Predictors of the Quality of Friendships in Children with Attention Deficit Hyperactivity Disorder (ADHD)

by

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B.A., University of Regina, 2004

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Abstract

The purpose of this study was to determine whether child behaviour characteristics and parental attachment are predictive of quality of friendships in children with Attention Deficit Hyperactivity Disorder (ADHD). Participants were 30 children aged 8 through 12 with ADHD from local schools in Victoria and one primary care-giver for each child. Based on multiple regressional analyzes were three predictors, Anger/Alienation, Trust, and Social Problems explained unique variation in children's quality of friendship. Results provide support that the more children characterized their attachment to primary caregivers by Anger/Alienation, the lower they rated their quality of friendship with peers. In addition, the more children characterized their attachment to primary caregivers by Trust, the higher they reported their quality of friendship with peers to be. Finally, the more social problems parents reported their children experiencing the lower the children reported their friendship quality to be.

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Chapter One: Introduction

Overview

Attention Deficit Hyperactivity Disorder (ADHD) is classified as an externalizing childhood disorder, meaning that the disorder is overtly expressed with observable behaviours. The symptoms manifest as long-standing, pervasive, and developmentally extreme difficulties in inattention and/or hyperactivity and impulsivity. Emotional and behavioural difficulties are often found in such children (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, 4th ed. –Text Revision, 2000). These include impatience, distractibility, restlessness, depression, anxiety, and lack of self-regulatory behaviours (Barkley, 2003).

The diagnosis of ADHD is approximately 100 years old, dating back to the work of the British physician George Still (Oltmanns, Emery & Taylor, 2002). It was Still who examined a group of children whom he described as having a deficit in "volitional inhibition" or a "defect in moral control" over their own behaviour. Interest in children with such problems in North America arose around 1917 and continued well into the 1950s, when clinicians became interested in the more specific behaviours of hyperactivity and poor impulse control, labelling children with such characteristics as having hyperkinetic impulse disorder (Barkley, 2003).

During the 1970s, increasing interest arose concerning children who demonstrated problems with sustained attention in addition to impulse problems, and hyperactivity. Douglas (1972) theorized that the disorder involved four key deficits: (1) the investment, organization, and maintenance of attention and effort, (2) the ability to inhibit impulsive behaviours, (3) the ability to modulate arousal levels to meet situational demands, and (4)

an unusually strong inclination to seek immediate reinforcement. As a result of Douglas's work, the disorder eventually was renamed "attention deficit hyperactivity disorder".

The current definition of ADHD according to the DSM-IV-TR (APA, 2000) continues to include persistent patterns of inattention and/or hyperactivity-impulsivity that can be observed across multiple contexts including school, home, and other social situations as a primary diagnostic criterion. Inattention often becomes evident in terms of an individual's inability to pay attention to detail or stay on-task. Individuals with inattention difficulties often present impairments in sustaining attention in play activities or failure to give close attention to details, losing focus relatively easily. Hyperactivity is often exhibited in the individual's inability to remain seated or in one place for a prolonged period of time or the appearance of always being on the go. An individual with patterns of hyperactivity may have trouble playing quietly and engaging quietly in leisure activities, and often appear restless. Impulsivity is displayed in the form of impatience, difficulty with turn-taking and delaying responses, excessively interrupting others, and the lack of self-regulatory behaviours including the inability to process the consequences of their actions (APA, DSM-IV-TR, 2000).

According to the DSM-IV-TR (APA, 2000) in addition to the essential features of inattention and/or hyperactivity-impulsivity displayed in individuals with ADHD, several other associated features are linked with the disorder. Such features vary depending on the individual but often include difficulty in modulating their level of arousal and controlling their temper, low tolerance to frustration, bossiness, excessive and frequent insistence that their needs be met immediately, and peer rejection. In addition, a

significant portion of individuals with ADHD also meet the criteria for other disorders including Conduct Disorder, Oppositional Defiant Disorder, Learning Disorders, Mood Disorders, and Communication Disorders.

The DSM-IV-TR (APA, 2000) asserts that some individuals with ADHD present difficulties with only one of the essential features, while others demonstrate both, thus the disorder has three subtypes. The subtypes include: (1) ADHD predominantly inattentive type, (2) ADHD predominantly hyperactive-impulsive type, and (3) ADHD combined type. Regardless of subtype, the symptoms must have persisted for at least six months prior to diagnosis. Recent incidence estimates suggest that the prevalence of ADHD is estimated at three to five percent of school age children (APA, DSM-IV-TR, 2000).

Statement of the Problem

Children with ADHD have often been perceived in a negative manner. Children with such disorder often receive labels such as dreamy, distractible, disorganized, or trouble makers (Whalen & Henker, 1998). Children with such disorder present numerous difficulties associated with attentional and behavioural control (Landu, Milich, & Diener, 1998). For example, it would not be uncommon for a child with ADHD to interrupt a conversation or to blurt out the answer to a question before it is asked. It is not surprising then, that children with ADHD often experience difficulties with social relations. Impairments in social relations are increasingly being considered the hallmark of ADHD (Whalen & Henker, 1998). In regard to peer relations, children with ADHD are frequently rejected by peers and experience difficulties in initiating and maintaining friendships (Bussing, Zima, & Perwien, 2000; Hoza et al., 2005).

The social domain of development is of utmost importance (Erwin, 1998). We live in a social world involving constant interactions with others. As children get older, they venture away from the home, and begin to develop relationships with others. Chief among these relationships are friendships with peers (Erwin, 1998).

Friendships can play an important role in the lives of children. The development and maintenance of friendships have been shown to contribute to concurrent and subsequent healthy social adjustment (Bagwell, Newcomb & Bukowski, 1998). Friendship can provide self-esteem enhancement and promote self-worth (Newcomb & Bagwell, 1995). Research has shown, however, that quality of friendship may have a larger contributing role to child development than quantity of friendship. In order for friendship to play a positive role in development, it is essential that the quality of friendship be high (Berndt, 2002). High-quality friendships are characterized by the presence of positive features. These features include aspects such as intimacy, conflict management, and loyalty (Shulman, Elicker, & Sroufe, 1994).

Examining the friendships of children with ADHD is an important area of research. As mentioned above, friendships containing positive features can contribute to healthy adjustment, while friendships with negative features may hinder healthy development (Berndt, 2002). Research indicates that children with ADHD who are perceived as unpopular by peers have lower levels of self-esteem than children perceived as popular (Bussing et al., 2000). As such, examining the features that are found in the friendships of children with such disorder warrants research.

Children with ADHD often exhibit several characteristics that may influence the manner in which they are perceived by their peers. Patterns of disruptive, intrusive,

excessive, negative, and emotionally inappropriate behaviours are frequently observed in children with ADHD (Barkley, 2003). Such aversive behaviours often lead to these children having fewer friends and experiencing more peer rejection than children without ADHD (Hinshaw, 2002; Hinshaw & Melnick, 1995). Children with ADHD experience social skill and performance deficits in the areas of communication skills, intrusive overt behaviours, poor emotional regulation, and biased social cognitive performances that may contribute to their impairments in social relations (Guevremont & Dumas, 1994).

An important factor that may influence the development of impairments in peer relations in children with ADHD is parental attachment. Attachment theory is particularly useful for the study of the connection between family and peer associations because it predicts the associations of child-caregiver attachment and other close relationships (Kerns, Klepac, & Cole, 1996). Extensive research exists on the role of parental attachment in the development of high-quality friendships (Bippus & Rollin, 2003; Engels, Kinkenauer, Meeus, & Dekovic, 2001; Kerns, 1994; Kerns et al., 1996; Shulman et al., 1994). Little is known however, concerning the effects of parental attachment on the development of high-quality friendships in children with ADHD.

The overarching goal of any discipline should be to expand the current knowledge base and in the literature. Research suggests that in the study of ADHD, a gap in knowledge presently exists concerning possible variables that may influence the quality of friendship of children with this disorder.

Purpose of the Study

As such, the purpose of this quantitative study was to examine the relationship between the self-described qualitative aspects of friendships, parental attachment, and child behaviour characteristics as described by parents in children with ADHD.

Specifically, do parental attachments and child behaviour characteristics predict friendship quality in children ages 8 through 12 with ADHD.

Definition of Terms

The following definitions are offered to ensure proper interpretation of the terminology used in the study.

1. ADHD – an externalizing disorder beginning in childhood characterized by persistent patterns of inattention and/or hyperactivity that are frequently displayed and are more severe than is typically observed in other individuals at a similar developmental level (APA, DSM-IV-TR, 2000).
2. Attachment - the degree to which the child perceives their primary caregivers as responsive, available, and open to communication (Bowlby, 1969). In the case of this study, particular insecure attachment styles will not be the focus of interest. Rather, attachment security will be measured on a continuum, thus providing greater sensitivity to variations among individuals who may otherwise be assigned to the same group in a categorical system.
3. High-quality Friendship – friendships containing positive features such as prosocial behaviour, intimacy, loyalty, self-esteem support, and more (Berndt, 2002).

4. Low-quality Friendships – friendships containing negative features including conflicts, rivalry, inequality, and dominance attempts (Berndt, 2002).
5. Behaviour characteristics – The types of behaviours children display in social situations including communication skills, emotional regulation, and social cognitive performance (Guevremont & Dumas, 1994).

Delimitations of the Study

The following limitations were imposed by the researcher:

1. The study was limited to children ages 8 through 12.
2. The study was limited to the following variables: predictor also called independent variables of parental attachment and child behaviour characteristics and criterion also called dependent variable of quality of friendship.
3. The study was limited to data collected from September 2005- February 2006.
4. All variables, conditions, or populations not specified in the study were considered beyond the scope of investigation.

Assumptions

The following assumptions were expected to be present in the study:

1. Children who participated in the study had at least one other child they would consider to be their friend.
2. Parents were providing accurate information concerning the ADHD diagnosis of their child, including ADHD subtype and the type professional by which their child received diagnosis from.

Summary of Chapter One

This chapter introduced the features associated with ADHD and highlighted the social impairments associated with such disorder. The importance of investigating variables that may possibly influence the quality of friendship in children with ADHD including parental attachment and child behaviour characteristics were also discussed. In the next chapter the existing literature surrounding the quality of friendships of children with ADHD will be discussed. The role of parental attachments and child behaviour characteristics on the friendship quality of children with ADHD will also be reviewed. Chapter Three will outline the research methodology for studying possible friendship quality predictors.

Chapter Two: Literature Review

Overview of Chapter Two

Friendships serve a crucial function in the lives of all children, including those with ADHD (Bussing, Zima, & Perwien, 2000). As such understanding the descriptive features and potential risk factors to the development of low-quality friendships is of utmost importance. This chapter reviews previous research surrounding the qualitative aspects of friendship in children with ADHD. In addition, the role of parental attachment and child behaviour characteristics such as intrusive behaviours and emotional regulation have on the quality of friendship will be discussed. A review of attachment theory is also included.

Review of Literature

Middle childhood is a period of rapid growth and development. It is a time in which children learn about the wider world and master new responsibilities (Berk, 2000). During middle childhood, children's physical and cognitive capacities increase, and their social world expands. The world in which we live is essentially social, in that we are constantly interacting with others. As such the social domain of development is of utmost importance (Erwin, 1998).

Social development begins with the interactions that occur between the primary caregiver and the child, within the context of the family (Ainsworth, 1989). The relationship a child has with their primary caregiver serves as an internal working model, and guides future relationships (Bowlby, 1969). As children grow and develop, they venture away from the home, and begin to establish relationships with others. Chief among these relationships are friendships with peers (Erwin, 1998).

Friendships play an important role in the lives of all children, including those with ADHD (Bussing, Zima, & Perwien, 2000). The development and maintenance of friendships can contribute to concurrent and subsequent healthy social adjustment (Bagwell, Newcomb & Bukowski, 1998). Friendship can enhance self-esteem and promote self-worth (Newcomb & Bagwell, 1995). The following section will provide a detailed description of the functions of friendship.

