than were comparison children. These combined findings are consistent with other studies showing that children with ADHD have poorer social perspective-taking skills than non-diagnosed children (Marton, Wiener, Rogers, Moore, & Tannock, 2009).

We did not find any differences between the affect of children with ADHD and those of comparison children across the observational tasks. This is probably attributable to the friendship context. Interactions with friends are generally positive as friends are expected to provide enjoyable company (Schneider et al., 1994), resulting in little variance in affect. The fact that approximately 82% of our clinical sample was medicated for ADHD during the research session may also explain the relative lack of negative affect since ADHD medications can have an effect on children's emotional functioning. Incongruent with this general finding are the sporadic indications, not always statistically significant, that children with ADHD display more intense emotions than their own friends. For instance, we found that children with ADHD displayed significantly higher levels of positive affect (in the car-race task) and tended

to display more negative affect (in the car-race and card-sharing tasks) than their own friends. Hopefully, future observational studies will provide a clearer picture of how children with ADHD regulate their emotions in interactions with their friends during tasks varying in pace and format.

Children with ADHD were also often more controlling than their friends. This finding is important given that controlling behaviours towards the friend is one reason often provided by children to explain friendship dissolution (Parker & Seal, 1996). This may also indicate that children with ADHD may fail to respect the principle of equity in friendship. Perhaps they do not understand that friendships are based on equity or perhaps their impulses at the moment supersede anything they might know in a hypothetical sense. Given the central importance of this principle in theories about friendship, this problem may be central to all of our other findings. Controlling behaviours may also be the consequence of poor perspective-taking skills (Marton et al., 2009), manifested by a failure to effectively integrate the friend's perspectives and occasionally give up some of one's own feelings.

Few of the subsidiary analyses (i.e., age, subtypes, comorbidities, and medication differences) revealed significant distinctions within the ADHD sample. However, it must be remembered that these analyses had to be conducted with less statistical power than the main analysis. Interestingly, among the isolated significant results, we found that children with ADHD and high levels of anxiety symptoms made fewer self-centred proposals than children with ADHD only.

Limitations and Future Directions

Many fundamental questions about the friendships of children with ADHD remain to be answered. Our results are limited by the contrived nature of closed-field observational tasks,

although the situations of interest here are probably not amenable to naturalistic observation. It is also possible that some of our tasks (e.g., the car-race task) were more relevant for boys than for girls. Our results should also be interpreted with some caution because we did not use a standardized clinical interview to diagnose ADHD. In this study, the parent of the referred child contacted the parent of the child's friend to obtain informed consent and typically brought both the referred child and his/her friend to the research session. Given the demands placed on the parent of the referred child and the presence of both friends, further data collection was not possible. Accordingly, we were unable to include other measures, such as diagnostic interviews, to confirm the diagnostic status of the participants and to examine the impact of comorbidities (e.g., oppositional defiant disorder, learning disabilities, and social anxiety) in greater detail. As children with ADHD are often aggressive toward their peers (e.g., Erhardt & Hinshaw, 1994), future studies should also include comprehensive and multidimensional measures of aggressive behaviour to examine the role of aggression in the relationship between ADHD and friendship problems. Despite the fact that some studies suggest that the peer relationship problems of children with ADHD are not the result of their aggressive behaviour only (e.g., Pope & Bierman, 1999), aggressive behaviours may explain a significant portion of the variance in friendship problems. This may have critical implications for developing friendship-focussed, evidence-based psychosocial treatments for children with ADHD.

In contrast with comparison children, children with ADHD had friends with high levels of ADHD and oppositional symptoms. Although these may be their only friends, it is still unclear if it is wise for children to stay in these friendships. These friendships may subject them to the heightened risk of disruptive behaviours in school, gang membership, and delinquency (see Boivin, Vitaro, & Poulin, 2005) that has been demonstrated among children whose friends

are aggressive and disruptive. It is therefore imperative that these friendships be studied prospectively using multiple methods and informants.

Researchers should therefore find out in future studies if children with ADHD maintain their friendships over time to the same extent as their peers without ADHD and if the quality of their friendships improves or deteriorates. Future investigations might also be targeted at identifying the features of friendships that predict the stability or dissolution of the relationships to determine the clinical predictors of these features and how they vary across the age span. For instance, given that one of the fundamental tasks of adolescence is to develop significant extrafamilial relationships with peers, it would be interesting to explore the impact of ADHD on the friendships of adolescents. The symptomatology of ADHD manifests itself differently as children reach early adolescence and adolescence (Barkley et al., 1989). Impulsivity and hyperactivity may no longer be the primary obstacles to friendship, whereas inattentiveness may become a very substantial liability. In particular, inattention to the needs and feelings of the friend or potential friend may impede the reciprocity, sensitivity, conflict resolution, and commitment required to form and maintain friendships. As our sample included 74% boys, future studies should include a more balanced sample of boys and girls to allow generalizing conclusions to girls with ADHD.

This study was descriptive by nature as it is one of the first reports that provides detailed information on the exact ways in which children with ADHD mismanage interactions with their friends. Our data therefore do not, of course, elucidate the cause or causes of the friendship problems of the participants with ADHD, which we were able to document using multiple methods. Some of the problems may stem from the core symptoms of ADHD such as inattention and impulsivity. However, as the improvement in ADHD symptoms by medication

or multidomal treatment does not always lead to a parallel improvement in peer function (e.g., Hoza, Gerdes et al., 2005), it seems that there exist additional factors other than symptoms that may contribute to the social impairment of children with ADHD (McQuade & Hoza, 2008). Among these factors, Barkley (1997) suggested that social impairments in children with ADHD are the consequence of neuropsychological deficits in behavioural inhibition (i.e., the ability to delay a prepotent response in order to achieve a goal) and executive functioning (i.e., higher-order thinking skills such as self-talk and self-questioning, the use of past experiences to plan for the future, self-motivation, empathy, problem solving). Current evidence pertaining to the role of executive-skills deficits in explaining the social problems of children with ADHD is limited and inconsistent (Clark, Prior, & Kinsella, 2002; Diamantopoulou, Rydell, Thorell, & Bohlin, 2007; Huang-Pollock, Mikami, Pfiffner, & McBurnett, 2009). Although our study was not designed to test Barkley's (1997) theory, our current results could be interpreted as partly in line with some of his contentions. For example, one could argue that deficits in behavioural inhibition were evident in the car-race task where children with ADHD had difficulty inhibiting their illegal manoeuvres. Furthermore, during negotiation tasks, children with ADHD were not sensitive to their friends' preferences and suggestions and were more controlling, perhaps reflecting problem-solving and perspective-taking difficulties.

Social cognitions may also play a role in the friendship difficulties of children with ADHD. More particularly, many studies now confirm that a subset of children with ADHD overestimate their abilities and performance in various domains, including the social arena (i.e., positive illusory bias; Diener & Milich, 1997; Hoza et al., 2000; Kaiser, Hoza, Pelham, Gnagy, & Greiner, 2008). Accordingly, McQuade and Hoza (2008) speculated that children with ADHD may not be able to adjust their insensitive and disruptive behaviour even after receiving

negative social feedback from their friends. It is currently unknown if positive illusory bias serves a self-protective function by buffering children with ADHD from negative feedback and failure or if they are simply unable to accurately self-monitor (see Owens et al., 2007). The fact that children with ADHD performed more illegal manoeuvres and were less sensitive to their friends' needs and more controlling with their friends than comparison children may be related to their positive illusory bias.

Another reason explaining friendship problems in children with ADHD may be related to their deficits in encoding and integrating the social cues coherently and independently generating hypothetical responses to social interactions (Cadesky, Mota, & Schachar, 2000; Matthys, Cuperus, & van Engeland, 1999; Milch-Reich, Campbell, Pelham, Connely, & Geva, 1999). Given that these studies relied on hypothetical videotaped scenarios, future studies should allow an examination of social information processing real-life social situations in order to evaluate if these results can be generalized in a live social interaction. It may be possible that in our study, children with ADHD were insensitive to their friends' needs and preferences as a result of deficits in encoding and attending to social cues with friends. Thus, future studies might help explain why children with ADHD mismanage their friendships by exploring the underlying mechanisms that mediate or moderate the relationship between ADHD and friendship quality and stability.

Clinical Implications

Pharmacological treatments. Our findings indicate beyond any doubt that children with ADHD need help in the area of friendship. Although we do not have conclusive data about the benefits of medication, the medicated participants with ADHD, which accounted for 82% of our total ADHD sample, failed to show any difference over the unmediated subsample on most

of our friendship measures. Despite the fact that it is generally recognized that ADHD medication can help reduce negative social behaviours, medication may not lead to a corresponding increase in prosocial behaviours (e.g., Hinshaw et al., 1989) that appear to predict peer liking in children with ADHD (Mrug et al., 2007). For instance, in a double-blind study with direct classroom observations, Hinshaw and colleagues (1989) found no effect of methylphenidate on such prosocial behaviours as initiation of contact, mediation of conflict, and prolonged dyadic interaction despite medication-related improvements in negative social behaviour. These positive behaviours play a central role in friendship. It is therefore not surprising that we did not find any difference between medicated versus non-medicated children with ADHD on most of our friendship measures given that medication may not have an effect on prosocial behaviours, as suggested by previous studies. Of course, this should be confirmed and studied more rigourously in a randomized clinical trial using a double-blind, placebo-controlled, cross-over design.

Social skills training. Almost all interventions targeting peer relations have been designed to increase general acceptance by peers rather than close friendship. Several different types of social skills training have been applied to ADHD populations (e.g., Mrug, Hoza, & Gerdes, 2001). The purpose of this training is to directly teach the basic social skills children need to interact more effectively with their peers (Mrug et al., 2001). However, the consensus by this point is that clinic-based social skills training have not proven effective for children with ADHD (Pelham & Fabiano, 2008), possibly because it is difficult, if not impossible, to work on peer relationships in the office or in the classroom (Pelham, Fabiano, Gnagy, Greiner, & Hoza, 2005).

