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ORIGINAL PAPER

Social Resilience in Children with ADHD: Parent and Teacher Factors

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Abstract

Children with attention-deficit/hyperactivity disorder (ADHD) commonly experience poor social functioning. Previous investigations have focused on risk factors for social impairment such as children's comorbid behavior problems and negative parenting. By contrast, few studies have considered parent and teacher processes that contribute to social resilience. We investigated how potential risk factors (child externalizing behavior, child internalizing behavior, negative parenting) and compensatory/protective factors (parent social competence, positive teacher-child relationship quality) may relate to social competence in children with ADHD. Participants were 213 children with ADHD (148 boys; ages 6–11). Using a cross-sectional design, parents and teachers reported on children's comorbid externalizing and internalizing behavior problems and social skills. Parents also reported on their own social competence and parenting practices, while teachers reported on their relationship quality with the children in the study. Results indicated that: (a) the risk factors of child externalizing and internalizing behavior were associated with poorer child social skills; (b) positive teacher-child relationship quality and high parent social competence were associated with better child social skills after statistical control of risk factors; (c) high parent social competence mitigated the association between child externalizing behavior and poor child social skills; and (d) positive teacher-child relationship quality mitigated the association between child internalizing behavior and poor child social skills. The presence of positive parent and teacher constructs was not necessarily equivalent to the absence of negative constructs, suggesting complexity in risk and resilience processes. We discuss the clinical implications of these findings for encouraging social resilience among children with ADHD.

Keywords ADHD · Resilience · Social competence · Parenting · Teacher-child relationship

Highlights

- We found that some children with ADHD show resilient social functioning.
- Results indicate that children with ADHD whose parents are socially competent tend to have better social skills.
- Findings suggest that children with externalizing behavior may particularly benefit from having socially competent parents.
- Findings suggest that children with internalizing behavior may particularly benefit from having good relationships with teachers.
- The study of resilience is complex; different factors predict low risk versus resilience.

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder associated with poor social functioning (McQuade & Hoza 2015). Children with ADHD fall about 1 SD below peers on measures of social skills, and they are robustly disliked by classmates (McQuade & Hoza 2015). Given the magnitude of these difficulties, considerable research has focused on factors that confer risk for social impairment in this population, such as children's comorbid externalizing and internalizing behavior, and negative parenting (Becker et al. 2012). Nonetheless, some children with ADHD function well

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socially (Modesto-Lowe et al. 2011). The current study employed a resilience perspective to identify factors that contribute to social competence as well as interact with risk factors to mitigate their negative effect on social competence in this population. We focused on two natural processes within children's environments that may relate to resilience in the social domain: their parents' social competence, and their relationship quality with teachers.

Risk Factors for Poor Social Competence in Children with ADHD

Comorbid Externalizing Behaviors

Externalizing behavior, consisting of oppositionality, aggression, and conduct problems, is a key risk factor for poor social functioning and is found in up to 84% of children with ADHD (Becker et al. 2012). Comorbid externalizing behaviors in children with ADHD predict poorer social skills in both school and home settings, as well as poorer peer social preference (Becker et al. 2012). Externalizing behavior may interfere with social competence because it results in children with ADHD exhibiting even more overbearing and unrestrained styles of interaction, which peers and adults find aversive (McQuade & Hoza 2015). Further, comorbid externalizing behaviors may place children with ADHD at greater risk for involvement with deviant peers (Utržan et al. 2017) which subsequently prevents them from learning appropriate prosocial behaviors.

Comorbid Internalizing Behaviors

Internalizing behaviors, consisting of anxiety, depression, and social withdrawal, are found in up to 50% of children with ADHD and also exacerbate their social impairment (Becker et al. 2012). Similar to externalizing behavior, internalizing symptoms in children with ADHD are associated with poorer parent- and teacher-rated social skills and peer preference (Becker et al. 2012). These children may appear uninterested, aloof, or socially incompetent, leading to peers ignoring or victimizing them as a result (Fanti & Henrich 2010). Internalizing comorbidities may also hinder children's motivation to join social activities, which deprives children of opportunities to learn and practice social skills (Arbeau et al. 2010).