Functions of Friendship

In order to understand how peer relationships affect development and adaptation in children, it is important to examine why friendships form. The theory that friendship serves certain functions is a theory originally proposed by Sullivan (1953). He suggested that friendships in childhood serve five central purposes. These include: (1) to offer consensual validation of interests, hopes, and fears; (2) to bolster feelings of self-worth; (3) to provide affection and chances for intimate disclosure; (4) to promote growth of interpersonal sensitivity; and (5) to offer prototypes for later romantic, marital, and parental relations.

Recently, other researchers have added to the work of Sullivan (1953) and discovered additional functions of friendship. Newcomb and Bagwell (1995) suggest that friendships serve as a context for social, emotional, and cognitive development. In terms of social development, friendships offer children companionship and support and provide a foundation for future social relations. Emotionally, friendships provide self-esteem enhancement and positive self-evaluation. They also allow children opportunities to express emotions and gain experience in regulating emotions. Cognitively, friendships

seem to offer children information support and the opportunity to cooperate and collaborate with peers.

Friendships may serve several crucial functions for children with ADHD, especially in regards to emotional regulation and self-esteem enhancement. Children with such disorder may display greater emotional expression in their reaction to situations. It is not uncommon for children with ADHD to over-react and select responses that are less objective to a situation (Barkley, 2003). In terms of self-esteem, friendships may also serve an important function for children with ADHD. Although research involving the study of self-esteem in children with ADHD has yielded some conflicting results, evidence indicates that children with such disorder may experience lower levels of self-esteem than neuro-typical children (Slomkowski, Klein & Mannuzza, 1995). Thus friendships may grossly enhance the quality of life of children with ADHD (Landu et al., 1998).

The development of friendships can be conceptualized as a dynamic process. Selman (1980) presents a detailed description of sequential stages in the development of friendship. During the initial stage, which begins in early childhood, friends are chosen for immediate and concrete reasons. For example, the child may want someone to play with or participate in activities with. Next, friends begin to be perceived as sources of help, whose importance goes beyond the immediate encounter. Finally, at its most advanced level, friendship is based on mutuality, reciprocity, intimacy, and trust (Newcomb & Bagwell, 1995). It is during middle childhood and preadolescence that such reciprocal and intimate relationships begin to form (Shulman et al., 1994).

The development and maintenance of friendships can contribute to concurrent and subsequent healthy social adjustment (Bagwell, Newcomb & Bukowski, 1998). Children can benefit socially as well as psychologically from positive peer relations (Hartup & Stevens, 1999). Friendships offer children a feeling of intimacy, affection, and a sense of belonging. Furthermore, friendships may decrease the likelihood that a child will develop internalizing problems such as depression and loneliness (Bagwell et al., 1998). Supportive peer relations during childhood can also have positive long-term effects. The experience of having a mutual friend during childhood and experiencing low levels of peer rejection predicts successful adult adaptation (Bagwell et al., 1998).

Quality of Friendship

When studying friendship, researchers tend to focus on either quantitative or qualitative features. Distinctions are generally made between two types of peer relations: (1) acceptance by peers and (2) the mutual relationship between two individuals (Newcomb & Bagwell, 1995). Quantitative features fall under the first type of peer relations, and tend to encompass elements such as the number of friends a child has or their level of popularity with peers. Qualitative features on the other hand, fall under the second type of peer relations and involve descriptive attributes and characteristics of the friendship (Hartup & Stevens, 1999). Even though children may view being popular and accepted by peers as the most important aspect of their life, it is not as significant as they may believe (Hartup, 1996). It is the presence of mutual and reciprocal friendship that is of utmost importance for the child's healthy development and subsequent adjustment (Sanderson & Siegal, 1995).

The quality of friendship provides a different social context and serves a different function in social development than does the quantity of peer relations (Newcomb & Bagwell, 1995). Research has shown that the qualitative features which define a friendship may be more predictive of positive development in a child than the number of friends one has (Berndt, 1996). In order for friendship to play a positive role in development, it is essential that the friendship be high in quality (Berndt, 2002). High-quality friendships are characterized by the presence of positive features. These features include aspects such as intimacy, conflict management, and loyalty (Shulman et al., 1994). Negative features of friendships on the other hand, may include behaviour such as conflict, domination, and rivalry. Friendships with positive features are correlated with higher self-perceived social acceptance and self-esteem (Berndt, 2002).

The qualitative features that exist in a friendship can have both direct and indirect effects on the individuals in the relationship. Direct effects often include elements such as an increased ability to cope with stressors, improvements in social adjustment (i.e. involvement in school and sociability), and the promotion of self-esteem (Berndt, 2002). Indirect effects, on the other hand, encompass elements such as the degree to which children are influenced by the characteristics their friends display (Berndt, 2002). When the friendship possesses high-quality features the direct and indirect effects can be expected to be positive, however, when the friendship contains low-quality features the opposite is expected (Berndt, 2002). Because the quality of friendship serve a central function in the subsequent development of the child, it is essential that the quality of the friendships in children with ADHD are examined.

Quality of Friendship and ADHD

Given the evidence demonstrating the positive or negative effects the quality of friendship has on children, one is left to wonder whether the same would apply for children with ADHD. Research is thus required to evaluate the qualitative features of friendships and their effects on such children (Blachman & Hinshaw, 2002). Although children with ADHD are frequently rejected, or deemed unpopular by peers, this is not to say that such children never experience friendship (Erhardt & Hinshaw, 1994; Hodgens et al., 2000). There is evidence to suggest that children with ADHD develop friendships, and maintain social contacts that typically comprise other children with ADHD, or other rejected youth (Hinshaw & Melnick, 1995). One difficulty with this is that, when peer-rejected youngsters identify and befriend one another, they may be finding tolerance and even encouragement for the sensation-seeking behaviour (i.e. non-compliant disruptive behaviours) they often display (Whalen & Henker, 1985). The friendships of children with ADHD thus require further examination to determine the specific characteristics that define them.

On the rare occasions where the quality of friendship in children with ADHD has been examined, high levels of negative features have been discovered (Blachman & Hinshaw, 2002; Hinshaw & Melnick, 1995). One may speculate that the difficult characteristics, such as aggression, hyperactivity, and lack of self-regulatory behaviours displayed by children with ADHD may be carried on into their friendships. Research supports this assumption. It has been demonstrated that when children with ADHD participate in mutual friendships, the relationships can be described as of being low in

quality and containing features such as conflict and aggression (Heiman, 2000; Hinshaw & Melnick, 1995; Hunter & Elias, 1999).

Other research has demonstrated, however, that it is not impossible for children with ADHD to display positive features in their friendships. A study conducted by Hansen, Messier, and Ovens (2000) provided group play therapy intervention to children with ADHD. The researchers provided 30 such children with a 15 week program consisting of therapeutic activities, games, and recreational activities. The children were schooled on topics such as communication, conflict resolution, anger management, and self-monitoring/ organization. Overall it was discovered that following the intervention, the children displayed a significant improvement in total behaviour problems. This evidence suggests that children with ADHD can be taught how to display positive features necessary to establish and maintain friendships. The question then remains as to what factors may influence the quality of friendship in children with ADHD.

Social Impairments of Children with ADHD.

The social impairments and behaviour characteristics of children with ADHD may be one potential factor influencing the quality of their friendships. Guevremont and Dumas (1994) theorized that both social skill deficits, as well as performance deficits may contribute to the social problems experienced by children with ADHD. Social skill deficits occur when the child does not posses the requisite knowledge or behavioural skills necessary for successful interactions. Performance deficits on the other hand, are when the child may possess skilful behaviour but may not employ the behaviour frequently enough or in the appropriate situation (Landu et al., 1998). Children with ADHD may possess such requisite skills, but may experience difficulties in consistently

and efficiently implementing these skills in response to daily social challenges (Engels et al., 2001; Guevremont & Dumas, 1994).

The research conducted by Guevremont and Dumas (1994) has uncovered social skill and performance deficits in four distinct areas: (a) a high rate of intrusive overt behaviours, (b), poor emotional regulation (c) deficient communication skills and reciprocity, and (d) biased social-cognitive performance. Each of these areas may influence the manner in which children with ADHD are perceived and treated by their peers, as well as the way such children perceive and treat their peers. It appears that the more immature, intrusive, disruptive, and aggressive behaviours displayed by such children, the more peer rejection and difficulties in maintaining friendships they face (Blachman & Hinshaw, 2002).

Intrusive Overt Behaviour. In regards to intrusive overt behaviour displayed by children with ADHD, aggression and non-compliance will be discussed and focused on. Children with ADHD have been found to engage in more aggressive and non-compliance acts than same age peers (Hinshaw, 2002; Shulman, 1994). When interacting with peers, children with ADHD often behave in a more aggressive manner than children with no such disorder (Erhardt & Hinshaw, 1994; Hinshaw, 2002; Hinshaw et al., 1997; Thurber, Heller, & Hinshaw, 2002). Children with ADHD make threats, tease and taunt peers, and even engage in physical aggression such as hitting, shoving, and kicking (Hinshaw et al., 1997). Although it is generally assumed that boys are the more aggressive of the sexes, both boys and girls with ADHD have been discovered to display aggressive features. Girls with ADHD have been found to engage in more verbal and physical aggression then same-sex peers (Hinshaw, 2002; Thurber et al., 2002).

It is also not uncommon for children with the ADHD to engage in non-compliant behaviours, including rule violation and swearing at peers and adults (Hinshaw, 2002; Hodgens, Cole, & Boldizar, 2000). When children display intrusive overt behaviour towards, or in the presence of peers, they may be disliked and even rejected by these peers. In fact, the socially notorious behaviours of aggression and non-compliance in children with ADHD have been discovered to be a strong predictor of negative peer nominations and rejection (Erhardt & Hinshaw, 1994).

Emotional Regulation. Emotional regulation is defined as the "extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (Thompson, Flood, & Lundquist, 1995, p. 265). Children with ADHD have been found to display increased emotionality. They often demonstrate explosive and unpredictable behaviour, easily over-reacting to a situation (Guevremont & Dumas, 1994). Children with such disorder may display greater emotional expression in their reaction to situations, be less objective in their selection of a response to a situation, and fail to take in the perspective of others (Barkley, 2003). Such impairments in emotional regulation may influence the way they are perceived by others, and others reciprocate toward them (Barkley, 2003).

It appears that the more aggressive the child is, the less ability they have to regulate their emotions. Highly aggressive children with ADHD display more intense emotional reactions and less effective emotional regulation to frustration (Hinshaw & Melnick, 1995). Situations where the goals of such children are not easily achieved may produce extreme emotional reactions. Highly aggressive children with ADHD maintain

high levels of arousal when facing challenges, which may prompt them to behave in noncompliant or rebellious fashions (Melnick & Hinshaw, 2000). Intense emotional reactivity and failure to keep emotion within performance-enhancing range may compromise a broad range of socially inappropriate behaviours such as conflict resolution, rule-following, and pro-sociability, all of which are important mediators of peer functioning (Hinshaw & Melnick, 1995).

Deficient Communication Skills and Reciprocity. Children with ADHD may experience impairments in communication skills. The DSM-IV-TR includes verbal pragmatic dysfunction as an associated feature for ADHD (APA, 2000). Researchers such as Kim and Kaiser (2000) have discovered that areas of language such as expressive and pragmatic skills have been found to be deficient in children with ADHD. Children with ADHD often perform lower than same-age peers on tests of sentence initiation, and word articulation. Such children display more inappropriate pragmatic behaviours such as frequently interrupting, talking excessively, failing to listen to what is being asked of them, and use non-specific vocabulary. Other research has demonstrated that the speech of children with ADHD may be less reflective, organized, and rule-oriented (Barkley, 2003). The behavioural characteristics of such children including distractibility, inattentiveness, and insensitivity to social cues may contribute to the language impairments they experience (Kim & Kaiser, 2000).