Summer treatment program. Some researchers have argued that it may be more effective

to target peer relationships in camp settings where children can be observed daily and taught diverse skills (e.g., social skills, sports knowledge, teamwork, and appropriate sportsmanship) while interacting with their peers (Waschbusch, Pelham, Gnagy, Greiner, & Fabiano, 2008). One such approach is known as the Summer treatment program (Pelham et al., 2005). The program is intensive, multimodal, multi-component, eight-week treatment programs for children and adolescents between the ages of 5 and 15 who have ADHD and associated disorders. Children are placed in age-matched groups of 12 in which five student interns implement treatments (Pelham et al., 2005). Each day, children spend three hours in a classroom. For the rest of the day, children participate in recreational activities (e.g., playing team sports, making arts and crafts, working on computers, and having free time). Key evidence-based treatment components include a comprehensive point system, constant positive reinforcement, appropriate commands, time out, daily report cards to parents, group parent training, academic training, sports skills training, group problem-solving training, individualised medication assessment when necessary, and social skills training (Pelham et al., 2005). In our current study, we clearly documented that children with ADHD were less sensitive and more self-centred than comparison children during problem solving with their friends. We also found that they were not able to follow game rules when playing a competitive game with their friends. The Summer treatment program, which combines different related components (e.g., social skills training, problem-solving skill training, sport skills training, a positive reinforcement system, and parent training), may be essential in fostering the formation and stability of close friendships for children with ADHD. Although there is now clear evidence that the Summer treatment program is effective as a whole when compared to a no-treatment condition (see Pelham, Gnagy, Greiner, Waschbusch, Fabiano, Burrows-MacLean,

2010, for a comprehensive review), it is still unclear how it specifically impacts peer relationships in children with ADHD and whether this has a long-term influence on them.

"Buddy" pairing. Given that peer reputations change slowly because they are heavily influenced by stereotypes that peers are known to hold about ADHD (e.g., Price, & Dodge, 1989) and by first impressions (e.g., Hoza, Mrug, Pelham, Greiner, & Gnagy, 2003), enhancing close friendship may be a viable and perhaps more realistic intervention goal (Mrug et al., 2001). Such a promising approach to friendship intervention involves pairing potential friends as "buddies" who share recreational activities and earn special privileges by interacting positively with each other. Hoza and her colleagues (2003) paired the "buddies" during the second week of a summer camp based on mutual ratings of liking and friendship as well as other factors such as similarities in sports, and academic interests and abilities. The essence of this approach is to provide opportunities for dyadic interaction in a systematic fashion. It also incorporates into the camp program systematic practice in problem-solving within the "buddy" dyad (Hoza et al., 2003). Unfortunately, the data were not suitable for assessing the effectiveness of the intervention because the "buddy" program was camp-wide, meaning that there was no control group and that the effects of the dyad-specific intervention could not be separated in any way from the effects of the entire special summer program.

Parental friendship coaching. In a parental friendship coaching approach developed by Mikami and her colleagues, parents were taught to give in-vivo reminders to their children and to arrange a context that would be optimal for their children to develop good peer relationships (Mikami, Lerner, Griggs, McGrath, & Calhoun, 2010). This seems crucial for children with ADHD who are known to have difficulties generalizing the effects of the psychosocial

treatments they receive in clinic settings to the real world (see Abikoff, 2009, for a commentary).

Peer pairing. Simply pairing two children for intensive social interaction, with no other adult intervention, has sometimes been used to enhance children's interpersonal relationships. Socially competent children are typically paired with unpopular children in order to help the rejected children improve their behaviours and social status (Frankel, 2005). Some important beneficial effects of peer pairing have been reported in terms of reduced aggressive behaviour by disliked children, but not, unfortunately, friendships (e.g., Frankel, 2005).

Pair therapy. Although these approaches are very innovative, there are currently *no* existing evidence-based friendship interventions for children with ADHD (Mikami, 2010). It is also imperative that efforts be made to ensure that friendship-enhancing interventions be targeted in some way at helping children with ADHD make friends with models of adaptive social behaviour. Hence, by fostering friendship with non-deviant peers, it might be possible to prevent affiliation of children with ADHD with a deviant peer group and its adverse outcomes. Pair therapy (Selman & Schultz, 1990) may be such an alternative and an innovative modality of intervention inspired by Selman's model of interpersonal understanding (Selman, 1980), which specifies a sequential stage progression from friendship based on unilateral benefit to friendship based on reciprocal needs and, finally, to friendship based on shared intimacy and commitment. Pair therapy is a semi-structured intervention involving an adult therapist working with two children or adolescents who have the potential to become friends. The general focus of this deeper, developmentally based, psychosocial approach is to enhance by positive experience children’s repertoire of social strategies needed to make and keep friends. It aims to reorganize children’s basic understanding of friendship and other intimate relationships (Selman &

Schultz, 1990). Pair therapy has been found to engender significant progression toward the higher stages of friendship understanding in Selman's model. With this approach, the friends can directly help each other in generalizing the skills they learned together. This friendship-based intervention may be particularly helpful as it is often not possible for parents to be present when children interact together. Evaluation has yet to establish that pair therapy leads to changes in the real-life friendships of antisocial children and youth; it has yet to be tried systematically on populations with ADHD.

It should be noted that it may not be necessary to work with dyads to "coach" children on the skills they will need to make and keep friends. Individual, group, and parent-mediated interventions have also been used to teach friendship skills with improvements on some important measures. Their effects on friendship have yet to be evaluated (e.g., Murphy & Schneider, 1994). Multifaceted intensive prevention programs (e.g., The Fast Track Program, CPPRG, 1992; The Early Risers "Skills for Success", August, Egan, Realmuto, & Hektner, 2003), involving different components—such as prosocial behaviour and friendship skills, emotional understanding and self-control skills, communication and conflict resolution skills, problem-solving skills, parent training, social skills training, parent-child sharing, home visiting, peer pairing, and academic tutoring—have been of benefit to the general adjustment of children with other forms of externalizing disorders and may also eventually prove to be of some benefit in facilitating the friendships of children with ADHD.

Researchers evaluating the potential benefits of friendship-enhancing interventions in which children with ADHD might be congregated in dyads or groups need to contemplate possible iatrogenic effects when designing their studies. Dishion and his colleagues have argued that high-risk young adolescents support and reinforce one another's deviant behaviour, which

can potentially escalate their problem behaviour in the context of interventions delivered in peer groups. These phenomena are known as "deviancy training" (Dishion et al., 1999). There may be less reason to be concerned about such effects in the case of pair therapy (Selman & Schultz, 1990), for example, than in group training because in pair therapy the interactions of the participants are closely monitored and facilitated by therapists.

Conclusion

This multi-method study provides detailed information about the exact ways in which children with ADHD mismanage interactions with the friends they have using analogue tasks specifically designed to mirror real-world interactions of friends and to elicit a variety of social interactions. Furthermore, it is one of the first known reports on the behavioural characteristics of friends of children with ADHD and about these *friends'* perception of the relationships. Taken together, our results suggest that children with ADHD mismanage their friendships in several different ways. Given the increased recognition of ADHD in adolescence and adulthood (Barkley et al., 2008) and the fact that negative peer reputation in childhood very strongly predicts mental-health status by early adulthood (Cowen, Pederson, Babigian, Izzo, & Trost, 1973), it is hoped that the results of the current study will eventually contribute to the development of evidence-based friendship interventions that will help people with ADHD achieve improved mental health and happiness over their lifespan.

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Table 1

Descriptive Statistics for Demographic Data: Means and SDs (in parentheses)

	Referred ADHD (n = 87)	Referred Comparison (n = 46)	Friend of ADHD (n = 87)	Friend of Comparison (n = 46)	F or X^2 $(3,266)^a$	Effect sizes[b]
Demographic variables						
Age (years)	10.30 (1.85)	10.41 (1.72)	10.39 (2.22)	10.22 (1.68)	0.11	.00
Grade (years)	4.32 (1.87)	4.28 (1.86)	4.39 (2.02)	4.33 (1.77)	0.04	.00
Children's sex (% boys)	77.0	73.9	74.7	69.6	0.89	.06
Parents' sex (% mothers)	88.5	82.6	84.8	87.4	1.07	.06
Language of instruction (% French)	80.5_a	95.7_b	88.0_{ab}	93.5_b	8.40*	.18
Ethnicity (% Caucasian)	92.0	87.0	90.8	91.3	7.34	.10
Two-parent household (%)	73.6_a	91.3_b	77.1_a	89.1_b	8.89*	.18
SES score	47.97 (11.98)	50.21 (12.22)	50.65 (9.68)	52.15 (10.93)	1.60	.02
Median annual family income (000s)	79.75 (17.01)	79.16 (15.78)	82.76 (19.35)	79.19 (15.82)	0.72	.01

Note.

[a] One-way ANOVA for continuous variables; Pearson chi-square statistic (in italics) for categorical variables.

[b] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

Entries with different subscripts differ significantly.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 2

Factor Loadings for the Friendship Qualities Measure

Subscale	Factor	
	Negative	Positive
Conflict (invited friend)	**.76**	-.18
Overt aggression towards friends	**.70**	-.12
Relational aggression towards friends	**.69**	-.05
Conflict (referred child)	**.65**	-.32
Overt aggression toward others	**.65**	-.02
Relational aggression towards others	**.54**	-.02
Friend's demands for exclusivity	**.48**	-.09
Referred child's desire for exclusivity	**.34**	.02
Validation and caring	-.14	**.79**
Intimate exchange (invited friend)	-.11	**.77**
Intimate exchange (referred child)	-.15	**.74**
Help and guidance	.06	**.68**
Companionship and recreation	-.02	**.62**
Conflict resolution	-.33	**.41**

Note.

Bold typeface denotes primary loading.

