Social Resilience in Children with ADHD: Buffers of Externalizing Behaviour, Internalizing Behaviour, and Negative Parenting

by

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Abstract

Research shows that children with Attention-Deficit Hyperactivity Disorder (ADHD) commonly experience a myriad of social problems. Previous investigations have mainly focused on examining the risk factors for poor social functioning such as the presence of comorbid behaviour problems and negative parenting. Few studies have considered processes which may contribute to social resilience in this population. The present study investigated not only risk factors (i.e., externalizing behaviour, internalizing behaviour, negative parenting), but also compensatory/protective factors (i.e., positive teacher-child relationship quality, parent social competence) associated with social functioning in children with ADHD. The sample consisted of 233 families of children with ADHD (162 boys, 71 girls; age 5 to 12) from Vancouver and Ottawa, Canada, who were seeking assessment and treatment. Parents and teachers reported on children's behaviour problems and social functioning. Parents also reported on their own social competence and parenting, while teachers reported on their relationship quality with the children in the study. All data were collected at one time point. Results indicated that: (a) comorbid child behaviour problems were associated with poorer social competence; (b) positive teacher-child relationship quality and parent social competence were associated with better social functioning; (c) and parent social competence buffers the risk of comorbid child externalizing behaviour on poor social competence. Additional exploratory analyses were conducted to examine both positive and negative constructs in parenting, parent social competence, and teacher-child relationship quality, and how may they relate differently to child social functioning.

Lay Summary

Many children with Attention-Deficit Hyperactivity Disorder (ADHD) have problems with social skills, getting along with peers, and in making friends. Research on these issues has focused mostly on what contributes to these problems. For example, the severity of mental health issues or exposure to problematic parenting may contribute to the development of children's social difficulties. However, another way to study these issues is to look at children with ADHD who do not have these problems; perhaps there are natural processes in their environment that protect them from developing social difficulties in the first place. This project focused on two potential processes that may be protective: the quality of relationships between children and their teachers, and parents' own social abilities. By involving both children with ADHD who have social problems and children with ADHD who do not, this study considered not just "what went wrong" but also "what went right".

Preface

This dissertation is submitted in partial fulfillment of the requirements for University of British Columbia's Doctor of Philosophy Degree in Psychology. It contains work done from September, 2014 to May, 2018. My supervisor on the project has been Dr. Amori Mikami, who is the principal investigator of the Peer Relationships in Childhood Laboratory. The identification and design of the research program as well as the writing of this dissertation has been made solely by the author. Some of the text is based on the research of others, and I have done my best to provide references to these sources. Some of the data used in the analysis for this study was collected as part of a larger treatment study which was approved by the Behavioural Research Ethics Board of the University of British Columbia (approval certificate number: H13-00404). This study was approved by the Behavioural Research Ethics Board of the University of British Columbia (approval certificate number: H15-02260).

Table of Contents

List of Tables

List of Figures

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I humbly express appreciation towards myself for undertaking such a long, eventful, and challenging journey for the sake of discovering something new and learning a craft. May my curiosity remain endless.

Dedication

To Human Curiosity

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by pervasive and impairing symptoms of hyperactivity/impulsivity and/or inattention that affects approximately 5% of school-aged children (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). ADHD is not only associated with deficits in behavioural (e.g., oppositionality, difficulty waiting turn, excessive talking) and academic functioning (e.g., poor grades, increased grade retention; Barkley, 1990), but also significant social impairment (Hoza et al., 2005a). Although interventions (e.g., stimulant medication; behavioural management) have achieved reasonable success in improving behavioural and academic outcomes in children with ADHD, social deficits have been relatively resistant to current treatment efforts (Hoza et al., 2005b). Thus, the purpose of this dissertation is to: (a) summarize the nature of social impairments in children with ADHD; (b) review risk factors for social impairments in this population; (c) discuss potential compensatory and protective factors that contribute to resilience (e.g., absence of social impairment); and (d) investigate specific research questions and hypotheses regarding social resilience in ADHD.

There are three primary hypotheses: (a) risk factors (i.e., child internalizing behaviour, externalizing behaviour, and negative parenting) will be associated with poorer social functioning in children with ADHD; (ii) compensatory factors (i.e., parent social competence and positive teacher-child relationship quality) will be associated with better social functioning in children with ADHD after accounting for the effects of risk factors; and (iii) the relationship between the risk factors and social functioning will be moderated by the compensatory factors such that the negative associations between risk factors and social functioning will be stronger

among children who have parents with lower social competence or less positive teacher-child relationship quality.

Social Impairment in Children with ADHD

Children with ADHD demonstrate a wide range of social impairments (Wehmeier, Schacht, & Barkley, 2010) such as poor social and communication skills (Klimkeit et al., 2006), as well as social problems within the family (Johnston & Mash, 2001), in peer groups (Hoza et al., 2005a), and with teachers (Rogers, Bélanger-Lejars, Toste, & Heath, 2015). Impairments in peer functioning are particularly pronounced and common (Hoza et al., 2005a). In peer groups, children with ADHD often have difficulties with sharing, cooperation, and turn-taking, tend to express more anger and frustration (particularly when provoked), and may experience less guilt and empathy (Wehmeier et al., 2010). Perhaps as a result of their problem behaviours, children with ADHD tend to be highly disliked by peers, with 56%–82% of children scoring at least 1 standard deviation (SD) below their classroom mean on peer preference (i.e., the extent to which child is liked versus disliked by classroom peers; Hoza et al., 2005b). Children with ADHD also tend to be friendless (e.g., up to 70% have no close friends by Grade 3; Barkley, 1990) and to have poorer quality friendships (Normand et al., 2013). Specifically, they have less positive friendship features (e.g., validation and caring), more negative friendship features (e.g., conflict and relational aggression), and lower relationship satisfaction than children without ADHD (Blachman & Hinshaw, 2002; Normand et al., 2011). Importantly, friendship quality has been found to be uniquely predictive of psychosocial outcomes after accounting for friendship quantity (Demir & Urberg, 2004; Waldrip, Malcolm, & Jensen-Campbell, 2008).

The extent and pervasiveness of peer problems in children with ADHD is concerning given the impact of social functioning on subsequent adjustment (Modesto-Lowe, Yelunina, &

Hanjan, 2011). Some investigators have postulated that "the single best childhood predictor of adult adaptation may not be IQ, academic success, or classroom behaviour, but the adequacy with which a child interacts with other children" (Buitelaar & Medori, 2010, p. 326). For example, social functioning may be closely linked with academic success in that social support, belongingness, and acceptance by peers can motivate students to engage in learning activities and provide contexts for the acquisition of problem-solving skills (Jones, Greenberg, & Crowley, 2015). In contrast, impairments in social functioning have been shown to predict poorer treatment outcome (Molina et al., 2009), substance use (Molina et al., 2009), delinquency (McQuade et al., 2014), and academic failure (Frazier, Youngstrom, Glutting, & Watkins, 2007).

Risk Factors for Social Impairment

Although it is widely accepted that children with ADHD have poor peer relationships, the mechanisms underlying such difficulties remain poorly understood (Hoza et al., 2005b). Previous studies have mostly focused on identifying risk factors for social impairment in children with ADHD, such as comorbid behaviour problems (Becker, Luebbe, & Langberg, 2012) and negative parenting (Kaiser, McBurnett, & Pfiffner, 2011). The following section will review some of the evidence for, and mechanisms between, these risk factors and the development of social impairment with peers.

Comorbid externalizing behaviours. A key risk factor for social impairment in ADHD is the presence of comorbid externalizing problems, in particular, oppositional defiant disorder (ODD) or conduct disorder (CD), which can be found in up to 60% of children with ADHD (Gau et al., 2010). Children with ADHD and comorbid CD/ODD tend to have more severe peer problems and social impairment compared to children with ADHD alone (Booster, DuPaul, Eiraldi, & Power, 2012). Overall, externalizing behaviours in children with ADHD predict

augmented social dysfunction in both school and home, as well as lower teacher- and peer-rated social preference, particularly in summer camp treatment settings (Becker et al., 2012).

One reason for elevated social impairment in children with ADHD and comorbid externalizing problems may be their overbearing and unrestrained styles of interaction, characterized by bossiness, impulsivity, aggression, and controlling behaviours, which peers and adults find aversive (Hoza et al., 2005b). Aggression, which more frequently occurs in children with ODD or CD (Schoorl, Rijn, Wied, Goozen, & Swaab, 2016), appears particularly linked to low peer preference (Mercer & DeRosier, 2008; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006). Studies using cross-lagged designs have shown that externalizing behaviour and low peer preference share a transactional relationship, in which children with externalizing behaviour evoke dislike and victimization from peers, which in turn exacerbate their externalizing problems (Leflot, Lier, Verschueren, Onghena, & Colpin, 2011; Mercer & DeRosier, 2008). Thus, comorbid externalizing behaviours may lead to dislike by peers and adults which may further limit opportunities for learning or practicing good social skills in children with ADHD.

Comorbid externalizing behaviours may also place children with ADHD at risk for involvement with deviant peers (Utržan, Piehler, & Dishion, 2017) which may subsequently prevent them from learning appropriate social skills and prosocial behaviours. Prior research shows that children with high externalizing behaviour tend to befriend peers with similar behavioural profiles and social status, and these friendships can then exacerbate and intensify conduct problems (e.g., peer aggression; Dishion et al., 1999; Snyder et al., 2008). That is, deviancy training can positively reinforce aggressive behaviours and perspectives through mutual discourse, collusion, and modeling (Snyder et al., 2010), which may compound

relationship difficulties with parents, teachers, and other peers outside of the deviant peer group. Indeed, that children with externalizing behaviour tend to be friends with others who also have high externalizing behaviour can in part be explained by selection effects (i.e., they seek out peers who are similar). However, peer influence processes can also further augment externalizing behaviour problems.

Comorbid internalizing behaviours. Up to 50% of children with ADHD have comorbid internalizing problems (Booster et al., 2012) which may also exacerbate social impairment in children with ADHD (Becker, Langberg, Evans, Girio-Herrera, & Vaughn, 2015). For example, whereas comorbid depression is associated with greater social skills deficits (e.g., Blackman, Ostrander, & Herman, 2005), comorbid anxiety can predict more parent- and teacher-rated peer problems (e.g., Bowen, Chavira, Bailey, Stein, & Stein, 2008). The relationship between internalizing comorbidities and social impairment is not as well-established as that of externalizing comorbidities and social impairment. Nonetheless, in general, internalizing comorbidities are associated with parent- and teacher-rated social problems and low teacher-rated peer preference (Becker et al., 2012).

Similar to children with comorbid ODD/CD, internalizing symptoms in children with ADHD may lead to lower peer preference (Kingery, Erdley, Marshall, Whitaker, & Reuter, 2010). Teachers have described children displaying internalizing behaviours to be "immature, timid, and self-isolating" (Harrist, Zaia, Bates, Dodge, & Pettit, 1997, p. 289). As such, peers may view these children as uninterested, aloof, or socially incompetent, and ignore or victimize them as a result (Fanti & Henrich, 2010). In support of this, anxiety and social withdrawal are significant correlates of difficulties in peer interactions (Kingery et al., 2010), as well as victimization by peers in community samples (Reijntjes, Kamphuis, Prinzie, & Telch, 2010).

Further, internalizing comorbidities may hinder children's motivation to approach peer groups and join social activities. Children with internalizing problems demonstrate high desire for play, however, tend to avoid it because of their fearfulness about social interactions (Coplan, Ooi, & Nocita, 2015). Indeed, internalizing behaviour has been found to predict increased sensitivity to peer rejection and this relationship is partially mediated by increased avoidance motivation (Rudolph, Miernicki, Troop-Gordon, Davis, & Telzer, 2016). Withdrawal behaviours have also been associated with low self-perceived social competence, suggesting that internalizing behaviours may relate to children's lack of self-confidence for social interactions (Nelson, Rubin, & Fox, 2005). Related to this, children with internalizing behaviours tend to display self-referent attributions of blame ("it's my fault") which may signal submissiveness to peers, limit self-disclosures to others, and prevent effective conflict resolution (Schacter, White, Chang, & Juvonen, 2015). It is currently unknown to what extent children with ADHD and comorbid internalizing problems display these specific behaviours and cognitions.

Negative parenting. In the family context, children with ADHD have frequent conflicts with their siblings and parents, and poorer quality relationships with their family members overall (Deault, 2010). Having a child with ADHD is associated with disturbances in marital functioning, reduced parenting efficacy, and increased levels of parent stress, particularly for parents of children with both ADHD and comorbid externalizing problems (Johnston & Mash, 2001). Specifically, children with ADHD tend to experience more negative parenting practices (e.g., inconsistent and harsh) than those without ADHD (Johnston & Mash, 2001).

Parenting that is harsh, inconsistent, or punitive can predict physical aggression toward peers, low peer preference, low prosociality, and poor social skills as rated by adults (Hurt, Hoza, & Pelham, 2007; Kaiser et al., 2011). Conversely, parental praise, involvement, and

demonstrations of affection and warmth are associated with child displays of prosocial behaviour (McCoy, George, Cummings, & Davies, 2013), teacher ratings of child social competence (Danzig, Dyson, Olino, Laptook, & Klein, 2015), high peer preference (Kaiser et al., 2011), and low levels of child aggression at home and at school (Holtrop, McNeil Smith, & Scott, 2015; Rothbaum, Rosen, Pott, & Beatty, 1995). The present study conceptualized negative parenting as a risk factor rather than positive parenting as a protective factor because of evidence suggesting that negative parenting may be a stronger predictor of child social skills and aggression than positive parenting (Kaiser et al., 2011).

Social learning theory suggests that "parenting practices act to model, evoke, and selectively reinforce child social behaviour and peer relations" (Shoshani & Aviv, 2012, p. 323). Thus, parenting affects children's social problem-solving styles as they learn and mimic parent-child interactions in peer contexts (Bradford Brown & Bakken, 2011). For example, mothers who display harsh parenting tend to have children who expect successful outcomes from unfriendly problem-solving strategies (McDonald, Baden, & Lochman, 2013). Similarly, intrusive and controlling parenting is associated with aggressive child social behaviour at school entry and aggressive problem-solving orientations (Ziv, Kupermintz, & Aviezer, 2016).

Attachment perspectives suggest that negative parenting can also influence children's internal working models of relationships and their social cognitive processes to produce patterns of social interactions which increase the likelihood that future relationships will be qualitatively similar to those in the past (Bretherton, 2005). In support of this, there is evidence to suggest that objective parental behaviour has less of an influence on children's social adjustment than do children's beliefs about (Kirby Deater-Deckard & Dodge, 1997; Gaylord, Kitzmann, & Coleman, 2003) or their affective reactions to (Rohner, Bourque, & Elordi, 1996) parental

behaviour. For example, children who perceive their parents as supportive are more likely to perceive their peers as warm and non-hostile, which then predicts their selection of prosocial problem solving strategies (Domitrovich & Bierman, 2001). Accordingly, several studies have shown childhood insecure attachment to predict the development of hostile and negative internal working models (as measured via doll-play vignettes that present children with attachment-related scenarios), behaviour problems, and poor social competence (Barone & Lionetti, 2012; Futh, O'Connor, Matias, Green, & Scott, 2008). This suggests that children's representations of peers and other adults may mediate the relationship between their representations of parents and social functioning (Bureau & Moss, 2010).

Risk Factors as Targets for Intervention

The research reviewed above suggests that certain risk factors may serve as viable targets for interventions to address social impairment. That is, treatments aimed at the reduction of comorbid behaviour problems and the reduction of negative parenting practices could theoretically improve social functioning in children with ADHD. However, treatment studies have largely failed to support this notion. Indeed, interventions (e.g., parent management training) that have been well-validated for treating the core symptoms of ADHD and ODD, as well as parenting difficulties, have yielded only modest improvements in social domains and have been described as "not effective" for peer problems (Evans, Owens, Wymbs, & Ray, 2018). In addition, treatments that explicitly aim to teach children social skills have fared no better in this regard (Storebø et al., 2011), highlighting the need to look beyond risk factors in attempts to ameliorate social impairment in children with ADHD.

Social Resilience in Children with ADHD

Resilience is defined as "the process of successful adaptation despite challenging or threatening circumstances" (Masten, Best, & Garmezy, 1990, p. 12). Resilience represents a common and normative process, supported by basic human adaptational systems within the child, the family, and the community (Masten & John, 2000). Models of resilience attempt to explain the trajectories of individuals or populations from their exposure to significant adversity to their achievement of positive outcomes. Adversity has been defined as "negative life circumstances that are known to be statistically associated with adjustment difficulties" (e.g., pre-existing psychopathology or parenting problems; Luthar & Cichetti, 2000, p. 2). Definitions of positive outcomes can vary from 'okay' to 'good' functioning and the breadth of outcomes can range from overall adjustment to domain-specific indicators of resilience (e.g., social resilience; Masten, 2001). Importantly, resilience is concerned not only with identifying risk factors (i.e., those that increase susceptibility for negative outcomes), but also compensatory (i.e., that increase likelihood of positive outcomes) and protective factors (i.e., that ameliorate or buffer a person's response to adversity that predisposes maladaptive outcomes; Rutter, 1985).

A resilience framework applied to social impairment in children with ADHD entails a shift away from the prevailing deficit perspective to one which focuses on strengths and resources that may already exist within children and their environment. Remarkably, 20% of children with ADHD function well in social domains, demonstrating few peer problems and exhibiting good social competence (Modesto-Lowe et al., 2011). However, there is scant research on factors related to resilience (whether social, academic, or behavioural) in children with ADHD.

In terms of social resilience, five studies have investigated the protective function of parenting and peer factors. Three of these studies focused on parenting factors. In the first study,

among Chinese children with ADHD (grades 4-6), maternal affection was found to buffer the association between attention problems and social difficulties (Kawabata, Tseng, & Gau, 2012). In a second study of 324 middle school youths with ADHD (ages 10-14 years), activity participation (both breadth and intensity) and parent involvement predicted better parent- and self-rated social competence after accounting for the negative impact of negative parenting, youth depression, and youth conduct problems; also, parent involvement buffered the effect of negative parenting on poor social functioning (Ray, Evans, & Langberg, 2017). Finally, positive parenting, after controlling for inconsistent and punitive parenting, was found to protect against parent- and teacher-rated ADHD symptom severity in predicting global functioning (N = 138; age 3 to 4 years; Healey, Flory, Miller, & Halperin, 2011).

Two studies focused on peer factors related to social resilience. In a community-based sample of youth at risk for disruptive behaviour disorders (age 5 to 13 years), high friendship intimacy buffered against ADHD symptom severity in predicting teacher-rated social problems 1 year later (Becker, Fite, Luebbe, Stoppelbein, & Greening, 2013). Also, friendship quantity was found to protect against internalizing and externalizing symptom severity in predicting bully status nominations by peers in children with (n = 24) and without ADHD (n = 113; age 6 to 9 years; Jia & Mikami, 2015). Interestingly, in this study, friendship quantity also protected against victim status nominations in boys, but exacerbated the same association in girls (Jia & Mikami, 2015).

In terms of behavioural resilience, three studies investigated child factors and relationships with other adults. First, high self-perceived peer preference protected against increases in depression in a sample of youth with (n = 226) and without ADHD (n = 123) from the Multimodal Treatment Study (McQuade et al., 2014). Second, a study of 190 adolescents

with ADHD (age 13-18 years) found that youths' own ratings of self-esteem, social competence, and structured style (e.g., ability to uphold routines and plans) predicted higher global functioning and lower internalizing symptoms 3 years later (Schei et al., 2015). A weakness of these two studies, however, is that all variables were measured via self-report and children with ADHD have been found to display positive biases in evaluating their own social and behavioural functioning relative to parents and teachers (Emeh, Mikami, & Teachman, 2015). Lastly, among girls with and without ADHD aged 6 to 13 years, popularity with adult staff and goal-directed solitary play buffered the impact of low peer preference on concurrent aggression and internalizing behaviour; however, only self-perceived academic competence served as a protective factor at follow up 5 years later (Mikami & Hinshaw, 2006).

In terms of academic resilience, a longitudinal study of 93 adolescents (aged 10–14 years) with ADHD found that the relationship between inattention symptom severity and low grades was mitigated for youths with high peer preference, even after controlling for baseline grades and intelligence (Dvorsky, Langberg, Evans, & Becker, 2016).