Negative Parenting

Parents of children with ADHD tend to display more negative parenting practices relative to parents of children without ADHD (Johnston & Chronis-Tuscano 2015). Parenting that is harsh, inconsistent, or punitive is associated with children's poorer social skills, including aggression and low prosociality toward peers, as well as lower peer preference (Kaiser et al. 2011). This may occur because, consistent with social learning theory, children mimic parent behaviors in peer contexts (Finger et al. 2010). Attachment perspectives also suggest that negative parenting may influence children's internal working models of relationships to produce social interactions which lead future relationships to be qualitatively similar to those in the past (Finger et al. 2010). For example, mothers' harsh parenting was linked with their children expecting successful outcomes from unfriendly problem-solving strategies (Finger et al. 2010).

Taken together, the research on risk factors could suggest that reducing comorbid behavior problems and negative parenting might result in better social competence in children with ADHD. However, interventions that have been well-validated for treating the core symptoms of ADHD, comorbid oppositional behaviors, as well as parenting difficulties, have yielded only modest improvements in social domains and have been described as "not effective" for peer problems (Evans et al. 2018). This highlights the need to look beyond risk factors when trying to understand social functioning in children with ADHD.

Social Resilience in Children with ADHD

Resilience is defined as positive patterns of adaptation in the context of adversity (Wright et al. 2013). We consider social resilience as the capacity to develop and exhibit social competence despite life stressors and behavioral challenges (e.g., that are engendered by ADHD). Yet, as stated in a recent review of resilience in ADHD, little is known about buffering processes for these youth (Dvorsky & Langberg 2016). Some intriguing findings suggest that the family environment could relate to social resilience. Among a community sample of Taiwanese youth (grades 1–9), the typically strong association between ADHD symptom severity and social difficulties was reduced when parents self-reported engaging in less overprotection and more affection (Kawabata et al. 2012). Similarly, parent-reported involvement and children's participation in extracurricular activities buffered against the negative effects of internalizing behaviors, externalizing behaviors, and negative parenting on social functioning in middle school students with ADHD (Ray et al. 2017). Parent-reported family cohesion and community support also appeared to decrease risk for friendship problems in children reported to have ADHD by their parents (Duh-Leong et al. 2020). These studies support the resilience perspective as a promising avenue, and underscore the utility of further research to identify additional factors that may facilitate social competence in ADHD populations (Modesto-Lowe et al. 2011).

The current study investigated two novel factors, one related to the home environment and one related to the school setting, which may be associated with social resilience in children with ADHD. Because home and school are primary contexts in which children with ADHD spend time and are known to demonstrate significant social impairments (Pfiffner et al. 2016), we wished to examine factors in each context that could be associated with resilience. Of note, previous work has used the terminology "compensatory" to describe factors incrementally associated with positive functioning after statistical control of risk factors (e.g., as a main effect), and the terminology "protective" to describe factors that are associated with positive functioning only in the presence of a risk factor (i.e., in interaction with risk; Wright et al. 2013). We adopt this terminology herein.

Parent Social Competence

Parents' own social competence may be a compensatory factor in the home environment that contributes to social competence in children with ADHD. As with negative parenting, parents' positive social behaviors may also be emulated by their children. This may be why the positive qualities of mothers' own friendships (e.g., encouraging, low in conflict, and satisfying) predicted children's good peer relationships after controlling for mother-child relationship quality (Glick et al. 2013). Socially competent parents may also be more likely to explicitly instruct their children in social skills, to the children's benefit. Indeed, upon moving to a new school, mothers' reports of having spoken to children about ways to make friends predicted greater companionship and intimacy in the children's friendships 8 months later (Vernberg et al. 1993). Finally, socially competent parents are well-positioned to create social opportunities for their children by having wider social networks themselves and by facilitating playdates (Mounts 2011).

In addition to acting as a compensatory factor, parent social competence may act as a protective factor by buffering the negative effects of risk factors on social functioning. For children with ADHD and externalizing comorbidities, parents who are socially competent may communicate well with teachers and other parents about the child's behavior problems, for example, by sharing strategies for behavior management. Such parents may also be well-liked by other families, leading other parents to demonstrate tolerance for the child's behavior problems and to invite the child for playdates. For children with ADHD and internalizing comorbidities, parents who have wide social networks and high-quality friendships may model social relationships characterized by safety and positivity. Shy and anxious children may also particularly benefit from exposure to more positive social activities, which socially competent parents can arrange. In support of this, the association between parent facilitation of children's peer relationships (e.g., hosting playdates and networking with other parents) and children's social functioning has been found to be stronger for children with ADHD (Mikami et al. 2010), and for adolescents with lower social-behavioral skills (Gregson 2015), relative to comparison peers. Lastly, parent facilitation may be useful for children who experience harsh parenting because this could offer such children socialization opportunities with peers and other adults which may present alternative, more positive models to guide their social behaviors.