Table 3

Definitions of Car-Race Task Categories

Category (kappa)	Definition (Intra-class correlation)
	Compliance with rules
Legal manoeuvres (.87)	Legal manoeuvres include the following: avoiding contact with partner's car legally (e.g., pulling one's car backwards; waiting for partner before entering the runway); making contact with partner's car without breaking any rules; proper positioning of car and blocks during loading and unloading. (.29)
Illegal manoeuvres (.82)	Illegal manoeuvres include the following: avoiding contact with partner's car by breaking the rules (e.g., lifting one's car in the air); making contact with partner's car while one's own car is in an illegal position (e.g., driving up the sides of the runway); infraction of rules during loading or unloading. (.15)
	Affect

Positive (.80)	The extent to which members of the dyad express nonverbal and verbal positive affect, including positive facial expressions and laughter. 1 to 3 rating [1 = *the child is smiling for most of the segment*; 3 = *the child is thoroughly positive with extended bouts of giggling or laughter*] (.57)
Negative (.81)	The extent to which partners express negativity toward one another or toward the task in terms of their facial affect and speech. This includes orders, threats, reprimands, visible tension, and nervousness. 1 to 3 rating [1 = *the child is complaining or exhibiting some frustration toward the friend or task*; 3 = *the child is expressing extensive negative affect vocally or physically at any point in the segment*] (.05)
Neutral (.88)	The extent to which partners manifest neutral affect for most of the segment. (.57)

Table 4

Definitions of Negotiation Categories for Card-Sharing and Game-Choice Tasks

Category (kappa: Card Sharing/Game Choice)	Definition (Intra-class correlation)
	Proposals
Self/Other interest-based (.96/n.a)	The extent to which a proposal made by a child favours himself/herself or his/her friend in terms of the number of cards negotiated during this specific proposal. -1 to 1 rating [-1 = *self-centred proposal*; 0 = *neutral proposal*; 1= *altruistic proposal*] (.45/n.a.)
Sensitivity (.79/.81)	The extent to which a proposal made by a child acknowledges and responds to his/her friend's social cues, needs, and preferences. -1 to 1 rating [-1 = *insensitive proposal*; 0 = *new proposal*; 1 = *sensitive proposal*] (.64/.57)
	Preference
Expression (.86/.79)	Disclosure of personal preferences about the outcome of the negotiations. (.62/.43)

Inquiry (.83/.89)	Inquiry about friend's personal preferences regarding the outcome of the negotiations. (.18/.17)
	Responses
Acceptance (.77/.89)	Unqualified acceptance of a proposal. (.25/.46)
Refusal (.80/.77)	Total rejection of a proposal. (.47/.19)
Balance of power[a] (.83/n.a.)	The degree to which one partner in the dyad possesses more influence or control during the interaction than the other. Indications of controlling behaviours include choice of cards, speech turn-taking, and leader/monitor roles. 0 to 1 rating [0 = *equal balance between the children*; 1 = *unequal balance between the children*] (n.a./n.a.)
	Affect
Positive (.78/.77)	The extent to which members of the dyad express nonverbal and verbal positive affect, including positive facial expressions and laughter. 1 to 3 rating [1 = *the child is smiling for most of the segment*; 3 = *the child is thoroughly positive with extended bouts of giggling or laughter*] (.70/.62)
Negative (.80/1.00)	The extent to which partners express negativity toward one another or toward the task in their facial affect and

	speech. Includes orders, threats, reprimands, visible tension and nervousness. 1-3 rating [1 = *the child is complaining or exhibiting some frustration toward the friend or task*; 3 = *extensive negative affect expressed vocally or physically at any point in the segment*] (.84/.45)
Neutral (.95/.95)	The extent to which partners manifest neutral affect for most of the segment. (.93/.73)

Note.

n.a. = Not applicable.

[a] The coding produced one score per dyad for this category.

Table 5

Descriptive Statistics for Conners Ratings: Means and SDs (in parentheses)

	Referred ADHD (n = 87)	Referred Comparison (n = 46)	Friend of ADHD (n = 87)	Friend of Comparison (n = 46)	F (3,258)[a]	Partial η^2
			Rating-scale data[b]			
CPRS-R (T-scores)						
DSM-IV Inattention	73.86 (8.65)$_a$	46.96 (5.64)$_b$	55.78 (11.90)$_c$	48.96 (7.21)$_b$	123.71***	.59
DSM-IV Hyperactivity	71.37 (13.67)$_a$	47.76 (4.44)$_b$	55.04 (12.42)$_c$	49.57 (7.78)$_b$	64.80***	.43
Opposition	68.11 (12.94)$_a$	49.70 (6.86)$_b$	54.65 (12.90)$_b$	49.89 (10.15)$_b$	39.42***	.31
Peer Problems	68.75 (13.93)$_a$	48.87 (5.40)$_b$	53.83 (11.76)$_b$	48.93 (6.19)$_b$	52.25***	.38
CTRS-R (T-scores)						
DSM-IV Inattention	64.66 (10.94)$_a$	46.42 (5.02)$_b$	53.92 (11.15)$_c$	46.75 (6.57)$_b$	51.58***	.40

DSM-IV Hyperactivity	61.82 (13.75)$_a$	45.71 (4.17)$_b$	52.01 (9.47)$_c$	46.80 (5.46)$_b$	35.08***	.31
Opposition	61.08 (15.09)$_a$	48.16 (7.45)$_{bc}$	53.30 (11.73)$_b$	47.25 (5.10)$_c$	19.11***	.20
Peer Problems	59.56 (15.96)$_a$	49.42 (6.56)$_b$	52.38 (11.79)$_b$	47.36 (5.21)$_b$	12.97***	.14

Note.

[a] One-way ANOVA.

[b] For the parent questionnaire (CPRS-R), data was available for only 83 friends of children with ADHD instead of 87. For the teacher questionnaire (CTRS-R), data was available for 80 referred children with ADHD, 45 referred comparison children, 71 friends of children with ADHD, and 44 friends of comparison children.

Entries with different subscripts differ significantly.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 6

Descriptive Statistics for Friendship Questionnaire Data (means with SDs in parentheses)

Category	Referred ADHD (n = 87)	Referred Comparison (n = 46)	Sex[a] $F(1,129)$	Sex Partial η^2	ADHD Status[a] $F(1,129)$	ADHD Partial η^2
Friendship Qualities Measure						
Referred children's ratings						
Positive friendship features	3.88 (0.61)	4.19 (0.57)	11.50**	0.08	6.54*	0.05
Negative friendship features	1.75 (0.44)	1.54 (0.38)	0.41	0.00	4.23*	0.03
Friends' ratings						
Positive friendship features	4.03 (0.60)	4.41 (0.50)	3.29	0.03	12.07**	0.09
Negative friendship features	1.74 (0.48)	1.62 (0.42)	1.29	0.01	1.04	0.01
Friendship Satisfaction						

Referred children's ratings	4.70 (0.60)	4.93 (0.23)	0.04	0.00	7.50**	0.06
Friends' ratings	4.73 (0.48)	4.96 (0.18)	0.08	.00	6.98**	0.05

Note.

[a] One-way ANOVA.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 7

Descriptive Statistics for Friendship Observation Data (means with SDs in parentheses)

Category	Referred ADHD (n = 87)	Referred Comparison (n = 46)	Sex[a] F or χ^2 (1,129)	Sex Effect sizes[b]	ADHD Status[a] F or χ^2 (1,129)	ADHD Status Effect sizes[b]
			Care-Race Task			
Compliance with rules						
Total legal manoeuvres	69.72 (15.93)	64.39 (12.86)	0.36	0.00	7.71**	0.06
Total illegal manoeuvres	10.68 (6.81)	5.41 (5.45)	0.00	0.00	12.66**	0.09
Affect						
Positive	9.65 (6.28)	10.70 (4.71)	0.86	0.01	0.44	0.00
Negative	0.26 (0.84)	0.02 (0.11)	0.33	0.00	2.87	0.02

Neutral	5.70 (3.21)	4.94 (2.70)	0.21	0.00	0.95	0.01
Card-Sharing Task						
Proposal types						
Self/Other interest-based						
Altruistic proposals	1.55 (1.57)	2.33 (1.61)	0.03	0.00	0.10	0.00
Neutral proposals	2.43 (2.42)	2.96 (2.48)	3.69	0.03	1.98	0.02
Self-centred proposals	4.38 (3.73)	1.96 (1.73)	0.03	0.00	14.33***	0.10
Sensitivity						
Sensitive proposals	0.62 (0.78)	0.98 (1.22)	0.01	0.00	6.07*	0.05
New proposals	6.08 (4.04)	5.35 (2.86)	2.81	0.02	0.46	0.00
Insensitive proposals	2.21 (3.03)	0.50 (1.21)	0.82	0.01	9.56**	0.07
Preference						
Expression	3.54 (3.52)	3.11 (3.45)	16.79***	0.00	0.05	0.00
Inquiry	0.64 (1.35)	1.65 (1.77)	8.72**	0.00	17.13***	0.12

Responses						
Acceptance	1.07 (1.05)	1.26 (1.22)	2.70	0.02	1.90	0.01
Refusal	0.87 (1.43)	0.50 (0.84)	0.26	0.02	1.79	0.01
Balance of power (% of unbalanced dyads)	51.7	30.4	0.00	0.00	5.53*	0.21
Affect						
Positive	3.96 (3.82)	4.53 (3.32)	1.97	0.02	0.17	0.00
Negative	0.07 (0.29)	0.00 (0.00)	0.46	0.00	0.91	0.01
Neutral	9.93 (2.94)	9.26 (3.09)	1.84	0.01	2.63	0.02
Game-Choice Task						
Proposal types						
Sensitivity						
Sensitive proposals	0.48 (0.85)	0.67 (1.06)	2.81	0.02	0.95	0.01
New proposals	0.94 (1.24)	0.78 (1.00)	0.16	0.00	0.00	0.00
Insensitive proposals	0.89 (1.95)	0.09 (0.28)	0.06	0.00	7.17**	0.05

Preference						
Expression	1.51 (1.72)	1.61 (1.79)	0.95	0.00	1.25	0.01
Inquiry	0.43 (0.79)	0.33 (0.67)	0.29	0.01	0.79	0.01
Responses						
Acceptance	0.75 (0.85)	0.83 (0.88)	0.49	0.00	0.16	0.00
Refusal	0.48 (1.02)	0.07 (0.25)	1.00	0.01	6.23*	0.01
Affect						
Positive	4.62 (4.63)	6.74 (5.16)	0.89	0.01	3.41	0.03
Negative	0.08 (0.32)	0.00 (0.00)	0.41	0.00	2.12	0.02
Neutral	8.64 (5.41)	8.29 (4.23)	0.85	0.01	0.23	0.00

Note.