Although the extant research supports the resilience perspective as a promising avenue for research, overall, few studies exist that have examined predictors of resilience in youth with ADHD. A recent review of resilience in ADHD stated that very little is known about buffering processes for these youth (Dvorsky & Langberg, 2016). Further, those studies that do examine resilience have rarely included factors in both the home and school contexts that contribute to positive outcomes (Modesto-Lowe et al., 2011). This is significant given that children with ADHD are well known to demonstrate impairments in both home and school contexts, and the most efficacious interventions for ADHD may involve both parents and teachers (Pfiffner et al., 2016). Furthermore, peer problems are quite relevant to the school setting (given that the social

worlds of children this age largely involve their elementary school classrooms). The present study investigated two novel compensatory/protective factors, one related to the home environment and one related to the school context, which may be associated with resilient social functioning in children with ADHD.

Parent social competence. Parents' own social competence may be an important compensatory/protective factor against social impairment in children with ADHD. Parents who are socially competent can improve their child's social functioning by: (a) modelling prosocial behaviours and socially competent interactions with others; (b) explicitly instructing their child in social skills; and (c) structuring their child's social environment in ways that encourage friendship and acceptance by peers. In support of this, in studies of children in preschool through 4th grade, observations of parents' skillful interactions with other adults (Putallaz, 1987), parent self-report of social skills and number of friends in their own social network (Prinstein & La Greca, 1999), and parent self-report of the quality of their own friendships (Glick, Rose, Swenson, & Waller, 2013) have all been found to be positively correlated with children's peer preference and friendship.

As with negative parenting, parents' positive social behaviours may also be emulated by their children. For example, a study of 69 adolescents (grade 7 to 10) showed that adolescents' perceptions of their mothers' friendship relations predicted the adolescents' friendship quality and positive emotions expressed during a structured observation task with their own best friends (Markiewicz, Doyle, & Brendgen, 2001). Similarly, the qualities of mothers' friendships (e.g., encouraging, low in conflict, and satisfying) can predict children's number of friends, quality of friendships (i.e., both positive and negative features), and peer preference after controlling for mother-child relationship quality and marital relationship quality (Doyle, Markiewicz, & Hardy,

1994; Glick et al., 2013; Romano, Hubbard, McAuliffe, & Morrow, 2009). These studies suggest that parents' social relationships can have indirect influences on children's social competence.

Parents also have opportunities to regularly discuss peer issues with children, a practice which has been associated with their better social and behavioural adjustment (Poulin, Nadeau, & Scaramella, 2012). That is, parents can directly influence children's social development by providing explicit advice and instruction about how children might handle situations with peers (Mounts, 2011). Interestingly, mothers of children with many friends (as rated by teachers) have been found to have more discussions about social behaviours with their child than do mothers of children without friends (Russell & Finnie, 1990). Related to this, upon moving to a new school district, mothers' reports of having spoken to children about ways to make friends have been found to predict greater companionship and intimacy in the children's friendships 8 months later (Vernberg, Beery, Ewell, & Absender, 1993). In addition, qualities of mothers' conversations with preschoolers about peer conflicts (e.g., amount of emotional elaboration) have been associated with less child relational aggression as rated by teachers 6 months later (Werner, Eaton, Lyle, Tseng, & Holst, 2014). Of note, advice giving about social skills has also sometimes been associated with social impairment, as children with these difficulties may require more parental involvement in the first place (McDowell & Parke, 2009).

Lastly, parents can create more social opportunities for their child by having wider social networks themselves and by actively arranging, monitoring, and facilitating playdates (Gerardy, Mounts, Luckner, & Valentiner, 2015). Indeed, parental facilitation has been associated with higher child social competence as measured by structured observations (Bhavnagri & Parke, 1991; Mize & Pettit, 2010) and teacher report (Ladd & Golter, 1988). Also, parents' initiation of play contacts and parent monitoring of play can predict larger networks of play partners and

more consistent play companions in children (Ladd & Golter, 1988), as well as higher levels of prosocial behaviour, lower levels of non-social behaviour, and higher peer preference (Ladd & Hart, 1992).

In addition to acting as a compensatory factor, parent social competence may specifically buffer the effects of risk factors on social functioning in children with ADHD. For children with ADHD and other externalizing comorbidities, parents who are socially competent may communicate better with teachers and other parents about the child's behaviour problems, for example, by sharing strategies for behaviour management. Such parents may also be better liked by other families, leading other parents to demonstrate greater tolerance for the child's behaviour problems and to invite the child for playdates despite the presence of behaviour problems. In support of this, the relationship between parental facilitation behaviours (e.g., hosting playdates and socializing with other parents) and children's peer relationships has been found to be stronger for children with ADHD than for controls (Mikami, Jack, Emeh, & Stephens, 2010), and stronger for adolescents with lower social-behavioural skills (Gregson, 2015). For children with ADHD and internalizing comorbidities, parents who have wide social networks and high quality friendships may be better able to model social relationships characterized by safety and positivity. Shy and anxious children may also particularly benefit from exposure to more social activities. Indeed, maternal network size is associated with more stimulating home environments (Burchinal, Follmer, & Bryant, 1996). Lastly, parent facilitation behaviours may be particularly important for children who experience harsh parenting because this could offer such children more opportunities to socialize with other children and adults; some of these relationships may present alternative models (e.g., with more warmth and less conflict) to guide their social behaviours with peers.

All in all, parent characteristics and qualities of the parent-child relationship have been shown to influence children's relationships with peers (Werner et al., 2014). Also, parents' social competencies are associated with child behaviour and academic problems (e.g., Mounts, 2004). However, several investigators have alluded to the lack of recent research on the influence of parent social competence and facilitation behaviours on child social functioning specifically (Kan & McHale, 2007; Mounts, 2011).

Quality of teacher-child relationship. The quality of the relationship with a teacher may also be a compensatory/protective factor for social competence in children with ADHD. As children enter school, relationships with non-parental adults, particularly teachers, become increasingly important for social, behavioural, and academic adjustment (Sabol & Pianta, 2012). Beyond the traditional role of teaching academic skills, teachers are crucial in shaping children's social development, and in particular, children's contact with peers (Wentzel, Battle, Russell, & Looney, 2010). Like parents, teachers can serve as models for social relationships and explicitly teach children social skills. However, teachers also have the unique ability to model liking of the child to other students.

Unfortunately, although significantly less studied than parent-child relationships, children with ADHD tend to be impaired in their relationships with teachers (Batzle, Weyandt, Janusis, & DeVietti, 2010). For example, children with ADHD experience frequent teacher negativity (Kos, Richdale, & Hay, 2006). Teachers not only report more stress, but also are observed to have more negative interactions with students with ADHD compared to those without ADHD (Greene, Beszterczey, Katzenstein, Park, & Goring, 2002). Of concern, teachers' negative affect about teaching these students has been shown to *increase* with more experience with and knowledge about ADHD (Anderson, Watt, Noble, & Shanley, 2012).

Previous research suggests that teacher-student relationships likely matter for peer relationships for several reasons. First, children's evaluations of their peers may be based, in part, on their observations of the teacher's reactions to these students (Mikami, Griggs, Reuland, & Gregory, 2012). For example, when children (age 5 to 7 years) were shown a videotaped classroom scene where teacher responses to students (who both behaved similarly) was manipulated, children perceived those who the teacher expressed positivity toward as smarter, nicer, and stronger, regardless of whether students demonstrated difficulties in academic performance (Brey & Shutts, 2018). Similarly, in a cross-sectional study of 993 children (grade 3 and 4), peers' perceptions of a teacher's relationship quality with a child was associated with that child's peer preference after controlling for the child's behaviour problems (Hughes, Cavell, & Willson, 2001). Lastly, a positive teacher-child relationship (as reported by teachers) can predict children's peer preference at the start of the school year, and children who move into classrooms in which teachers report having higher warmth and less conflict with them also experience less dislike from peers (Hughes & Im, 2016). Interestingly, there is evidence to suggest reciprocal relationships between teacher-child relationship quality and peer preference, with higher peer preference predicting more positive teacher-child relationships, and vice versa (Hughes & Chen, 2011).

Teachers who have positive relationships with children may also be more likely and able to facilitate social opportunities for children in the classroom. For example, positive teacher-child relationships are associated with teachers' use of learner-centered teaching practices (i.e., adaptation to children's different learning styles through warmth, empathy, and non-directiveness) which then predict child social skills and connections with peers (Cornelius-White, 2007; McCombs, 2004). In turn, children tend to be more compliant with teachers with

whom they have a good relationship (Jennings & Greenberg, 2009). Thus, positive teacher-child relationships may facilitate teachers' ability to explicitly correct and teach social behaviours to children.

In addition to acting as a compensatory factor, positive teacher-child relationships may also buffer the association between various risk factors and social impairment in children with ADHD. Relationships with teachers may be particularly important for children with ADHD and other comorbid externalizing problems because teachers' behaviours towards these students may influence the development of stigma or reputational biases from peers (Mikami et al., 2013). For example, teachers' personal liking for children with externalizing behaviours can buffer the strong association between children's disruptiveness and low peer preference (Chang, 2003; Mikami et al., 2012). Positive teacher-child relationships (i.e., characterized by closeness) can also ameliorate the association between internalizing problems and poor classroom social adjustment (Baker, 2006), suggesting that children who are shy and withdrawn may particularly benefit from supportive relationships with teachers in terms of increasing their willingness to socialize with peers. Lastly, children can exhibit different attachment styles to parents and teachers (Howes et al., 1998), which suggest that teachers may serve as alternative models for social relationships and protect against the effects of negative parenting on social functioning. For example, a teacher who provides praise to the child (when perhaps the parent does not do so) may encourage more positive interaction styles with peers.

Previous research supports the buffering role of positive teacher-child relationships against child behaviour problems, poor academic engagement, and negative parenting in predicting conduct problems (e.g., Wang, Brinkworth, & Eccles, 2013), academic problems (e.g., Baker, Grant, & Morlock, 2008), substance use (Lee & Cunningham, 2017), and emotional

difficulties (e.g., Liu, Li, Chen, & Qu, 2015). Less is known about the protective effect of teacher-child relationships on child social outcomes. Specifically, there is evidence to suggest that teacher-child relationship quality (i.e., high in warmth and closeness, low in conflict) can mitigate the risk of behaviour problems (Yeung & Leadbeater, 2010) and low peer preference (Elledge, Elledge, Newgent, & Cavell, 2016) on peer victimization. However, it remains unknown the extent to which teacher-child relationship quality can buffer the effects of behavioural risk on child social competence or friendship.

Summary. Child externalizing behaviour, child internalizing behaviour, and negative parenting may be key risk factors for social impairment in children with ADHD. In regards to factors that ameliorate this risk, previous research highlights parent social competence and positive teacher-child relationships. Although little is currently known about social resilience in children with ADHD, it is clear that targeting risk factors (e.g., treating symptoms or improving parenting) has limited efficacy for improving social functioning in this population (Evans et al., 2018). Thus, the present study investigated new avenues for prevention and intervention by exploring buffers that may pre-exist in children's familial and school contexts.

Protective Factors – Merely the Absence of Risk?

The resilience literature conceptualizes the phenomenon as being different from merely the absence of vulnerability (Masten & Garmezy, 1985). That is, resilience cannot be well-captured by measuring risk factors alone (which assumes low risk to be similar to high protection in relation to outcomes), but rather, should involve a thorough examination of individual attributes or environmental factors that increase a person's ability to cope and engage with risk (Rutter, 1985). However, researchers of resilience have also acknowledged that many constructs can be conceptualized as both risk factors and protective factors, in that they engender poor

adaptation at one extreme and good adaptation at the other (Wright & Masten, 2005). Indeed, risk and compensatory/protective factors can sometimes appear to be negative and positive constructs, respectively, that are independent, but closely related to each other. For example, in considering a concept such as family relationship quality, family conflict may be considered a risk factor, whereas family closeness as a protective factor. Similarly, both positive (i.e., characterized by warmth and closeness) and negative (i.e., characterized by conflict) teacher-child relationships can be predictive of social outcomes in children, with high closeness and low conflict being associated with better social competence (Pianta & Stuhlman, 2004). Along these lines, high negative parenting (e.g., harsh and inconsistent; Kaiser et al., 2011) and low positive parenting (Deković & Janssens, 1992) can both predict poorer child social competence. Lastly, more positive qualities (e.g., disclosure) and fewer negative qualities (e.g., conflict) in parents' own friendships have been associated with increased prosocial dyadic behaviours in children (Simpkins & Parke, 2001). Thus, it is often unclear "where the action is" for a group of related constructs in their association to resilience (Wright & Masten, 2005).

Interestingly, previous research has shown that positive and negative parenting may be best conceptualized as distinct constructs that uniquely predict specific outcomes (Prevatt, 2003). For example, negative parenting (i.e., harsh, inconsistent, and involving poor supervision) has been found to be more predictive of child behaviour problems, whereas positive parenting (i.e., involving warmth and praise) has been found to be more highly associated with adaptive child behaviours (i.e., adaptability, social skills, and leadership; Prevatt, 2003). In contrast, another study found that negative parenting is not only more predictive of child social problems, but also a stronger mediator between ADHD severity and child social problems compared to positive parenting (Kaiser et al., 2011). Thus, the evidence appears mixed as to whether parenting as a

risk factor for poor child social competence, is better conceptualized by the presence of negative elements or the lack of positive elements.

Previous studies of teacher-child relationship quality suggest that closeness and conflict may be more strongly associated with child social skills and behavioural competence (e.g., externalizing behaviour), respectively (Baker, 2006; Ewing & Taylor, 2009; Murray & Zvoch, 2011). Teacher-child closeness (rather than conflict) has been found to buffer the relationship between internalizing behaviour and poor socioemotional adjustment (e.g., asocial behaviours with peers; Arbeau, Coplan, & Weeks, 2010). On the other hand, there is evidence to suggest that teacher-child conflict (rather than closeness) predicts declining prosocial behaviours and increasing peer aggression (Birch & Ladd, 1998). Low conflict has also been found to attenuate the relationship between difficult temperament and disruptive play with peers in preschoolers (Griggs, Gagnon, Huelsman, Kidder-Ashley, & Ballard, 2009). In general, as with parenting, it is unclear whether high closeness or low conflict in teacher-child relationships is more associated with, or serves as a stronger buffer against risk for, social problems.

Although there is evidence to suggest that both positive (e.g., agreeable and readily expresses emotions) and negative (e.g., disagreeable and demanding) social characteristics in parents are associated with child social functioning (Putallaz, 1987), investigations of parent social competence have mostly focused on positive rather than negative characteristics (Doyle et al., 1994; Gerardy et ajjl., 2015; Mize & Pettit, 2010; Vernberg et al., 1993). Indeed, no study (that I know of) has compared parent social competence relative to parent social difficulties in their associations with child social competence.

All in all, in the study of compensatory/protective factors and child social competence, it is unknown whether child social competence is more strongly associated with the absence of

negative factors (i.e., low parent social difficulties, low negative teacher-child relationship quality) or with the presence of positive factors (i.e., high parent social competence, high positive teacher-child relationship quality). Similarly, in the study of risk factors and child social impairment, it is unclear whether child social impairment is more strongly associated with the presence of negative factors (i.e., negative parenting) or with the absence of positive factors (i.e., low positive parenting). Empirical investigation of these distinctions may yield not only interesting conceptual clarifications, but also important implications for prevention and intervention. The present study explored these nuances by measuring both positive and negative constructs involved in parenting (risk factor), parent social competence (compensatory factor), and teacher-child relationship quality (compensatory factor) to investigate their potentially unique relationships with child social functioning.

The Present Study

The present study advances the literature on social functioning in children with ADHD in several ways. First, the investigation not only focused on the main effects of risk and compensatory factors, but also the interaction effects between risk and protective factors, which is a central and defining feature of models of resilience (Rutter, 1985). As discussed previously, there is a dearth of studies on protective processes for children with ADHD (Dvorsky et al., 2016), and no study (that I know of) has investigated positive teacher-child relationships or parent social competence as protective factors for social impairment. Second, the present study investigated these associations in both boys and girls, in a diverse demographic sample, and using ratings from multiple informants. This is important given limitations of previous research on resilience which investigated pathways in either an all-girls sample (e.g., Mikami an Hinshaw, 2006), involved only children from a specific ethnic group (e.g., Chinese; Kawabata et

al., 2012), or measured social functioning via parent-report only (Schei et al., 2015). Lastly, this study explored low positive parenting as a risk factor, and low parent social difficulties as well as low negative teacher-child relationship quality as compensatory/protective factors in child social functioning. This allowed for a comparison of the presence of negative factors versus the absence of positive factors (and vice versa) in associations with social difficulties/competence, providing empirical evidence on "where the action is" for these constructs. There has been much debate over whether risk and protection are merely two sides of the same coin, yet these issues have seldom been directly studied (Wright & Masten, 2005).

Primary Hypotheses

The aim of the present study was to investigate the association between risk factors (internalizing behaviour, externalizing behaviour, and negative parenting) and poor social functioning among children with ADHD, and to investigate the potential compensatory/protective factors of parent social competence and positive teacher-child relationship quality as associated with resilient social functioning.

Hypothesis 1: Risk Factors. High (a) child internalizing behaviour, (b) child externalizing behaviour, and (c) negative parenting will be associated with poorer social functioning in children with ADHD.

Hypothesis 2: Compensatory Factors. High (a) parent social competence and (b) positive teacher-child relationship quality will be associated with better social functioning in children with ADHD after accounting for the effects of risk factors (i.e., internalizing behaviour, externalizing behaviour, negative parenting).

Hypothesis 3: Protective Factors. The relationship between the risk factors and social functioning will be moderated by (a) parent social competence and (b) positive teacher-child

relationship quality. Specifically, the negative associations between internalizing behaviour and social functioning, externalizing behaviour and social functioning, and negative parenting and social functioning will be stronger among children who have parents with lower social competence or less positive teacher-child relationship quality, compared to children who have parents with higher social competence or more positive teacher-child relationship quality.

Exploratory Hypotheses

The second goal was to compare high negative parenting (i.e., harsh and inconsistent) versus low positive parenting (i.e., parental involvement and discipline strategies) as risk factors, and high parent social competence (i.e., positive parental friendship quality) versus low parent social difficulties (i.e., negative parental friendship quality) as well as high positive teacher-child relationship quality (i.e., closeness) versus low negative teacher-child relationship quality (i.e., conflict) as compensatory/protective factors associated with child social competence. Thus, lack of positive parenting (in place of the presence of negative parenting) was investigated as a risk factor, and lack of parent social difficulties (in place of the presence of high parent social competence) as well as lack of negative teacher-child relationship quality (in place of the presence of positive teacher-child relationship quality) were investigated as compensatory/protective factors in the analyses.

Method

Participants

Participants were 233 families of children with ADHD (162 boys, 71 girls), along with their classroom teachers. All children were 5-12 years old (M = 8.58, SD = 1.57) and were in Grades 1 to 5. Children were 69% white, 14% mixed race, 9% Asian Canadian, 1% Hispanic/Latino, and 1% Afro Canadian/Black. Participants lived in the Greater Vancouver and

Ottawa areas. Families were recruited from three sources: (a) a large, existing dual-site study based in Greater Vancouver (n = 100); (b) the same existing dual-site study based in Ottawa (n = 113); and (c) the ADHD Clinic at the BC Children's Hospital in the Vancouver area (n = 20). Participants from the dual-site study (both Greater Vancouver and Ottawa) were recruited via advertisements, family events, schools, and other clinical sources to take part in the larger study. Because participants from the larger study underwent identical study procedures regardless of site, they are referred to as being from Source 1. Participants from the ADHD Clinic (Source 2) were provided with a description of the study upon completion of measures as part of the child's psychiatric assessment, at which time parents indicated their interest in the study and provided permission to be contacted by the study investigators.

All parents (from both recruitment Source 1 and Source 2; 25 fathers, 208 mothers) were asked to provide permission for teachers to be contacted to complete measures about children as well as to provide teachers' contact information. Parents and teachers provided consent and children provided assent to the study procedures, which were approved by the institutional review boards at all participating universities and hospitals (Project ID: H15-02260).

Procedure

To be eligible for the study, children with ADHD needed to have significant symptoms of inattention or hyperactivity/impulsivity (Child Symptom Inventory [Gadow & Sprafkin, 1994] - Source 1; or Weiss Symptom Record [Weiss, 2010] - Source 2), and to meet diagnostic criteria for ADHD as evidenced by either a semi-structured interview administered to the parents (Kiddie Schedule for Affective Disorders and Schizophrenia [KSADS; Kaufman et al., 1997] - Source 1) or a formal psychiatric assessment (Source 2). Exclusion criteria included (a) any diagnosis of Autistic Spectrum Disorders; and (b) significant intellectual impairment as

evidenced by either intelligence testing (i.e., excluded those with Full Scale IQ of 80 or lower on the Wechsler Abbreviated Scale of Intelligence [Wechsler, 1999] - Source 1) or psychiatric assessment (Source 2). Altogether, four participants were excluded for these reasons (all from Source 1). Psychotropic medication use and the presence of comorbid conditions common to children with ADHD (e.g., ODD, CD, Anxiety Disorders) were not exclusionary criteria.