Quality of Teacher-child Relationship

The quality of the relationship with a teacher may be a compensatory factor in the school setting that promotes social competence in children with ADHD. Like parents, teachers serve as models for social relationships; therefore, positive teacher-child relationships can provide an example for children to follow in their own interactions with peers (Hamre & Pianta 2001). Teachers also explicitly instruct children in social skills, for example, by telling them how to settle conflicts or regulate negative emotions. Crucially, children are likely to follow the teacher's guidance when they have a warm and positive relationship with the teacher, because they trust and want to please the teacher (Bergin & Bergin 2009). Finally, teachers have the unique ability to model, for the peer group, that a child is worthy of liking. When peers observe that the teacher likes a child, this may alter peers' impressions of that child in a positive direction (Mikami et al. 2012). Good peer relationships may then provide further opportunities for that child to develop social skills.

In addition to acting as a compensatory factor, positive teacher-child relationships may also buffer the association between risk factors and poor social functioning in children with ADHD. Empirical work suggests that teacher practices that demonstrate sensitivity and liking of students may be more influential on the peer relationships of students with high externalizing behavior relative to students with low externalizing behavior (Mikami et al. 2012). Positive, warm teacher-child relationships have also been found to ameliorate the association between internalizing problems and poor classroom social adjustment (Baker 2006), perhaps because supportive relationships with teachers help shy and withdrawn children to increase their willingness to socialize with peers.

Context-specific Pathways

Children's behavior and social functioning is often context-dependent (e.g., different at home versus school; McQuade & Hoza 2015), and these differences may occur, in part, due

to the unique compensatory/protective factors present or absent in each context. Specific to our study, we expect the effects of parent and teacher compensatory/protective factors to be most pronounced in the context in which they take place; that is, parents' own social competence would theoretically be most influential on children's social competence displayed at home, whereas teacher-child relationship quality would theoretically be most influential on children's social competence displayed at school. This is because children may be most likely to emulate their parents' social behaviors when their parents are present to model those behaviors; parents also have opportunities to intervene in and facilitate their children's social interactions at home. Similarly, teacher-child relationship quality is most likely to influence the teacher's ability to shape the child's socially skilled behaviors at school because the teacher is present in that context. Teacher-child relationship quality would theoretically affect peers' evaluations of children at school because this is where peers can observe interactions between the teacher and the child.

Protective Factors–Merely the Absence of Risk?

The literature conceptualizes the phenomenon of resilience as being different from the mere absence of vulnerability (Wright et al. 2013). However, much debate exists over whether risk and protection are simply two sides of the same coin. Many constructs can be conceptualized as both risk and protective factors, in that they engender poor adaptation at one extreme and good adaptation at the other (Wright et al. 2013). For example, the evidence is mixed as to whether parenting as a risk factor for poor child social functioning is better conceptualized by the presence of negative elements or the lack of positive elements. Some research has found negative (i.e., harsh and inconsistent) and positive parenting (i.e., warm and praising) to be associated with different child social behaviors (Prevatt 2003). Further, parents can concurrently display both negative and positive practices (Kaiser et al. 2011), suggesting that parenting is not a bimodal construct. We conceptualized high negative parenting as the risk factor in our primary hypotheses (and investigated low positive parenting in the exploratory analyses) because of findings that negative parenting was more predictive of child social functioning, and a stronger mediator between ADHD severity and poor social functioning, compared to positive parenting (Kaiser et al. 2011).

Regarding compensatory/protective factors, it is unclear whether high closeness (high positive) or low conflict (low negative) in teacher-child relationships is more associated with social competence. High teacher-child closeness (rather than low conflict) buffered the association between internalizing behavior and poor socioemotional adjustment in one study (Arbeau et al. 2010). On the other hand, another study found that low teacher-child conflict (rather than high closeness) predicted more prosocial behaviors and less peer aggression (Birch & Ladd 1998). In addition, 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 (Mize & Pettit 2010; Mounts 2011).