[a] One-way ANOVA for continuous variables; Pearson chi-square statistic for categorical variables.

[b] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 8

Descriptive Statistics for Friendship Questionnaire Data (means with SDs in parentheses): Age Differences

Category	Younger Referred ADHD[a] (*n*=48)	Older Referred ADHD[b] (*n*=39)	Younger Referred Comparison[a] (*n*=26)	Older Referred Comparison[b] (*n*=20)	Sex[c] *F(1,125)*	Sex Partial η^2	ADHD Status[c] *F(1,125)*	ADHD Status Partial η^2	Age[c] *F or* χ^2 *(1,125)*	Age Partial η^2
Friendship Qualities Measure										
Referred children's ratings										
Positive friendship features	3.81 (0.57)	3.96 (0.64)	4.29 (0.55)	4.07 (0.58)	10.99**	0.08	4.55*	0.04	0.54	0.00
Negative friendship features	1.74 (0.44)	1.76 (0.44)	1.58 (0.45)	1.49 (0.26)	1.30	0.01	4.89*	0.04	1.62	0.01
Friends' ratings										
Positive friendship features	3.96 (0.66)	4.11 (0.51)	4.28 (0.45)	4.20 (0.52)	6.32*	0.05	4.44*	0.04	1.59	0.01

Negative friendship features	1.74 (0.54)	1.73 (0.40)	1.69 (0.45)	1.55 (0.37)	1.99	0.02	1.53	0.01	1.33	0.01
				Friendship Satisfaction						
Referred children's ratings	4.67 (0.67)	4.73 (0.50)	4.92 (0.23)	4.95 (0.22)	0.01	0.00	5.62*	0.04	0.65	0.01
Friends' ratings	4.73 (0.56)	4.83 (0.37)	4.96 (0.20)	4.95 (0.15)	0.03	0.00	4.01*	0.03	0.72	0.01

Note.

[a] Younger children = aged 7 years, 0 months to 10 years 11 months.

[b] Older children = aged 11 years, 0 months to 13 years 11 months.

[c] One-way ANOVA.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 9

Descriptive Statistics for Friendship Observation Data (means with SDs in parentheses): Age Differences

Category	Younger Referred ADHD[a] (*n*=48)	Older Referred ADHD[b] (*n*=39)	Younger Referred Comparison[a] (*n*=26)	Older Referred Comparison[b] (*n*=20)	Sex[c] *F or* χ^2 *(1,125)*	Sex Effect sizes[d]	ADHD Status[c] *F or* χ^2 *(1,125)*	ADHD Status Effect sizes[d]	Age[c] *F or* χ^2 *(1,125)*	Age Effect sizes[d]
				Car-Race Task						
Compliance with rules										
Total legal Manoeuvres	68.35 (17.10)	71.41 (14.41)	63.35 (12.75)	65.75 (13.20)	0.92	0.01	8.77**	0.07	0.03	0.00
Total illegal Manoeuvres	12.58 (8.08)	8.33 (3.74)	5.80 (5.81)	4.90 (5.03)	0.11	0.00	8.10**	0.06	0.96	0.01
Affect										
Positive	9.76 (6.00)	10.24 (6.32)	9.89 (4.70)	10.37 (4.62)	1.47	0.01	0.39	0.03	1.64	0.01
Negative	0.38	0.09	0.03	0.00	1.00	0.00	2.07	0.02	1.84	0.01

	(1.07)	(0.37)	(0.15)	(0.00)						
Neutral	6.12	5.19	5.31	4.45	0.45	0.00	0.65	0.01	2.56	0.02
	(3.30)	(3.08)	(4.45)	(2.76)						
Card-Sharing Task										
Proposal types										
Self/Other interest-based										
Altruistic	2.35	1.79	2.04	1.75	0.01	.00	0.10	0.00	0.23	0.00
proposals	(2.57)	(1.58)	(2.13)	(1.65)						
Neutral	2.10	2.82	3.31	2.50	3.28	0.03	1.06	0.01	0.27	0.00
proposals	(2.21)	(2.63)	(2.60)	(2.28)						
Self-centred	5.23	3.33	2.23	1.60	0.17	0.00	12.41**	0.10	3.69	0.03
proposals	(4.16)	(2.83)	(1.86)	(1.50)						
Sensitivity										
Sensitive	0.65	0.59	1.27	0.60	0.01	0.00	4.45*	0.03	0.89	0.01

proposals	(0.84)	(0.72)	(1.37)	(0.88)						
New	6.17	5.97	5.81	4.75	1.53	0.01	0.53	0.00	0.93	0.01
proposals	(4.19)	(3.90)	(3.01)	(2.61)						
Insensitive	2.88	1.38	0.50	0.50	0.44	0.00	8.61*	0.06	0.30	0.00
proposals	(3.62)	(1.83)	(0.99)	(1.47)						
Preference										
Expression	3.29	3.84	3.38	2.75	11.23**	0.08	0.73	0.01	0.01	0.00
	(2.81)	(4.26)	(3.82)	(2.97)						
Inquiry	0.44	0.90	1.81	1.45	5.46*	0.04	9.85**	0.07	0.02	0.00
	(0.82)	(1.77)	(2.28)	(0.69)						
Responses										
Acceptance	1.08	1.05	1.35	1.15	1.39	0.01	1.07	0.01	0.48	0.00
	(1.09)	(1.03)	(1.38)	(0.99)						
Refusal	1.33	0.31	0.46	0.55	0.25	0.00	1.53	0.01	1.83	0.01
	(1.66)	(0.80)	(0.81)	(0.89)						
Balance of power (%	56.3	46.2	26.9	35.0	0.00	0.00	5.53	.21	6.71	0.23

of unbalanced dyads)										
Affect										
Positive	4.04	3.87	3.91	5.33	2.45	0.02	0.43	0.00	0.95	0.01
	(4.02)	(3.62)	(3.30)	(3.25)						
Negative	0.10	0.02	0.00	0.00	0.38	0.00	0.68	0.01	0.29	0.00
	(0.37)	(0.15)	(0.00)	(0.00)						
Neutral	11.05	9.80	9.83	8.76	1.19	0.01	1.83	0.01	0.24	0.01
	(7.45)	(2.30)	(2.86)	(2.87)						
Game-Choice Task										
Proposal types										
Sensitivity										
Sensitive proposals	0.46	0.51	0.73	0.60	3.69	0.03	0.37	0.00	0.82	0.01
	(0.89)	(0.79)	(1.12)	(0.99)						
New proposals	1.15	0.69	0.92	0.60	0.56	0.00	0.11	0.00	2.69	0.02
	(1.38)	(1.00)	(1.16)	(0.75)						
Insensitive	1.19	0.51	0.15	0.00	0.00	0.00	5.16*	0.04	2.10	0.02

proposals	(1.99)	(1.86)	(0.37)	(0.00)						
Preference										
Expression	1.46	1.56	1.96	1.15	0.17	0.01	0.17	0.00	1.05	0.01
	(1.71)	(1.74)	(1.93)	(1.53)						
Inquiry	0.33	0.54	0.27	0.40	0.63	0.01	1.25	0.01	2.83	0.02
	(0.63)	(0.94)	(0.72)	(0.60)						
Responses										
Acceptance	0.77	0.72	0.77	0.90	1.28	0.01	0.38	0.00	1.24	0.01
	(0.81)	(0.92)	(0.95)	(0.78)						
Refusal	0.56	0.38	0.12	0.00	0.71	0.01	6.01*	0.05	0.24	0.00
	(1.15)	(0.85)	(0.33)	(0.00)						
Affect										
Positive	3.96	5.43	7.82	5.33	0.10	0.00	1.03	0.01	0.83	0.01
	(3.73)	(5.47)	(5.28)	(4.76)						
Negative	0.09	0.05	0.00	0.00	0.18	0.00	1.40	0.01	0.53	0.00
	(0.44)	(0.33)	(0.00)	(0.00)						

Neutral	8.13	9.27	7.56	9.23	0.66	0.01	0.28	0.00	0.84	0.01
	(3.06)	(7.34)	(4.07)	(4.35)						

Note.

[a] Younger children = aged 7 years, 0 months to 10 years 11 months.

[b] Older children = aged 11 years, 0 months to 13 years 11 months.

[c] One-way ANOVA for continuous variables; Pearson chi-square statistic for categorical variables.

[d] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 10

Descriptive Statistics for Friendship Questionnaire Data (means with SDs in parentheses): Subtype Differences

Category	Referred ADHD Predominantly Inattentive (*n*=18)	Referred ADHD Combined type (*n*=18)	Referred Comparison (*n*=18)	Sex[a] *F (1,48)*	Sex Partial η^2	ADHD Status[a] *F (1,48)*	ADHD Status Partial η^2	Subtype Status[a] *F (1,48)*	Subtype Status Partial η^2
			Friendship Qualities Measure						
Referred children's ratings									
Positive friendship Features	3.92 (0.57)	3.71 (0.65)	4.21 (0.51)	6.41*	0.12	0.58	0.01	0.76	0.03
Negative friendship features	1.61 (0.29)	1.85 (0.45)	1.64 (0.43)	0.07	0.00	0.34	0.02	0.54	0.02
Friends' ratings									
Positive friendship	3.96 (0.76)	4.04 (0.52)	4.39 (0.56)	0.71	0.02	2.07	0.04	1.24	0.05

features									
Negative friendship features	1.76 (0.41)	1.56 (0.28)	1.65 (0.36)	4.67*	0.09	0.31	0.01	1.48	0.06
Friendship Satisfaction									
Referred children's ratings	4.75 (0.35)	4.67 (0.59)	4.86 (0.33)	0.90	0.02	0.81	0.00	0.49	0.00
Friends' ratings	4.81 (0.42)	4.69 (0.46)	4.92 (0.26)	7.10*	0.13	2.25	0.05	1.48	0.06

Note.