Source 1. Families who met inclusion criteria were asked to complete a battery of questionnaires either in-person (at the University of British Columbia-Vancouver campus [UBC] or the Université de Quebec et Outaouais) or at home (to be returned via mail). In families with more than one parent, the parent (mother or father) who was the most involved in the child's social life was asked to complete the questionnaires. Parents completed questionnaires about parenting, their own social competence, as well as their child's social and behavioural competence. Teachers were mailed a battery of questionnaires which they returned via mail. Teachers completed questionnaires about the child's social and behavioural competence as well as the quality of the teacher-child relationship.

Of note, as part of the larger study, families completed other questionnaires and participated in various behavioural tasks. Some families also returned to the lab several times after the initial visit and went on to be randomly assigned to one of two parenting interventions. In addition, questionnaires were mailed to the children's teachers at multiple time points. For the present study, only some of the questionnaires from the families (all were collected during their first visit to the lab) and teachers (all were collected at the first time point) were used in the analyses, before any intervention was provided. Parents were compensated $85 for completing the questionnaires (some of which were not included in the present study), and for completing other behavioral measures that were not included in the present study. Teachers were

compensated $50 for their completion of the questionnaires (some of which were not included in the present study).

Source 2. Families were asked to complete the same questionnaires as those listed under Source 1 to be included in the present study. Parents and teachers completed the battery online via REDCap Surveys. Some parents and teachers completed the Child Behaviour Checklist (CBCL) and Teacher-Report Form (TRF), respectively, as part of the child's psychiatric assessment at the ADHD Clinic. In this case, parents and teachers were asked for permission to access those records rather than complete the questionnaire a second time. Parents and teachers were compensated $10 and $20, respectively, for their completion of the questionnaires for the present study.

Because the majority of the data in the current study (91%) was obtained from Source 1, the existing dual-site study, this influenced some of the methodology as well as limited the selection of measures in the current analyses. Specifically, Source 1 families were recruited to receive an intervention targeting parenting practices to address children's social problems. Therefore, some screening choices and procedures for Source 1 families were made to maximize the ability to deliver and assess the subsequent intervention. As a result, more measures regarding parenting and parent characteristics were available for analyses than that about teachers. The present study recruited additional families from Source 2 with the aim of potentially gathering a more representative sample with a wider range of social problems.

Measures

Risk factors.

Child-Behavior Checklist (CBCL) and Teacher-Report Form (TRF). Parents and teachers reported on children's internalizing and externalizing problems using the internalizing

and externalizing broadband scales of the CBCL and TRF, respectively (Achenbach & Rescorla, 2001). These are widely used and well-validated measures. The internalizing and externalizing broadband scales contain 35 items and 32 items, respectively, answered on a 3-point metric. The sum of the raw scores on each scale is converted into a *T*-score using age and sex norms. In the norming sample, the internalizing and the externalizing broadband scales have demonstrated good test-retest reliability (CBCL: r = .91 and .92; TRF: r = .86 and .89), internal consistency (CBCL: α = .90 and .94; TRF: α = .90 and .95), and validity (e.g., can accurately classify groups of children with different diagnoses; Achenbach & Rescorla, 2001).

Alabama Parenting Questionnaire (APQ). The APQ measures parents' reports of parenting practices that have been shown to consistently relate to child externalizing behaviors (Shelton, Frick, & Wootton, 1996). In the current sample, the inconsistent discipline subscale (α = .68; 6 items) was used to measure inconsistent (negative) parenting. The positive parenting (α = .79; 6 items) and involvement (α = .63; 10 items) subscales of the APQ were used to measure positive parenting. The APQ also measures poor monitoring (10 items) and corporal punishment (3 items).

The APQ contains 42 items, scored on a 5-point scale (1 = *never*; 5 = *always*). All items on a subscale were summed to create a total subscale score, with higher scores on the inconsistent discipline and positive parenting/involvement subscales indicating more negative and positive parenting, respectively. The three items making up the corporal punishment domain were not administered to parents in the present study. The poor monitoring subscale was not used in the present analyses because the investigation was primarily interested in inconsistent and harsh discipline, as these negative parenting styles have been associated with social problems in children with ADHD (Kaiser et al., 2011). The APQ has shown moderate internal consistency in

past research (α = 0.63 to 0.80) and good criterion validity (e.g., children with behaviour problems score higher on the negative scales than children without behaviour problems; Shelton et al., 1996).

Parenting Scale (PS). The PS is a 30-item parent-report scale of parental discipline (Arnold, O'Leary, Wolff, & Acker, 1993). In the current sample, parents indicated their tendencies to employ harsh discipline via the overreactivity subscale (α = .70; 10 items) of the PS. Items employ 7-point scales where 7 indicates a high probability of using a problematic discipline strategy and 1 indicates a high probability of using an effective, alternative discipline strategy. All items of a subscale were summed to create a total subscale score, with higher scores indicating more negative parenting. The PS also measures laxness (11 items) and hostility (7 items) in parenting. However, these subscales were not be used in the present analyses because there has been less research in support of the relationship between these factors and social functioning (Hinshaw, Zupan, Simmel, Nigg, & Melnick, 1997). In previous work, the PS has been found to have high internal consistency (α = 0.84 to 0.87) and good criterion validity (i.e., can discriminate between children with ADHD alone, with ADHD and CD/ODD, and without ADHD; Harvey, Danforth, Ulaszek, & Eberhardt, 2001).

Compensatory/protective factors.

Interpersonal Competence Questionnaire (ICQ). The ICQ (Buhrmester, Furman, Wittenberg, & Reis, 1988) asks adults to self-report their own competence in initiating relationships, disclosing information about oneself, expressing displeasure, providing advice and emotional support, and managing conflict. Each of 40 items is scored on a 5-point scale ranging from 1 (*I'm poor at this, I'd feel so uncomfortable and unable to handle the situation*) to 5 (*I'm extremely good at this, I'd feel very comfortable and could handle this situation very well*). A

total score was calculated by taking the average of all items, with higher scores indicating higher parent interpersonal competence (α = 0.87 in the current sample). Good reliability (α = 0.77 to 0.87) and validity (e.g., predictive of social self-esteem, social desirability, and relationship satisfaction) statistics have been reported previously (Buhrmester et al., 1988).

Friendship Quality Questionnaire short adult version (FQQ-adult) – parent's own friends. The FQQ-adult was adapted from the original questionnaire developed by Parker and Asher (1993) with some questions reworded for age appropriateness. In the original questionnaire, children reported on the quality of their closest friendship. In the adaptation, parents were asked to think of their closest friend when responding to the questionnaire, but instructed to exclude their romantic partner and relatives. Parents rated 22 statements on a 5-point scale (0 = *not at all true*, 4 = *really true*). The FQQ-adult yields 6 subscales: disclosure (e.g., "I can think of lots of secrets I have told this friend"), help (3 items; e.g., "this friend often helps me with things"), conflict (7 items; e.g., "this friend fights with me"), conflict resolution (3 items; e.g., "this friend is easy to make up with when we have a fight"), companionship (3 items; e.g., "this friend gets together with me with after work and on weekends"), and validation (3 items; e.g., "this friend makes me feel important and special"). All items, except those on the conflict subscale, were averaged to create a total score (α = .89), with higher scores indicating more positive parental friendship quality. Items on the conflict subscale were averaged to create a total subscale score (α = .67), with higher scores indicating more negative parental friendship quality. The subscales have been shown to have good internal consistency (e.g., α = .73 to.90) and predictive validity in previous work (e.g., predicts loneliness after controlling for peer preference; Parker & Asher, 1993).

Parent friendship quantity. This procedure, used by Prinstein and La Greca (1999), asks

parents to list the initials of adult individuals who they would describe as their close friends, friends, acquaintances, and relatives. A frequency count was obtained for the total number of friends (i.e., close friends plus friends) reported by the parent to represent parent friendship quantity. Positive correlations between this measure and social competence on the ICQ have been found (Prinstein & La Greca, 1999).

Friendship Facilitation Questionnaire (FFQ). Parents' efforts to promote peer-oriented activities in children were assessed using the parent version of the FFQ (Vernberg et al., 1993). Parents indicated how often they used each of the 20 relationship-promoting behaviours in the past 3 months on a 5-point scale (1 = *never*; 5 = *very often*). The FFQ yields 4 subscales: met other parents (4 items; e.g., "I met families of other kids at my child's school"), enabled proximity (7 items; e.g., "I drove my child to a friend's house"), talked to child (5 items; e.g., "I talked to my child about life and friends"), and encouraged activity (4 items; e.g., "I told my child to go outside and talk to other kids"). All items were averaged to create a total score (α = .90 in our sample), with higher scores indicating more parent facilitation of peer-oriented activities. The FFQ has been found to have acceptable parent−child interrater reliability (*r* = .28 to .61), internal consistency (α = .72 to .85), and test–retest reliability in previous work (*r* = .54 to .76; Vernberg et al., 1993).

Student-Teacher Relationship Scale – short form (STRS-SF). The STRS-SF is a 15-item, self-report questionnaire assessing a teacher's perception of her relationship with an individual student (Pianta, 2001). In the current sample, the closeness (7 items; α = .83) and the conflict (8 items; α = .87) subscales were used to measure positive and negative teacher-child relationship quality, respectively. Items (e.g., "I share an affectionate, warm relationship with this child") are rated on a 5-point scale (i.e., 1 = *definitely does not apply*; 5 = *definitely applies*).

The teacher reports both feelings about and observations of a child, in addition to beliefs about how the child feels about him or her. The STRS-SF has been shown to have good reliability (e.g., closeness: α = 0.80; conflict: α = 0.86) in previous studies (Baker, 2006).

Outcomes.

***CBCL and TRF*.** Parents and teachers reported on children's social functioning using the social problems narrow band subscale on the CBCL and TRF, respectively (Achenbach & Rescorla, 2001). This subscale contains 11 items, rated on a 3-point metric; the sum of the items was converted into an age- and sex-normed *T*-score. The social problems subscale has been shown in the norming sample to have good test-retest reliability (CBCL: *r* = .90; TRF: *r* = .95), internal consistency (CBCL: α = 82; TRF: α = .82), and validity (Achenbach & Rescorla, 2001).

Social Skills Improvement Scale (SSIS). Parents and teachers each completed the social skills subscale of this measure, in which adults rate children's social competence on 44 items using a 4-point scale (Gresham & Elliott, 2008). The SSIS social skills subscale assesses cooperation, assertion, communication, empathy, engagement, responsibility, and self-control. The SSIS has strong normative data, good criterion validity (e.g., can differentiate children of different psychiatric diagnoses), and high test-retest reliability (Gresham & Elliott, 2008).

Friendship Quality Questionnaire short child version (FQQ-child) – child's friend. This questionnaire (Parker & Asher, 1993) is nearly identical to the FQQ-adult for parents' reports on their own friendships in terms of wording, subscales, and scoring (α = .73 to .90 in the current sample). Parents rated 22 statements for how true each item is for their child's closest friendship on a 5-point scale. All items, with those on the conflict subscale reverse scored, were averaged to obtain a total score (α = .89), with higher scores indicating higher friendship quality in children. It is of note that this is the first time (to my knowledge) that the FQQ has been

adapted for parents to report on children's friendship quality (as opposed to children self-reporting on their own friendship quality). Parents' reports of children's friendships have been found to have good reliability and validity in other studies (Marton, Wiener, Rogers, & Moore, 2015), however, the FQQ has not previously been used in this way.

Data Analytic Plan

Covariates. Research site and child sex were investigated as potential covariates in the models. The covariate of research site was considered because there may be demographic and cultural differences between the families recruited in Greater Vancouver versus those from Ottawa. For example, the former consists mostly of English speaking individuals whereas the latter includes a high proportion of French Canadians. Also, the participants recruited from the ADHD Clinic may be more representative of a community sample than those who would participate through the lab as the former was undergoing routine psychiatric assessment rather than taking part in a research study. In addition, these families completed the parent questionnaires online, which were not available to families from the other two sites. As well, the covariate of sex was considered because boys and girls have been shown to develop peer relationships differently (Deater-Deckard, 2001). Parenting styles and teacher-child relationships may also differ by sex of the child (Ewing & Taylor, 2009; Starrels, 1994). The present study was interested in determining whether risk and protective factors were associated with social functioning above and beyond contributions of research site or sex.

Data reduction.

Risk factors. Parent and teacher reports on the externalizing and internalizing broadband scales of the CBCL and the TRF, respectively (Achenbach & Rescorla, 2001), were moderately correlated (externalizing: $r = .42$; internalizing: $r = .27$) and averaged to create one child

externalizing score and one child internalizing score. Standard scores of the inconsistent discipline subscale (APQ) and of the overreactivity subscale (PS) were moderately correlated (r = .45) and averaged to create one negative parenting score. Standard scores on the positive parenting and involvement subscales of the APQ were highly correlated (r = .58) and averaged to create one positive parenting score.

Compensatory/protective factors. The four measures of parent social competence (ICQ total score, FQQ - parent total score [without the conflict subscale], parent friendship quantity, FFQ total score) were investigated for their underlying factor structure via principal components analysis (PCA). Parent social competence is a less well-established construct compared to other risk and compensatory factors (e.g., child behaviour problems), thus it was thought to be important to consider how different facets of parent social skills, friendship quantity, and friendship quality were related to one another. Components with eigenvalues above 1.00 were considered for retention. One principal component satisfied this cut-off (Table 1). Factor scores were calculated for each participant by multiplying their observed scores by each measure's relative loadings (Table 2). For positive and negative teacher-child relationship quality, the total subscale scores on the STRS-SF closeness and conflict subscales were used, respectively.

Outcomes. Child social functioning was represented by scores in two domains – social competence and friendship quality. Standard scores on the CBCL and TRF social problems (r = .23), as well as the parent and teacher report on the SSIS social skills subscale (r = .25) were averaged to create one social competence score. For child friendship quality, the total score on the FQQ-child (parent-reported) was used.

Hypotheses 1 and 2. To test Hypothesis 1 that the three risk factors are associated with decreased child social functioning and Hypothesis 2 that the two compensatory factors are

associated with increased child social functioning after accounting for the effects of risk factors, all risk/compensatory factors were first centered. Then child externalizing behaviour, child internalizing behaviour, and negative parenting were entered together at Step 1 and parent social competence and positive teacher-child relationship quality were entered together at Step 2 in hierarchical regressions with child social competence and then child friendship quality as the outcome variable.

Hypothesis 3. To test Hypotheses 3 that the relationship between risk factors and social functioning is moderated by (a) parent social competence and (b) teacher-child relationship quality, the same regression models testing Hypotheses 1 and 2 were retained. Then, the cross-products between child internalizing behaviour and parent social competence, child externalizing behaviour and parent social competence, negative parenting and social competence, as well as child internalizing behaviour and teacher-child relationship quality, child externalizing behaviour and teacher-child relationship quality, and negative parenting and teacher-child relationship quality were entered at Step 3. These analyses were repeated for both child social competence and friendship quality as outcome variables. Statistically significant interactions were probed via simple slope analyses as outlined by Aiken & West (1991).

Exploratory Analyses.

Risk as absence of protection and protection as absence of risk. To investigate low positive parenting as a risk factor for child social functioning, positive parenting replaced negative parenting. To investigate low parent social difficulties and low negative teacher-child relationship quality as compensatory/protective factors for child social functioning, negative parental friendship quality replaced parent social competence, and negative teacher-child relationship quality replaced positive teacher-child relationship quality.

Of note, measures of parent social competence in the present study were limited in their questions about social difficulties. For this reason, and to make the comparison between high parent social competence and low parent social difficulties more interpretable, analyses specifically investigated negative parental friendship quality (i.e., conflict) versus positive parental friendship quality (i.e., disclosure, help, conflict resolution, companionship, and validation) as compensatory/protective factors. Accordingly, positive parental friendship quality replaced parent social competence.

Facets of parent social competence. Parent social competence is a less well-established construct than other variables (e.g., child behaviour problems) and was made up of related, but conceptually different measures (e.g., parent total number of friends versus parent facilitation behaviours for children). Also, despite only one component emerging with an eigenvalue above 1.00 in the PCA, the second and third components had eigenvalues close to 1.00 (i.e., 0.95 and 0.80), suggesting that there may be elements of parent social competence that were not well-captured by the main component. For these reasons, further exploratory analyses were conducted if significant main or interaction effects were found involving parent social competence to investigate which component(s) of parental social competence might potentially be driving the result. Specifically, for significant associations, ICQ total score, FFQ total score, FQQ total score and parent friendship quantity were used as compensatory factors or moderators instead of the parent social competence factor.

Multiple comparisons. An alpha of .05 or lower was used to determine statistical significance in all models. The present study elected not to correct for multiple comparisons for several reasons. First, all risk factors, compensatory factors, and interactions between risk and compensatory factors were entered into the same model to reduce the overall family-wise error

rate. Second, this study was exploratory in nature, being the first of its kind to investigate parent social competence and teacher-child relationship quality in relation to child social functioning. Lastly, the family-wise error rate was mitigated by making a priori distinctions between findings for the two outcome measures (Perneger, 1998). Specifically, significant associations between risk/compensatory factors and child social competence or risk/compensatory factors and child friendship quality were not interpreted as significant associations for child social functioning in general; when different results were found for the two outcome variables, each result was considered to be separate (e.g., a risk/compensatory factor is associated with only child social competence but not friendship quality).

Missing Data

Table 3 presents detailed information regarding missing data in the sample as well as the decision rule for determining missing data for each measure (e.g., often if only one item of a questionnaire was incomplete or missing, a total score was obtained by averaging the remaining items and that data point was not considered missing). The FQQ-child (parent report of children's friendship quality) had the most missing data (n = 56) because for all data collected through Source 1, only families who brought in a friend to the lab completed measures regarding friendship quality. Teacher-report measures had the next most missing data (n = 21 to 28 depending on the measure). Notably, teachers required more reminders to complete questionnaires perhaps because the nature of their job requires them to attend to the needs of many children (not just the child in the study) and were arguably on average not as motivated as parents (who were seeking treatment) to return questionnaires.

Each variable with missing values was further explored by recoding it into a binary variable (missing and non-missing). For each hypothesized risk/compensatory factor,

independent samples t-tests were used to compare participants with versus without missing data on demographic and outcome variables. Similar comparisons were made for each outcome variable on demographic and hypothesized risk/compensatory factors. A significant *t*-test comparison would suggest that children differed in characteristics of interest to the study according to whether they were missing data for that particular variable.

Few significant comparisons were found. For teacher ratings on the TRF and STRS-SF, there was a significant difference in terms of which site children were recruited from (respectively $t(231) = 3.46$, $p = .001$; $t(231) = 3.77$, $p < .001$). Specifically, children from Source 2 (ADHD Clinic) were significantly more likely to be missing teacher data. Teachers declined to participate in the study for 50 percent of families from Source 2. One reason for higher rates of teacher participation in Source 1 may be because families were asked to encourage and remind teachers to complete questionnaires so that they can move on to the next phase of the study which was to receive the parenting intervention. There were also some significant differences in study variables for children missing ratings on friendship quality: Children whose parents had poorer social competence ($t(214) = -2.23$, $p = .027$), who had less positive relationships with teachers ($t(198) = -2.55$, $p = .011$), and who were younger ($t(218) = -2.09$, $p = .038$) or in a lower grade ($t(229) = -2.49$, $p = .014$) tended to be missing data. Indeed, it is likely that children who had the poorest friendship quality were also the ones who had difficulty bringing in a friend (i.e., did not complete the measure).

With the exception of child friendship quality, all study variables appeared to be "missing at random" or "missing completely at random". Thus, multiple imputation was used to estimate missing values for all analyses with child social competence as the outcome variable (valid $n = 223$). However, all analyses with child friendship quality as the outcome variable were

completed after listwise deletion (valid n = 131). The pattern of results was the same whether multiple imputation or listwise deletion was used; thus the results reported are based on listwise deletion and some models differ in the number of participants.

Results

Descriptive Statistics

Tables 4 and 5 present descriptive statistics on the demographic and study variables, respectively, as well as comparisons of variables across sites. Mean internalizing behaviour, externalizing behaviour, and social problems scores on the CBCL and TRF were comparable to that found in other studies involving children with ADHD (Vaughn, Riccio, Hynd, & Hall, 2010). Correlations between study variables can be found in Table 6.