In summary, it is unknown whether social resilience in children is more associated with the absence of key constructs (i.e., low positive parenting as a risk factor, low parent social difficulties and low negative teacher-child relationship quality as compensatory/protective factors), or with the presence of opposite, related constructs (i.e., high negative parenting as a risk factor, high parent social competence and high positive teacher-child relationship quality as compensatory/protective factors). Furthermore, we conceptualize resilient social functioning as children displaying social competence (e.g., specifically, social skills such as sharing, cooperation, and prosociality); however, high social competence may not equate to low social impairment (e.g., specifically, social problems such as being disliked by peers). Indeed, Dvorsky et al. (2018) found that different aspects of social functioning were differently related to resilience in the academic domain in adolescents with ADHD, suggesting the potential utility of distinguishing between social skills and social problems in the current study. Investigating these distinctions may yield not only conceptual clarification, but also implications for intervention.

The Present Study

There is a dearth of studies on resilience in children with ADHD, and even fewer focusing on resilience in the social domain (Dvorsky & Langberg 2016). We investigated risk and compensatory/protective factors in the home context, and then in the school context, that may be associated with social competence in a sample of children with ADHD. Additionally, we explored whether the presence of a positive construct equated to the absence of a negative construct, to allow for an empirical investigation into "where the action is" for risk factors, compensatory/protective factors, and the outcome of social functioning.

Hypothesis 1: Home Context

As rated by parents: (a) child externalizing behavior, child internalizing behavior, and negative parenting will be

Table 1 Participant demographics

Variables	Full Sample ($N = 213$)	Vancouver ($n = 100$)	Ottawa ($n = 113$)	p[a]
Child				
Age[b] (years)	8.58 ± 1.56	8.70 ± 1.61	8.48 ± 1.49	0.356
Grade[b]	3.30 ± 1.56	3.56 ± 1.59	3.16 ± 1.46	0.031
Boys (%)	69.1	71.0	64.4	0.103
White (%)	74.9	57.0	83.0	0.035
Full Scale IQ[b]	102.13 ± 15.48	101.67 ± 15.61	102.30 ± 14.93	0.899
ADHD combined presentation (n)	143	66	77	0.756
ADHD inattentive presentation (n)	59	24	35	0.656
ADHD hyperactive/impulsive presentation (n)	11	5	6	0.659
Comorbid oppositional defiant disorder (n)	62	34	28	0.058
Comorbid conduct disorder (n)	4	4	0	0.045
Comorbid internalizing disorder (n)	56	28	28	0.051
Psychotropic medication (n)	124	46	78	0.010
Primary Parent				
Adults in household[b] (n)	1.87 ± 0.60	1.85 ± 0.68	1.87 ± 0.52	0.943
Biological parent (%)	94.0	93.3	93.8	0.866
Age[b] (years)	40.95 ± 5.88	42.52 ± 5.73	40.06 ± 6.05	0.005
Male (%)	11.0	11.5	8.8	0.539
Education[b] (years in post-secondary)	5.45 ± 1.12	5.48 ± 1.05	5.46 ± 1.16	0.860
Household income[b] (CAD)	117,836 ± 77,745	114,336 ± 83,480	120,000 ± 61,644	0.598

[a]All continuous variables were compared across sites using independent samples t-test; all categorical variables were compared across sites via Chi-Square tests

[b]Mean ± Standard Deviation

associated with poorer child social competence (risk factors); (b) after statistical control of risk factors, parent social competence will be associated with better child social competence (compensatory factor); and (c) the risk factors will be moderated by parent social competence such that the negative associations between externalizing behavior and social competence, internalizing behavior and social competence, and negative parenting and social competence will be attenuated among children who have parents with high social competence (protective factor).

Hypothesis 2: School Context

As rated by teachers: (a) child externalizing behavior and child internalizing behavior will be associated with poorer child social competence (risk factors); (b) after statistical control of risk factors, positive teacher-child relationship quality will be associated with better child social competence (compensatory factor); and (c) the risk factors will be moderated by positive teacher-child relationship quality such that the negative associations between externalizing behavior and social competence, and internalizing behavior and social competence will be attenuated among children who have more positive relationships with their teachers (protective factor).