[a] One-way ANOVA.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 11

Descriptive Statistics for Friendship Observation Data (means with SDs in parentheses): Subtype Differences

Category	Referred ADHD Predominantly Inattentive (*n*=18)	Referred ADHD Combined type (*n*=18)	Referred Comparison (*n*=18)	Sex[a] *F or* χ^2 *(1,48)*	Sex Effect sizes[b]	ADHD Status[a] *F or* χ^2 *(1,48)*	ADHD Status Effect sizes[b]	Subtype Status[a] *F or* χ^2 *(1,48)*	Subtype Status Effect sizes[b]
				Car-Race Task					
Compliance with rules									
Total legal Manoeuvres	69.06 (8.93)	68.50 (17.58)	66.11 (15.04)	0.99	0.02	0.86	0.02	0.43	0.02
Total illegal Manoeuvres	11.44 (7.98)	9.94 (7.17)	3.78 (4.01)	0.51	0.01	2.65	0.05	1.39	0.06
Affect									
Positive	8.14 (6.67)	9.80 (6.37)	10.01 (4.23)	1.13	0.02	0.07	0.00	0.05	0.00
Negative	0.28 (0.80)	0.47 (0.20)	0.00 (0.00)	0.16	0.00	0.08	0.00	0.10	0.00

Neutral	6.18 (3.37)	5.79 (3.62)	5.22 (2.75)	1.01	0.02	0.37	0.01	0.20	0.01
Card-Sharing Task									
Proposal types									
Self/Other interest-based									
Altruistic Proposals	1.89 (1.84)	1.67 (1.65)	1.44 (1.38)	0.13	0.00	0.93	0.02	0.59	0.02
Neutral Proposals	$2.17\ (2.66)_a$	$2.61\ (2.62)_a$	$2.78\ (3.06)_b$	4.83*	0.09	6.09*	0.11	3.44*	0.13
Self-centred Proposals	4.83 (3.92)	4.44 (2.98)	1.83 (1.51)	0.65	0.01	2.68	0.05	1.35	0.05
Sensitivity									
Sensitive Proposals	$0.56\ (0.62)_a$	$0.50\ (0.71)_a$	$0.89\ (1.32)_b$	4.65*	0.09	12.02**	0.20	6.34**	0.21
New	5.50 (3.78)	6.17 (3.45)	4.56 (2.38)	0.26	0.01	0.88	0.02	0.44	0.02

Proposals									
Insensitive	2.83 (3.99)	2.06 (2.46)	0.61 (1.50)	0.09	0.00	1.08	0.02	0.74	0.03
Proposals									
Preference									
Expression	3.17 (3.55)	3.78 (3.49)	3.11 (4.44)	5.83*	0.11	0.04	0.00	0.25	0.00
Inquiry	$0.39\ (0.85)_{a}$	$1.00\ (1.78)_{ab}$	$1.78\ (2.58)_{b}$	5.77*	0.04	17.20***	0.12	10.26***	0.14
Responses									
Acceptance	0.83 (1.10)	1.22 (1.31)	1.17 (1.15)	0.36	0.01	0.16	0.00	0.37	0.02
Refusal	0.89 (1.68)	0.78 (1.06)	0.44 (0.86)	0.18	0.00	1.38	0.03	1.82	0.07
Balance of power (%									
of unbalanced dyads)	50.0	55.6	33.3	0.46	0.02	6.42*	0.22	1.94	0.19
Affect									
Positive	3.95 (3.72)	3.70 (4.43)	4.76 (3.18)	0.92	0.02	0.60	0.01	1.82	0.07
Negative	0.00 (0.00)	0.53 (0.22)	0.00 (0.00)	0.06	0.00	0.03	0.00	0.06	0.00
Neutral	9.42 (2.53)	9.94 (2.77)	9.01 (3.42)	0.57	0.01	0.24	0.01	0.40	0.02
			Game-Choice Task						

Proposal types									
Sensitivity									
Sensitive proposals	0.67 (0.91)	0.61 (1.04)	0.89 (1.23)	0.01	0.00	2.49	0.05	1.25	0.05
New proposals	$0.89\ (1.23)_{a}$	$1.39\ (1.54)_{b}$	$0.94\ (1.25)_{ab}$	1.75	0.04	6.58*	0.12	3.62*	0.13
Insensitive	0.56 (1.20)	1.22 (2.73)	0.17 (0.38)	0.42	0.01	0.12	0.00	0.10	0.00
Proposals									
Preference									
Expression	2.11 (2.08)	1.11 (1.45)	1.00 (1.33)	0.00	0.00	0.28	0.01	1.38	0.05
Inquiry	0.33 (0.59)	0.56 (0.78)	0.17 (0.38)	0.42	0.01	0.12	0.00	0.10	0.00
Responses									
Acceptance	0.56 (0.70)	0.50 (0.71)	0.67 (0.69)	0.37	0.01	0.13	0.00	0.44	0.02
Refusal	0.50 (0.99)	0.11 (0.47)	0.06 (0.24)	0.36	0.01	0.10	0.00	0.14	0.01
Affect									
Positive	3.98 (4.47)	4.59 (4.42)	6.79 (5.10)	0.25	0.01	1.51	0.03	0.41	0.04
Negative	0.00 (0.00)	0.12 (0.49)	0.00 (0.00)	0.06	0.00	0.03	0.00	0.95	0.00
Neutral	8.54 (2.47)	9.51 (9.15)	8.52 (5.24)	0.19	0.00	0.08	0.00	0.92	0.00

Note.

[a] One-way ANOVA for continuous variables; Pearson chi-square statistic for categorical variables.

[b] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 12

Descriptive Statistics for Friendship Questionnaire Data (means with SDs in parentheses): Comorbid Anxiety Differences

Category	Referred ADHD only (*n*=45)	Referred ADHD + anxiety (*n*=42)	Referred Comparison (*n*=46)	Sex[a] *F (1,127)*	Sex Partial η^2	ADHD Status[a] *F (1,127)*	ADHD Status Partial η^2	Comorbid Anxiety Status[a] *F (1,127)*	Comorbid Anxiety Status Partial η^2
			Friendship Qualities Measure						
Referred children's ratings									
Positive friendship Features	3.86 $(0.61)_a$	3.89 $(0.61)_a$	4.19 $(0.57)_b$	12.03**	0.09	6.56*	0.05	3.66*	0.06
Negative friendship features	1.75 (0.44)	1.74 (0.45)	1.54 (0.38)	0.68	0.01	4.17*	0.03	2.11	0.03
Friends' ratings									
Positive friendship features	4.05 (0.65)	4.00 (0.55)	4.25 (0.48)	4.01*	0.03	5.20*	0.04	2.63	0.04

Negative friendship features	1.77 (0.54)	1.70 (0.42)	1.62 (0.42)	1.55	0.01	1.02	0.01	0.87	0.01
Friendship Satisfaction									
Referred children's ratings	4.70 (0.65)$_a$	4.70 (0.55)$_a$	4.93 (0.23)$_b$	0.31	0.00	7.45**	0.06	3.89*	0.06
Friends' ratings	4.83 (0.48)	4.73 (0.48)	4.96 (0.18)	0.23	0.00	4.77*	0.04	2.73	0.04

Note.

[a] One-way ANOVA.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 13

Descriptive Statistics for Friendship Observation Data (means with SDs in parentheses): Comorbid Anxiety Differences

Category	Referred ADHD only (*n*=45)	Referred ADHD + anxiety (*n*=42)	Referred Comparison (*n*=46)	Sex[a] *F or* χ^2 *(1,127)*	Sex Effect sizes[b]	ADHD Status[a] *F or* χ^2 *(1,127)*	ADHD Status Effect sizes[b]	Comorbid Anxiety Status[a] *F or* χ^2 *(1,127)*	Comorbid Anxiety Status Effect sizes[b]
			Car-Race Task						
Compliance with rules									
Total legal Manoeuvres	73.36 (16.39)$_a$	65.83 (14.64)$_b$	64.39 (12.86)$_b$	0.02	0.00	7.78**	0.06	5.68**	0.08
Total illegal Manoeuvres	11.69 (7.57)$_a$	9.60 (5.79)$_a$	5.41 (5.45)$_b$	0.04	0.00	12.59**	0.09	7.35**	0.10
Affect									
Positive	9.57 (6.68)	9.74 (5.90)	10.70 (4.71)	1.14	0.01	0.43	0.00	0.26	0.00
Negative	0.31 (1.00)	0.18 (0.62)	0.02 (0.11)	0.42	0.00	2.91	0.02	2.99	0.05

Neutral	5.75 (3.46)	5.65 (2.97)	4.94 (2.70)	0.36	0.00	0.93	0.01	0.47	0.01
Card-Sharing Task									
Proposal types									
Self/Other interest-based									
Altruistic Proposals	2.20 (2.61)	2.00 (1.65)	2.33 (1.61)	0.44	0.00	0.11	0.00	0.08	0.00
Neutral Proposals	2.29 (2.21)	2.57 (2.65)	2.96 (2.48)	3.02	0.02	2.07	0.02	2.55	0.04
Self-centred proposals	5.49 (4.11)$_a$	3.19 (2.87)$_b$	1.96 (1.73)$_b$	0.00	0.00	15.15***	0.11	11.06***	0.15
Sensitivity									
Sensitive Proposals	0.67 (0.83)	0.57 (0.74)	0.98 (1.22)	0.28	0.00	6.02*	0.05	3.04	0.05
New	6.53 (4.12)	5.60 (3.95)	5.35 (2.86)	2.50	0.02	0.44	0.00	0.23	0.00