The language impairments of children with ADHD may contribute to their impairments in social relations, especially their friendships (Robbins, 2005). According to Kim and Kaiser (2000), children with such disorder have been found to frequently interrupt others and provide less feedback to the other speaker when engaged in

conversations. Such frequent interruptions and lack of feedback may be considered a deficient social skill because children displaying such behaviours fail to engage in appropriate conversations with peers. In addition, peers may not wish to associate with children that fail to pick up on verbal and non-verbal social cues, much like children with ADHD tend to do (DSM-IV-TR, APA, 2000)

Social-Cognitive Performance. In terms of social-cognitive performance, research suggests that the social information processing of children with ADHD is distinct and somewhat deficient from that of the normal population (Milich & Dodge, 1984). More recently, Matthys, Cuperus, and Van Engeland (1999) discovered that the social problem-solving skills of boys with ADHD were affected with respect the encoding social cues and response generation. This can be translated as meaning that children with ADHD often fail to take in all the social information available, required to make a decision concerning how to respond to the situation at hand. This lack of social information may lead children to make inappropriate choices about how to behave or respond. Children with ADHD also have difficulties in shifting behaviours to meet changing situational or role demands, often missing the subtle cues that guide social behaviour (Whalen & Henker, 1998).

Such deficiencies in the social information processing of children with ADHD may also contribute to difficulties in peer relations. Children with ADHD, especially those who have symptoms of hyperactivity and aggression have been found to attribute a more hostile intent to peers, following an ambiguous provocation by the peer (Milich & Dodge, 1984). This type of attributional process is known as the hostile attributional bias

and may lead children with ADHD to expect those around them, especially peers to behave in hostile manners towards them (Milich & Dodge, 1984).

Now that the social impairments of children with ADHD and how these impairments may affect their friendship have been reviewed, the focus of the next section of the paper will shift to examine the process by which friendships develop. Most friendships include an attachment component and can even constitute an enduring affectional bond (Ainsworth, 1989). As a result, understanding the attachment process is necessary to understanding friendship.

Attachment Theory

The study of attachment in humans was initiated by Bowlby (1969). Bowlby was influenced by ethologists such as Lorenz, who believed that human behaviours have evolved over the history of our species, because they promote survival (Berk, 2000). Bowlby (1969) applied such beliefs to the infant-caregiver bond. He believed that much like the young in animal species, human infants possess innate behaviours that help ensure that caregivers remain in close proximity. Such innate behaviours increase the chances that the infant will be protected from harm, and thus promote survival.

According to Bowlby (1969) the underlying system of attachment is the behaviour system which is the organizational structure mediating a variety of observable discrete behaviours. This system includes both outward expressions and inner organization. In terms of outward expressions, Bowlby was referring to reproductive and parental behaviour, as well as feeding and exploratory behaviour. In terms of inner organization, attachment has a strong biological base. The parent-infant bond begins as a

set of biologically programmed signals, such as crying or smiling which bring the parent to the infant's side (Bowlby, 1969).

Bowlby (1969) postulated that there are four phases that attachment progresses through. The first phase is the preattachment phase, where the infant uses built-in signals such as crying and smiling to bring adults within close proximity. The second phase is the attachment-in-the- making phase, where the infant begins to distinguish between their primary caregiver and other adults. The third phase is the phase of clear-cut attachment. In this phase, the child will experience separation anxiety if their primary caregiver leaves their side. The child will also perform deliberate actions to maintain close proximity to their caregiver, such as crawling after them. Finally, there is the formation of reciprocal relationship phase. In this phase, the child begins to use language in order to issue requests to their caregiver as means of keeping them near by.

Bowlby (1969) theorized that as a result of the experiences in these four phases, the child constructs a lasting affectional bond to their caregiver. The caregiver thus becomes an attachment figure. The set of expectations derived from early care-giving experiences concerning the availability of attachment figures, and the likehood that they will provide support becomes the child's internal working model. This model will guide and influence the subsequent relationships the child has through childhood and into adult life.

Stages of Attachment. Like Bowlby (1969), Ainsworth and her colleagues (1978) have also made several significant contributions to the theory of attachment. While Bowlby can be credited with devising a theory of how attachment is formed, Ainsworth can be credited with discovering that the quality of attachment differed from child to

child. "It is a hypothesis implicit in ethological attachment theory that differences in early social experience will lead to differences in the development and organization of attachment behaviour and hence in the nature of attachment relationships themselves" (Ainsworth, Blehar, Waters, & Wall, 1978, pp. 95). Ainsworth accomplished this feat with the Strange Situation Test, a technique designed to measure attachment. According to Ainsworth et al. (1978), if the development of attachment has been successful, infants and toddlers will use their primary caregiver as a secure base from which to explore.

The Strange Situation Test took place in Baltimore and involved 106 infant-mother pairs. Ainsworth and her colleagues (1978) visited mothers and their infants in their home during the first year of the infant's life, for four hours every three weeks. When the infants were 12 months of age, Ainsworth brought the mother and baby pair to a playroom at John Hopkins University. The purpose of the study was to see how the infant would react to two short separations from their mother. The strange situation task took infants through episodes, which involved short periods of separation and reunions with the mother.

Observations from the task led Ainsworth et al. (1978), to identify three patterns of attachment. The patterns include: securely attached infants, insecure-avoidant infants, and insecure-ambivalent infants. Main and Solomon (1990) identified a fourth pattern of attachment which they labelled as "disorganized/disoriented attachment".

Securely attached infants were found to display healthy patterns of attachment. Securely attached babies used their mothers as a safe base from which to explore. When they were separated from their mothers, they became noticeably upset. However, upon reunion, they actively sought contact with their mother and their crying reduced

immediately. The results from the home observation indicate that these mothers had been rated as sensitive and responsive to the babies' signals and communications, the mothers had been accessible, and had lovingly displayed their emotions by offering affection (Ainsworth et al., 1978).

Initially, infants classified as insecure-avoidant appeared quite independent. Such infants strained from their mother's arms toward the toys, demonstrating their eagerness to play with them. However, these infants did not use their mother as a secure base, in fact they ignored her. When the separation occurred, the infants did not become upset or agitated, and when the mother returned they did not seek closeness with her. The infants did not greet their mother; in fact they seemed to avoid her altogether. During home observations, it was discovered that mothers of insecure-avoidant infants had been described as insensitive, inaccessible, and even rejecting. Insecure-avoidant infants wanted contact with their mothers; however, the past rejection displayed by their mothers led them to avoid contact with her (Ainsworth et al., 1978).

The insecure-ambivalent pattern identified by Ainsworth et al. (1978) is also referred as a pattern of resistance. Infants receiving this type of classification were very clingy to their mothers and barely left her side at all to explore. When their mother left the room, these insecure-ambivalent infants became very upset and agitated. Upon reunion, the infants demonstrated angry, resistive behaviours; they even sometimes included hitting and pushing. They also continued to cry when their mother attempted to pick them up. It was discovered that the mothers of such infants treated them in an inconsistent manner. On some occasions, the mothers were affectionate and responsive, while on others acted in a rejecting fashion.

The fourth pattern of attachment is referred to as disorganized/ disoriented (Main & Solomon, 1990). This pattern of attachment displays the greatest level of insecurity in infants. When such babies are reunited with their mothers, they demonstrate a variety of confused, contradictory behaviours. For example, they may fail to look at the mother while being held, or approach her with flat, depressed emotion. This disorganized behaviour is apparent by the dazed facial expression the infants make.

Thus according to Ainsworth and her colleagues (1978), it can be assumed that caregivers who are sensitive, caring, and consistently meet their child's needs are likely to foster secure attachments in their children. Secure children in turn develop a perception of themselves as lovable and deserving of the responsiveness of others. On the other hand, caregivers that demonstrate inconsistent responsiveness or are rejecting towards their children foster the development of insecure attachments. Insecure children thus come to assume they are unworthy of others attention and support and perceive others as rejecting and unresponsive to their needs.

Attachment and Friendship

Now that the process by which a child forms an attachment with their primary caregivers has been reviewed, it is necessary to examine the role attachment plays in the development of friendships. Attachment is a lifelong bond with children maintaining attachment to their caregivers across childhood and even throughout their adult life (Ainsworth, 1989; Bowlby, 1977). As children grow older they continue to use their caregiver as a secure base from which to explore or even to give them a sense of reassurance under conditions of stress. As such, attachment theory is particularly useful when studying other close relations (Ainsworth, 1989).

According to Ainsworth (1989) attachments are by definition, affectional bonds, meaning that they are a relatively long-enduring tie, in which the partner is important as a unique individual and is interchangeable with none other. The question then becomes, can friendships be considered affectional bonds? The term, friendship, can represent a large variety of dyadic relationships, ranging from relationships with acquaintances, to companions, whom one spends a great deal of time with, all the way to intimate relationships. As intimate relationships are characterized by warmth, mutuality of feeling, and commitment, they can thus be classified as affectional bonds.

As children move from infancy to childhood, they begin to realize that relationships with people, other than their primary caregiver can exist. Around the age of nine or ten, children are introduced to a vast and broad scope of socializing influences (Sullivan, 1953). These new social influences open the child up to a new world, most importantly, a world consisting of peer relationships. Such relationships are thought to play an important role in the lives of children. Friendships are developmentally significant and play a central role in the adaptation of children (Hartup & Stevens, 1999).

Although the parent-child bond and friendships can both be considered attachments (Ainsworth 1989), relationships with peers are grossly different from relationships with primary caregivers. The parent- child relationship is hierarchal in nature. The parent takes on the dominant role and controls the power in the relationship, instilling in the child standards of behaviour and rules of conduct (Piaget, 1932). Peer relationships, on the other hand, are more egalitarian in nature. A sense of mutuality exists in that social giving and taking is involved (Hartup & Stevens, 1999).

Cognitive, behavioural, and affective dimensions of an individual are influenced by attachments to caregivers which in turn effect peer relations (Lieberman, Doyle, & Markiewicz, 1999). On a cognitive level, the working models of attachment are believed to promote expectations about how children should behave and how others will behave towards them. When children with secure attachments have had their needs met, they are believed to have a positive view of themselves and others. Children with secure attachments have been found to engage in positive and cooperative interactions with peers (Kerns, 1994; Shulman et al., 1994). Insecure children, on the other hand, have come to internalize expectations of rejection and not getting their needs met. As a result, such children tend to behave in a manner that leads to further rejection from peers (Goldberg, 1991).

In terms of the behavioural dimension as children grow older evidence suggests they continue to use their caregivers as a secure base from which to explore (Lieberman et al., 1999). Caregiver-child relationships built on trust and security provide children with a model or how they should act and how they should expect others to act towards them. Attachment security offers children the opportunity to develop and explore relationship with others (Kerns et al., 1996). This sense of security children receive from caregivers allows them the opportunity to develop positive social skills, thus increasing the chances that such children will learn to interact with peers in a cooperative and synchronous manner (Weimer, Kerns, & Oldenburg, 2004; Youngblade & Belsky, 1992).

Finally, at the affective level, Kobbak and Sceery (1988) and Berlin and Cassidy (2003) suggest that attachment security helps children learn to modulate negative affect constructively, allowing them to display positive emotions while interacting with peers.

Children with secure attachments develop effective emotional regulation strategies such as seeking comfort and support from an attachment figure and tend to be better adjusted than children with insecure attachments. While securely attached children demonstrate high levels of social competence and ego-resiliency, children with insecure attachments, on the other hand, experience difficulty regulating their emotions and display high levels of distress, anxiety, and hostility (Kobbak & Sceery, 1988).

When it comes down to the process of making friends, or having friends, children with both secure and insecure parental attachments often report that they have friends (Shulman et al., 1994). Upon closer inspection of the actual friendship themselves, an important finding has been made. The main difference between the friendships of children with secure and non-secure attachments can be found in terms of the quality of friendship that the children experience (Bippus & Rollin, 2003; Kerns, 1994; Shulman et al., 1994).