Exploratory Hypotheses

We explored low positive parenting (in place of high negative parenting) as a risk factor, and low parent social difficulties (in place of high parent social competence) as well as low negative teacher-child relationship quality (in place of high positive teacher-child relationship quality) as compensatory/protective factors for child social competence. We also explored Hypothesis 1 and 2 with the absence of child social impairment as the outcome measure instead of the presence of child social competence.

Method

Participants

Participants were 213 families of children with ADHD (148 boys) enrolled in a dual-site clinical trial testing interventions for social impairment. All measures for the current study were collected at baseline, before families were randomized to receive intervention. Children were 6–11 years old and were in Grades 1 to 6. Children were 74% White, 17% mixed race, 6% Asian Canadian, 1% Latinx, and 1%

Table 2 Descriptive statistics of study variables

	Full Sample (N = 213)	*Vancouver (n = 100)*	*Ottawa (n = 113)*	*p*
Risk Factors				
Externalizing Behavior				
CBCL externalizing broadband scale	64.88 ± 9.93	63.47 ± 10.47	66.26 ± 9.25	0.047
TRF externalizing broadband scale	63.65 ± 9.34	63.28 ± 9.59	63.85 ± 8.82	0.661
Internalizing Behavior				
CBCL internalizing broadband scale	63.05 ± 9.60	61.33 ± 10.34	64.50 ± 8.94	0.021
TRF internalizing broadband scale	62.85 ± 8.68	62.73 ± 8.35	62.91 ± 8.84	0.885
Negative Parenting				
APQ inconsistent discipline subscale	1.44 ± 0.62	1.30 ± 0.54	1.57 ± 0.63	0.001
PS overreactivity subscale	3.06 ± 0.82	3.05 ± 0.84	3.03 ± 0.79	0.818
Positive Parenting				
APQ positive parenting subscale	3.27 ± 0.50	3.18 ± 0.52	3.35 ± 0.49	0.016
APQ positive involvement subscale	2.93 ± 0.47	2.91 ± 0.46	2.96 ± 0.48	0.446
Compensatory/Protective Factors				
Parent Social Competence				
ICQ	2.47 ± 0.56	2.39 ± 0.57	2.53 ± 0.54	0.068
FQQ–Adult without conflict subscale	3.14 ± 0.66	3.09 ± 0.68	3.19 ± 0.68	0.324
FFQ	3.18 ± 0.73	3.10 ± 0.80	3.18 ± 0.68	0.568
Parent friendship quantity	9.36 ± 9.24	10.87 ± 12.45	8.16 ± 5.78	0.061
Positive Teacher Relationship STRS closeness subscale	30.58 ± 6.40	29.96 ± 6.25	31.19 ± 6.59	0.180
Negative Teacher Relationship STRS conflict subscale	18.01 ± 7.23	19.07 ± 7.62	17.05 ± 7.78	0.049
Negative Parent Friendship Quality FQQ–Adult conflict subscale	0.25 ± 0.33	0.29 ± 0.36	0.22 ± 0.29	0.149
Outcome Variable				
Social Skills				
SSIS parent social skills score	75.05 ± 11.14	74.51 ± 11.30	75.46 ± 11.01	0.548
SSIS teacher social skills score	81.59 ± 11.07	79.69 ± 10.44	82.95 ± 11.32	0.041
Social Problems				
CBCL social problems narrowband scale	67.85 ± 8.80	68.19 ± 8.91	67.63 ± 8.94	0.660
TRF social problems narrowband scale	66.64 ± 8.61	65.85 ± 8.02	66.59 ± 9.09	0.550

APQ Alabama Parenting Questionnaire, *CBCL* Child Behavior Checklist, *FFQ* Friendship Facilitation Questionnaire, *FQQ* Friendship Quality Questionnaire, *ICQ* Interpersonal Competence Questionnaire, *PS* Parenting Scale, *SSIS* Social Skills Improvement Scale, *STRS* Student -Teacher Relationship Scale, *TRF* Teacher Report Form

Black; 1% did not report race/ethnicity. Families were recruited to take part in the larger trial from two Canadian sites, Vancouver, BC and Ottawa/Gatineau, ON/QC, via advertisements, family events, schools, and other clinical sources. See Table 1.

Procedure

Full details about the larger clinical trial are in Mikami et al. (in press). Parents and teachers gave consent and children assented to the study procedures, which were approved by the institutional review boards at all participating universities, hospitals, and school boards.