Proposals									
Insensitive Proposals	2.78 (3.32)$_a$	1.60 (2.59)$_{ab}$	0.50 (1.21)$_b$	0.87	0.01	9.60**	0.07	5.96**	0.09
Preference									
Expression	4.04 (3.28)	3.00 (3.73)	3.11 (3.45)	15.62***	0.11	0.04	0.00	0.25	0.00
Inquiry	0.36 (0.71)$_a$	0.95 (1.75)$_{ab}$	1.65 (1.77)$_b$	5.77*	0.04	17.20***	0.12	10.26***	0.14
Responses									
Acceptance	0.98 (1.01)	1.17 (1.10)	1.26 (1.22)	1.64	0.01	1.87	0.02	1.49	0.02
Refusal	1.09 (1.52)	0.64 (1.30)	0.50 (0.84)	0.30	0.00	1.78	0.01	2.68	0.04
Balance of power (% of unbalanced dyads)	44.4$_{ab}$	59.5$_a$	30.4$_b$	0.01	0.01	5.53*	0.20	7.53*	0.24
Affect									
Positive	3.83 (3.89)	4.10 (3.79)	4.53 (3.32)	2.70	0.02	0.17	0.00	0.50	0.01
Negative	0.83 (0.37)	0.05 (0.19)	0.00 (0.00)	0.85	0.01	0.88	0.01	0.57	0.01
Neutral	11.07 (7.46)$_a$	9.87 (2.99)$_b$	9.26 (3.09)$_b$	3.12	0.02	2.70	0.02	3.64*	0.05
Game-Choice Task									

Proposal types									
Sensitivity									
Sensitive proposals	0.64 (1.00)	0.31 (0.60)	0.67 (1.06)	2.79	0.02	1.01	0.01	1.07	0.02
New proposals	1.04 (1.33)	0.83 (1.15)	0.78 (1.00)	0.64	0.01	0.00	0.00	0.54	0.01
Insensitive	$1.02\ (1.99)_{a}$	$0.74\ (1.91)_{ab}$	$0.09\ (0.28)_{b}$	0.21	0.00	7.37**	0.06	5.45**	0.08
Proposals									
Preference									
Expression	1.84 (1.95)	1.14 (1.35)	1.61 (1.79)	0.23	0.00	1.38	0.01	0.84	0.01
Inquiry	0.42 (0.78)	0.43 (0.80)	0.33 (0.67)	0.57	0.00	0.78	0.01	1.24	0.02
Responses									
Acceptance	0.71 (0.76)	0.79 (0.95)	0.83 (0.88)	0.54	0.00	0.16	0.00	0.32	0.01
Refusal	$0.56\ (1.10)_{a}$	$0.40\ (0.94)_{ab}$	$0.07\ (0.25)_{b}$	1.24	0.01	6.21*	0.05	3.94*	0.06
Affect									
Positive	$3.63\ (3.78)_{a}$	$5.68\ (5.22)_{ab}$	$6.74\ (5.16)_{b}$	1.22	0.01	3.41	0.03	4.04*	0.06
Negative	0.13 (0.46)	0.05 (0.32)	0.00 (0.00)	0.79	0.01	2.16	0.02	2.43	0.04
Neutral	8.45 (2.90)	8.85 (7.23)	8.29 (4.23)	0.70	0.01	0.23	0.00	0.21	0.00

Note.

[a] One-way ANOVA for continuous variables; Pearson chi-square statistic for categorical variables.

[b] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 14

Descriptive Statistics for Friendship Questionnaire Data (means with SDs in parentheses): Comorbid Oppositionality Differences

Category	Referred ADHD only (*n*=24)	Referred ADHD + oppositionality (*n*=63)	Referred Comparison (*n*=46)	Sex[a] *F (1,127)*	Sex Partial η^2	ADHD Status[a] *F (1,127)*	ADHD Status Partial η^2	Comorbid Opposition Status[a] *F (1,127)*	Comorbid Opposition Status Partial η^2
			Friendship Qualities Measure						
Referred children's ratings									
Positive friendship Features	3.91 $(0.66)_a$	3.87 $(0.59)_{ab}$	4.19 $(0.57)_b$	13.36***	0.10	4.35*	0.03	3.73*	0.06
Negative friendship features	1.60 $(0.33)_a$	1.80 $(0.47)_{ab}$	1.54 $(0.38)_b$	0.50	0.00	2.27	0.02	3.36*	0.05
Friends' ratings									
Positive friendship features	3.96 (0.70)	4.05 (0.56)	4.25 (0.48)	3.06	0.02	5.73*	0.04	2.90	0.04

Negative friendship features	1.78 (0.53)	1.72 (0.47)	1.62 (0.42)	0.85	0.01	1.48	0.01	0.98	0.02
			Friendship Satisfaction						
Referred children's ratings	$4.77\ (0.36)_{ab}$	$4.67\ (0.67)_{a}$	$4.93\ (0.23)_{b}$	0.98	0.01	4.19*	0.03	5.25**	0.08
Friends' ratings	4.79 (0.41)	4.77 (0.51)	4.96 (0.18)	0.39	0.00	4.34*	0.03	2.30	0.04

Note.

[a] One-way ANOVA.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 15

Descriptive Statistics for Friendship Observation Data (means with SDs in parentheses): Comorbid Oppositionality Differences

Category	Referred ADHD only (*n*=24)	Referred ADHD + oppositionality (*n*=63)	Referred Comparison (*n*=46)	Sex[a] *F or* χ^2 *(1,127)*	Sex Effect sizes[b]	ADHD Status[a] *F or* χ^2 *(1,127)*	ADHD Status Effect sizes[b]	Comorbid Opposition Status[a] *F or* χ^2 *(1,127)*	Comorbid Opposition Status Effect sizes[b]
			Car-Race Task						
Compliance with rules									
Total legal Manoeuvres	74.21 (13.48)$_a$	68.02 (16.56)$_{ab}$	64.39 (12.86)$_b$	0.70	0.01	9.93**	0.07	5.19**	0.08
Total illegal Manoeuvres	10.17 (5.67)$_a$	10.87 (7.23)$_a$	5.41 (5.45)$_b$	0.05	0.00	10.41**	0.08	6.34**	0.09
Affect									
Positive	10.10 (6.56)	9.48 (6.21)	10.70 (4.71)	0.28	0.00	0.51	0.00	0.26	0.00
Negative	0.30 (1.23)$_a$	0.23 (0.64)$_a$	0.02 (0.11)$_b$	4.58*	0.04	6.27*	0.05	4.66*	0.07

Neutral	5.79 (3.17)	5.67 (3.26)	4.94 (2.70)	0.22	0.00	0.97	0.01	0.49	0.01
Card-Sharing Task									
Proposal types									
Self/Other interest-based									
Altruistic Proposals	1.63 (1.79)	2.29 (2.31)	2.33 (1.61)	0.10	0.00	0.24	0.00	0.27	0.00
Neutral Proposals	2.25 (2.40)	2.49 (2.45)	2.96 (2.48)	3.97*	0.03	1.47	0.01	1.00	0.02
Self-centred proposals	$3.21\ (3.27)_{ab}$	$4.83\ (3.82)_{a}$	$1.96\ (1.73)_{b}$	0.19	0.00	8.63**	0.06	9.83***	0.13
Sensitivity									
Sensitive Proposals	0.71 (0.86)	0.59 (0.75)	0.98 (1.22)	0.35	0.00	5.05*	0.04	3.05	0.05
New	4.67 (2.96)	6.62 (4.28)	5.35 (2.86)	1.93	0.02	0.01	0.00	1.80	0.03

Proposals									
Insensitive Proposals	1.71 (3.21)$_{ab}$	2.40 (2.97)$_{a}$	0.50 (1.21)$_{b}$	0.42	0.00	7.60**	0.06	5.01**	0.07
Preference									
Expression	3.17 (3.05)	3.68 (3.70)	3.11 (3.45)	10.15**	0.07	0.01	0.00	0.42	0.01
Inquiry	0.29 (0.55)$_{a}$	0.78 (1.53)$_{a}$	1.65 (1.77)$_{b}$	5.63*	0.04	17.36***	0.12	8.82***	0.12
Responses									
Acceptance	1.21 (1.25)	1.02 (0.98)	1.26 (1.22)	1.68	0.01	1.13	0.01	1.23	0.02
Refusal	0.46 (0.72)	1.03 (1.60)	0.50 (0.84)	0.45	0.00	0.55	0.00	2.43	0.04
Balance of power (% of unbalanced dyads)	50.0	52.3	30.4	0.01	0.01	5.53*	0.20	5.57	0.21
Affect									
Positive	4.35 (3.63)	3.81 (3.91)	4.53 (3.32)	1.64	0.01	0.10	0.00	0.12	0.00
Negative	0.02 (0.08)	0.09 (0.34)	0.00 (0.00)	0.46	0.00	0.47	0.00	0.74	0.01
Neutral	10.40 (3.61)	10.52 (6.41)	9.26 (3.09)	1.41	0.01	1.79	0.01	1.43	0.02

Game-Choice Task

Proposal types									
Sensitivity									
Sensitive proposals	0.83 (1.17)	0.35 (0.65)	0.67 (1.06)	2.28	0.02	0.15	0.00	2.09	0.03
New proposals	0.79 (1.18)	1.00 (1.27)	0.78 (1.01)	0.18	0.01	0.00	0.00	0.02	0.00
Insensitive	0.79 (1.89)$_a$	0.92 (1.99)$_a$	0.09 (0.28)$_b$	0.73	0.01	7.09**	0.05	3.68*	0.06
Proposals									
Preference									
Expression	2.25 (2.11)	1.22 (1.46)	1.61 (1.79)	0.30	0.00	0.17	0.01	3.05	0.05
Inquiry	0.58 (0.78)	0.37 (0.79)	0.33 (0.67)	0.68	0.01	1.47	0.01	1.10	0.02
Responses									
Acceptance	0.67 (0.87)	0.78 (0.85)	0.83 (0.88)	0.48	0.00	0.23	0.00	0.14	0.00
Refusal	0.50 (0.88)$_a$	0.48 (1.08)$_a$	0.07 (0.25)$_b$	1.41	0.01	6.11	0.05	3.15*	0.05
Affect									
Positive	3.53 (3.81)	5.03 (4.86)	6.74 (5.16)	1.06	0.01	4.17*	0.03	2.14	0.03
Negative	0.00 (0.00)	0.10 (0.46)	0.00 (0.00)	0.27	0.00	0.87	0.01	2.08	0.03
Neutral	8.90 (3.76)	8.55 (5.94)	8.29 (4.23)	1.04	0.01	0.16	0.00	0.12	0.00

Note.

[a] One-way ANOVA for continuous variables; Pearson chi-square statistic for categorical variables.