It was noted earlier, that children with secure attachment use their primary caregiver as a secure base from which to explore. Based on the works on Ainsworth et al. (1978) and Bowlby (1969) it can thus be assumed that securely attached children will have internalized the basic expectations and attitudes that their needs will be met and that they will be treated with warmth and love. These children will then come to anticipate these same expectations and attitudes in subsequent relationships (Bowlby, 1969). As such, children with secure attachments to their primary caregivers should also experience secure attachments and display positive features in their friendships.

Research conducted surrounding attachment and quality of friendship has discovered a relationship between the two. The more securely attached the child was

found to be, the higher the quality of friendships they experience (Bippus & Rollin, 2003; Engels et al., 2001; Kerns et al., 1996; Weimer et al., 2004). Many features of friendship deemed as high in quality are apparent in the peer relationships of such children. Such features include expressive support, mutual respect, acceptance, conflict management, affection, and intimate contact (Shulman et al., 1994). Children with secure attachment histories have higher levels of social skills with peers and are perceived by friends as engaging in pro-social behaviours such as sharing, turn-taking, and empathy (Bippus & Rollin, 2003; Shulman et al., 1994).

Children who form insecure-ambivalent or insecure-avoidant types of attachment also appear to project their working model of attachment to their friendships (Kerns, 1994). We may remember that infants with insecure and avoidant attachment displayed striking behaviours such as deflated affective tone, avoidance of close or intimate contact, and even aggression (Ainsworth, 1978). Similar behaviours have been observed in the friendships of such children as they age. Children with histories of anxious and avoidant attachment are less socially competent, display a depressed affective tone, interact inconsistently, and engage in more conflict with their friends (Shulman et al., 1994). The individual's attachment style, particularly comparing securely attached to non-securely attached individuals, affects their behaviours towards friends

Peer Relations of Children with ADHD and Attachment

The development of the attachment relationship between parent and child constitutes one of the most important aspects of human and social development (Lamb et al., 1999). As mentioned above, it is in the context of the parent-child relationship, where children learn the necessary skills to foster subsequent relationships with others. The

relationship the child has with their primary caregiver serves as an internal working model, and guides future relationships (Bowlby, 1969). If a child forms an insecure attachment with their primary caregiver, then it can be assumed that the child will experience difficulties with friendships (Ainsworth, 1989). Such an association may be helpful in explaining the difficulties in peer relations children with ADHD encounter.

Bowlby's (1969) work has provided us with the knowledge that attachment security may lead to the development of healthy and positive subsequent relationships. As such, children with insecure attachments that learned to display characteristics such as angry and resistive behaviours through interactions with primary caregivers will thus display similar behaviours with peers and other attachment figures. As previously mentioned children with ADHD frequently display aggressive and angry behaviours when interacting with peers (Barkley, 2003).

When one compares the characteristics between children with ADHD and those with insecure avoidant, ambivalent, or disorganized attachments, one striking similarity is discovered. The two groups of children display considerable deficits in social skills (Erdman, 1998; Stiefel, 1997). Impairments in peer relations for children with ADHD have been repeatedly documented throughout the literature (Bagwell, Molina, Pelham, & Hoza, 2001; Blachman & Hinshaw, 2002; Bussing et al., 2000). Difficulties with interpersonal relationships are being increasingly recognized as the hallmark of ADHD (Whalen & Henker, 1998). Difficulties in peer relations have also come to be regarded as a defining characteristic of children with insecure attachments (Bippus & Rollin, 2003). Seeing as attachment insecurity and ADHD share the same defining feature, one may

wonder whether an association may exist between the difficulties in social relations in children with ADHD and non-secure attachment to parents.

In 2002 Clarke, Ungerer, Chahoud, Johson, and Stiefel conducted a study to investigate the type of attachment children with ADHD had to their primary caregivers. The researchers discovered that most children with ADHD could be characterized as anxious-ambivalent or disorganized. The participants in this study failed to display the open, flexible emotion expression thought to reflect a secure attachment. According to the researchers, impulsive, reckless, attention-seeking, hyperactive, and defiant behaviours seen in these children were viewed as a strategy to gain the attention of caregivers who had failed to meet their security needs.

If Bowlby's (1969) theory is accurate then the participants in Clarke et al., (2002) study should have also displayed negative features such as aggression and conflict in their friendships. This study, however, failed to examine how the anxious-ambivalent or disorganized attachments found in children with ADHD were related to their friendships. Although research studying the impairments in social relations of children with ADHD and attachment is still in its infancy, a significant body of literature converges in support of such an association (Johnston & Mash, 2001; Hinshaw, Zupan, Simmel, Nigg, & Melnick, 1997; Stiefel, 1997).

As discussed above, the limited body of research conducted on the quality of friendships in children with ADHD has discovered negative features (Blachman & Hinshaw, 2002; Hinshaw & Melnick, 1995). A vast body of research, however, exists linking attachment security to relational competence and high-quality friendships (Bippus & Rollin, 2003; Engels et al., 2002; Kerns, 1994; Shulman et al., 1994). The more

securely attached the child was found to be, the higher the quality of friendships they experience (Bippus & Rollin, 2003; Engels et al., 2001; Rubin, Dwyer, Booth-LaForce, Kim, Burgess, & Rose-Krasnor, 2004). Many features of friendship deemed as high in quality are apparent in the peer relationships of such children, including expressive support, mutual respect, acceptance, conflict management, affection, and intimate contact (Shulman et al., 1994).

On the other hand, children who formed insecure-ambivalent or insecure-avoidant types of attachment also appear to project their working model of attachment onto their friendships, engaging in conflict, aggression, and lack of intimacy (Kerns, 1994; Shulman et al., 1994). Much like those with insecure attachments, children with ADHD often have been found to display negative features such as aggression and conflict in their friendships (Blachman & Hinshaw, 2002; Hinshaw & Melnick, 1995). As such, if children with ADHD had secure attachments, then it would be expected that their friendships would be high in quality.

Hypotheses

Based on the literature review several hypotheses emerged. The hypotheses were as follows:

1. Insecure parental attachment (as described by children) is expected to predict low-quality friendship. Thus, the more children characterize their attachment to parents as insecure, the lower their quality of friendship is hypothesized to be.
2. Secure parental attachment (as described by children) is hypothesized to predict high-quality friendship. Thus, the more children characterize their attachment to parents as secure, the higher their quality of friendship is hypothesized to be.

3. Negative child behaviour characteristics (as described by parents) are also hypothesized to predict low-quality friendship. Thus, the greater the amount of negative child behaviour characteristics parents report their children experiencing, the lower the quality of friendship children are hypothesized to report.

Summary of Chapter Two

This chapter examined the quality of children's friendships and reviewed the limited literature available surrounding the quality of friendship in children with ADHD. Several factors thought to influence friendship quality were outlined, including parental attachment and child behaviour characteristics. It appeared that children with histories of insecure parental attachment and high levels of negative behaviour characteristics were found to participate in friendships containing negative features. A brief review of attachment theory and the functions and development of friendship were also included. The following chapter will outline the methodology for investigating potential predictors of friendship quality in children with ADHD.

Chapter Three: Methodology

Overview of Chapter Three

This chapter describes the research design selected for this study. Sampling procedures, instrumentation, and variables of study are discussed in detail. The chapter concludes with an in-depth review of research procedures implemented.

Research Design

A correlational design employing multiple-regression analyses was performed to predict quality of friendship, as reflected in children's scores on the *Friendship Quality Questionnaire* (FQQ; Parker & Asher, 1993) and the Peer subscale of the *Inventory of Parent and Peer Attachment-Revised* (IPPA-R; Gullone & Robinson, 2005). Multiple regression analyses are statistical techniques that provide the researcher a means of assessing the relationship between the dependent variables, also called criterion variables, and several independent variables, also called predictor variables (Creswell, 2005). Regression techniques can be applied to a data set whose predictor variables are correlated with one another and with the criterion variable to varying degrees. The flexibility of regression techniques is particularly useful for researchers investigating real-world, practical problems that may not be conducive to laboratory settings (Tabachnick & Fidell, 2001). Entered into the analysis as possible predictor variables were the children's scores on the Parent subscale of the IPPA-R (Gullone & Robinson, 2005) and parents' scores on the Conners Parent Rating Scale Long –Revised (CPRS-RL; Conners, 1997).

Multiple regression is an extension of bivariate regression where two or more predictor variables, instead of simply one, are combined to predict a value on a criterion

variable. Regression analyses produce an equation representing the best prediction of the criterion variables from several predictors. The ultimate goal of this statistical procedure is to arrive at the set of regression coefficients for the predictors that bring the criterion values predicted from the equation as close as possible to the criterion obtained by measurement. The Regression coefficients minimize the deviations between predicted and obtained criterion values and optimize the correlation between the predicted and obtained criterion values for the data set (Tabachnick & Fidell, 2001).

Three major types of multiple regression exist. These include: (1) standard multiple regression; (2) sequential or hierarchal regression; and (3) statistical or stepwise regression. This study will utilize a standard multiple regression. This particular technique allows the researcher to enter all predictor variables into the equation at once; each predictor variable is assessed as if it had entered the regression after all predictor variables had entered. Each predictor is evaluated based on what it adds to the prediction of the criterion that is different from the predictability afforded by all other predictors (Tabachnick & Fidell, 2001).

It is important to note that although regression analyses uncover relationships among variables, they do not imply causality. Demonstration of causal relationships is a logical and experimental, rather than statistical problem (Tabachnick & Fidell, 2001). Although a strong relationship between the criterion variable and predictor variables may be discovered, this relationship may be the result of numerous factors, including unmeasured variables. As such it is essential that results are interpreted with caution.

Sampling

Participants were 30 children with ADHD and one primary caregiver for each child. Participants were recruited from local schools and community organizations in the Victoria, Sooke, and Saanich, British Columbia area. The participants included both females and males, and children from different ethnic, racial, and social backgrounds. No one ethnic, racial, or social class was targeted. Details of the demographic information of participants will be discussed in Chapter Four.

Instrumentation

The Friendship Quality Questionnaire (FQQ; Parker & Asher, 1993). This questionnaire consists of 40 items on a five-point Likert scale, from 'not true at all' (0) to 'really true' (4), including items relating to positive qualities of friendship, such as caring, conflict resolution, providing help, companionship, and intimate exchange. Children's responses are partitioned according to six subscales which were identified using a prinicipal-component-anlaysis. The subscales were found to have the following internal consistencies: (1) help and guidance (.90); (2) disclosure and intimate exchange (.90); (3) conflict and betrayal (.85); (4) conflict resolution (.85); (5) companionship and recreation (.85); and (6) validation and caring (.88). In regards the FQQ, this instrument was developed using a sample of children in grades three through five and has produced valid and reliable results with similar age ranges (Kiesner, Nicotra, Notari, 2005; Parker & Asher, 1993; Simpkins & Parke, 2001).

The Inventory of Parent and Peer Attachment-Revised (IPPA-R; Gullone & Robinson, 2005). This instrument is based on the original IPPA (Armsden & Greenberg, 1987) and attempts to measure parental and peer attachment by assessing affectively

cognitive expectancies associated with internalized representations of each attachment. This instrument consists of 28 item measuring parental attachment and 25 items measuring peer attachment. The revised version of this scale was reworded and normed based on a sample of children from ages 9 through 11, as oppose to the original version which was normed on an adolescent population. Specifically, 16 of the 28 parent attachment items and 14 of the 25 peer attachment items were revised. Thus, the IPPA-R is a sound and valid tool for assessing attachment in children and young adolescents (Gullone & Robinson, 2005). Responses are scored on a five-point Likert scale ranging from 'never true' (0) to 'always true' (4). Empirical research on the psychometric properties of this instrument demonstrates high internal consistencies ranging from .66-.84 (Gullone & Robinson, 2005). In addition convergent validity was established the discovery of moderate correlations between reports on the IPPA-R on self-esteem as is consistent with the work by Armsden and Greenberg (1987).