There were no site differences on 18 of 20 demographic variables. However, chi-square tests revealed that there were a greater proportion of participants identifying as Asian/Asian Canadian/Pacific Islander as well as mixed race in Vancouver compared to Ottawa [$\chi^2(8, N = 233) = 16.93$, p =.031]. One-way MANOVA with post-hoc testing via Least Significant Difference Method revealed that the primary parent tended to be older in Vancouver compared to Ottawa (p = .009). There were no sex differences on 17 of 20 demographic variables. However, a smaller proportion of girls were white or mixed race compared to boys [$\chi^2(4, N = 233) = 9.63$, p =.047]. Also, girls tended to be older in age (girls: M = 8.93, SD = 1.36; boys: M = 8.42, SD = 1.63; p = .018) and related to this, to be in a higher grade (girls: M = 3.67, SD = 1.40; boys: M = 3.16, SD = 1.60; p = .025) compared to boys.

There were no site differences on 6 of 8 risk factors and 8 of 8 compensatory/protective factors. Post-hoc testing revealed that children from Vancouver had significantly lower parent-rated externalizing (p = .032) and inconsistent discipline scores (p = .004) compared to those

from Ottawa. There were no sex differences on 8 of 8 risk factors and 7 of 8 compensatory/protective factors. However, boys tended to have more negative teacher-child relationship quality (boys: M = 21.94, SD = 9.47; girls: M = 18.66, SD = 7.88; p = .013) compared to girls.

Covariates

To investigate main and interaction effects of research site (3 levels) and sex (2 levels) on outcomes (child social competence, child friendship quality), site and each risk/compensatory factor (child internalizing behaviour, child externalizing behaviour, negative parenting, parent social competence, positive teacher-child relationship quality), and then sex and each risk/compensatory factor, were entered as fixed factors in two-way ANOVA analyses.

Sex had significant main effects on 4 of 5 analyses involving child social competence such that girls tended to have poorer social competence compared to boys (Table 7). There were no significant interactions (i.e., 5 of 5 analyses) between sex and risk/compensatory factor on social competence. Because there was a significant main effect of sex, all analyses with social competence as the outcome variable included sex (entered at Step 1 with other risk/compensatory factor).

There were no significant main or interaction effects between sex and risk/compensatory factor on the outcomes of child friendship quality (5 of 5 analyses; Table 8). Thus, sex was dropped from all models involving these outcome variables.

There were no significant main or interaction effects between site and risk/compensatory factor on the outcomes of child social competence (5 of 5 analyses; Table 9) and child friendship quality (5 of 5 analyses; Table 10). Thus, site was dropped from all models.

Hypotheses 1 and 2: Risk and Compensatory Factors

Hypothesis 1 tested that the three risk factors would be associated with decreased child social functioning and Hypothesis 2 tested that the two compensatory factors would be associated with increased child social functioning. These analyses are displayed in Table 11 for child social competence and Table 12 for child friendship quality.

For the outcome variable of child social competence, child sex (being female) was associated with poorer social competence as a main effect. In terms of risk factors, children's higher internalizing behaviour and higher externalizing behaviour, but not negative parenting, were associated with children's poorer social competence as main effects. After statistical control of child sex and risk factors, positive teacher-child relationship quality and parent social competence were each associated with children's better social competence.

For the outcome variable of child friendship quality, the three risk factors and sex showed no significant associations. In terms of compensatory factors, higher parent social competence and positive teacher-child relationship were associated with higher child friendship quality as main effects after controlling for child sex and risk factors.

Hypothesis 3: Protective Factors

This hypothesis tested that the relationship between risk factors and child social functioning would be moderated by (a) parent social competence or (b) positive teacher-child relationship quality. These analyses can be seen in Table 11 for child social competence and Table 12 for child friendship quality.

The two-way interaction between child externalizing behaviour and parent social competence was significant such that the negative impact of child externalizing behaviour on child social competence was mitigated at 1 SD above the mean on parent social competence (β = -.43, $t(200) = -5.86$, $p < .001$) compared to 1 SD below the mean on parent social competence (β

= -.67, $t(200) = -8.24$, $p < .001$). This is illustrated in Figure 1. There was no significant interaction between child internalizing behaviour and parent social competence, or between negative parenting and parent social competence, on child social competence or friendship quality. There was no significant interaction between any risk factor and positive teacher-child relationship quality on child social competence or friendship quality.

Rater Specificity

This study elected to combine parent and teacher reports of the following constructs to create a composite score of these constructs: children's social competence, children's externalizing behaviour problems, and children's internalizing behaviour problems. Similar to as has been documented in previous research (Achenbach & Rescorla, 2001), the data in the current sample showed low to moderate concordance between parents and teachers in their ratings of children's behaviour problems and social functioning. This may occur because parents and teachers interact with and observe children in different contexts (Antrop, Roeyers, Oosterlaan, & Oost, 2002; Booster et al., 2012). However, parents and teachers may also hold unique biases about a child which affect their pattern of ratings. Such biases have the potential to result in shared rater variance (e.g., parents who have a negative view of the child's abilities are more likely to provide higher rating of behaviour problems *and* lower ratings of social competence).

Creating composite scores from parent and teacher ratings has the potential benefit of generating a more valid measure of constructs, to the extent that they represent children's functioning in a wider array of contexts, or to the extent that any bias in one informant may be offset by bias in the other informant. On the other hand, using composite scores to represent constructs limits the ability to examine the potential effects of shared rater variance on obtained results. That is, to what extent are associations between risk/compensatory factors and outcomes

driven by the fact that both constructs are assessed by the same rater (e.g., parent or teacher)? As such, the present study investigated how parent-rated behaviour problems were associated with teacher-rated social functioning, and vice versa, to elucidate whether associations found in the primary analyses may be influenced by factors related to the informant.

Table 13 shows results for the effects of parent-reported child behaviour problems on teacher-reported child social competence. Some similar results were found to those in the primary analyses. Specifically, higher parent-reported externalizing behaviour and lower teacher-reported teacher-child relationship quality were associated with poorer teacher-reported child social competence. Different results were also found. Parent-reported internalizing behaviour and parental social competence were not associated with teacher-reported child social competence. Lastly, there was no significant interaction between parent-reported externalizing behaviour and parent social competence on teacher-reported child social competence.

Table 14 shows results for the effects of teacher-reported child behaviour problems on parent-reported child social competence. Some similar results were found to that in the primary analyses. Specifically, higher teacher-reported internalizing behaviour and lower parent-reported parental social competence were associated with poorer parent-reported child social competence. Different results were also found. Teacher-reported externalizing behaviour and teacher-child relationship quality were not associated with parent-reported child social competence. Lastly, there was no significant interaction between teacher-reported externalizing behaviour and parent-reported parental social competence on parent-reported child social competence.

Table 15 shows results for the effects of teacher-reported child behaviour problems on parent-reported child friendship quality. Identical results were found to that in the primary analyses. Specifically, high parent-reported parent social competence and teacher-reported

teacher-child relationship quality were associated with higher parent-reported child friendship quality.

Exploratory Analyses: Risk as Absence of Protection and Protection as Absence of Risk.

Analyses identical to that of the primary hypotheses were used to explore low positive parenting as a risk factor (replacing high negative parenting), and low negative parental friendship quality (replacing high parental social competence) and low negative teacher-child relationship quality (replacing high positive teacher-child relationship quality) as compensatory/protective factors of child social functioning. Table 11 contains the results for child social competence and Table 12 contains the results of child friendship quality. Tables 16 and 17 display results of negative parenting versus positive parenting as risk factors, as well as positive parental friendship quality versus negative parental friendship quality, and positive teacher-child relationship quality and negative teacher-child relationship quality as compensatory/protective factors of child social competence and child friendship quality, respectively.

Specifically, to compare high negative parenting and low positive parenting as risk factors, child internalizing behaviour, child externalizing behaviour, positive parenting, and negative parenting were entered together at Step 1 of hierarchical regressions. Parent social competence and positive teacher-child relationship quality were entered at Step 2. In Step 3, the cross-product between negative parenting and parent social competence was compared to the cross-product between positive parenting and parent social competence, and the cross-product between negative parenting and positive teacher-child relationship was compared to the cross-product between positive parenting and positive teacher-child relationship.

To compare high positive parental friendship quality and low negative parental friendship quality as compensatory/protective factors, child internalizing behaviour, child externalizing behaviour, and negative parenting were entered together at Step 1 of hierarchical regressions. Positive parental friendship quality, negative parental friendship quality, and positive teacher-child relationship quality were entered at Step 2. In Step 3, the cross-product between internalizing behaviour and positive parental friendship quality was compared to the cross-product between internalizing behaviour and negative parental friendship quality, the cross-product between externalizing behaviour and positive parental friendship quality was compared to the cross-product between externalizing behaviour and negative parental friendship quality, and the cross-product between negative parenting and positive parental friendship quality was compared to the cross-product between negative parenting and negative parental friendship quality.

Similar analyses were used to compare high positive teacher-child relationship quality and low negative teacher-child relationship quality. In these analyses, Step 1 contained all risk factors. Step 2 contained parental social competence, positive teacher-child relationship quality and negative teacher-child relationship quality. Step 3 contained the cross-products between risk factors and positive teacher-child relationship quality compared to that between risk factors and negative teacher-child relationship quality.

For all models comparing the presence versus absence of a construct, the beta-coefficients of the main effects in Step 1 (i.e., risk factors) or 2 (i.e., compensatory factors) and of the cross-products in Step 3 were transformed into confidence intervals. If one of the beta-coefficients lay outside of the other coefficient's confidence interval (in absolute values), then it was concluded that there was a statistically significant difference between the two beta weights.

Low positive parenting versus high negative parenting (risk factors). In these analyses, lower positive parenting was associated with poorer child social competence and friendship quality as main effects. There were no significant interaction effects between positive parenting and compensatory factors. There were no significant differences between the main or interaction effects of positive parenting versus negative parenting as shown by the overlap between the coefficients' confidence intervals.

Low negative parental friendship quality versus high positive parental friendship quality (compensatory/protective factors). Negative parental friendship quality had no significant main effects or interaction effects with the three risk factors. To facilitate comparison to negative parental friendship quality, positive parental friendship quality was investigated as a compensatory/protective factor on social functioning (Table 11 and 12). Positive parental friendship quality was not associated with child social competence. However, more positive parental friendship quality was associated with higher child friendship quality as a main effect. There were no significant interaction effects on outcomes. There were no significant differences between the main or interaction effects of low negative parental friendship quality versus high positive parental friendship quality as shown by the overlap between the coefficients' confidence intervals (Table 16 and 17).

Low negative teacher-child relationship quality versus high positive teacher-child relationship quality (compensatory/protective factors). Less negative teacher-child relationship quality was associated with better child social competence as a main effect. Negative teacher-child relationship quality was not associated with child friendship quality. There were no significant interactions between negative teacher-child relationship quality and the three risk factors.

There was a significant difference between the two beta-coefficients of the main effects on child social competence as shown by the lack of overlap between the absolute values of the coefficients' confidence intervals (Table 16). This suggests that negative teacher-child relationship quality (β = -.39) had stronger associations with child social competence than did positive teacher-child relationship quality (β = .16) with child social competence as a main effect. However, there were no significant differences between the interaction effects of high positive teacher-child relationship quality versus low negative teacher-child relationship quality, as shown by the overlap between the coefficients' confidence intervals.

Exploratory Analyses: Facets of Parent Social Competence

Because parent social competence was found to have a significant main effect on child social competence and friendship quality, and to be a significant moderator between externalizing behaviour and child social competence, different facets of parent social competence (i.e., ICQ total score, FFQ total score, FQQ total score, and parent friendship quantity) were investigated for associations with child social competence (Table 18) and child friendship quality (Table 19), and as moderators of externalizing behaviour on child social competence (Table 19). Higher parent interpersonal competence scores was associated with higher child social competence as a main effect. Higher parent friendship quality and parent friendship facilitation scores were associated with higher child friendship quality as a main effect. No other significant main or interaction effects were found.

Discussion

This study investigated child externalizing behaviour, child internalizing behaviour, and negative parenting as risk factors, and teacher-child relationship quality and parent social competence as compensatory/protective factors, related to social functioning in children with

ADHD. There were three primary hypotheses. Hypothesis 1 regarding risk factors was partially supported; high child internalizing and externalizing behaviour, but not negative parenting, were associated with poorer child social competence. None of the three risk factors were associated with child friendship quality. Hypothesis 2 regarding compensatory factors was fully supported; high teacher-child relationship quality and parent social competence was each associated with better child social competence and friendship quality, after statistical control of risk factors. Hypothesis 3 regarding protective factors was partially supported; high parent social competence mitigated the risk of child externalizing behaviour on child social competence, however teacher-child relationship quality did not buffer the effects of any risk factor on child social functioning. In analyses exploring rater-specificity, the associations between most risk factors and child social competence, and those between all compensatory factors and child friendship quality were retained regardless of which rater's report was used. On the other hand, parent-reported parent social competence was not associated with teacher-reported child social competence, teacher-reported teacher-child relationship quality was not associated with parent-reported child social competence, and parent social competence no longer moderated the association between child behaviour problems and child social competence.

Exploratory analyses investigated low positive parenting as a risk factor and low negative parental friendship quality and low negative teacher-child relationship quality as protective factors. Low positive parenting was associated with poorer child social competence and friendship quality; low negative teacher-child relationship quality was associated with better child social competence. In comparing these risk/compensatory factors to those from the primary hypotheses, low negative teacher-child relationship quality was more strongly associated with child social competence than was high positive teacher-child relationship quality.

Risk Factors

Behaviour problems and child social competence. In the current study, both child externalizing and internalizing behaviour uniquely related to poorer child social competence after accounting for the other type of problem behaviour and negative parenting. There was evidence that this occurred across raters (e.g., teacher ratings of problem behavior was associated with parent ratings of child social competence, and vice versa).

The association between comorbid externalizing problems and social difficulties in ADHD has been well-established (Armstrong, Lycett, Hiscock, Care, & Sciberras, 2015; Booster et al., 2012). Although mechanisms explaining this relationship were not tested in the current study, children's poor emotion regulation may be an important factor to examine in future research. Comorbid externalizing behaviours are associated with emotional reactivity and deficits in effortful control (e.g., 38% of community sample and 24%-50% of clinic sample with ADHD; Shaw, Stringaris, Nigg, & Leibenluft, 2014). In social situations, this emotional dysregulation often manifests as impatience with others (i.e., low threshold for emotional excitability) and becoming easily upset (i.e., high emotionality and behavioural dyscontrol), factors which have been found to contribute to poorer parent- and teacher- rated social competence (de Pauw & Mervielde, 2010) and more "dislike" nominations from peers (Thorell, Sjöwall, Diamatopoulou, Rydell, & Bohlin, 2017). In fact, a recent study found children with ADHD and comorbid externalizing behaviour to have poor emotional awareness which impairs their ability to cope with negative affect and to take another's perspective in social interactions (Factor, Rosen, & Reyes, 2016).

Interestingly, the unique contribution of internalizing behaviour to poor social

competence was also found. These findings are consistent with previous research showing a link between comorbid internalizing behaviour and parent- and teacher-rated social problems in children with ADHD (Armstrong et al., 2015; Blackman et al., 2005). Findings can be considered in the context of interpersonal theories of anxiety and depression whereby socio-behavioural deficits (e.g., excessive reassurance seeking) generate and maintain problems in relationships (e.g., low peer preference) as well as increase subsequent risk for internalizing behaviours (Epkins & Heckler, 2011; Rudolph, Flynn, & Abaied, 2008). Similar to the negative cycle observed between externalizing behaviour and low peer preference (Mercer & DeRosier, 2008), youths with internalizing problems not only display characteristics (e.g., high negative affect) and behaviours (e.g., low prosociality and high aggression; Rudolph & Clark, 2001) that evoke negative reactions from others (Joiner & Rudd, 1996), they also tend to respond to these conflicts with less assertive responses and more avoidance (Epkins & Heckler, 2011; Quiggle, Garber, Panak, & Dodge, 1992).

Altogether, externalizing and internalizing behaviour appeared to relate to social dysfunction in children with ADHD in an additive fashion. That is, having both comorbid behaviour problems was associated with poorer social functioning than either behaviour problem alone. It is possible that comorbid internalizing behaviours increase the severity of externalizing behaviour in some children with ADHD, thereby compounding risk for poor social functioning. There are suggestions that comorbid internalizing and externalizing behaviour problems in children can predict increasing externalizing problems over time (Somersalo, Solantaus, & Almqvist, 1999), as well as higher stability of internalizing problems (Griggs, Mikami, & Rimm- Kaufman, 2016). For example, being shy and withdrawn may increase children's risk of being bullied by peers (Blake et al., 2016) which can in turn exacerbate emotion dysregulation

and social information processing biases (common problems associated with externalizing behaviour), leading to increased reactivity and use of aggressive coping strategies during interpersonal conflicts (Ford, 2002). Or, being aggressive as well as socially anxious could be an additional barrier to the child having peer experiences that disconfirm fears of rejection, resulting in more persistent anxiety (Helbig- Lang Sylvia & Petermann Franz, 2010). Present findings are consistent with those from a longitudinal, multi-wave study of 1232 children (age 2 to 12 years) that found both persistent externalizing problems and co-occurring internalizing/externalizing behaviour to predict association with deviant peers, engagement in risky behaviours, low peer preference, and asociality in early adolescence (whereas persistent internalizing behaviour predicted asociality only; Fanti & Henrich, 2015).

Behaviour problems and child friendship quality. Interestingly, neither internalizing nor externalizing behaviour related to poorer friendship quality in children with ADHD. Although behaviour problems have been found to predict friendship quality in community samples (e.g., measuring internalizing and externalizing symptoms dimensionally; Engle, McElwain, & Lasky, 2011; Rose et al., 2011), there has been scant research on this association within clinical samples, such as in children with ADHD (Becker et al., 2012). Interestingly, three studies have examined the relationship between comorbid externalizing behaviour and friendship in ADHD samples, and found no effect across a range of friendship domains, including friendship quantity (Hoza et al., 2005), friendship quality/satisfaction (Normand et al., 2011), and social competence within close friendships (Bagwell, Molina, Pelham, & Hoza, 2001). A similar lack of associations among children with ADHD have been reported for comorbid anxiety and friendship quantity (Hoza et al., 2005), friendship quality (Normand et al., 2011), and ability to make friends (Bowen et al., 2008).

One possible explanation for these findings is that ADHD status is so strongly associated with both externalizing and internalizing behaviour (Armstrong et al., 2015) and poor friendship quality such that the additive effects of comorbid behaviour problems within an ADHD population are not as strongly associated with friendship quality as they are in community samples (e.g., Normand et al., 2011; Rokeach & Wiener, 2017). Another potential explanation is that in the current study, ratings of friendship quality (although not ratings of social competence) were only obtained for the children who could bring a friend to the lab in the first place. Although there was no difference in social competence found between children with friendship quality ratings and those without, the latter group did appear to have poorer social supports overall (i.e., poorer parent social competence and relationships with teachers). As such, it is possible that the current sample of children with friendship quality ratings may not fully reflect the population of children with ADHD. On the other hand, it is standard practice when investigating children's friendship quality to require these ratings to be made in reference to a confirmed, reciprocated friendship; thus, past research on friendship quality also typically includes only data from children who have a confirmed friendship upon which to report (Crowe, Beauchamp, Catroppa, & Anderson, 2011). In addition, scores for the FQQ-child in the current sample were comparable to those found in other studies about friendship quality in children with social problems (Parker & Asher, 1993); thus, friendship quality ratings in the present study do not appear to be restricted in range.

A third interpretation for the lack of associations between behaviour problems and friendship quality in this sample is that, at least among children with ADHD, it may be possible for them to find a few good friends who understand them despite their comorbid behaviour problems. If this is the case, then friendship could potentially be a useful intervention target as it

may be easier for children with ADHD to make and maintain one high quality friendship then to gain the approval of the peer group at large (Mikami, 2010). Indeed, friendship has been found to be protective against social difficulties (e.g., bullying, victimization) in this population (Cardoos & Hinshaw, 2011; Jia & Mikami, 2015).

Parenting – positive and negative. Contrary to previous work (Kaiser et al., 2011) and to hypotheses in the current study, negative parenting characterized by inconsistency and overreactivity was not associated with child social functioning. However, consistent with findings by Ray and colleagues (2017), low positive parenting marked by low parent involvement and praise (i.e., positive parenting subscale of APQ) did relate to poorer child social competence and friendship quality. Thus, the positive aspects of parenting, and not the negative attributes, appeared to be potentially most influential for child social functioning. Potential explanations for this pattern of results are below.