[b] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 16

Descriptive Statistics for Friendship Questionnaire Data (means with SDs in parentheses): Medication-Status Differences

Category	Referred ADHD non-medicated (*n*=27)	Referred ADHD medicated (*n*=27)	Referred Comparison (*n*=27)	Sex[a] *F (1,75)*	Sex Partial η^2	ADHD Status[a] *F (1,75)*	ADHD Status Partial η^2	Medication Status[a] *F (1,75)*	Medication Status Partial η^2
				Friendship Qualities Measure					
Referred children's ratings									
Positive friendship Features	3.88 (0.68)	3.99 (0.57)	4.25 (0.63)	8.54**	0.10	4.78*	0.06	2.48	0.06
Negative friendship features	1.75 (0.34)	1.71 (0.56)	1.57 (0.45)	0.79	0.01	1.90	0.03	1.07	0.03
Friends' ratings									
Positive friendship features	4.06 (0.62)	4.16 (0.50)	4.29 (0.43)	4.54*	0.06	2.10	0.03	1.05	0.03

Negative friendship features	1.71 (0.49)	1.61 (0.20)	1.63 (0.45)	1.40	0.02	0.01	0.00	0.17	0.00
Friendship Satisfaction									
Referred children's ratings	4.54 $(0.80)_a$	4.77 $(0.47)_{ab}$	4.91 $(0.27)_b$	0.02	0.00	4.32*	0.06	3.80*	0.09
Friends' ratings	4.81 (0.52)	4.89 (0.29)	4.94 (0.21)	0.29	0.00	1.19	0.02	0.63	0.02

Note.

[a] One-way ANOVA.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 17

Descriptive Statistics for Friendship Observation Data (means with SDs in parentheses): Medication-Status Differences

Category	Referred ADHD non-medicated (*n*=27)	Referred ADHD medicated (*n*=27)	Referred Comparison (*n*=27)	Sex[a] *F or* χ^2 *(1,75)*	Sex Effect sizes[b]	ADHD Status[a] *F or* χ^2 *(1,75)*	ADHD Status Effect sizes[b]	Medication Status[a] *F or* χ^2 *(1,75)*	Medication Status Effect sizes[b]
			Car-Race Task						
Compliance with rules									
Total legal Manoeuvres	72.26 (17.22)$_a$	72.85 (14.12)$_a$	60.22 (12.94)$_b$	0.01	0.00	12.03**	0.14	6.03**	0.14
Total illegal Manoeuvres	10.89 (7.10)$_a$	10.11 (6.66)$_a$	4.85 (5.90)$_b$	0.29	0.00	12.10**	0.14	6.24**	0.14
Affect									
Positive	11.44 (5.54)	10.47 (7.56)	10.63 (5.01)	0.01	0.00	0.02	0.00	0.01	0.00
Negative	0.05 (0.19)	0.36 (1.23)	0.00 (0.00)	0.58	0.01	1.76	0.02	2.43	0.06
Neutral	5.08 (2.75)	5.32 (3.83)	4.80 (2.97)	0.09	0.00	0.24	0.00	0.24	0.01

	Card-Sharing Task								
Proposal types									
Self/Other interest-based									
Altruistic Proposals	1.48 (1.48)	1.81 (1.52)	2.04 (2.10)	0.12	0.00	1.41	0.02	0.87	0.02
Neutral Proposals	3.07 (2.67)$_{ab}$	1.89 (2.26)$_{a}$	3.63 (2.72)$_{b}$	1.82	0.02	3.86	0.05	3.52*	0.09
Self-centred Proposals	4.48 (3.52)$_{a}$	3.52 (3.58)$_{a}$	4.00 (1.53)$_{b}$	0.54	0.01	11.92**	0.14	6.64**	0.15
Sensitivity									
Sensitive proposals	0.56 (0.70)$_{ab}$	0.44 (0.58)$_{a}$	1.07 (1.33)$_{b}$	0.10	0.00	8.47**	0.10	4.36*	0.10
New Proposals	7.22 (3.88)$_{a}$	4.81 (3.44)$_{b}$	5.78 (3.82)$_{ab}$	2.74	0.04	0.03	0.00	3.50*	0.09

Insensitive	1.26 (2.26)$_{ab}$	1.96 (2.28)$_{b}$	0.33 (1.21)$_{a}$	0.03	0.00	7.71**	0.09	4.58*	0.11
Proposals									
Preference									
Expression	3.85 (3.07)	4.19 (4.05)	3.96 (4.00)	8.83**	0.11	0.04	0.00	0.19	0.01
Inquiry	0.41 (0.69)$_{a}$	0.56 (1.42)$_{a}$	1.96 (2.23)$_{b}$	9.30**	0.11	20.09***	0.21	10.21***	0.21
Responses									
Acceptance	1.19 (1.11)	1.07 (1.11)	1.44 (1.31)	1.89	0.03	2.46	0.03	1.28	0.03
Refusal	0.52 (0.89)	0.93 (1.21)	0.52 (0.94)	0.02	0.00	0.86	0.01	1.13	0.03
Balance of power (%	37.0	55.5	25.9	0.01	0.01	5.53*	0.20	5.06	0.25
of unbalanced dyads)									
Affect									
Positive	4.82 (4.30)	4.75 (4.05)	4.43 (3.08)	0.28	0.00	0.17	0.00	0.20	0.01
Negative	0.01 (0.05)	0.03 (0.14)	0.00 (0.00)	0.06	0.00	0.70	0.01	0.39	0.01
Neutral	9.27 (2.78)	11.62 (9.42)	9.48 (2.90)	2.81	0.04	0.77	0.01	1.65	0.04
Game-Choice Task									
Proposal types									

Sensitivity									
Sensitive proposals	0.48 (0.75)	0.37 (0.79)	0.48 (0.85)	1.54	0.02	0.15	0.00	0.12	0.00
New proposals	0.70 (1.03)	1.00 (1.18)	0.78 (1.12)	0.61	0.01	0.01	0.00	0.58	0.02
Insensitive Proposals	0.70 (1.75)	1.07 (1.92)	0.89 (1.83)	0.28	0.00	5.50*	0.07	2.98	0.07
Preference									
Expression	1.93 (2.15)	1.30 (1.56)	1.59 (1.78)	0.74	0.00	0.09	0.00	0.31	0.01
Inquiry	0.44 (0.75)	0.30 (0.61)	0.22 (0.51)	3.89	0.05	0.94	0.01	0.78	0.02
Responses									
Acceptance	0.56 (0.85)	0.96 (0.85)	0.70 (0.95)	1.54	0.02	0.00	0.00	1.76	0.05
Refusal	0.41 (1.12)	0.41 (0.89)	0.04 (0.19)	2.38	0.03	4.17*	0.05	2.19	0.06
Affect									
Positive	5.65 (4.97)	4.5 (4.45)	7.17 (5.48)	0.96	0.01	3.12	0.04	1.69	0.04
Negative	0.10 (0.54)	0.06 (0.24)	0.00 (0.00)	0.65	0.01	1.31	0.02	1.14	0.03
Neutral	7.73 (5.47)	8.76 (3.20)	7.53 (4.07)	0.28	0.00	0.67	0.01	0.44	0.01

Note.

[a] One-way ANOVA for continuous variables; Pearson chi-square statistic for categorical variables.

[b] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 18

Descriptive Statistics for Friendship Questionnaire Data (means with SDs in parentheses): Dyadic Analyses

Category	ADHD/ADHD dyad (*n*=22)	Mixed dyad (*n*=22)	Comparison dyad (*n*=22)	Sex[a] *F (1,60)*	Sex Partial η^2	ADHD Status[a] *F (1,60)*	ADHD Status Partial η^2	Dyadic Status[a] *F (1,60)*	Dyadic Status Partial η^2
Friendship Qualities Measure									
Positive friendship Features	4.13 (0.64)	3.86 (0.61)	3.99 (0.61)	16.57***	0.22	1.76	0.03	2.19	0.07
Negative friendship features	1.75 (0.63)	1.59 (0.25)	1.63 (0.42)	2.56	0.04	0.15	0.00	0.37	0.01
Friendship Satisfaction	4.76 (0.56)	4.73 (0.51)	4.86 (0.32)	0.71	0.01	1.16	0.02	0.59	0.02

Note.

[a] One-way ANOVA.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 19

Descriptive Statistics for Friendship Observation Data (means with SDs in parentheses): Dyadic Analyses

Category	ADHD/ADHD dyad (*n*=22)	Mixed dyad (*n*=22)	Comparison dyad (*n*=22)	Sex[a] *F or* χ^2 *(1,60)*	Sex Effect sizes[b]	ADHD Status[a] *F or* χ^2 *(1,60)*	ADHD Status Effect sizes[b]	Dyadic Status[a] *F or* χ^2 *(1,60)*	Dyadic Status Effect sizes[b]
				Car-Race Task					
Compliance with rules									
Total legal Manoeuvres	61.95 (19.17)$_a$	70.68 (15.07)$_b$	64.05 (13.61)$_a$	0.47	0.01	1.78	0.03	3.56*	0.11
Total illegal Manoeuvres	11.55 (7.19)$_a$	11.77 (7.08)$_a$	5.68 (5.92)$_b$	6.32*	0.10	8.97**	0.13	4.57*	0.13
Affect									
Positive	10.29 (6.66)	9.02 (5.94)	9.64 (4.47)	1.86	0.03	0.01	0.00	0.22	0.01
Negative	0.17 (0.49)	0.55 (1.39)	0.00 (0.00)	0.13	0.00	2.54	0.04	2.88	0.09
Neutral	5.41 (3.38)	5.98 (3.06)	5.35 (2.81)	0.85	0.01	0.09	0.00	0.11	0.00

	Card-Sharing Task								
Proposal types									
Self/Other interest-based									
Altruistic Proposals	2.36 (2.11)	1.23 (1.48)	1.68 (1.59)	0.02	0.00	0.17	0.00	1.74	0.06
Neutral Proposals	2.55 (2.41)	1.82 (2.46)	2.18 (2.97)	2.92	0.05	3.46	0.06	2.26	0.07
Self-centred proposals	$3.68\ (3.59)_{ab}$	$4.82\ (3.80)_{a}$	$2.09\ (2.00)_{b}$	0.95	0.02	5.98*	0.09	3.53*	0.11
Sensitivity									
Sensitive Proposals	0.55 (0.80)	0.55 (0.60)	1.09 (1.48)	0.01	0.00	5.55*	0.09	2.78	0.09
New Proposals	5.82 (4.06)	5.00 (3.44)	5.32 (3.21)	1.56	0.03	0.01	0.00	0.51	0.02