A factor analysis indicates that three factors are tapped by the IPPA-R, what Armsden and Greenberg (1987) termed a "Trust factor," a" Communication factor," and an "Anger/Alienation factor." The authors of the revised version report Cronbach's coefficient alphas for the Parent scale to be .83 for the Trust factor, .79 for the Communication factor, and .76 for the Alienation factor. Alphas for the Peer scale are reported as .80 for the Trust factor, .84 for the Communication factor, and .66 for the Alienation factor. A summary score for each scale can be calculated by summing Trust and Communication raw scores and subtracting the Alienation raw score (Gullone & Robinson, 2005). In addition consistent with finding by Armsden and Greenberg (1987), each total of the IPPA-R Parent and Peer Attachment scores correlated strongly with their

respective sub-scale scores. Correlations between sub-scales, within scales, were also consistently moderately strong (Gullone & Robinson, 2005).

Based on these summary scores, 3-week test-retest reliability coefficients were .93 for the Parent Attachment scale and .86 for the Peer Attachment scale. Construct validity was evidenced by correlations with measures of family conflict, support, and cohesion (Armsden & Greenberg, 1987).

The Conners Parent Rating Scale-Revised Long (CPRS-RL; Conners, 1997). This comprehensive instrument provides a perspective of the child's behaviour from those who interact with the child on a daily basis. The instrument includes 80 items and includes 8 subscales and 2 indices: (1) Oppositional; (2) Cognitive Problems; (3) Hyper-active-Impulsive; (4) Anxious-Shy; (5) Perfectionism; (6) Social Problems; (7) Psychosomatic; and (8) DSM-IV Symptom subscales, along with the ADHD Index and the Global Index (formerly the Hyperactivity Index). Scales were created through factor analyses in order to assess a broad range of significant problem behaviours. In addition, the instrument contains scales that correspond with symptoms used in the DSM-IV as criteria for ADHD. Response categories range from 'not at all true (0) to 'very much true' (3). Internal consistency for the subscales is of medium strength and ranges from .5 to .70.

Variables

The Predictor Variables. The predictor variables were (a) children's self-reported parental attachment as measured by the Parent subscale of IPPA-R and (b) parents ratings of child behaviour characteristics as measured by scores on the CPRS-RL.

The Criterion Variable. The criterion variable for this study was friendship quality of children. This was measured by scores on Peer subscale of the IPPA-R and the FQQ.

Procedure

The procedure for the study was as follows:

1. The University of Victoria gave ethical approval for the study (Protocol Number 05-189). Permission was also obtained from School Districts # 61, 62, and 63 to conduct research in the school setting within the respective districts. Individual community organizations also granted approval to recruit participants from such organizations.
2. Permission was obtained from school principals and teachers and community organization professionals
3. Introductory letters explaining the study and criteria for participation were sent home with children through schools and local community organizations inviting parents/guardians and their children to participate in the study (see *Appendix A*). If interested in participating, parents/guardians were asked to provide contact information and return the letter to their child's school or community organization.
4. Parents/guardians were mailed consent forms (see *Appendix B*), a demographic questionnaire (see *Appendix C*), the CPRS-RL, and stamped envelope to return the form to the principal investigator.
5. If consent was obtained from parents/guardians, then the principal investigator approached students and invited participation. Children were given a verbal

explanation of the study and signed a consent form prior to the commencement of the interview (see *Appendix D* for Child Consent Form).

6. Once consent was obtained, the *IPPA-R* and the *FQQ* was individually administered to each child by the principal investigator. The total child interview took approximately 15 minutes to complete.
7. All *IPPA-R*, *FQQ*, and *CPRS-RL* assessments were scored by the principal investigator.

Summary of Chapter Three

This chapter outlined the rational for employing a standard multiple regression procedures as a means of identifying predictors of quality of friendship in children with ADHD. Details of research methodology including sampling, instrumentation, and procedures were provided. Chapter Four will describe the data analysis and outline the results of such analyses.

Chapter Four: Results

Overview of Chapter Four

This chapter presents the statistical analyses conducted in this study. Descritpive statistics will first be discussed. Next main analyses in relation to the hypotheses of the study will be presented. Finally, the chapter will conclude with additional analyses that explore the findings in more depth.

Descriptive Statistics

Characteristics of the sample. Thirty-two children along with one primary caregiver for each child met the criteria and agreed to participate in the study. Demographic information was not able obtained from two primary caregivers. As such, the final sample consisted of 30 children comprised of 77% boys and 23 % girls and their primary caregivers (Table 1). This boy-to-girl ratio is consistent with gender differences in prevalence rates across the ADHD literature which indicates ratios ranging from 2:1 to 9:1 depending on the subtype (APA, DSM-IV-TR, 2000). The age of child participants ranged from 8 to 12 years (M = 9.7 years, SD = 1.3). The majority, (67%) of children had been diagnosed with the combined subtype of ADHD (C), while children diagnosed with predominantly Hyperactive-Impulsive (PHI) and predominantly Inattentive (PI) subtypes were 17% respectively. According to primary caregivers who identified the professional who had performed diagnosis on their children, 63% of children had been diagnosed with ADHD by a psychologist, 23% by their paediatrician, and 13% by a psychiatrist. During the time the study took place, the majority of children (77%) were receiving medication to treat the ADHD symptomology. For interpretation purposes raw scores on the CPRS-RL were converted into standard t scores and then analysed based on their index scores.

In relation to CPRS-RL all the children fell into the clinically significant profile on the ADHD Index subscale. According to Conners (1997), a clinically significant score is one that is above 65.

In terms of ethnicity, 83% of participants were Caucasian, while 10 % were Asian, and the remaining 6.7 % were First Nations. No family income was less than $10,000 with 3.3% ranging from $10,000-19,999, 46.7 from 42,000-44,999, 26.7 from $45,000-60,000, and 23.3% with family incomes greater than $60,000. The overwhelming majority of primary caregivers, 90%, were either married or living in a common-law situation. Only 10% were currently single at the time the study took place. Of primary caregiver 10% were unemployed during the time of the study, 40% worked part-time, while the remaining 50% were employed on a full-time basis.

Table 1

Participant Demographic Information

Variable	N
Age	
8	8
9	5
10	8
11	6
12	3
Gender	
Male	23
Female	7
Family Income	
Less than $10,000	0
$10,000-19,999	1
42,000-44,999	14
$45,000-60,000	8
More than $60,000	7

Table 1 (continued)

Participant Demographic Information

Ethnicity	
Caucasian	25
Asian	3
First Nations	2
Parental Marital Status	
Single	22
Married	5
Common-Law	3
Parental Employment	
Unemployed	3
Part-time	12
Full-time	15

Analysis of Data

The goal of the analyses was to determine potential predictors of friendship quality in children with ADHD. As mentioned in Chapter Three, friendship quality was defined by a composite measure of the FQQ (Parker & Asher, 1993) and the Peer subscale of the IPPA-R (Gullone & Robinson, 2005). Internal Consistencies analyses were carried out for each of the measures. Alpha coefficients were determined for the FQQ and for the overall IPPA-R, as well as for each IPPA-R Peer Subscale (Table 2). Parental attachment was defined by the Parent subscale of the IPPA-R (Gullone & Robinson, 2005), while child behaviour characteristics were defined by parental reports on the CPRS-RL (Conners, 1997).

Prior to conducting regression analyses, preliminary assumption testing including inspection of graphs and calculations of means, standard deviations, and variance were

performed to ensure that there were no violations of normality, linearity, outliers, multicollinearity, and homoscedasticity of residuals (Table 3).

To determine potential predictors of friendship quality, scores for each subscale of the CPRS-RL (Conners, 1997) were calculated along with scores on the parent subscale of IPPA-R (Gullone & Robinson, 2005). Since the modest sample of this study could not support all available variables as predictors in standard multiple regression, variables were screened based on their bivariate correlation with the friendship quality composite prior to assessing suitability for inclusion in the regression analysis. Only variables correlating at a probability of .05 or lower were included in subsequent analysis (Table 4). Initial correlational screening yielded four variables for inclusion as predictors of friendship quality: IPPA-R Trust, IPPA-R Anger/Alienation and CPRS-RL Social Problems, and CPRS-RL Perfectionism.

Table 2

Cronbach's Alpha Coefficients for the overall FQQ, the overall IPPA-R, and IPPA-R Peer Subscales

Measure	Cronbach's Alpha
FQQ	.83
IPPA-R Peer Subscale	.94
Trust	.93
Anger/Alienation	.94
Communication	.93

Table 3

Means, Standard Deviations, and Variance of Predictor and Criterion Variables

Variables	Mean	Standard Deviations	Variance
FQQ			
Peer Trust	2.49	.59	.34
Peer Communication	2.43	.75	.56
Peer Anger/Alienation	2.51	.70	.49
Help & Guidance	2.92	.77	.60
Intimate Exchange	2.68	.73	.53
Conflict &Betrayal	2.41	.66	.43
Conflict Resolution	2.49	.74	.55
Companionship	2.47	.76	.58
Validation & Caring	2.51	.83	.68
Psychosomatic	.57	.38	.15
DSM-IV Symptoms	1.89	.28	.08
ADHD Index	1.89	.29	.09
Global Index	1.61	.49	.24

To better understand the relationships above, a standard multiple regression was performed. Entered into the equation as predictors were IPPA-R Trust, IPPA-R Anger/Alienation, CPRS-RL Social Problems, and CPRS-RL Perfectionism, the results are presented in Table 5. Overall, a statistically significant model emerged $F(4,25) = 62.48$, $p < .005$, with the four predictors as a group accounting for 81 % of the variance in friendship quality composite scores, $R^2 = .81$. Three predictors, Anger/alienation, Trust, and Social Problems explained unique variation in children's quality of friendship. Anger/alienation was the most significant predictor $t\ (4, 25) = -6.09$, $p < .001$. This was

followed by Trust t (4, 25) = 3.85, p <. 001 and social problems t (4, 25) = -2.75, p < .05. Providing support for the first hypothesis, the more children's attachment to primary caregivers was characterized by Anger/Alienation, the lower their quality of friendship with peers was reported to be. On the other hand, falling in line with the second hypothesis, the more children's attachment to primary caregivers was characterized by trust, the higher their quality of friendship with peers was reported to be. Finally, coinciding with the third hypothesis, the more social problems children experienced the lower their quality of friendship was reported to be.

Table 4

Intercorrelations Between Friendship Quality, IPPA-R Trust, IPPA-R Anger/Alienation, CPRS-RL Social Problems, and CPRS-RL Perfectionism

Variables	1	2	3	4	5
1. Friendship Quality					
2. IPPA-R Trust	.39*				
3. IPPA-R Anger/Alienation	-.50**	-.44*			
4. CPRS-RL Social Problems	-.54**	-.46*	-.30		
5. CPRS-RL Perfectionism	.41*	.21	.13	-57**	

* p < .05; ** p < .001.

In terms of the third hypothesis which stated that negative child behaviour characteristics as described by parents would be predictive low-quality friendship, it is important to note that only social problems were predictive of low friendship quality. Thus, several other behaviour characteristics including conduct problems, oppositionality, and shy and anxious behaviour failed to reach statistical significance in

terms of their relationship to friendship quality. Possible explanations for this will be discussed in the following chapter.