Parent involvement. Parent involvement may have associations with child social functioning because it has direct influences on how much children socialize with peers. For example, the parent involvement subscale of the APQ contains some parenting behaviours that result in increased social interactions between the child and peers (e.g., "You drive your child to a special activity"), such that low involvement indicates that the child has fewer peer interactions and therefore, reduced opportunities to learn social skills. These direct influences may be more important than factors that contribute indirectly to children's social functioning such as inconsistent or overreactive parenting. That is, parenting may constitute a more distal influence on child social functioning when the pathway of influence occurs through modeling of parent behaviours by child (e.g., child displaying overreactivity with peers) or through changes in child attachment style (e.g., child develops internal working model of others as harsh and volatile;

Parke & Buriel, 2007). Indeed, evidence shows that parents' direct involvement (i.e., time spent with adolescents and their friends) is predictive of child friendship quality after accounting for indirect factors such as parental warmth and acceptance (Updegraff, McHale, Crouter, & Kupanoff, 2001).

Direct involvement by parents may be particularly important for the development of stable, high quality friendships in young children (i.e., preadolescents; Gerardy, Mounts, Luckner, & Valentiner, 2015), such as the age groups represented in the current sample. Specifically, parental guidance and consultation on social activities have been related to more positive friendship quality, social skills, and cooperative behaviour in early adolescents in the 7th and 8th grade (Mounts, 2004, 2011); however, these same parent behaviours also predicted less assertiveness and sense of responsibility over a 9-month period (Mounts, 2011). Similar results were found in a study of youth age 9 to 14 years such that younger children self-reported and were observed to be more receptive to parent social coaching than older children (Gregson, Erath, Pettit, & Tu, 2016). These results suggest that as children grow older, parents' direct involvement may become less important and, in some cases, counterproductive as it may hinder adolescents' natural desire for autonomy.

Parent praise. Positive rather than negative parenting may also have been more strongly associated with child social functioning in the current study because praise can be more effective than criticism and harshness in shaping social behaviours. For example, young children (before age 12 years) have been found to be more sensitive to and to learn faster from positive rather than negative feedback, a finding that correlates with neural developmental changes related to age (van Duijvenvoorde, Zanolie, Rombouts, Raijmakers, & Crone, 2008). This may be particularly true for children with ADHD as they, compared to children without ADHD, have

been found to be less responsive to inconsistent, delayed, and weak reinforcement, as well as cues of punishment or nonreward when being asked to change their behaviour (e.g., told by adult to sit quietly; McBurnett & Pfiffner, 2008). Thus, perhaps parents who use praise are more effective in teaching their children social skills relative to parents who use harsh/critical approaches, because their children are more likely to respond to their guidance. A caveat to this interpretation, however, is that the positive parenting subscale was not significantly associated with child social competence or friendship quality in bivariate correlations.

Compensatory Factors

Teacher-child relationship quality. Both closeness and conflict within teacher-child relationships were associated with social functioning in children with ADHD. This pattern of results occurred when the parent rated friendship quality, but only when the teacher or a combination of the teacher and parent rated child social competence. Interestingly, results suggested that it may be more important for teacher-child relationships to be low in conflict rather than high in closeness, at least for the outcome of child social functioning. There are several reasons why this might be. First, conflict with teachers, as compared to closeness with teachers, may be more strongly associated with children's behaviour problems in a bidirectional fashion (Skalická, Stenseng, & Wichstrøm, 2015), and behaviour problems then increase risk for poor social functioning (Armstrong et al., 2015). Specifically, children's externalizing behaviour has been found to engender more teacher-child conflict, and also be exacerbated by conflict with teachers; similar reciprocal relationships have not been found for behaviour problems with teacher-child closeness (Skalická et al., 2015; Zhan & Sun, 2011). Relative to teacher-child conflict, teacher-child closeness may be more attributable to idiosyncratic interpersonal styles of individual teachers. In support of this, a child's conflict with their teachers is more stable across

time and classrooms relative to that child's closeness with teachers (Pianta & Stuhlman, 2004; Spilt, Hughes, Wu, & Kwok, 2012).

Second, conflict with teachers may be easier for observing classroom peers to see than is closeness with teachers. As previously discussed, peers may model their social judgments of children with behaviour problems on their observations of teachers' relationships with these children (McAuliffe, Hubbard, & Romano, 2009). Thus, peers may interpret conflict between a teacher and student with ADHD as the teacher not valuing or liking a student, and therefore become less tolerant of the child's difficulties. The conflict subscale of the STRS has items such as "this child and I always seem to be struggling with each other" and "this child remains angry or is resistant after being disciplined", behaviours that are more public and apparent to other children compared to qualities measured by the closeness subscale (e.g., "This child values his/her relationship with me.") which is arguably more internal to individuals directly involved in the relationship. Accordingly, conflict with teachers may affect children's social reputations with classroom peers more than closeness with teachers. This may be why a study of 127 second graders found that teachers' negative, as opposed to positive, behaviours toward students mediated the link between child behaviour problems and low peer preference (McAuliffe et al., 2009).

It is interesting to compare the finding that teacher conflict (negativity) appeared potentially more influential than teacher closeness (positivity) on children's social functioning with the finding that involved/praising parenting (positivity) appeared more influential than inconsistent/overreactive parenting (negativity) on children's social functioning. However, there are several reasons why negative behaviours toward children in teachers versus parents may differentially relate to child social functioning. First, negative parenting and negative teacher-

child relationship quality are not analogous constructs. That is, the wording on the parenting questionnaire asks about behaviours performed directly by the parent toward the child (e.g., "You have a friendly talk with your child"). In contrast, the wording on the teacher-child relationship quality questionnaire asks about relationship dynamics between the teacher and child which are more related to child behaviours and characteristics (e.g., "If upset, this child will seek comfort from me"). Because of the differences in wording on the two questionnaires, it is possible that parents therefore under-report their level of negative parenting to a greater extent than teachers may under-report their negative relationship quality with a student. In other words, parents may be more susceptible to demand characteristics and impression management than teachers on these scales. Second, although evidence suggests that peers who observe both teacher-child (Mikami et al., 2012) and parent-child conflict (Jack, Mikami, & Calhoun, 2011) can develop more unfavorable social impressions of the child as a result, teacher-child conflict is usually more visible to peers than negative parenting which occurs primarily in the home context. As such, peers seeing teacher-child conflict may be more likely have their social judgments of the child affected by their observations.

Parent social competence. The present results suggest that having parents who are socially competent themselves may support children's good social functioning. However, these results were limited to analyses where the parent reported on the child's friendship quality, or the parent or a combination of the teacher and parent reported on the child's social competence. Specifically, parents' interpersonal competence related to child social competence, and parents' friendship facilitation skills and own friendship quality related to child friendship quality.

Although the current study did not investigate mechanisms of this association, a useful direction for future work may be to examine parents' own attachment styles as factors affecting

parents' ability to build social relationships with and to seek support from other adults. In general, adults with secure attachment styles are confident that support is available to them and are satisfied with the support they receive, whereas insecure adults report less available support, less satisfaction with the support they receive, and a larger gap between what they say they need and what they say they receive (Collins & Feeney, 2004). Insecure parental attachment styles are not only predictive of problematic parenting behaviors such as inconsistency and lack of involvement (Coyl, Newland, & Freeman, 2010), but also perceptions of their environments as less supportive (Florian, Mikulincer, & Bucholtz, 1995). Crucially, such perceptions can influence how much parents reach out to other families and community resources to facilitate friendships for their children. Interestingly, in families of children at risk for behaviour problems, parent attachment and social support show reciprocal influences, with attachment issues predicting lower perceptions of support over time, and perceptions of social support predicting changes in attachment style (Green, Furrer, & McAllister, 2011; Green & Goldwyn, 2002). No study has directly investigated parent attachment styles in children with ADHD. However, there is significant evidence of insecure attachment in children with ADHD compared to typically developing youth (Clarke, Ungerer, Chahoud, Johnson, & Stiefel, 2002) and the correspondence between adult and child attachment is high (van IJzendoorn, 1995).

It is of note that both parent social competence and positive parenting were found to be associated with better child social functioning in this study. This may be because the measures of parent social competence and parent involvement both included questions about direct discussion and facilitation of child social behaviours. Thus, it is likely that even though one was conceptualized as a risk factor and the other as a compensatory factor, there was overlap in these constructs to the extent that both reflect parents' ability to advise and assist children in setting up

playdates and other peer socialization opportunities. Taken together, this supports the potential importance of parents' direct influences on the social functioning of children with ADHD.

Protective Factor – Parent Social Competence

Having a parent with high social competence protected against the negative impact of externalizing behaviour on child social functioning (when measured as a composite between parent and teacher reports). As previously discussed, parent facilitation behaviours may be particularly important for helping children with behaviour problems to overcome negative reputational biases and to create opportunities for play (Mikami et al., 2010). Another possible explanation for this finding, however, is that parent social competence mitigates the parenting stress associated with having a child with ADHD and comorbid externalizing problems. Research has long-documented the stress-buffering effects of social support, particularly under conditions of high stress (Cohen, 2004). Parents of children with ADHD, in particular those with more severe symptoms or co-occurring conduct problems, have been found to experience more parenting stress than parents of non-clinical controls (Theule, Wiener, Tannock, & Jenkins, 2013). In turn, parenting stress has been linked to teacher ratings of low prosocial behaviour and high child behaviour problems (Anthony et al., 2005). Thus, parents' social skills, quality of friendships, and ability to seek out other parents may be particularly influential for children with ADHD and comorbid externalizing problems as a result of increased social support (e.g., advice from friends about how to handle child's social problems; wider social networks to facilitate playdates and child care).

Clinical Implications

Improve teacher-child relationship quality. Results of the present study suggest the potential importance of decreasing conflict within teacher-child relationships for children with

ADHD. Two interventions, Teacher-Child Interaction Training (TCIT; Fernandez, Gold, Hirsch, & Miller, 2015) and Banking Time (Driscoll & Pianta, 2010), have explicit aims to improve teacher-child relationship quality. TCIT, which involves providing teachers with on-site observation and coaching of behaviour management techniques has been found to be helpful in increasing teachers' use of positive statements toward children, ability to ignore inappropriate behavior, and implementation of consistent disciplinary strategies (single-case design; 7 sessions; McIntosh, Rizza, & Bliss, 2000). TCIT has also been associated with children's increased prosocial behaviours and decreased behaviour problems (as rated by teachers; Fernandez et al., 2015). However, no randomized controlled trial of TCIT has been conducted to date, thus it is unclear whether TCIT is more effective than traditional behaviour management that does not include on-site coaching.

In contrast, Banking Time is an intervention that involves one-on-one meetings between a teacher and a child consisting of child-led play and teacher facilitation techniques (Driscoll & Pianta, 2010). Teachers are asked to refrain from correcting behaviour during short, regular play sessions and to instead focus on creating a warm and supportive relationship with the child by describing and narrating the child's behaviours and emotions. In a randomized controlled trial of 116 children at risk for behaviour problems and 29 teachers, Banking Time (6 weeks; 18 sessions) was found to increase teachers' perceptions of closeness with students and self-reported frustration tolerance, and to decrease teacher ratings of child behaviour problems compared to both within classroom and wait-list control groups (Driscoll & Pianta, 2010). It is unclear whether Banking Time is effective in reducing teacher-child conflict or child social problems.

Another randomized controlled trial of an intervention combining Banking Time and TCIT (N = 175 children at risk for behaviour problems; 12 weeks) did find improvements in both

teacher-child conflict and closeness compared to treatment-as-usual (Vancraeyveldt et al., 2015). Interestingly, changes in teacher-child relationship quality and child behaviour problems were associated with the Banking Time component, and not the TCIT component of treatment (components administered sequentially), suggesting that it may be more effective to directly target aspects of the relationship rather than how behaviour problems are managed.

Another potentially fruitful way to improve teacher-child relationship quality may be to target teachers' own emotion regulation skills and efficacy in handling conflict. Cultivating Awareness and Resilience in Education (CARE) is an intervention which emphasizes the significance of teachers' social and emotional competence and wellbeing in the development and maintenance of supportive teacher–student relationships, teachers' effective classroom management, and children's social and emotional competencies (Jennings & Greenberg, 2009). Accordingly, CARE combines emotion skills instruction, mindful awareness practices, and compassion building activities (30-hour program; 4-day sessions over 4 to 6 weeks; with intersession phone coaching and a booster two months later) and has been found to increase teacher wellbeing, efficacy, burnout/time-related stress, and mindfulness compared to waitlist controls (Jennings, Frank, Snowberg, Coccia, & Greenberg, 2013). However, it remains unknown whether CARE impacts teacher-child relationship quality or child outcomes such as behaviour problems and social functioning.

An important caveat to consider for all the interventions reviewed above is that they have not been tested specifically in samples of children with ADHD. Thus, it is unclear to what extent these results would generalize and apply to families similar to those in the present study.

Improve parent social competence. Parent social competence was found to be both a compensatory and protective factor for social functioning in children with ADHD in some

models (i.e., those with parent-reported outcomes or outcomes that represent the composite of parent and teacher ratings). This may suggest another target for psychosocial interventions. Specifically, it could be useful to target parents' own social skills, friendship quality, and friendship facilitation behaviours.

In support of this, a pilot intervention aimed at training parents of children with ADHD to be "friendship coaches" (i.e., network with other parents, facilitate playdates, instruct social skills) has demonstrated some success in increasing teacher-rated peer preference and parent-rated friendship quality and social skills (Mikami, Lerner, Griggs, McGrath, & Calhoun, 2010). This is the only intervention for social problems (that I know of) where the parent is conceptualized to be the "primary agent of change" which presents an alternative to targeting child factors (e.g., social skill deficits) or contingencies within the environment. Indeed, investigators suggest that children with ADHD have intact knowledge of social skills yet fail to perform these skills in real-world environments outside of the training context (de Boo & Prins, 2007). For example, social skills training in clinics have been found to increase prosocial and socially skilled behaviours in the treatment setting, but not in school contexts where peer problems occur (Pfiffner & McBurnett, 1997). Accordingly, interventions that also promote skill generalization by involving parents and other adults tend to be more effective than those that work exclusively with children on improving social skills (Mikami, Jia, & Na, 2014).

Another reason why it may be more helpful to target parent social competence rather than child behaviour problems in improving social functioning is that children with ADHD can be defensive when presented with feedback about their behaviours (Diener & Milich, 1997; Ohan & Johnston, 2011). This defensiveness has been proposed to relate to both comorbid externalizing problems (e.g., being oppositional and defiant when asked to change behaviour) and a tendency

for children with ADHD to self-protect against negative feedback by overestimating their social, behavioural, and academic competence (Diener & Milich, 1997). In fact, evidence suggests that this tendency to overestimate self-competence predicts poorer treatment outcomes in this population (Mikami, Calhoun, & Abikoff, 2010). Thus, children with ADHD may be more receptive to intervention strategies that do not directly call attention to their difficulties (and the need for them to enact more socially skilled behaviour), and instead focus on parent behaviours that will facilitate children having successful social interactions.

Despite studies finding associations between parents' social skills and children's social skills (Doyle et al., 1994), it remains unclear the extent to which improving parent's social behaviours can lead to changes in children's social behaviours. Specifically, no study (that I know of) has investigated whether targeting parents' social behaviours in general (i.e., not in relation to parenting) can lead to improvements in children's social functioning. It is likely that the association between parent and child social competence is driven by some genetic components in addition to children modeling and learning from parents (Ebstein, Israel, Chew, Zhong, & Knafo, 2010). It is possible that some children benefit more from interventions aimed at improving parents' social skills in the context of parenting while others benefit more from those targeting parents' social problems in general (e.g., decrease parental social anxiety or depression). More research on the mechanisms between parent and child social competence could help elucidate what would work best for whom.

Strengths and Limitations

Strengths.

Multi-rater reports. A strength of this study is the use of both parent and teacher reports of child behaviour problems and social functioning among a sample of children rigorously

diagnosed with ADHD. This allowed for examination of rater-specificity in the primary associations. That is, it was possible to investigate whether findings could in part be attributable to common processes (e.g., observing children primarily at school versus at home) or systematic biases (e.g., tendency to perceive more negative attributes in children with behaviour problems) in parents versus teachers (discussed further below). Related to this, a diagnosis of ADHD was ascertained by confirming impairment across informants and contexts (e.g., both home and school). This ensured that the children included are representative of those seen in intervention trials for social problems (Evans et al., 2018), making the results potentially more clinically relevant.

Where the action is. This is the first study (that I know of) that investigated both positive and negative constructs in parenting, parent social competence, and teacher-child relationship quality. The results have demonstrated that it is important not to conflate the presence of negative with the lack of positive, and vice versa, as high positive teacher-child relationship quality was differentially related to child social functioning compared to low negative teacher-child relationship quality. In addition, the present results suggest that positive parenting, but not negative parenting is associated with child social competence. This finding aligns itself and lends further support to recommendations in many behaviour management programs for children with ADHD which asks parents and teachers to begin by increasing praise and positive reinforcement in shaping appropriate social behaviours (Pfiffner & McBurnett, 1997).

Diversity of participants. This study was unique in its diversity of participants included, in that children with ADHD were recruited from three different sites in two different cities. Thus, the results may be generalizable to families from both anglophone and francophone Canada, as well as those seen in both research and clinical contexts.

Focus on resilience. Few studies have investigated social resilience in ADHD and most have focused on risk factors for social problems, thus little is known about protective mechanisms in this population (Dvorsky & Langberg, 2016). By using a resilience framework, this study identified nuanced associations for social functioning and new potential targets for interventions in a treatment-resistant domain. Specifically, the finding that high teacher-child relationship quality is associated with higher child social functioning and friendship quality suggests that in addition to helping children with ADHD improve their social skills and behavioural competence, it may be worthwhile for schools to invest in resources which help teachers cope with the frustration and negative affect associated with working with this population.

Limitations.

Cross-sectional design. The design of the present study was cross-sectional because there is scant research on social resilience in ADHD (Dvorsky & Langberg, 2016), thus this investigation focused on elucidating potential associations between risk and compensatory factors, and child social functioning. However, such designs preclude conclusions about the temporal ordering and causal relationships between variables. There is some evidence to suggest that negative parenting (Kaiser et al., 2011) and teacher-child relationship quality (Burchinal et al., 2008; Stipek & Miles, 2008) may also serve as mediators in the relationship between behaviours problems and child social functioning. It is also likely that the associations found in the present study are transactional in nature, with poorer social functioning leading to both more relationship difficulties with parent and teachers (Pettit & Arsiwalla, 2008; Sutherland & Oswald, 2005), as well as exacerbated behaviour problems over time (Bornstein, Hahn, & Haynes, 2010).

Shared rater variance. Analyses exploring rater-specificity of the primary findings suggested that shared rater variance may partially explain some of the present results. That is, biases specific to parents versus teachers may have contributed to some significant relationships found between risk/compensatory factors and outcomes. For example, parent ratings of their own social competence were related to parent-reported child social competence, but not teacher-reported child social competence. This suggests that parents who perceived themselves to be doing well socially (e.g., having better interpersonal skills, performing more facilitation behaviours) were also more likely to rate their children as being socially skilled (e.g., perhaps because these parents are biased to perceive their effort to facilitate social interactions as successful). This pattern of results may also speak to variations between parents of what constitutes high social competence (i.e., some parents have more conservative definitions of what "getting along with others" mean). Another explanation could be that certain parents have internalizing difficulties which then contributes to both poorer evaluations of themselves and their children. Lastly, it is possible that parents' own social competence is more strongly associated with children's social behaviours at home versus at school because the former is where parents have more control in monitoring, directing, and guiding children's social development.

Similarly, teacher ratings of teacher-child relationship quality were associated with teacher-reported child social competence, but not parent-reported child social competence. It is possible that a teacher who has a more positive relationship with the child or who likes the child more is also more likely to perceive the child as more socially competent. Conversely, teachers who have high conflict and low closeness with children may more often attribute these difficulties to the child's social problems. In addition, it is possible for a child to display more

positive social behaviours at school versus at home, and vice versa, as a result of differing relationships with the parent and teacher, such that having a positive relationship with the teacher may lead to better behavioural compliance during school, but not upon returning home.

On the other hand, regardless of rater, some behaviour problems (i.e., parent-reported externalizing behaviour, teacher-reported internalizing behaviour, and parent/teacher composite scores of externalizing and internalizing behaviour) were associated with child social competence, and parent social competence and teacher-child relationship quality related to child friendship quality, suggesting that these particular associations may be less sensitive to contextual differences between the home versus school, as well as differences in biases existing in parents versus teachers. It also suggests that some of the associations between constructs exist independent of potential rater factors.

Shared method variance. The present study only employed questionnaires to measure variables; also, self- and peer-reports were not included. It remains unclear whether the present results represent parent and teacher perceptions of children's functioning, or of their "actual" functioning. For example, parents and teachers are often aware of a child's diagnostic and medication status which may lead them to be more attentive to his behavioural and social difficulties. Parents with ADHD may also experience significant stigma about having a child with ADHD and how it relates to their parenting, which may increase their reluctance to report on negative parenting behaviours. Thus, results may be different if independent raters were used to observe and rate children's behaviours as well as parenting.