Insensitive Proposals	2.23 (3.19)	2.32 (3.55)	0.86 (1.58)	1.35	0.02	2.88	0.05	1.50	0.05
Preference									
Expression	3.32 (4.35)	3.50 (3.10)	3.55 (4.40)	7.46**	0.11	0.88	0.00	0.82	0.01
Inquiry	$0.59\ (1.53)_{a}$	$0.77\ (1.11)_{a}$	$1.68\ (2.35)_{b}$	6.07*	0.09	6.79*	0.10	3.47*	0.10
Responses									
Acceptance	1.00 (0.93)	1.05 (1.09)	1.27 (0.39)	1.20	0.02	1.48	0.02	0.76	0.03
Refusal	0.86 (1.28)	0.64 (1.09)	0.55 (0.69)	0.10	0.00	0.52	0.01	0.26	0.01
Balance of power (% of unbalanced dyads)	50.0_{ab}	63.6_{a}	31.8_{b}	0.01	0.01	5.53*	0.20	4.49	0.26
Affect									
Positive	3.99 (3.96)	4.47 (3.89)	3.91 (3.01)	2.80	0.05	0.21	0.00	0.20	0.01
Negative	0.22 (0.54)	0.00 (0.00)	0.00 (0.00)	1.71	0.03	0.86	0.01	1.71	0.05
Neutral	10.56 (3.74)	9.89 (3.07)	9.83 (3.07)	0.04	0.00	0.09	0.00	0.05	0.00
Game-Choice Task									
Proposal types									

Sensitivity									
Sensitive proposals	0.23 (0.53)	0.68 (1.04)	0.63 (1.14)	0.61	0.01	0.61	0.01	1.18	0.04
New proposals	1.09 (1.19)	1.18 (1.47)	0.82 (1.18)	1.90	0.03	0.24	0.00	0.32	0.01
Insensitive Proposals	1.41 (2.61)	1.14 (2.05)	0.14 (0.35)	1.13	0.02	3.70	0.06	1.85	0.06
Preference									
Expression	1.18 (1.40)	2.41 (2.24)	1.79 (1.35)	0.11	0.04	0.81	0.01	1.36	0.04
Inquiry	0.23 (0.53)	0.44 (0.85)	0.33 (0.29)	0.29	0.00	0.89	0.01	1.39	0.02
Responses									
Acceptance	0.95 (1.13)	0.91 (0.81)	0.77 (0.92)	2.40	0.04	0.00	0.00	0.01	0.00
Refusal	$0.45\ (0.91)_{ab}$	$0.68\ (1.04)_{a}$	$0.05\ (0.21)_{b}$	0.06	0.00	5.14*	0.08	4.30*	0.13
Affect									
Positive	4.64 (3.93)	4.19 (4.81)	6.76 (5.50)	3.07	0.05	2.22	0.04	1.11	0.04
Negative	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Neutral	7.98 (4.50)	8.36 (2.82)	7.70 (4.39)	1.53	0.03	0.03	0.00	0.01	0.00

Note.

n.a. = Not applicable.

[a] One-way ANOVA for continuous variables; Pearson chi-square statistic for categorical variables.

[b] Effect size type: Partial η^2 for continuous variables; Cramer's V for categorical variables.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 20

Mixed Dyads Paired Sample T-test for Friendship Questionnaire Data (means with SDs in parentheses)

Category	ADHD member (n = 65)	Non-ADHD member (n = 65)	t (64)
Friendship Qualities Measure			
Positive friendship features	3.79 (0.57)	3.97 (0.59)	-2.30*
Negative friendship features	1.74 (0.36)	1.70 (0.42)	0.67
Friendship satisfaction	4.68 (0.61)	4.78 (0.48)	-1.25

Note.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 21

Mixed Dyads Paired Sample T-test for Friendship Observation Data (means with SDs in parentheses)

Category	ADHD member (n = 65)	Non-ADHD member (n = 65)	t (64)
	Care-Race Task		
Compliance with rules			
Total legal manoeuvres	72.35 (13.89)	67.15 (14.11)	5.00***
Total illegal manoeuvres	10.38 (6.71)	6.52 (7.56)	4.22***
Affect			
Positive	9.44 (6.19)	5.70 (2.93)	6.75***
Negative	0.28 (0.93)	0.07 (0.24)	1.80
Neutral	5.80 (3.18)	5.72 (2.90)	0.27

	Card-Sharing Task		
Proposal types			
Self/Other interest-based			
Altruistic proposals	2.02 (2.23)	2.20 (2.33)	-0.65
Neutral proposals	2.38 (2.45)	3.00 (2.61)	-1.74
Self-centred proposals	4.62 (3.77)	3.25 (3.70)	3.38**
Sensitivity			
Sensitive proposals	0.65 (0.78)	1.18 (1.33)	-2.89**
New proposals	6.17 (4.06)	6.12 (4.27)	0.09
Insensitive proposals	2.20 (3.00)	1.23 (2.61)	3.32**
Preference			
Expression	3.62 (3.24)	3.43 (2.87)	0.48
Inquiry	0.66 (1.29)	0.78 (1.30)	-0.60
Responses			

Acceptance	1.09 (1.10)	1.09 (1.04)	0.00
Refusal	0.88 (1.48)	0.77 (1.22)	0.63
Affect			
Positive	3.96 (3.81)	3.83 (4.16)	0.31
Negative	0.02 (0.09)	0.05 (0.25)	-1.88
Neutral	10.47 (6.31)	10.59 (6.93)	-0.45
Game-Choice Task			
Proposal types			
Sensitivity			
Sensitive proposals	0.57 (0.92)	0.38 (0.68)	1.30
New proposals	0.89 (1.26)	0.86 (1.01)	0.17
Insensitive proposals	0.71 (1.66)	0.51 (1.94)	1.24
Preference			
Expression	1.62 (1.81)	1.85 (1.85)	-1.01

Inquiry	0.49 (0.85)	0.29 (0.71)	1.89
Responses			
Acceptance	0.68 (0.73)	0.71 (0.86)	-0.19
Refusal	0.49 (1.06)	0.23 (0.71)	1.79
Affect			
Positive	4.61 (4.87)	5.56 (6.38)	-1.53
Negative	0.10 (0.45)	0.23 (1.35)	-0.96
Neutral	8.87 (5.70)	10.02 (5.98)	-2.88**

Note.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

APPENDIX A

Friendship Nomination Form (Parker & Asher, 1993)

Your Name: _____ Date: _____

General Instructions: Please write the names of your friends. You can write as few or as many names as you want. For each friend, put down how long you have been friends, and whether or not this is your best friend in the whole world. We will not tell anybody your answers.

Friend's Name	How long have you been friends?	Is this your best friend in the whole world? (yes or no)
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____

Where did you meet each other?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

APPENDIX B

Friendship Qualities Measure

(FQM; Grotpeter & Crick, 1996)

Name: _____ Date: _____

THINGS I DO WITH MY FRIEND

I'm going to read you some sentences about friendships. Please put an "X" in the box that tells how true each sentence is about your friendship with _____.

Examples:

A. I like to play soccer with my friend.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

B. My friend and I both like to clean our rooms.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

****

1. My friend gives me advice with figuring things out.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

2. My friend ignores me when he/she is mad at me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

3. It is easy to make up quickly with my friend after we have a fight.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

4. I can tell my friend about my problems.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

5. I feel jealous if I see my friend playing with another kid.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

6. My friend hits and kicks me when he/she is mad at me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

7. My friend can tell me his/her secrets.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

8. My friend makes me feel important and special.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

9. I get mad at my friend a lot.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

10. When my friend and I don't like someone, we won't let them play with us.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

11. My friend and I threaten to beat others up if they don't do what we tell them to do.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

12. My friend would rather play alone with me, and not with other kids.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

13. My friend does fun things with me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

14. My friend gets mad at me a lot.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

15. My friend shares things (like CDs or games) with me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

16. My friend tells my secrets to other kids when he/she is mad at me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

17. It is easy to get over arguments with my friend.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

18. I can tell my friend my secrets.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

19. It's OK with me if my friend plays with other kids when I am busy.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

20. My friend says he/she will beat me up unless I do what he/she says.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

21. My friend can talk with me about the things that make him/her sad.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

22. My friend tells me I am good at things.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

23. I disagree with my friend a lot.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

24. When my friend and I are mad at someone, we ignore them or don't talk to them.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

25. My friend and I hit and kick others we are mad at.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

26. My friend gets jealous if he/she sees me playing with another kid.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

27. My friend plays with me at recess.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

28. My friend gets annoyed with me a lot.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

29. My friend tells me he/she won't like me anymore unless I do what he/she says.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

30. My friend does special favours for me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

31. My friend pushes and shoves me when he/she is mad at me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

32. When one of us hears a rumor about someone we don't like, we tell each other and pass it on.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

33. I can talk with my friend about the things that make me sad.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

34. It's OK with my friend if I play with other kids when he/she is busy.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

35. It is easy to talk to my friend about how to get over being mad at each other.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

36. My friend and I push and shove others when we are mad at them.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

37. My friend can tell me about his/her problems.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

38. My friend annoys me a lot.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

39. My friend says he/she is sorry if he/she hurts my feelings.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

40. My friend won't let me play with him/her and his/her other friends when he/she is mad at me.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

41. I would rather play alone with my friend and not other kids too.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

42. My friend disagrees with me a lot.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

43. My friend picks me as a partner for things.

Not at all true	Hardly ever true	Sometimes true	Almost always true	Always true

44. How is this friendship going?

It's going really badly	It's going kind of badly	It's going OK	It's going pretty well	It's going really well

45. How happy are you with this friendship?

Very unhappy	A little unhappy	Not really happy or unhappy	Kind of happy	Very happy