Table 5

Means and Standard Deviations for Variables with Significant Correlations

Variables	*M*	*SD*	*B*	β	R^2
IPPA-R Trust	2.45	.39	.35	.32**	
IPPA-R Anger/alienation	2.65	.81	- .46	-.51**	
CPRS-RL Social Problems	.48	.37	-.21	-.20*	
CPRS-RL Perfectionism	1.77	.61	.16	.10	
Friendship Quality	2.55	.63			.81*

*$p < .05$; **$p < .001$

Additional Analyses

Several secondary analyses were carried out to explore the data more in-depth and answer potential questions regarding specific factors of friendship quality. The same statistical procedures utilized for primary analyses were implemented to determine potential predictors of specific factors of friendship quality. There were nine specific factors of friendship quality in total, six from the FQQ and three from the IPPA-R. Bivariate correlations were first conducted for each factor along with the parent subscale of the IPPA-R and all subscales of the CPRS-RL to determine inclusion in regression analyses, see Table 6.

In regards to the Validation and Caring factor IPPA-R Parent subscales of Trust and Anger/Alienation and CPRS-RL Social Problems and Perfectionism were discovered to be significantly correlated at the $p < .05$ level. Overall, a statistically significant model

emerged, F (4, 25) = 33.85, $p < .005$, with four predictors as a group accounting for 69% of the variance in validation and caring. Only one predictor, the Parent subscale Anger/Alienation explained unique variation in children's validation and caring in their friendship, t (4, 25) = -5.28, $p < .001$. For the Companionship and Recreation factor an overall model of prediction emerged, F (2, 27) = 12.89, $p < .005$, with parent subscale Anger/Alienation and Social Problems accounting for 29% of the variance in Companionship and Recreation. Both Anger/Alienation, t (2, 27) = -2.99, $p < .005$ and Social Problems, t (2, 27) = -2.99, $p < .005$ explaining variation in children's companionship and recreation in their friendships. An overall model of prediction emerged for the Trust factor, F (2, 27) = 12.74, $p < .005$, with parent subscale Anger/Alienation and Social Problems accounting for 29% of the variance in trust. Parent subscale Anger/Alienation was a statistically significant predictor of trust, t (2, 27) = -3.77, $p < .005$. Finally, in terms of the Communication Factor an overall model of prediction emerged, F (4, 25) = 14.41, $p <. 005$, with Parent subscale Trust, Anger/Alienation, Communication with Parents, and Social Problems accounting for 48% of the variance in Communication. The Parent subscale Anger/Alienation was again found to be a unique predictor of communication in children's friendships, t (4, 25) = -4.55, $p < .001$. Although significant correlations were discovered, a statistically significant model of prediction failed to emerge for several specific friendship quality factors including Conflict Resolution, Conflict and Betrayal, Help and Guidance, Intimate Exchange, and peer subscale Anger/Alienation.

Table 6

Intercorrelations Between Friendship Quality Factors, IPPA-R Trust, IPPA-R Anger/Alienation, IPPA-R Communication, CPRS-RL Social Problems, and CPRS-RL Perfectionism

	1	2	3	4	5	6	7	8	9	10	11	12	1
1													
2	.82**												
3	-.68**	-.70**											
4	.88**	.79**	-.59**										
5	.89**	.84**	-.64**	.93**									
6	.88**	.86**	-.72**	.89**	.93**								
7	.66**	.61**	-.47**	.59**	.60**	.70**							
8	.67**	.66**	-.50**	.69**	.67**	.75**	.88**						
9	-.76**	-.63**	.60**	-.72**	-.72**	-.73**	-.72**	-.59					
10	.47**	.41*	-.27	.30	.35	.29	.32	.45*	-.16				
11	-.40*	-.40*	.24	-.42*	-.45*	-.40*	-.51**	-.63**	.50**	-.44*			
12	.48**	.48**	.30	.41*	.36	.43*	.27	.25	.22	.21	.13		
13	-.54**	-.57**	.53**	-.43*	-.45*	-.54**	-.37*	-.45*	.32	-.46*	.30	.57**	

*$p < .05$; **$p < .001$

Note. 1= Validation and Caring, 2= Conflict Resolution, 3= Conflict and Betrayal, 4= Help and Guidance, 5= Companionships and Recreation, 6= Intimate Exchange, 7= IPPA-R Trust peer subscale, 8= peer subscale IPPA-R Communication, 9= peer subscale IPPA-R Anger,/Alienation 10= parent subscale IPPA-R Trust, 11= parent subscale IPPA-R Anger/Alienation, 12= CPRS-RL Perfectionism, 13= CPRS-RL Social Problems

Additional analyses involving the age of child participants were carried out to determine whether age was related to the criterion or predictor variables. Bivariate correlational analyses were conducted between the age of child participants and child behaviour characteristics, attachment to primary caregivers and friendship quality. No statistically significant correlations emerged for the age of the child and attachment to primary caregivers or for the age of the child and the total friendship quality composite.

As such, age of the child was determined to not be related to attachment to primary caregivers or to friendship quality.

Several statistically significant correlations were, however, discovered between specific child behaviour characteristics and the age of child participants (Table 7). Overall, the older the child was the more oppositional problems and more perfectionism were reported by parents. On the other hand, the younger the child was the more hyperactivity and DSM-IV symptoms were reported by parents

Table 7

Intercorrelations Between Child Participant Age and CPRS-RL

	1	2	3	4	5	6	7	8	9	10
Age	.37*	-.06	-.44*	.11	.38*	-.05	.22	-.24	-.44*	.01

*$p < .05$; **$p < .001$

Note. 1= CPRS-RL Oppositional Problems, 2= CPRS-RL Cognitive Problems, 3= CPRS-RL Hyperactivity, 4= CPRS-RL Shy-Anxious Behaviours, 5= CPRS-RL Perfectionism, 6= CPRS-RL Social Problems, 7= CPRS-RL Psychosomatic Behaviours, 8= CPRS-RL, ADHD Index 9= CPRS-RL DSM-IV Symptoms, 10= CPRS-RL, Global Index

Summary of Chapter Four

Descriptive statistics, bivariate correlations and multiple regression analyses are presented in this chapter. In short, parental attachments characterized by anger/alienation and social problems were discovered to be predictive of low friendship quality, while parental attachments characterized by trust were predictive of high friendship quality. Additional analyses shed some light on predictors of specific factors of friendship

quality. Interpretation of these results and implications of the findings are presented in the following chapter.

Chapter 5: Discussion

Overview of Chapter Five

This chapter summarizes findings, integrates the results with previous literature, and offers an explanation of the findings. Implications for theory, research, and practice are discussed, followed by the limitations of the study. The chapter concludes with directions for future research.

Summary of Results

In an attempt to expand the literature and address gaps in the research surrounding the predictors of friendship quality in children with ADHD, this study sought to determine whether child behaviour characteristics and parental attachments were predictive of friendship quality in children ages 8 through 12 with ADHD. Three hypotheses were established at the outset of the study. Each will be reviewed in turn.

The first hypothesis stated that insecure parental attachment as described by children would predict low-quality friendship at a statistically significant level. Thus, as attachment insecurity increased, friendships quality was anticipated to decrease. There was ample evidence throughout the attachment literature to suggest children with insecure attachment would experience friendships characterized by negative features, thus defined as low in quality (Kerns, 1994; Kobak & Sceery, 1988; Shulman et al., 1994; Youngblade & Belsky, 1992). Findings from this study supported this hypothesis. At the statistically significant level the more children with ADHD reported their attachment to primary caregivers as being characterized by anger/alienation, the lower they reported their quality of their friendship to be.

In regards to the second hypothesis which asserted that as secure attachment to primary caregivers increased, so too would friendship quality. Much like the case for the first hypothesis, previous empirical evidence found throughout the literature supported this assumption (Bippus & Rollin, 2003; Engels et al., 2001; Kerns et al., 1996; Markiewicz, Doyle, & Brendgen, 2001; Weimer et al., 2004). The more children described their attachment to primary caregivers as being characterized by trust, the higher the quality of their friendship was reported to be at a statistically significant level. It is important to note, however, that attachments characterized by communication failed to predict high-quality friendship. Possible explanations for this finding will be discussed later in the chapter.

In terms of the third hypothesis, negative child behaviour characteristics as described by parents were anticipated to predict low friendship quality. Therefore, as negative child behaviour characteristics increased, friendship quality was anticipated to decrease at a statistically significant level. The basis for this hypothesis was also derived from existing literature indicating that children who engage in behaviours such as rule violations and aggression often participate in friendships containing negative features (Blachman & Hinshaw, 2002; Hinshaw & Melnick, 1995). This hypothesis was partially supported presently with social problems, significantly predicting low-quality friendship. It is important to note that no other behaviour characteristic predicted friendship quality. Possible explanations for the lack of prediction of other child behaviour characteristics to predict friendship quality will also be discussed in the following section.

Explanation of Findings

Why were Friendship Quality and Attachment Related? Friendships can be

viewed as a developmental process where attachment histories influence the qualities that may be found in and define such relationships. The development of friendship largely resembles the attachment relationship children form with their primary caregivers (Ainsworth, 1989). The quality of attachments is contingent upon a balance between the child's level of exploration and the interaction and closeness with caregivers (Ainsworth et al., 1978). Shulman et al. (1994) suggest that much like the development of the initial human relationship of attachment, the growth of friendship encompasses two central process characteristics. The first is an orthogenetic principle meaning that friendships develop from a global state into more differentiated and integrated relational patterns. Secondly, the affective tone and degree of closeness between friends and the challenging nature of tasks friends jointly pursue contribute to the interactions between partners and the nature of the relationship itself. A balance of closeness and competence is required to ensure the friendship will be high in quality. As such, it is not surprising that results from this study indicate children's relationship with primary caregivers and friends are related.

Previous literature supports findings from this study. When children develop attachments to primary caregivers based on trust, they learn to form emotionally close and intimate friendships, high in quality. On the other hand, attachments characterized by anger negatively influence friendship quality (Lieberman et al., 1999). Secondary analyses performed in this study support this theory as it was discovered that as attachment insecurity increased, specific factors of friendship quality including validation and caring, companionship and recreation and trust decreased. Coinciding with previous research, inter-individual differences in friendship quality were based at least partly in attachment organization (Kerns, 1994; Kobak & Sceery, 1992; Zimmermann, 2004)

The finding of a relationship between attachment and quality of friendship in children with ADHD is important, as the theory that primary caregiver-child attachment influences future relationships, namely friendships, had yet to be tested on children with ADHD. Although fairly limited in availability, there is previous research which suggests a possible link between insecure attachment histories and the development of ADHD (Clarke et al., 2002; Erdman, 1998; Stiefel, 1997).

Why was the Communication Subscale of Attachment Security not Predictive of Friendship Quality? Throughout the attachment literature, communication has been seen as a key contributing factor to the development of secure attachment, which in turn has been found to predict high-quality friendships in children (Aber & Baker, 1990; Duemmler & Kobak, 2001; Engels et al., 2001). Evidence indicates that individuals with high levels of trust and effective and positive communication in their attachment to primary-caregivers have higher relational competence and social skills than individuals with low trust and poor communication in their attachments (Engels et al., 2001). As such, it was anticipated that similar results would be discovered in an ADHD population.

Initially the discovery that the communication factor of attachment security failed to predict friendship quality was somewhat surprising. However, upon a more thorough exploration of the ADHD literature, namely, that on research conducted on specific features of the disorder and on parent-child interactions, an explanation for this finding comes to light. As mentioned in Chapter Two, a social skills and performance deficits theory was reviewed in the literature. This theory devised by Guevremont and Dumas (1994) describes deficient communication skills as one of the four major deficits experienced by children with ADHD.

Although no specific studies have examined the communication component of attachment in children with ADHD, evidence can be drawn from research exploring parent-child interactions in such children. Brophy and Dunn (2002) studied interactions between mothers and children with ADHD and CD. Evidence form this study indicates that when mothers view their children as "hard to manage", they engaged in less connected communication with their child. That is to say, the mother was less tuned into the child's thoughts and desires and engaged in a fewer number of conversations with their child. Interestingly enough, upon examining the behaviour of children whose mothers were found to use less connected communication, it was discovered that such children behaved and interacted with peers quite similarly to children whose mothers were found to communicate with their children in a connected manner. Results from this study thus lend support for the notion that communication between primary caregivers and children with ADHD may not influence their future social interactions.