Children's perspectives of parenting, relationships with teachers, and friendship quality may also be important as there is some evidence that it can be uniquely predictive of outcomes (Mercer & DeRosier, 2010). For example, children's perceptions of peer conflict and

victimization have been shown to be more predictive of maladjustment than actual rates of harm (Volk, Dane, & Marini, 2014). However, overly positive self-perceptions in this population has also been related to poorer social and behavioural outcomes (Jia, Jiang, & Mikami, 2016). Overall, this study is limited in that it cannot speak to how children's own perceptions of risk and protective factors may relate to their social functioning.

Lastly, peer perspectives were not measured in the present study, including the use of peer sociometrics. This is significant because peer functioning is an area of high impairment for children with ADHD (Hoza et al., 2005). Parents and teachers can be relatively unaware of more subtle and covert peer problems such as relational victimization and peer neglect (Garandeau & Cillessen, 2006). There is also evidence to suggest that children with ADHD can improve their social competence without necessarily obtaining better peer status as a result of persistent reputational biases (Evans et al., 2018). In terms of child friendship quality, the friends' perceptions of relationship quality may also bear valuable information regarding the current state as well as stability of the friendship.

Generalizability. Several factors limit generalizability of the present results. First, most of the participants (i.e., from Source 1) were recruited while seeking assessment and treatment which potentially limits generalizability of the results to community populations. For example, the present sample may contain overrepresentation of parents who are motivated and organized enough to seek help for their child's difficulties. Second, the present sample contained a high percentage of Caucasian families (i.e., 57% - 81% depending on site) from middle to high socio-economic status (SES) backgrounds (i.e., mean household income $113,229). Thus, the results may not generalize to families of other ethnicities or low SES backgrounds. For example, there is some research to suggest that variations in culture can influence mothers' attributions for their

children's behaviour problems (Mah & Johnston, 2007) as well as acceptability of behaviour management training (Ho, Yeh, McCabe, & Lau, 2012).

Third, most children in the sample were diagnosed with the combined presentation of ADHD. There is evidence that children with primarily inattentive symptoms may differ in the extent and type of social impairment they display compared to those with the combined presentation (e.g., former perceived as shy and passive, and the latter perceived as aggressive; Solanto, Pope-Boyd, Tryon, & Stepak, 2009). However, the present study did not account for presentation/subtype in the analyses because of evidence showing the instability of these categories over time and the tendency for many children with ADHD to change categories throughout life (i.e., DSM-V has elected to replace subtypes with "presentation specifiers" in acknowledgement of this fluidity; Epstein & Loren, 2013). Lastly, the present study did not account for medication status in the analyses. Previous research suggests that stimulant medication can be helpful for some children with ADHD in improving parent- and teacher-reported social behaviours (Abikoff et al., 2004). However, all participants from Source 1 (i.e., a large proportion of the present sample) were required to demonstrate significant social impairment despite being on medication. Taken together, the present results may not generalize to children whose social functioning can be significantly improved as a result of stimulant medication.

Future Directions and Conclusions

The present investigation suggests that parent and teacher factors may buffer against social impairments in children with ADHD. Multi-method, longitudinal studies are needed to elucidate the mechanisms between these variables. For example, it is possible that parenting and teacher-child relationship quality also serve as mediators between behaviour problems and social

functioning in this population (Chang et al., 2007). Second, more research is needed on parent social competence as it emerged as a protective factor for child social functioning. Because parent social competence was based on a composite of other measures, it remains unclear how it exerts its influence on child functioning. For example, it may represent parent perceptions of social support or specific qualities of the parent's friendship. Related to this, further investigation is needed on parent social difficulties (i.e., represented by negative parental friendship quality in this study) in their relationships with child social functioning. In this regard, it may be fruitful to examine factors such as parent social anxiety, intrusiveness, or negativity. As well, an important contributor to parent social competence may be parents' own ADHD symptoms as ADHD is highly heritable (0.88; Larsson, Chang, D'Onofrio, & Lichtenstein, 2014) and adults with symptoms of ADHD tend to experience impairments in their interpersonal relationships at work and in romantic partnerships (Rösler, Casas, Konofal, & Buitelaar, 2010). Thus, it may be fruitful for future studies to measure parent psychopathology including ADHD symptoms to ascertain their influences on parent social competence as well as child social functioning.

Lastly, it would be interesting to investigate these associations at different stages of development as social demands change across elementary school, high school, and post-secondary education. In particular, transitions between these contexts have been found to be stressful and difficult for children with ADHD (Langberg et al., 2008). Previous research in both children with ADHD (Ray et al., 2017) and typically developing youths (Bohnert, Aikins, & Arola, 2013) suggest that participation in organized activities (e.g., sports teams) may be particularly protective during this time.

All in all, the present study shows that positive, socially skilled parent behaviours such as involvement, facilitation, and good relationships with friends, as well as low conflict in teacher-

child relationships are potentially important in relation to good social functioning in children with ADHD. The presence of positive parent and teacher behaviours was not necessarily equivalent to the absence of negative behaviours, suggesting complexity in the study of risk and resilience. In summary, there may be natural processes within the child's environment that protect against risk for a myriad of social difficulties which has the potential to inform future prevention and intervention strategies.

Table 1

Extracted Components of Parent Social Competence Measures

Component	Total Eigenvalue	Percent of Variance	Cumulative Percentage
1	1.57	39.38	39.38
2	0.95	23.76	63.13
3	0.80	20.03	83.16
4	0.67	16.84	100.00

Table 2

Correlations and Factor Loadings of Parent Social Competence Measures on Extracted Component

Measures	**Component 1**	
	Correlation[1]	Factor Loading[2]
Parent Friendship Quantity	.39	.25
Parent Interpersonal Competence	.75	.48
Parent Friendship Facilitation	.67	.43
Parent Friendship Quality	.64	.41

[1]Correlations between each measure and component extracted

[2]Relative weight of each measure score used to create factor score

Table 3

Missing Data

	Valid N		Rule for Missing Data	Missing Data	
	Dual-Site	ADHD Clinic		Dual-Site	ADHD Clinic
Risk Factors					
CBCL Internalizing	195	20	computerized	18	0
CBCL Externalizing	195	20	computerized	18	0
TRF Internalizing	192	10	computerized	21	10
TRF Externalizing	192	10	computerized	21	10
APQ Positive Parenting	205	20	1 item	8	0
APQ Involvement	205	20	1 item	8	0
Parenting Scale - Over Reactivity	204	20	1 item	9	0
Compensatory Factors					
Parent Friendship Facilitation	203	20	15% or less of total items	10	0
Parent Negative Friendship Quality	201	20	15% or less of total items	12	0
Parent Positive Friendship Quality	201	20	15% or less of total items	12	0
Parent Interpersonal Competence	205	20	15% or less of total items	8	0
Parent Friendship Quantity	203	20	N/A	10	0
Teacher STRS Closeness	190	10	1 item	23	10
Teacher STRS Conflict	185	10	1 item	28	10
Outcomes					
Parent SSIS – child social skills	195	20	computerized	18	0
Teacher SSIS – child social skills	187	10	computerized	26	10
CBCL Social Problems	195	20	computerized	18	0
TRF Social Problems	192	10	computerized	21	10
Friendship Quality Questionnaire	157	20	15% or less of total items	56	0
Valid N	121	10			
Total Valid N (across sites)	**131**				

computerized = determined via computer algorithm

Table 4

Demographic Variables

	Variables	***Full Sample*** *(N = 233)*	***Vancouver*** *(n = 100)*	***Ottawa*** *(n = 113)*	***ADHD Clinic*** *(n = 20)*	***p***[1]
Child	Age[2] (years)	8.58±1.57	8.67±1.64	8.52±1.50	8.50±1.67	.918
	Grade[2]	3.32±1.56	3.56±1.63	3.13±1.47	3.25±1.59	.306
	Boys (%)	69.5	75.0	65.5	65.0	.290
	White (%)	69.0	57.0	80.5	68.5	.031
	Full Scale IQ[2]		101.67±15.61	102.30±14.93		.768
	Reading Achievement[2]		99.28±16.80	95.84±16.27		.139
	Math Achievement[2]		89.53±19.92	94.42±16.95		.059
	ADHD combined presentation (*n*)	160	69	76	15	.756
	ADHD inattentive presentation (*n*)	60	25	31	4	.656
	ADHD hyperactive/impulsive presentation (*n*)	13	5	7	1	.659
	Comorbid ODD (*n*)	66	34	28	4	.227
	Comorbid Conduct disorder (*n*)	4	4	0	0	.067
	Comorbid internalizing (*n*)	63	29	29	4	.278
	Psychotropic medication (*n*)	124	47	66	11	.279
Primary Parent	Adults in household[2] (*n*)	1.87±0.59	1.85±0.67	1.87±0.51	1.95±0.60	.986
	Biological parent (%)	90.1	87.0	92.1	95.0	.689
	Age[2] (years)	41.00±6.22	42.29±5.69	39.92±6.10	41.15±8.11	.011
	Male (%)	10.7	11.0	8.8	20.0	.295
	Education[2] (years in post-secondary)	5.47±1.11	5.44±1.03	5.28±1.19	5.79±0.42	.951
	Household income[2]	113,229±68,575	106,273±64,419	122,544±73,767	92,614±48,613	.110

[1]All continuous variables were compared across sites using One-way MANOVA with the exception of Full Scale IQ, Reading Achievement, and Math Achievement which were compared via One-way ANOVA; all categorical variables were compared across sites via Chi-Square Tests.

[2]mean ± standard deviation

Table 5

Descriptive Statistics of Study Variables

		Mean ± Standard Deviation (minimum to maximum)				
		Full Sample *(N = 233)*	***Vancouver*** *(n = 100)*	***Ottawa*** *(n = 113)*	***ADHD Clinic*** *(n = 20)*	***P***
Risk Factors	***Externalizing Behaviour***					
	CBCL	64.70±9.80 (19.00-84.00)	62.88±10.61 (19.00-84.00)	66.49±9.19 (34.00-83.00)	64.75±7.91 (50.00-80.00)	.045
	TRF	63.44±9.43 (41.00-94.00)	62.76±9.63 (41.00-84.00)	64.42±9.36 (43.00-90.00)	60.00±7.59 (51.00-72.00)	.237
	Internalizing Behaviour					
	CBCL	62.88±9.63 (41.00-84.00)	61.17±10.40 (41.00-83.00)	64.20±8.96 (43.00-84.00)	64.30±8.14 (41.00-80.00)	.070
	TRF	63.38±8.68 (37.00-84.00)	62.77±8.40 (37.00-84.00)	63.86±8.92 (38.00-83.00)	64.20±9.44 (48.00-81.00)	.658
	Negative Parenting					
	Inconsistent Discipline (APQ)	1.44±0.62 (0.00-3.00)	1.31±0.56 (0.00-3.00)	1.59±0.62 (0.00-3.00)	1.35±0.75 (0.00-3.00)	.006
	Overreactivity (PS)	3.08±0.84 (1.00-5.00)	3.07±0.86 (1.00-5.00)	3.09±0.80 (2.00-5.00)	3.15±0.91 (2.00-5.00)	.935
	Positive Parenting					
	Positive Parenting (APQ)	3.28±0.50 (1.00-4.00)	3.19±0.51 (1.00-4.00)	3.33±0.49 (2.00-4.00)	3.40±0.51 (3.00-4.00)	.079
	Positive Involvement (APQ)	3.04±0.42 (2.00-4.00)	3.01±0.42 (2.00-4.00)	3.06±0.43 (2.00-4.00)	3.03±0.40 (2.00-4.00)	.632
	Parent Social Competence					
	ICQ – total score	3.48±0.55 (1.88-4.85)	3.40±0.56 (1.88-4.38)	3.51±0.55 (2.15-4.85)	3.64±0.51 (2.78-4.70)	.132
	Parent FQQ – total score[1]	2.96±0.61	2.88±0.63	3.02±0.59	3.08±0.59	.176

		(1.06-3.75)	(1.31-3.73)	(1.06-3.75)	(1.44-3.75)	
Compensatory/Protective Factors	FFQ – total score	3.18±0.73 (1.00-4.90)	3.17±0.80 (1.50-4.90)	3.17±0.67 (1.00-4.75)	3.27±0.76 (1.60-4.75)	.848
	Parent Friendship Quantity	9.35±9.24 (0.00-101.00)	10.90±12.39 (0.00-101.00)	8.11±5.80 (0.00-45.00)	8.75±5.76 (2.00-24.00)	.094
	Positive Teacher Relationship					
	STRS - Closeness	27.00±5.76 (9.00-35.00)	26.36±5.48 (9.00-35.00)	27.52±5.91 (9.00-35.00)	29.70±6.20 (14.00-35.00)	.133
	Negative Teacher Relationship					.189
	STRS – Conflict	20.77±9.09 (8.00-90.00)	21.41±8.28 (8.00-38.00)	19.84±7.18 (8.00-37.00)	24.70±23.33 (11.00-90.00)	
	Negative Parental Friendship Conflict (FQQ)	0.25±0.33 (.00-1.71)	0.30±0.38 (0.00-1.71)	0.21±0.28 (0.00-1.29)	0.28±0.34 (0.00-1.00)	.129
Outcome Variables	***Child Social Competence***					
	Social problems					
	CBCL	67.63±8.64 (50.00-93.00)	67.28±8.67 (50.00-93.00)	67.77±8.92 (51.00-88.00)	68.55±7.26 (54.00-80.00)	.815
	TRF	66.64±8.41 (50.00-89.00)	65.60±8.07 (50.00-89.00)	67.78±8.78 (50.00-89.00)	65.00±6.78 (54.00-74.00)	.165
	Social skills					
	SSIS parent	75.15±11.50 (42.00-106.00)	74.63±11.37 (49.00-103.00)	75.60±11.20 (42.00-106.00)	76.65±13.69 (42.00-100.00)	.845
	SSIS teacher	81.59±11.02 (55.00-113.00)	80.19±10.46 (58.00-103.00)	82.36±11.13 (55.00-113.00)	85.77±13.03 (63.00-113.00)	.160
	Child Friendship Quality Child FQQ – parent report	1.75±0.42 (0.82-2.91)	1.71±0.42 (0.91-2.91)	1.78±0.42 (0.82-2.68)	1.77±0.47 (1.05-2.50)	.603

[1]FQQ total score also represents positive parental friendship quality which was used in exploratory analyses to facilitate comparisons to negative parental friendship quality

Table 6

Correlations Between Risk/Compensatory Factors and Outcome Variables

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**12**
1. Externalizing Behaviour	1	-.09	.22**	.07	-.01	-.06	.48**		-.00	-.58**	-.01
CBCL	.85**	-.08	.28**	-.03	-.03	-.00	.24**		.01	-.43**	-.05
TRF	.84**	.18*	.05	.12	-.01	-.13	.56**		.02	-.55**	-.01
2. Internalizing Behaviour		1	-.11	.10	-.09	-.06	.11		-.05	-.48**	-.01
CBCL		.22**	.17*	.03	-.10	-.00	.06		.12	-.40**	-.04
TRF		.83**	-.03	-.00	.03	-.08	.13		.10	-.41**	.00
3. Negative Parenting			1	-.16*	-.21	-.12	.04		-.06	-.12	.01
Inconsistent			.73**	-.05	-.11	-.04	.07		-.01	-.17*	.04
Overreactivity			.77**	-.21**	-.14*	-.08	.04		-.11	-.08	-.06
4. Positive Parenting				1	.32**	.11	.10		-.06	.08	.17*
Positive parenting				.93**	.11	.07	-.01		-.05	.12	.09
Positive involvement				.55**	.23**	.13	.06		-.15*	.11	.21**
5. Parent Social Competence					1	.07	-.01		-.31**	.15*	.25**
ICQ					.75**	.01	-.08		-.16*	.15*	.15
Parent FQQ					.64**	.11	-.04		-.46**	.12	.28**
FFQ					.67**	.09	.07		-.05	.09	.21**
Parent Friendship Quantity					.39**	-.07	.03		-.12	-.05	.00
6. Positive Teacher-Child Relationship						1	-.16*		-.03	.21**	.15
7. Negative Teacher-Child Relationship							1		.08	-.45**	.12
8. Positive Parental Friendship Quality	(see Parent FQQ)							1			
9. Negative Parental Friendship Quality									1	-.07	-.04
10. Child Social Competence										1	.07
Social problems – CBCL										-.62**	.05
Social problems – TRF										-.68**	-.06
Social competence – SSIS parent										.56**	.14
Social competence – SSIS teacher										.62**	.02
11. Child Friendship Quality											1

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

Table 7

Main Effects of Sex and Interactions Between Risk/Compensatory Factors and Sex on Child Social Competence

Criterion Variable: Child Social Competence			
Variables Entered[1]	***F***	***df***	***p***
Internalizing Behaviour	1.94	60, 141	.001
Sex	4.52	1, 141	.035
Internalizing Behaviour*Sex	0.67	24, 141	.874
Externalizing Behaviour	2.93	66, 124	<.001
Sex	4.32	1, 124	.040
Externalizing Behaviour*Sex	1.31	35, 124	.145
Negative Parenting	0.77	164, 37	.863
Sex	3.90	1, 37	.056
Negative Parenting*Sex	1.30	18, 37	.243
Parent Social Competence	0.43	1, 209	.871
Sex	9.38	1, 209	.002
Parent Social Competence*Sex	0.24	15, 209	.712
Positive Teacher-Child Relationship	1.32	24, 157	.158
Sex	9.14	24, 157	.002
Positive Teacher-Child Relationship*Sex	0.77	17, 157	.723

[1]Each block of variables were entered together at Step 1

Table 8

Main Effects of Sex and Interactions Between Risk/Compensatory Factors and Sex on Child Friendship Quality

Criterion Variable: Child Friendship Quality			
Variables Entered	***F***	***df***	***p***
Internalizing Behaviour	1.32	59, 93	.112
Sex	1.83	1, 93	.179
Internalizing Behaviour*Sex	1.32	20, 93	.187
Externalizing Behaviour	0.98	60, 85	.523
Sex	0.06	1, 85	.803
Externalizing Behaviour*Sex	1.35	27, 85	.147
Negative Parenting	0.85	136, 25	.729
Sex	0.00	1, 25	.960
Negative Parenting*Sex	0.72	12, 25	.719
Parent Social Competence	0.87	1, 166	.715
Sex	0.13	1, 166	.784
Parent Social Competence*Sex	0.13	10, 166	.784
Positive Teacher-Child Relationship	1.20	21, 118	.260
Sex	1.22	1, 118	.272
Positive Teacher-Child Relationship*Sex	1.05	16, 118	.412

Table 9

Main Effects of Site and Interactions Between Risk/Compensatory Factors and Site on Child Social Competence

Criterion Variable: Child Social Competence			
Variables Entered	***F***	***df***	***p***
Internalizing Behaviour	0.71	60, 119	<.001
Site	1.21	2, 119	.303
Internalizing Behaviour*Site	1.45	45, 119	.058
Externalizing Behaviour	3.26	66, 104	<.001
Site	0.99	2, 104	.376
Externalizing Behaviour*Site	1.32	54, 104	.116
Negative Parenting	0.74	164, 26	.870
Site	1.83	2, 26	.180
Negative Parenting*Site	0.95	28, 26	.555
Parent Social Competence	0.02	1, 213	.895
Site	0.02	2, 213	.899
Parent Social Competence*Site	0.30	210, 213	.962
Positive Teacher-Child Relationship	1.55	24, 149	.061
Site	0.11	2, 149	.893
Positive Teacher-Child Relationship*Site	1.35	24, 149	.144

Table 10

Main Effects of Site and Interactions Between Risk/Compensatory Factors and Site on Child Friendship Quality

Criterion Variable: Child Friendship Quality			
Variables Entered	***F***	***df***	***p***
Internalizing Behaviour	1.56	59, 75	.036
Site	0.20	2, 75	.818
Internalizing Behaviour*Site	1.43	37, 75	.097
Externalizing Behaviour	0.88	60, 67	.689
Site	0.09	2, 67	.911
Externalizing Behaviour*Site	1.10	44, 67	.352
Negative Parenting	1.28	135, 15	.301
Site	0.38	2, 15	.694
Negative Parenting*Site	1.69	21, 15	.150
Parent Social Competence	1.50	2, 166	.486
Site	0.14	2, 166	.742
Parent Social Competence*Site	1.23	30, 167	.554
Positive Teacher-Child Relationship	1.18	21, 111	.286
Site	0.97	2, 111	.381
Positive Teacher-Child Relationship*Site	0.61	22,111	.908

Table 11

Main and Interaction Effects of Risk and Compensatory Factors on Child Social Competence