Why did Friendship Quality Decrease as Social Problems Increase? Behaviour characteristics displayed by children are yet an additional element in addition to attachment which may influence the quality of friendship. Social competence can be defined as the condition of possessing social, emotional, and intellectual skills and behaviours needed to succeed as a member of society (Berk, 2000). A child's ability to create friendships and function successfully with peers is often an indication of their level of social competence (Berndt, 2002). Evidence from studies examining children in regular classroom settings as well as children with mild intellectual disabilities have uncovered a positive correlation between social competence and high-quality friendship (Heiman, 2000; Hunter & Elias, 1999). Children who are more socially competent,

possessing high levels of social skills perceive, value, and report more positive than negative features in their friendships (Berndt, 2002).

In regards to children with ADHD, behaviours such as those listed above are often not a part of their social repertoire. As such, it has been hypothesized that as a result of the negative behaviours displayed by children with ADHD, their social ecologies are often impaired (Hoza et al., 2005; Whalen & Henker, 1998). Results from this study also provide evidence indicating that children with ADHD experience impairments in their social competencies. Such impairments in turn affect their friendships and lead to the development of friendships containing negative features, thus low-quality by definition.

Why were only Social Problems Predictive of Friendship Quality? Throughout the literature the general consensus appears to be that behaviour characteristics such as interpersonal competence, high sociability, self-control, conflict management, emotional adjustment, and self-esteem are associated with high-quality friendship (Aboud & Mendelson, 1996; Berndt, 1996; 2002; Hartup & Stevens, 1999; Newcomb & Bagwell, 1995). It is thus somewhat surprising that social problems were the only behaviour characteristics found to be predictive of friendship. This finding challenges previous literature which discovered high rates of overt and relational aggression, lack of regulatory behaviours, and highly intrusive behaviours in the friendships of children with ADHD (Blachman & Hinshaw, 2002; Hinshaw & Melnick, 1995, Thurber et al., 2002). In order to understand this finding, it is important to examine the specific child behaviour characteristics that were tested in the third hypothesis.

As previously mentioned, child behaviour characteristics were measured by the CPRS-RL. This instrument contains eight subscales including oppositional behaviour,

cognitive problems, hyperactivity and impulsiveness, anxious and shy behaviours, perfectionism, social problems, psychosomatic behaviours, and DSM-IV symptoms. The CPRS-RL is often used for the assessment of ADHD. The other subscales measure conduct problems, cognitive problems, anger control problems, family problems, emotional and anxiety problems and can thus be used as a screening tool and research instrument (Conners, 1997). As such it was anticipated that this instrument would be appropriate as a screening measure to help identify children participating in this study experiencing behaviour problems.

There are two main factors that may explain why the majority of child behaviour characteristics failed to predict friendship quality. The first explanation is related to the child participants themselves. The over-whelming majority of studies examining friendship quality in children have been done on neuro-typical children and not those with ADHD (Brendgen, Markiewicz, Doyle, & Bukowski, 2001, Newcomb & Bagwell, 1995; Sanderson & Siegal, 1995). Neurotypical children seek out friendships that are high in prosocial behaviours and intimacy. Research demonstrates the reciprocal nature of friendships. When one friend displays positive behaviour characteristics the other friend tends to model this behaviour (Brendgen et al., 2001, Hartup, 1996). As such, it is not surprising that positive behaviour characteristics have been found to predict high-quality friendship in neuro-typical children, while negative behaviour characteristics have been found to predict low-quality friendship (Hunter & Elias, 1999). When friendships contain features including conflict, rivalry, and dominance, neuro-typical children are troubled and tend to seek out other friends who display more positive characteristics (Berndt, 2002).

There is evidence to suggest that children with ADHD befriend other children with ADHD or rejected/neglected youth (Blachman & Hinshaw, 2002; Hinshaw & Melnick, 1995). As such, behaviours including conduct and anger control problems may become an accepted and expected part of their friendships. According to Hartup (1996) whose research lends support to this theory, there is a "well known tendency among human beings for choosing close associates who resemble themselves" (p.6). Resemblances among friends are often very strong in terms of normative attitudes and behaviours (Hartup, 1995). It appears that children imitate the normative behaviours of their friends and receive reinforcement from them for this.

The second explanation is related to theoretical issues often associated with multiple regression analyses. Multiple Regressions are sensitive to the combination of variables that are included in analyses (Tabachnick & Fidell, 2001). Whether a variable predicts what it is anticipated to predict depends on the other variables in the equation. If a predictor is one of several that assess the same important facet of the criterion, it may end up as less important in the final equation. In the case of this study, it could be that parental attachment and child behaviour characteristics were assessing similar facets of friendship quality, making behaviour characteristics less predictive than they would have been on standing on their own without attachment in the equation.

Implication of Findings

Theoretical Implications. The framework for this study is based on premises drawn from attachment theory (Bowlby, 1969) and the social skills and performance deficits theory (Guevremont & Dumas, 1994). Although these theories have been

extensively reviewed throughout this paper, a brief summary to refresh reader's minds will be provided. Alternative theoretical implications will then be discussed.

Research surrounding the difficulties with peer relations and quality of friendship in children with ADHD has led to the adoption of the theory that such difficulties are largely due to the social skill and performance deficits displayed by such children (Guevremont & Dumas, 1994). Social skill and performance deficits are often attributed to the symptomology of the disorder itself. Children with ADHD have been repeatedly found to engage in patterns of intrusive-disruptive, excessive, and overt behaviours (Barkley, 2003; Hinshaw, 2002; Hinshaw & Melnick, 1995). Such behaviours increase the likelihood that children with such disorder participate in friendships containing features such as aggression, conflict, and rivalry (Blachman & Hinshaw, 2002).

Attachment theorists have provided an abundance of evidence indicating that children who receive responsive and affectionate care-giving develop an internal working model of their caregivers as trustworthy and someone they can rely on. In addition, such children also learn to view themselves as someone worthy of responsive and sensitive caring-giving (Ainsworth et al., 1978; Bowlby, 1969, 1977). Children carry their internal working model with them as they age and begin to branch out and develop relationships with those other than primary caregivers, namely peers (Ainsworth, 1989). Secure parental attachment thus can be assumed to foster the development of friendships containing features high in quality such as trust, loyalty, and companionship (Bippus & Rollin, 2003; Kerns, 1994; Rubin et al., 2004; Shulman et al., 1994).

In summary, findings from this study provide support for both theories. Although the social skill performance deficit theory is well supported with empirical evidence, a

more adapted, unified theory may be needed to explain the peer difficulties in children with ADHD. It may be that such deficits are not solely the cause of the disorder, but are a combination of the effects of the parental attachment relationship and specific deficits associated with the disorder. This being said, it is important to keep in mind that such a theoretical model should not be aimed towards criticizing or blaming parents for the social problems and deficits their children are experiencing. Rather, it should recognize the role of stressors upon the attachment relationship and how such stressors (i.e. deficits associated with the disorder) may increase the likelihood of the development of an insecure attachment.

Research Implications. Given the theoretical implications previously discussed, it would follow that a combination between the social skill and performance deficit theory and attachment theory may be a useful framework from which to study friendship quality and ADHD. The findings of this study suggest that attachment is predictive of quality of friendships in children with ADHD. As a result, it appears that research surrounding the social lives of children with ADHD may need to take a more holistic/contextual approach to research. There may be other contributing factors to the social impairments of such children other than the characteristics and features of the disorder itself.

In addition to using a holistic/contextual approach to research, specific factors of attachment in children with ADHD are worthy of subsequent research. Results from this study provide evidence that although trust and anger components of attachment influenced the friendships of such children, the communication factor did not. As such, detailed descriptions of primary-caregiver-child attachments in children with ADHD are required.

Practical Implications. There are several practical implications from these findings, especially for parents, practionners, and researchers. In terms of possible social skill interventions for children with ADHD, results from this study indicate that interventions for children with ADHD may need to include a parent-child component. Although the attachment with the primary caregiver will most likely be formed prior to the diagnosis of ADHD, once the child receives the diagnosis, remedial forms of intervention may need to help counteract or correct the enduring negative effects of insecure attachment.

Interventions implemented for children with CD and ODD which operate based on the basis a family systems theory (Kerr & Bowen, 1998), which views the family as a network of interlocking relationships influenced not only by its' members, but also by biological, psychological, and sociological processes may serve as a guiding force for ADHD intervention. Treatments for CD and ODD such as Parent Management Training (PMT) and Problem Solving SkillsTraining (PSST) are often used in unison. PSST is a child-focused approach, that has demonstrated improvements in child functioning across different settings including home, school, and community, as well as over time (Kazdin, Siegel, & Bass, 1992, Brestan & Eyberg, 1998). PMT, on the other hand, is a promising intervention that focuses on teaching parents how to modify their child's conduct problems (Brestan & Eyberg, 1998; Kazdin, 2000). The combination of these treatments has yielded promising results for children with such disorders and their families (Kazdin, 2003). Although these specific interventions may not be appropriate for the effective treatment of social and familial problems in children with ADHD, the logic behind the

combination of a child intervention as well as a parent intervention may be worth examining in greater depth.

In regards to specific interventions for ADHD, Problem-Solving Communication Training (PSCT) has recently come to light as possible intervention for ADHD (Foster & Robin 1989). PSCT involves instruction on family-based problem solving, positive communication skills, and behaviour contracting procedures. Although this intervention is generally used with adolescents and does not include a friendship component, it includes a family systems approach, which is a step in the right direction. As such an ideal intervention would include social skills training in combination with family-based problem solving. By addressing both family and social impairments, the quality of friendship of children with ADHD should likely increase.

It is hoped that once a better understanding concerning the possible causes and risk factors for the development of low-quality friendships in children with ADHD are discovered, researchers, practionners, and parents can begin to take the necessary steps to address, limit, and correct such causes and risk factors. Once the root of the difficulties in social relations experienced by children with ADHD is discovered, interventions can be established addressing underlying issues.

Limitations

There are several limitations to this study. Firstly, a small sample was used which not only limits generalizability of findings, but may have also influenced the results. Determining appropriate sample size in regression analysis is somewhat controversial. Researchers seem to be at odds over the cases-to-predictor ratios and whether to use rules of thumb or effect size formulas (Green, 1991). However, at a bare minimum

regressional requirements are to have at least five times the more cases than predictor variables (Tabachnick &Fidell, 1989). This study involved four predictors and had 30 participants as such the minimum requirements were met. However as this study was limited in sample size, replication is strongly recommended with a larger sample size.

Although the sample involved a male-to-female ratio that was in accordance with previous ADHD literature, the addition of more females in the sample would have allowed for additional and potentially important analyses. It would have been of interest to examine whether gender differences existed in terms of predictors of friendship quality. The literature on friendship quality suggests that different features are found in the friendships of boys and girls (Brendgen et al., 2001; Denton & Zarbatany, 1996; Phillipsen, 1999). For example, high levels of intimate exchange and self-disclosure are often defining features of high-quality friendship in girls (Hussong, 2000). The friendships of boys on the other hand often contain competitive or confrontational features (Brengen et al., 2001).

It should also be mentioned that over 50% of child participants in this study were recruited from a private school in Victoria specializing in children with special needs. There were no children without disabilities or other special needs attending this school and the majority of students had been diagnosed with either ADHD or Learning Disabilities. Such a large number of children from one private school may have influenced the findings. For example, having a school of children with special needs may have created a more accepting and positive environment for children with ADHD. Their disability may have been discussed openly with other students and strategies to increase their social skills may have been in place. This may have led children from this school to

experience higher quality friendships than would be expected in a regular school setting. Analyses examining possible differences between children attending the private school versus those attending public schools would have been interesting. However such analyses were not performed due to the lack of a demographic question specifying the child's educational placement.