Criterion Variable: Child Social Competence			
Primary Analyses	***β***	***t***	***p***
Step 1		(*n* = 187)	
Internalizing Behaviour	-.38	-6.83	<.001
Externalizing Behaviour	-.44	-7.61	<.001
Negative Parenting	-.00	-0.02	.986
Sex	-.16	-2.97	.003
Step 2			
Parent Social Competence	.12	2.23	.027
Positive Teacher-Child Relationship	.28	4.85	<.001
Step 3			
Internalizing Behaviour*Parent Social Competence	-.06	-1.04	.299
Externalizing Behaviour*Parent Social Competence	-.12	-2.00	.045
Negative Parenting*Parent Social Competence	-.03	-0.40	.689
Step 3[a]			
Internalizing Behaviour*Positive Teacher-Child Relationship	-.42	-1.43	.155
Externalizing Behaviour*Positive Teacher-Child Relationship	-.21	-0.80	.426
Negative Parenting*Positive Teacher-Child Relationship	-.01	-0.32	.974
Exploratory Analyses			
Positive Parenting replacing Negative Parenting			
Step 1		(*n* = 187)	
Internalizing Behaviour	-.39	-7.17	<.001
Externalizing Behaviour	-.43	-7.77	<.001
Positive Parenting	.11	1.98	.049
Sex	-.22	-4.10	<.001
Step 2			
Parent Social Competence	.09	1.69	.093
Positive Teacher-Child Relationship	.18	3.70	.001
Step 3			
Parent Social Competence*Positive Parenting	.01	0.19	.848
Positive Teacher-Child Relationship*Positive Parenting	-.10	-0.41	.683
Negative Parental Friendship Quality replacing Parent Social Competence			
Negative Teacher-Child Relationship replacing Positive Teacher-Child Relationship			
Step 1		(*n* = 185)	
Internalizing Behaviour	See primary analyses		
Externalizing Behaviour			
Negative Parenting			
Sex			
Step 2			
Negative Parental Friendship Quality	-.07	-1.40	.164
Negative Teacher-Child Relationship	-.28	-5.00	<.001

Step 3			
Internalizing Behaviour*Negative Parental Friendship Quality	-.01	-0.08	.937
Externalizing Behaviour*Negative Parental Friendship Quality	.07	1.03	.305
Negative Parenting*Negative Parental Friendship Quality	.04	0.43	.668
Step 3[a]			
Internalizing Behaviour*Negative Teacher-Child Relationship	.03	0.48	.632
Externalizing Behaviour*Negative Teacher-Child Relationship	-.04	-0.73	.465
Negative Parenting*Negative Teacher-Child Relationship	.04	0.44	.663
Positive Parental Friendship Quality			
Step 1	(n = 190)		
Internalizing Behaviour	See primary analyses		
Externalizing Behaviour			
Negative Parenting			
Sex			
Step 2			
Positive Parental Friendship Quality	.09	1.72	.088
Positive Teacher-Child Relationship	.20	3.75	<.001
Step 3			
Internalizing Behaviour*Positive Parental Friendship Quality	-.22	-0.78	.435
Externalizing Behaviour*Positive Parental Friendship Quality	-.01	-0.04	.968
Negative Parenting*Positive Parental Friendship Quality	-.23	-0.77	.444

[a] Steps 1 and 2 are identical as those displayed above

Table 12

Main and Interaction Effects of Risk and Compensatory Factors on Child Friendship Quality

Criterion Variable: Child Friendship Quality			
Primary Analyses	***β***	***t***	***P***
Step 1		(n = 151)	
Internalizing Behaviour	-.10	-1.14	.255
Externalizing Behaviour	.03	0.34	.731
Negative Parenting	-.01	-0.09	.930
Step 2			
Parent Social Competence	.19	2.47	.015
Positive Teacher-Child Relationship	.26	3.24	.001
Step 3			
Parent Social Competence*Internalizing Behaviour	-.02	-0.29	.773
Parent Social Competence*Externalizing Behaviour	-.03	-0.34	.737
Parent Social Competence*Negative Parenting	-.00	-0.01	.993
Step 3[a]			
Positive Teacher-Child Relationship* Internalizing Behaviour	.10	0.02	.982
Positive Teacher-Child Relationship* Externalizing Behaviour	-.27	-0.61	.546
Positive Teacher-Child Relationship* Negative Parenting	.33	0.86	.389
Exploratory Analyses			
Positive Parenting replacing Negative Parenting			
Step 1		(n = 151)	
Internalizing Behaviour	-.10	-1.19	.236
Externalizing Behaviour	.01	0.13	.895
Positive Parenting	.17	2.13	.035
Step 2			
Parent Social Competence	.23	2.69	.008
Positive Teacher-Child Relationship	.18	2.26	.026
Step 3			
Parent Social Competence*Positive Parenting	-.08	-0.88	.379
Positive Teacher-Child Relationship*Positive Parenting	.55	1.60	.092
Negative Parental Friendship Quality replacing Parent Social Competence *Negative Teacher-Child Relationship replacing Positive Teacher-Child Relationship*			
Step 1		(n = 150)	
Internalizing Behaviour	See primary analyses		
Externalizing Behaviour			
Negative Parenting			
Step 2			
Negative Parental Friendship Quality	-.06	-0.70	.485
Negative Teacher-Child Relationship	.16	1.72	.088
Step 3			
Internalizing Behaviour*Negative Parental Friendship Quality	.01	0.11	.916
Externalizing Behaviour*Negative Parental Friendship Quality	.06	0.47	.641

Negative Parenting*Negative Parental Friendship Quality	-.04	-0.25	.804
Step 3[a]			
Internalizing Behaviour*Negative Teacher-Child Relationship	.01	0.14	.887
Externalizing Behaviour*Negative Teacher-Child Relationship	-.01	-0.08	.939
Negative Parenting*Negative Teacher-Child Relationship	.05	0.37	.716
Positive Parental Friendship Quality			
Step 1	(n = 152)		
Internalizing Behaviour	See primary analyses		
Externalizing Behaviour			
Negative Parenting			
Step 2			
Positive Parental Friendship Quality	.29	3.58	<.001
Positive Teacher-Child Relationship	.14	1.78	.078
Step 3			
Internalizing Behaviour*Positive Parental Friendship Quality	-.23	-0.80	.427
Externalizing Behaviour*Positive Parental Friendship Quality	-.05	-0.13	.898
Negative Parenting*Positive Parental Friendship Quality	-.20	-0.66	.512

[a] Steps 1 and 2 are identical as those displayed above

Table 13

Main and Interaction Effects of Parent-Reported Child Behaviour Problems on Teacher Reported Child Social Competence

Criterion Variable: Child Social Competence (teacher-report)	***β***	***t***	***p***
Step 1		(n = 188)	
Internalizing Behaviour (parent-report)	0.02	0.21	.834
Externalizing Behaviour (parent-report)	-0.22	-2.80	.006
Negative Parenting (parent-report)	-0.00	-0.02	.986
Sex	-0.09	-1.18	.239
Step 2			
Parent Social Competence (parent-report)	-0.02	-0.32	.749
Positive Teacher-Child Relationship (teacher-report)	0.26	3.61	<.001
Step 3			
Internalizing Behaviour*Parent Social Competence	-0.06	-0.74	.459
Externalizing Behaviour*Parent Social Competence	0.00	0.05	.958
Negative Parenting*Parent Social Competence	0.01	0.09	.928
Step 3[a]			
Internalizing Behaviour*Positive Teacher-Child Relationship	-0.10	-1.06	.293
Externalizing Behaviour*Positive Teacher-Child Relationship	-0.11	-1.10	.272
Negative Parenting*Positive Teacher-Child Relationship	-0.33	-1.02	.309

[a] Steps 1 and 2 are identical as those displayed above

Table 14

Main and Interaction Effects of Teacher-Reported Child Behaviour Problems on Parent-Reported Child Social Competence

Criterion Variable: Child Social Competence (parent-report)	***β***	***t***	***p***
Step 1	(n = 185)		
Internalizing Behaviour (teacher-report)	-0.18	-2.47	.015
Externalizing Behaviour (teacher-report)	-0.08	-1.15	.252
Negative Parenting (parent-report)	-0.14	-2.01	.046
Sex	-0.23	-3.24	.001
Step 2			
Parent Social Competence (parent-report)	0.17	2.37	.019
Positive Teacher-Child Relationship (teacher-report)	0.06	0.84	.401
Step 3			
Internalizing Behaviour*Parent Social Competence	-0.10	-1.32	.189
Externalizing Behaviour*Parent Social Competence	-0.09	-1.20	.234
Negative Parenting*Parent Social Competence	-0.12	-1.04	.301
Step 3[a]			
Internalizing Behaviour*Positive Teacher-Child Relationship	-0.04	-0.20	.844
Externalizing Behaviour*Positive Teacher-Child Relationship	0.06	0.90	.372
Negative Parenting*Positive Teacher-Child Relationship	0.23	0.69	.490

[a] Steps 1 and 2 are identical as those displayed above

Table 15

Main and Interaction Effects of Teacher-Reported Child Behaviour Problems on Parent-Reported Child Friendship Quality

Criterion Variable: Child Friendship Quality (parent-report)	***β***	***t***	***p***
Step 1		(n = 150)	
Internalizing Behaviour (teacher-report)	-.05	-0.57	.569
Externalizing Behaviour (teacher-report)	.02	0.25	.802
Negative Parenting (parent-report)	.01	0.14	.890
Step 2			
Parent Social Competence (parent-report)	.18	2.19	.030
Positive Teacher-Child Relationship (teacher-report)	.20	2.38	.019
Step 3			
Internalizing Behaviour*Parent Social Competence	-.05	-0.56	.577
Externalizing Behaviour*Parent Social Competence	.05	0.52	.602
Negative Parenting*Parent Social Competence	.03	0.19	.850
Step 3[a]			
Internalizing Behaviour*Positive Teacher-Child Relationship	.21	1.05	.298
Externalizing Behaviour*Positive Teacher-Child Relationship	.01	0.09	.929
Negative Parenting*Positive Teacher-Child Relationship	.29	0.78	.435

[a] Steps 1 and 2 are identical as those displayed above

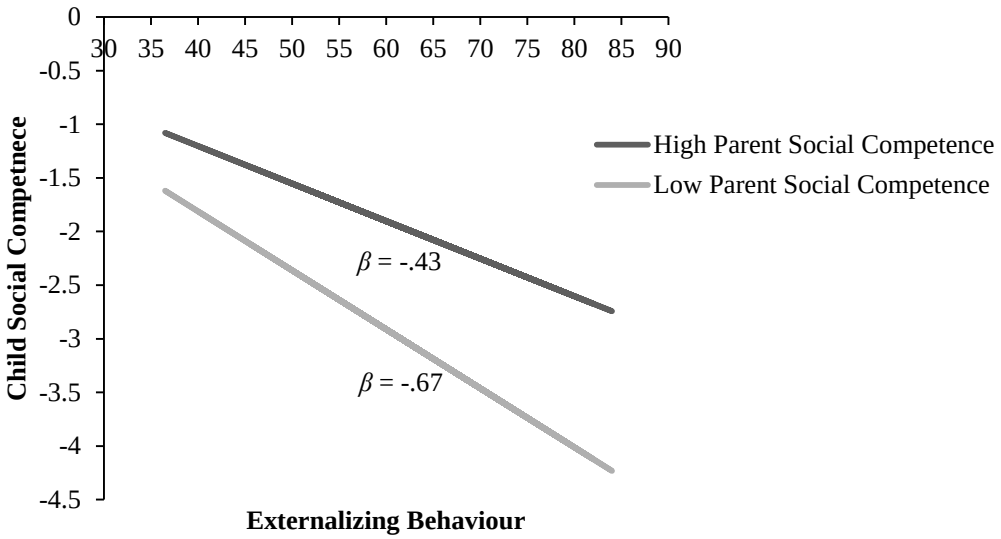

Figure 1. Effects of child externalizing behaviour and parent social competence on child social competence

Table 16

Comparing Negative Parenting vs Positive Parenting, Positive Parental Friendship Quality vs Negative Parental Friendship Quality, and Positive Teacher-Child Relationship Quality vs Negative Teacher-Child Relationship Quality on Child Social Competence

Criterion Variable: Child Social Competence	***β***	***t***	***p***	***CI***
High Negative Parenting vs. Low Positive Parenting				
Step 1		(n = 187)		
Internalizing Behaviour	-.38	-6.91	.000	
Externalizing Behaviour	-.45	-7.86	.000	
Negative Parenting	.02	0.34	.735	
Positive Parenting	.11	2.01	.046	0.00, 0.28
Sex	-.16	-2.95	.004	-0.37, -0.07
Step 2				
Parent Social Competence	.18	3.44	.001	
Positive Teacher-Child Relationship	.10	1.84	.068	
Step 3				
Negative Parenting x Parent Social Competence	-.07	-0.84	.400	-0.11, 0.05
Positive Parenting x Parent Social Competence	.02	0.36	.718	-0.11, 0.15
Negative Parenting x Positive Teacher-Child Relationship	-.21	-.87	.383	-0.02, 0.01
Positive Parenting x Positive Teacher-Child Relationship	-.17	-.70	.485	-0.04, 0.02
High Positive Parental Friendship Quality vs. Low Negative Parental Friendship Quality				
Step 1		(n = 185)		
Internalizing Behaviour	-.38	-6.83	<.001	
Externalizing Behaviour	-.44	-7.61	<.001	
Negative Parenting	-.00	-0.02	.986	
Sex	-.16	-2.97	.003	
Step 2				
Positive Parental Friendship	.08	1.30	.196	-0.05, 0.22
Negative Parental Friendship	-.05	-0.81	.420	-0.32, 0.14
Positive Teacher-Child Relationship	.19	3.46	.001	
Step 3				

Internalizing x Positive Parental Friendship	-.50	-1.36	.174	-0.04, 0.01
Internalizing x Negative Parental Friendship	-.10	-1.16	.246	-0.05, 0.01
Externalizing x Positive Parental Friendship	.18	0.45	.657	-0.02, 0.03
Externalizing x Negative Parental Friendship	.10	1.14	.256	-0.02, 0.06
Negative Parenting x Positive Parental Friendship	-.04	-0.11	.910	-0.17, 0.15
Negative Parenting x Negative Parental Friendship	.10	0.85	.394	-0.19, 0.47
Negative Teacher-Child Relationship vs. Positive Teacher-Child Relationship				
Step 1			(n = 185)	
Internalizing Behaviour			See above	
Externalizing Behaviour				
Negative Parenting				
Sex				
Step 2				
Parent Social Competence	.11	2.14	.034	
Positive Teacher-Child Relationship	.16	3.16	.002	0.00, 0.01
Negative Teacher-Child Relationship	-.29	-4.84	.000	-0.04, -0.02
Step 3				
Internalizing x Positive Teacher-Child Relationship	-.35	-1.19	.236	-0.00, 0.00
Internalizing x Negative Teacher-Child Relationship	-.03	-0.56	.576	-0.00, 0.00
Externalizing x Positive Teacher-Child Relationship	-.46	-1.68	.095	-0.00, 0.00
Externalizing x Negative Teacher-Child Relationship	-.04	-0.75	.455	-0.00, 0.00
Negative Parenting x Positive Teacher-Child Relationship	.13	0.53	.597	-0.01, 0.02
Negative Parenting x Negative Teacher-Child Relationship	.02	0.23	.818	-0.01, 0.01

Table 17

Comparing Negative Parenting vs Positive Parenting, Positive Parental Friendship Quality vs Negative Parental Friendship Quality, and Positive Teacher-Child Relationship Quality vs Negative Teacher-Child Relationship Quality on Child Friendship Quality

Criterion Variable: Child Friendship Quality	***β***	***t***	***p***	***CI***
High Negative Parenting vs. Low Positive Parenting				
Step 1		(n = 151)		
Internalizing Behaviour	-.10	-1.20	.231	
Externalizing Behaviour	.01	0.07	.948	
Negative Parenting	.05	0.30	.764	-0.07, 0.09
Positive Parenting	.18	2.14	.034	0.01, 0.29
Step 2				
Parent Social Competence	.24	2.80	.006	
Positive Teacher-Child Relationship	.19	2.32	.022	
Step 3				
Negative Parenting x Parent Social Competence	-.02	-0.16	.873	-0.09, 0.08
Positive Parenting x Parent Social Competence	-.06	-0.75	.453	-0.17, 0.08
Negative Parenting x Positive Teacher-Child Relationship	.37	1.03	.303	-0.01, 0.02
Positive Parenting x Positive Teacher-Child Relationship	.61	1.78	.082	0.00, 0.07
High Positive Parental Friendship Quality vs. Low Negative Parental Friendship Quality				
Step 1		(n = 150)		
Internalizing Behaviour	-.10	-1.14	.255	
Externalizing Behaviour	.03	0.34	.731	
Negative Parenting	-.01	-0.09	.930	
Step 2				
Positive Parental Friendship	.33	3.60	.000	0.10, 0.35
Negative Parental Friendship	.10	1.13	.259	-0.09, 0.34
Positive Teacher-Child Relationship	.15	1.83	.070	
Step 3				
Internalizing x Positive Parental Friendship	-.34	-0.67	.513	-0.02, 0.01
Internalizing x Negative Parental Friendship	-.04	-0.33	.745	-0.03, 0.02

Externalizing x Positive Parental Friendship	-.44	-0.70	.483	-0.03, 0.01
Externalizing x Negative Parental Friendship	.06	0.50	.620	-0.03, 0.05
Negative Parenting x Positive Parental Friendship	-.52	-0.97	.332	-0.25, 0.08
Negative Parenting x Negative Parental Friendship	-.11	-0.59	.559	-0.45, 0.24
Negative Teacher-Child Relationship vs. Positive Teacher-Child Relationship				
Step 1		(n = 150)		
Internalizing Behaviour		See above		
Externalizing Behaviour				
Negative Parenting				
Sex				
Step 2				
Parent Social Competence	.20	2.55	.012	
Positive Teacher-Child Relationship	.18	2.02	.045	0.00, 0.02
Negative Teacher-Child Relationship	.26	3.27	.001	0.04, 0.17
Step 3				
Internalizing x Positive Teacher-Child Relationship	.07	0.14	.890	-0.00, 0.00
Internalizing x Negative Teacher-Child Relationship	.05	0.51	.608	-0.00, 0.00
Externalizing x Positive Teacher-Child Relationship	-.14	-0.30	.763	-0.00, 0.00
Externalizing x Negative Teacher-Child Relationship	.05	-0.60	.547	-0.00, 0.00
Negative Parenting x Positive Teacher-Child Relationship	.24	0.62	.536	-0.01, 0.02
Negative Parenting x Negative Teacher-Child Relationship	-.01	-0.08	.934	-0.01, 0.01

Table 18

Facets of Parent Social Competence as Related to Child Social Competence

Criterion Variable: Child Social Competence	***β***	***t***	***p***
Step 1		(*n* = 193)	
Internalizing Behaviour	-.38	-6.83	<.001
Externalizing Behaviour	-.44	-7.61	<.001
Negative Parenting	-.00	-0.02	.986
Sex	-.16	-2.97	.003
Step 2			
Parent Interpersonal Competence	.11	2.00	.047
Positive Teacher-Child Relationship	.19	3.70	<.001
Step 3			
Externalizing Behaviour*Parent Interpersonal Competence	-.09	-1.70	.090
Step 2[a]		(*n* = 189)	
Parent Friendship Quality	.10	1.85	.067
Positive Teacher-Child Relationship	.19	3.51	.001
Step 3[a]			
Externalizing Behaviour*Parent Friendship Quality	-.02	-0.41	.683
Step 2[a]		(*n* = 191)	
Parent Friendship Facilitation	.03	0.50	.621
Positive Teacher-Child Relationship	.18	3.53	.001
Step 3[a]			
Externalizing Behaviour*Parent Friendship Facilitation	-.10	1.86	.064
Step 2[a]		(*n* = 192)	
Parent Friendship Quantity	.03	0.59	.553
Positive Teacher-Child Relationship	.19	3.58	<.001
Step 3[a]			
Externalizing Behaviour*Parent Friendship Quantity	-.09	-1.51	.132

[a] Step 1 is identical as that displayed above

Table 19

Facets of Parent Social Competence as Related to Child Friendship Quality

Criterion Variable: Child Friendship Quality	***β***	***t***	***p***
Step 1		(n = 155)	
Internalizing Behaviour	-.10	-1.14	.255
Externalizing Behaviour	.03	0.34	.731
Negative Parenting	-.01	-0.09	.930
Step 2[a]			
Parent Interpersonal Competence	.12	1.41	.160
Positive Teacher-Child Relationship	.15	1.81	.072
Step 2[a]		(n = 152)	
Parent Friendship Quality	.27	3.42	.001
Positive Teacher-Child Relationship	.16	2.05	.042
Step 2[a]		(n = 154)	
Parent Friendship Facilitation	.20	2.54	.012
Positive Teacher-Child Relationship	.17	2.09	.039
Step 2[a]		(n = 155)	
Parent Friendship Quantity	.13	1.65	.101
Positive Teacher-Child Relationship	.16	1.99	.048

[a] Step 1 is identical as that displayed above

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Behavior Rating Form (CSI)

Please indicate which rating best describes your child's overall behavior. If your child is taking medications that affect these behaviors, please rate behavior when off medication, or when medications are "wearing off." Would you say that your child:

1. **Fails to give close attention to details or makes careless mistakes**
   Never/Rarely Sometimes Often Very Often

2. **Has difficulty paying attention to tasks or play activities**
   Never/Rarely Sometimes Often Very Often

3. **Does not seem to listen when spoken to directly**
   Never/Rarely Sometimes Often Very Often

4. **Has difficulty following through on instructions and fails to finish things**
   Never/Rarely Sometimes Often Very Often

5. **Has difficulty organizing tasks and activities**
   Never/Rarely Sometimes Often Very Often

6. **Avoids doing tasks that require a lot of mental effort (e.g. schoolwork, homework, chores, etc.)**
   Never/Rarely Sometimes Often Very Often

7. **Loses things necessary for activities**
   Never/Rarely Sometimes Often Very Often

8. **Is easily distracted by other things going on**
   Never/Rarely Sometimes Often Very Often

9. **Is forgetful in daily activities**
   Never/Rarely Sometimes Often Very Often

10. **Fidgets with hands or feet or squirms in seat**
    Never/Rarely Sometimes Often Very Often

11. **Has difficulty remaining seated when asked to do so**
    Never/Rarely Sometimes Often Very Often

12. **Runs about or climbs on things when asked not to do so**

Never/Rarely Sometimes Often Very Often

13. Has difficulty playing quietly
Never/Rarely Sometimes Often Very Often

14. Is "on the go" or acts as if "driven by a motor"
Never/Rarely Sometimes Often Very Often

15. Talks excessively
Never/Rarely Sometimes Often Very Often

16. Blurts out answers to questions before they have been completed
Never/Rarely Sometimes Often Very Often

17. Has difficulty awaiting turn in group activities
Never/Rarely Sometimes Often Very Often

18. Interrupts people or butts into other children's activities
Never/Rarely Sometimes Often Very Often

We would also like to ask you about how this child gets along with peers.
Would you say that your child:

1. Is rather solitary, tends to play alone
Not True Somewhat True Certainly True

2. Has at least one good friend
Not True Somewhat True Certainly True

3. Is generally liked by other children
Not True Somewhat True Certainly True

4. Is picked on or bullied by other children
Not True Somewhat True Certainly True

5. Gets along better with adults than with other children
Not True Somewhat True Certainly True

APQ – Parent Version

Here are a number of statements about things you do with your child. Please read each one carefully and decide how often it occurred in your home in the past 4 weeks. Circle the number that represents your choice. Please try to not mark between choices and try to answer every item. Remember to refer only to the past 4 weeks.