Another limitation in this study can be found in the type of instrumentation utilized. Friendship quality and attachment were assessed using self-report measures. Self-report measures are fallible sources of data, where slight changes in the wording, format, or context of the question can grossly affect the obtained results (Schwarz, 1999). Problems may arise including the limited vocabulary and ability of children to understand complex sentence construction, social desirability, the power differential between an adult interviewer and child respondent, children may also feel anxious over the question-answer process (Blair, 2000). To combat this limitation, age appropriate instruments were chosen. The IPPA-R is a sound and valid tool for assessing attachment in children and young adolescents (Gullone & Robinson, 2005). In regards the FQQ, this instrument was developed using a sample of children in grades three through five and has produced valid and reliable results with similar age ranges (Kiesner, Nicotra, Notari, 2005; Parker & Asher, 1993; Simpkins & Parke, 2001). However even with age appropriate instruments being implemented, self-reports may still have produced biased results.

This study is also limited in that it did not examine friendship pairs. Each child was asked to rate their friendship with their best friend, however, the child was not asked to identify this best friend nor did the best friend in turn complete the questionnaire. In addition, although children rated their friendship, there was no direct observations made

on each child's friendships to ensure what they reported and how they actually behaved in their friendship corresponded. Behaviour characteristics were also not directly observed, instead, they were reported by parents. As such, there is the chance that parents did not report accurate descriptions of their child's behaviours. As attachment was measured in the study, there is the possibility that those parents who had developed insecure attachment with their child may have rated their child's behaviour more harshly, while parents who had raised children with secure attachments may have rated their child's behaviours as less problematic and more positive than they may have in fact actually been. Although direct observations of friendships and primary caregiver- child attachments would have provided a more detailed and perhaps ultimately accurate picture of children's friendships and behaviours, assessing each child friendships and behaviour observations were beyond the scope of this study.

A final limitation of this study is that children were asked to rate their attachment to their primary caregivers and not specifically their mother or father. Questions on the IPPA-R were worded in a way that children were rating their primary caregivers as a unit (i.e. "I trust my parents"), instead of each parent on an individual basis. There is evidence to indicate that children may develop different attachment styles to their mother than to their father (Youngblade & Belsky, 1992). As such asking children questions specifically about their mother and then specifically about their father may have produced different results.

Future Directions

Future research on the qualitative aspects of friendships in children with ADHD is needed. Attachment theory provides a useful foundation on which to build future studies.

As this study was limited in its manner of assessing attachment, it is recommended that future studies explore the primary caregiver/child interaction with an adapted, age-appropriate strange situation test. This would allow researchers insight into the interactional styles between the child with ADHD and their primary caregivers. Such assessment technique would also provide more detailed description of the specific attachment style instead of simply determining whether the attachment is secure or insecure as was the case in this study.

Future research may also seek to perform a more in-depth analysis of specific areas of social skills that may contribute to low-quality friendship. Behaviour observations of children with ADHD and their friends are also suggested. Directly observing children in play would allow researchers the opportunity to document specific details and descriptions and perhaps provide a more accurate picture of the qualitative aspects of these friendships. The way children with ADHD interact with peers may shed some light on areas of social development that may be targeted for intervention.

Finally, the addition of a control group may also provide useful information. This type of information would allow us to determine whether the friendship quality observed presently is typical of all children, or just those with ADHD. Researchers could match typically developing children with those with ADHD on variables such as age, gender, socioeconomic background, and intellectual functioning. This type of information would allow researchers to compare the attachment and friendship quality of children with ADHD to that of children viewed as typically developing.

Summary of Chapter Five

This study provided support for the hypotheses that parental attachment and to a lesser degree child behaviour characteristics were predictive of friendship quality in children with ADHD. Findings contribute important information to theory, research, and practice. This study adds to a growing body of literature on the social lives, in particular, the friendship quality of children with ADHD. In addition, evidence is provided that attachment theory may be a beneficial framework from which to build future studies involving friendship quality and children with such disorder.

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Appendix A

Introductory Letter

My name is Martina Kanciruk and I am conducting a study of the friendships characteristics and qualities in children. I am looking for parents and children who might be interested in participating in this study.

If you have a child between the ages of 8 and 12 who has been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) and would like additional information about this study please sign this form and return it to your child's school. I will pick up all signed forms and send out additional information. Please include your contact information so I can send you the additional information. If your child has not received a diagnosis of ADHD please disregard this letter.

Martina Kanciruk is a Masters student in the department of Educational Psychology and Leadership Studies at the University of Victoria and you may contact her if you have further questions by email at mkanciru@uvic.ca or at 250-483-5590 (Home)

As a Graduate student, I am required to conduct research as part of the requirements for a degree in Educational Psychology with concentration in Special Education. It is being conducted under the supervision of Dr. Lily Dyson. You may contact my supervisor at 721-7816 (Work)

This research is being funded by Social Science and Humanities Research Council.

Name of Participant	Signature	Date

Participant Contact Information:
Name:
Address:

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix B

Parent Consent Form

You and your child are being invited to participate in a study entitled Predictors of High-quality Friendships in Children with ADHD that is being conducted by Martina Kanciruk.

Martina Kanciruk is a Masters student in the department of Educational Psychology and Leadership Studies at the University of Victoria and you may contact her if you have further questions by email at mkanciru@uvic.ca or at 250-483-5590 (Home)

As a Graduate student, I am required to conduct research as part of the requirements for a degree in Educational Psychology with concentration in Special Education. It is being conducted under the supervision of Dr. Lily Dyson. You may contact my supervisor at 250-721-7816 (Work)

This research is being funded by Social Science and Humanities Research Council.

The purpose of this research project is to examine the features of friendships of children ages 8-12 with Attention Deficit Hyperactivity Disorder (ADHD) and to determine what predicts children with ADHD to participate in friendships that contain positive features and are high in quality.

Research of this type is important because provides information about the social lives of children, in particular their friendships. It also offers evidence as to possible risk factors for the development of dysfunctional friendships.

Your child is being asked to participate in this study because they are between the ages of 8 to 12 and have been diagnosed as having ADHD.

If you agree to voluntarily participate in this research, you will be asked to fill out a demographic survey as well as a questionnaire asking you to rate your child's behaviours. This questionnaire will be sent to you through your child's school and will require approximately 15 minutes of your time. You are being asked to consent to the use of the information you provide in the questionnaire as well as the consent to approach your child about participating in this study. Your child's participation will include consenting themselves to participate, taking three questionnaires asking questions about friendships, their self-perception of peer acceptance, attachments to peers as well as parents. The questionnaires will be administered to your child individually by myself and will take place in their school during class time. The questionnaires will take approximately 20 minutes to complete. Your child will be explained the purpose of this study and will be informed that they can stop taking the questionnaire at anytime and return to their class without any penalty.

Your participation in this study may cause some inconveniences to you, including the time the time it requires to fill out the questionnaire, as well as anxiety or stress about answering questions that you may consider to be of personal nature. Remember if you feel uncomfortable at anytime

while filling out the questionnaire you can stop and cease participation in the study. Participation in this study may cause some inconvenience to your child, including the time questionnaire administration takes and anxiety about talking to a person they have never met before. There is the slight possibility that your child may feel emotional discomfort about answering questions concerning their friendships. If your child should become upset the interview will come to an immediate halt and once calm your child will return to their class. Precautions to prevent your child from being embarrassed or stigmatized about leaving the classroom with a stranger will be in place. These include approaching your child as they are entering from recess, so that they are not pulled out in the middle of class. As well students in each class will be told that a student from the university is coming around to ask questions to some of the children about kids their age. Only principals and teachers will be aware that this study involves children with ADHD.

The potential benefits of your and your child's participation in this research include increasing our state of knowledge concerning the friendships of child in primary school, providing families and schools with information as to potential risk factors fro the development of dysfunctional peer relations.

Your and your child's participation in this research must be completely voluntary. If you do not decide to participate, may disregard this consent form and questionnaire at anytime. If your child does decide to participate, he/she may withdraw at any time without any consequences or any explanation. If he/she does withdraw from the study their data will not be used in the research.

In terms of protecting your and your child's anonymity, no identifying information will be attached to the questionnaire.

Your and your child's confidentiality and the confidentiality of the data will be protected by storage in a locked filling cabinet and password protected computer files.

It is anticipated that the results of this study will be shared with others in the following ways including a thesis presentation, presentations at scholarly meetings, and potentially in a published article. A summary of findings will be available to parent participants upon request by contacting Martina Kanciruk or Lily Dyson at the phone numbers above.

Data from this study will be disposed of after a period of five years. Paper copies will be shredded and electronic data will be erased.

In addition to being able to contact the researcher and her supervisor at the above phone numbers, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Associate Vice-President, Research at the University of Victoria (250-472-4545) or by email at ovrhe@uvic.ca.

Your signature below indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.

Name of Participant	Signature	Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix C

Demographic Questionnaire

Please check the line that best corresponds to you, your child, or your family

Does your child have a diagnosis of Attention Deficit Hyperactivity Disorder?
_____Yes
_____NO

If No please disregard this questionnaire along with the consent form**

If Yes please indicate who the diagnosis was made by
_____Pediatrician
_____Psychologist
_____School Psychologist
_____Psychiatrist
_____Other (please specify) _____

If yes please indicate the subtype of ADHD your child was diagnosed as
_____Inattentive
_____Hyperactive
_____Combined

Your child's sex:
_____Male
_____Female
Your child's age:
_____ (Please specify)

Ethnicity:
_____Caucasian
_____Aboriginal
_____Asian
_____African American
_____Latino
_____Other (specify)
Family income:
_____Less than $10,000
_____$10,000-19,999
_____$20,000-44,999
_____$45,000-60,000
_____More than $60, 000
Your employment:
_____Unemployed
_____Full-time

_____Part-time
_____Other (specify)

Your level of education:

_____Less than high school diploma
_____High school diploma
_____Attended post-secondary
_____Completed post secondary
_____Post-graduate
_____Other (specify)

Your marital status:

_____Married
_____Single
_____Common Law
_____Other (specify)

Number of children in your family

_____ (Please specify)

Is your child currently receiving medication for ADHD?

_____Yes
_____No

Appendix D

Child Consent Form

Purpose of Study: The goal of this study is to look at the friendships that children your age form. I want to try and figure out why some children have friendships with lots of positive features in them and some kids have friendships with negative features in them.

Explanation of Procedure: You will be given a questionnaire to complete that asks questions about your relationships with your friends and parents. This will take approximately 20 minutes to complete.

Potential Risks and Discomforts: The research poses no foreseeable risk, meaning that there is nothing dangerous or scary about answering these questions. However, if you feel uncomfortable at any time while completing the questionnaire, you may stop filling out the questionnaire without any penalty or punishment and return to your class. I will not tell your parents or teacher that you did not finish the questions and I will destroy the questions you have answered so far.

Confidentiality of Data: No identifying information (e.g., your name) should be attached to the questionnaire. Your responses are confidential, meaning that no one will know how you answered the questions. Your consent form will be separated from and kept separately from the data.

Withdrawal from the Study: Participation in this study is voluntary, meaning that it is your choice.

Offer to Answer Questions: If you have any questions or concerns or if you wish to learn the general findings from this study, please feel free to contact the researcher.

Principal Researcher
Martina Kanciruk
mkanciru@uvic.ca

Project Supervisor
Dr. Lily Dyson (721-7816)

If you have any questions or concerns you or your parents me or my supervisor at the number listed above, or the Associate Vice-President, Research at the University of Victoria (250-472-4545) or by e-mail:
ovrhe@uvic.ca

Your signature below means that you understand what I have just read to you and that I have answered any questions you had.

_____ _____ _____

Name of Participant Participant Signature Date:

A copy of this consent will be left with you, and a copy will be taken by me