		Never	Almost never	Some times	Often	Always	Not Applicable
1.	**You have a friendly talk with your child**	0	1	2	3	4	N/A
2.	**You let your child know when he/she is doing a good job with something**	0	1	2	3	4	N/A
3.	**You threaten to punish your child and then do not actually punish him/her**	0	1	2	3	4	N/A
4.	**You volunteer to help with special activities your child is involved in (such as sports, boy/girl scouts, church youth groups)**	0	1	2	3	4	N/A
5.	**You reward or give something to your child for obeying you or behaving well**	0	1	2	3	4	N/A
6.	**Your child fails to leave a note or let you know where he/she is going**	0	1	2	3	4	N/A
7.	**You play games or do other fun things with your child**	0	1	2	3	4	N/A
8.	**Your child talks you out of being punished after he/she has done something wrong**	0	1	2	3	4	N/A

9.	**You ask your child about his/her day in school**	0	1	2	3	4	N/A
10.	**Your child stays out in the evening past the time he/she is supposed to be home**	0	1	2	3	4	N/A
11.	**You help your child with his/her homework**	0	1	2	3	4	N/A
12.	**You feel that getting your child to obey you is more trouble than it's worth**	0	1	2	3	4	N/A
13.	**You compliment your child when he/she does something well**	0	1	2	3	4	N/A
14.	**You ask your child what his/her plans are for the coming day**	0	1	2	3	4	N/A
15.	**You drive your child to a special activity**	0	1	2	3	4	N/A
16.	**You praise your child for behaving well**	0	1	2	3	4	N/A
17.	**Your child is out with friends you do not know**	0	1	2	3	4	N/A
18.	**You hug or kiss your child when he/she has done something well**	0	1	2	3	4	N/A
19.	**Your child goes out without a set time to be home**	0	1	2	3	4	N/A
20.	**You talk to your child about his/her friends**	0	1	2	3	4	N/A
21.	**Your child is out after dark without an adult with him/her**	0	1	2	3	4	N/A

22.	**You let your child out of a punishment early (like lift restrictions earlier than you originally said)**	0	1	2	3	4	N/A
23.	**Your child helps plan family activities**	0	1	2	3	4	N/A
24.	**You get so busy you forget where your child is and what he/she is doing**	0	1	2	3	4	N/A
25.	**Your child is not punished when he/she has done something wrong**	0	1	2	3	4	N/A
26.	**You attend PTA meetings, parent/teacher conferences, or other meetings at your child's school**	0	1	2	3	4	N/A
27.	**You tell your child that you like it when he/she helps out around the house**	0	1	2	3	4	N/A
28.	**You don't check that your child comes home at the time he/she was supposed to**	0	1	2	3	4	N/A
29.	**You don't tell your child where you are going**	0	1	2	3	4	N/A
30.	**Your child comes home from school more than an hour past the time he/she was supposed to**	0	1	2	3	4	N/A
31.	**The punishment you give your child depends on your mood**	0	1	2	3	4	N/A

32.	**Your child is at home without adult supervision**	0	1	2	3	4	N/A
33.	**You ignore your child when he/she is misbehaving**	0	1	2	3	4	N/A
34.	**You take away privileges or money from your child as a punishment**	0	1	2	3	4	N/A
35.	**You send your child to his/her room as a punishment**	0	1	2	3	4	N/A
36.	**You yell or scream at your child when he/she has done something wrong**	0	1	2	3	4	N/A
37.	**You calmly explain to your child why his/her behaviour was wrong when he/she misbehaves**	0	1	2	3	4	N/A
38.	**You use time out (make him/her sit or stand in a corner) as a punishment**	0	1	2	3	4	N/A
39.	**Your give your child extra chores as a punishment**	0	1	2	3	4	N/A

Parenting Scale

At one time or another, all children misbehave or do things that could be harmful, that are "wrong," or that parents don't like. Examples include: hitting someone, throwing food, not picking up toys, having a tantrum, wanting a cookie before dinner, arguing back, whining, forgetting homework, lying, refusing to go to bed, running into the street, or coming home late.

Parents have many different ways or styles of dealing with these types of problems. Below are items that describe some styles of parenting. **FOR EACH ITEM, FILL IN THE CIRCLE THAT BEST DESCRIBES YOUR STYLE OF PARENTING IN THE PAST 2 MONTHS. You'll fill in the circle that is closest to the response you would do. If what you would do is right in the middle of the two responses, fill in the circle in the middle.**

Answer for how you would handle the misbehaviours of the child in the study.

1. **When my child misbehaves…**

I do something about it right away	O—O—O—O—O—O—O	I do something about it later

2. **Before I do something about a problem…**

I give my child several reminders or warnings	O—O—O—O—O—O—O	I use only one reminder or warning

3. **When I'm upset or under stress…**

I am picky and on my child's back	O—O—O—O—O—O—O	I am no more picky than usual

4. **When I tell my child not to do something…**

I say very little	O—O—O—O—O—O—O	I say a lot

5. **When my child pesters me…**

I can ignore the pestering	O—O—O—O—O—O—O	I can't ignore the pestering

6. **When my child misbehaves…**

I usually get into a long argument with my child — O—O—O—O—O—O—O — I don't get into an argument

7. I threaten to do things that…

I am sure I can carry out — O—O—O—O—O—O—O — I know I won't actually do

8. I am the kind of parent that…

Sets limits on what my child is allowed to do — O—O—O—O—O—O—O — Lets my child do whatever he/she wants

9. When my child misbehaves…

I give my child a long lecture — O—O—O—O—O—O—O — I keep my talks short and to the point

10. When my child misbehaves…

I raise my voice or yell — O—O—O—O—O—O—O — I speak to my child calmly

11. If saying "No" doesn't work right away…

I take some other kind of action — O—O—O—O—O—O—O — I keep talking and try to get through to my child

12. When I want my child to stop doing something…

I firmly tell my child to stop — O—O—O—O—O—O—O — I coax or beg my child to stop

13. When my child is out of my sight…

I often don't know what my child is doing — O—O—O—O—O—O—O — I always have a good idea of what my child is doing

14. After there's been a problem with my child…

I often hold a grudge — O—O—O—O—O—O—O — Things get back to normal quickly

15. When we're not at home…

I handle my child the way I do at home — O—O—O—O—O—O—O — I let my child get away with a lot more

16. When my child does something I don't like…

I do something about it every time it happens — O—O—O—O—O—O—O — I often let it go

17. When there's a problem with my child…

Things build up and I do things I don't mean to do — O—O—O—O—O—O—O — Things don't get out of hand

18. When my child misbehaves, I spank, slap, grab, or hit my child…

Never or rarely — O—O—O—O—O—O—O — Most of the time

19. When my child doesn't do what I ask…

I often let it go or end up doing it myself — O—O—O—O—O—O—O — I take some other action

20. When I give a fair threat or warning…

I often don't carry it out — O—O—O—O—O—O—O — I always do what I said

21. If saying "No" doesn't work…

I take some other kind of action — O—O—O—O—O—O—O — I offer my child something nice

so he/she will behave

22. When my child misbehaves…

I handle it without getting upset — O—O—O—O—O—O—O — I get so frustrated or angry that my child can see I'm upset

23. When my child misbehaves…

I make my child tell me why he/she did it — O—O—O—O—O—O—O — I say "No" or take some other action

24. If my child misbehaves and then acts sorry…

I handle the problem like I usually would — O—O—O—O—O—O—O — I let it go that time

25. When my child misbehaves…

I rarely use bad language or curse — O—O—O—O—O—O—O — I almost always use bad language

26. When I say my child can't do something…

I let my child do it anyway — O—O—O—O—O—O—O — I stick to what I said

27. When I have to handle a problem…

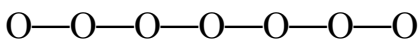
I tell my child I'm sorry about it — O—O—O—O—O—O—O — I don't say I'm sorry

28. When my child does something I don't like, I insult my child, say mean things, or call my child names…

Never or rarely — O—O—O—O—O—O—O — Most of the time

29. If my child talks back or complains when I handle a problem…

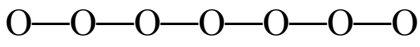
I ignore the complaining and stick to what I said



I give my child a talk about not complaining

30. If my child gets upset when I say "No"…

I back down and give in to my child



I stick to what I said

My Friendship

This is a questionnaire about a specific friendship you have with another adult. Think about your closest friend who is NOT your romantic partner and NOT related to you. Please put that person's initials here: _____

Please answer the questions below about your friendship with this person.

---

1. This friend argues with me a lot.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

2. This friend makes me feel good about my ideas.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

3. This friend always seeks me out to do things with me or to spend time with me.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

4. This friend fights with me.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

5. This friend is easy to make up with when we have a fight.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

6. I can talk to this friend about the things that make me sad.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

7. This friend often helps me with things.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

8. This friend makes me mad.

0	1	2	3	4

Not at all true	A little true	Somewhat true	Pretty true	Really true

9. This friend tells me I'm good at things.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

10. This friend is fun to do things with.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

11. This friend doesn't listen to me.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

12. This friend always gets over our arguments really quickly.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

13. When I am mad about something that has happened to me, I can always talk to this friend about it.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

14. When I am having trouble figuring out something, I usually ask this friend for help and advice.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

15. This friend bugs me.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

16. This friend makes me feel important and special.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

17. This friend gets together with me with after work and on weekends.

0	1	2	3	4

Not at all true	A little true	Somewhat true	Pretty true	Really true

18. I can think of some times when this friend has said mean things about me to other people.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

19. If this friend and I get mad at each other, this friend always talks to me about how to get over it.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

20. I can think of lots of secrets I have told this friend.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

21. I can count on this friend for ideas on how to get things done.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

22. I can always count on this friend to keep promises.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

ICQ

Parents, please mark <u>your personal</u> level of comfort with each item using the following scale:

1 = I'm poor at this; I'd feel so uncomfortable and unable to handle this situation, I'd avoid it if possible

2 = I'm only fair at this; I'd feel uncomfortable and would have lots of difficulty handling this situation

3 = I'm okay at this; I'd feel somewhat uncomfortable and have some difficulty handling this situation

4 = I'm good at this; I'd feel quite comfortable and able to handle this situation

5 = I'm extremely good at this; I'd feel very comfortable and could handle this situation very well

Read each item, and put the number that best describes <u>your personal comfort level</u> by that item.

____1. Asking or suggesting to someone new that you get together and do something (e.g., go out together)
____2. Telling a companion you don't like a certain way he or she has been treating you
____3. Revealing something intimate about yourself while talking with someone you're just getting to know
____4. Helping a close companion work through his or her thoughts and feelings about a major life decision (e.g., a career choice)
____5. Being able to admit that you might be wrong when a disagreement with a close companion begins to build into a serious fight
____6. Finding and suggesting things to do with new people whom you find interesting and attractive
____7. Saying no when a acquaintance asks you to do something you don't want to do
____8. Confiding in a new friend and letting him or her see your softer, more sensitive side
____9. Being able to patiently and sensitively listen to a companion "let off steam" about outside problems s/he is having
____10. Being able to put begrudging (resentful) feelings aside when having a fight with a close companion
____11. Carrying on conversations with someone new whom you think you might like to get to know
____12. Turning down a request by a companion that is unreasonable
____13. Telling a close companion things about yourself that you're ashamed of
____14. Helping a close companion get to the heart of a problem s/he is experiencing
____15. When having a conflict with a close companion, really listening to his or her complaints and not trying to read "his/her" mind
____16. Being an interesting and enjoyable person to be with when first getting to know people
____17. Standing up for your rights when a companion is neglecting you or being inconsiderate
____18. Letting a new companion get to know the "real you"

____19. Helping a close companion cope with family or roommate problems
____20. Being able to take a companion's perspective in a fight and really understand his or her point of view
____21. Introducing yourself to someone you might like to get to know
____22. Telling an acquaintance that he or she is doing something that is embarrassing you
____23. Letting down your protective "outer shell" and trusting a close companion
____24. Being a good and sensitive listener for a companion who is upset
____25. Refraining from saying things that might cause a disagreement to build into a big fight
____26. Calling (on the phone) a new acquaintance to set up a time to get together
____27. Confronting your close companion when he or she has broken a promise
____28. Telling a close companion about the things that secretly make you feel anxious or afraid
____29. Being able to say and do things to support a close companion when s/he is feeling down
____30. Being able to work through a specific problem with a companion without resorting to global accusations ("you always do that")
____31. Presenting good first impressions to people you might like to become friends with
____32. Telling a companion that he or she has done something to hurt your feelings
____33. Telling a close companion how much you appreciate and care for him or her
____34. Being able to show genuine empathetic concern even when a companion's problem is uninteresting to you
____35. When angry with a companion, being able to accept that s/he has a valid point of view even if you don't agree with that view
____36. Going to parties or gatherings where you don't know people well in order to start up new relationships
____37. Telling a date/acquaintance that he or she has done something that made you angry
____38. Knowing how to move a conversation with a date/acquaintance beyond superficial talk to really get to know each other
____39. When a close companion needs help and support, being able to give advice in ways that are well received
____40. Not exploding at a close companion (even when it is justified) in order to avoid a damaging conflict

Now please list all the INITIALS of individuals who currently comprise your personal social network, NOT INCLUDING people who live in the same home as you.

For example, if you have 2 friends, A.G. and C.W., you would write those two sets of initials in the "Friends" box. If you don't have any Close Friends, then you would leave that box blank.

Don't put the same person in more than one box. For example, if J.G. is both your sister and your close friend, you would write J.G. in the Relatives box only. If K.L. is your brother who you don't talk to, don't put him anywhere because he wouldn't be part of your social network.

Remember, these must be people who don't live in the same home as you do.

Close Friends:
Friends:
Occasional Companions (Acquaintances):
Relatives:

FFQ

We hope to learn more about how parents get involved in their children's friendships, and whether what parents do to get involved differs depending on things about the child (such as the child's behavior, age, or gender). For each item listed below, please mark how often you have done each of these things <u>over the past month.</u>

	1 never	2 once in a while	3 sometimes	4 fairly often	5 always
1. I found ways to meet the parents of other kids so that the kids could get to know each other.					
2. I participated in community groups to get to know other parents (not including the groups in this study).					
3. I got to know the parents of my child's friends that my child wants to have over for a sleepover or playdate.					
4. I met families of other kids at my child's school.					
5. I let my child invite friends to sleep over or to have a playdate at my house.					
6. I let my child go to the movies or other outings with friends, supervised by the friend's parents.					
7. I told my child that our family was going to do something so he/she could invite a friend to come along.					
8. I drove my child to a friend's house.					
9. I drove my child to a friend's birthday party or other party.					
10. I let my child invite a couple of friends to do activities such as					

swimming, sports, or games.					
11. I paid for my child's way to the movies or other outings with friends.					
12. I talked to my child about life and friends.					
13. I pointed out the qualities my child should look for in friends.					
14. I encouraged my child to talk about his or her friendships.					
15. I spoke to my child about how to behave when with other children.					
16. I was patient when helping my child because of my child's young age.					
17. I encouraged my child to join a group at school, such as a sports team, club, chorus, or games group.					
18. I encouraged my child to attend school social activities when the school sent notices about activities.					
19. I encouraged my child to make more of an effort to get together with his/her friends.					
20. I told my child to go outside and talk to other kids.					

My Child's Friendship

We are interested in your ratings of how your child and the friend who is here today with your child get along. Please answer the questions below about the friendship between your child and this friend who is here today with your child.

1. This friend argues with my child a lot.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

2. This friend makes my child feel good about his/her ideas.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

3. This friend always seeks my child out to do things with my child or to spend time with my child.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

4. This friend fights with my child.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

5. This friend is easy to make up with when my child and him/her have a fight.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

6. My child can talk to this friend about the things that make him/her sad.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

7. This friend often helps my child with things.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

8. This friend makes my child mad.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

9. This friend tells my child that my child is good at things.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

10. This friend is fun for my child to do things with.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

11. This friend doesn't listen to my child.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

12. This friend always gets over his/her arguments with my child really quickly.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

13. When my child is mad about something that has happened to him/her, my child can always talk to this friend about it.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

14. When my child is having trouble figuring out something, he/she usually asks this friend for help and advice.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

15. This friend bugs my child.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

16. This friend makes my child feel important and special.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

17. This friend gets together with my child with after school and on weekends.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

18. I can think of some times when this friend has said mean things about my child to other kids.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

19. If this friend and my child get mad at each other, this friend always talks to my child about how to get over it.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

20. I can think of lots of secrets my child has told this friend.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

21. My child can count on this friend for ideas on how to get things done.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

22. My child can always count on this friend to keep promises.

0	1	2	3	4
Not at all true	A little true	Somewhat true	Pretty true	Really true

Appendix B – Teacher Questionnaires

Student-Teacher Relationship Scale

Please reflect on the degree to which each of the following statements currently applies to your relationship with this child who is in our study. Using the scale, circle the appropriate number for each item.

1. I share an affectionate, warm relationship with this child

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

2. This child and I always seem to be struggling with each other

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

3. If upset, this child will seek comfort from me

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

4. This child is uncomfortable with physical affection or touch from me

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

5. This child values his/her relationship with me

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

6. When I praise this child, he/she beams with pride

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

7. This child spontaneously shares information about himself/herself

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

8. This child easily becomes angry with me

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

9. It is easy to be in tune with what this child is feeling

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

10. This child remains angry or is resistant after being disciplined

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

11. Dealing with this child drains my energy

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

12. When this child is in a bad mood, I know we're in for a long and difficult day

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

13. This child's feelings toward me can be unpredictable or can change suddenly

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

14. This child is sneaky or manipulative with me

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies

15. This child openly shares his/her feelings and experiences with me

1	2	3	4	5
Definitely Does not Apply	Not Really	Neutral	Applies Somewhat	Definitely Applies