Potentially eligible children first needed to have a minimum of four symptoms of hyperactivity/impulsivity and/or inattention endorsed by both parent and teacher as "often" or "very often" on the Child Symptom Inventory (CSI; Gadow & Sprafkin 1994). Children meeting this criterion were invited to a lab visit, where parents were administered the Kiddie Schedule for Affective Disorders and Schizophrenia (KSADS; Kaufman et al. 1997) and children were administered intelligence testing. To be enrolled in the larger study, children needed to meet full diagnostic criteria for ADHD as evidenced by at least six items of inattention and/or hyperactivity/impulsivity endorsed on the parent KSADS or on the teacher CSI, using the "or" algorithm where a symptom was considered present if endorsed by either parent or teacher. Parents also completed questionnaires about children's social functioning and behavior problems, and their own parenting and social competence at

this visit. Teachers were asked to complete questionnaires about the child's social and behavioral functioning and about the quality of the teacher-child relationship, by mail. Exclusion criteria included (a) autism spectrum disorder, (b) psychosis, (c) active suicidality, or (d) intellectual disability as evidenced by Full Scale IQ of 75 or lower on the Wechsler Abbreviated Scale of Intelligence (Wechsler 1999) or a short form of the Wechsler Intelligence Scale for Children (Wechsler 1999). Psychotropic medication use and comorbid conditions common to children with ADHD (e.g., oppositional defiant disorder, conduct disorder, depression and anxiety disorders) were not exclusionary.

As the larger study focused on interventions for social difficulties, children also needed to have a score of 3 (corresponding to 1 *SD* above the mean) on the Strengths and Difficulties Questionnaire Peer Problems subscale (Goodman 1997) as reported by the parent or teacher using the "or" algorithm. Nonetheless, children displayed a range of scores on our outcome measures of social functioning, as seen in Table 2.

Measures

Child externalizing and internalizing behavior (risk factors)

Parents and teachers independently completed the externalizing and internalizing broadband scales of the Child Behavior Checklist (CBCL) and the Teacher Report Form (TRF), respectively (Achenbach & Rescorla 2001). The CBCL and TRF are widely used and well-validated measures about children's behavior problems. In the norming sample, CBCL and TRF scales demonstrated good test-retest reliability, validity (can accurately classify children with different diagnoses), and internal consistency ($\alpha =$ 0.90 for both CBCL and TRF externalizing scales and $\alpha = 0.94$ and 0.95 for CBCL and TRF internalizing scales, respectively; Achenbach and Rescorla 2001). Raw scores for all CBCL/TRF scales were converted to *T*-scores, which were used in analyses.

Negative parenting (risk factor)

We assessed positive and negative parenting via parent report on two scales. First, the Alabama Parenting Questionnaire (APQ) measures parenting practices shown to relate to child externalizing behaviors (Shelton et al. 1996). In the current sample, the inconsistent discipline subscale ($\alpha = 0.68$; 6 items) indicated negative parenting, and the positive parenting ($\alpha = 0.79$; 6 items) and involvement ($\alpha = 0.63$; 10 items) subscales of the APQ indicated positive parenting. All items on a subscale were averaged to create a total subscale score, with higher scores indicating more of the associated construct. The APQ has shown moderate internal consistency in past research and good criterion validity (e.g., children with behavior problems score higher on the negative scales than children without behavior problems; Shelton et al. 1996).

Second, the Parenting Scale (PS) is a 30-item parent-report scale of parent discipline practices (Arnold et al. 1993). In the current sample, parents indicated their tendencies to employ harsh discipline via the overreactivity subscale ($\alpha = 0.70$; 10 items) of the PS. All items on the overreactivity subscale were averaged to create a total subscale score, with higher scores indicating more negative parenting. In previous work, the PS has been found to have high internal consistency and good criterion validity (i.e., can discriminate between children with ADHD, ADHD + externalizing comorbidities, and without ADHD; Harvey et al. 2001).

Parent social competence (compensatory/protective factor)

The 40-item Interpersonal Competence Questionnaire (ICQ; Buhrmester et al. 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. A total score was calculated by taking the average of all items, with higher scores indicating higher competence ($\alpha = 0.87$ in the current sample). Good reliability and validity (e.g., predictive of social self-esteem and relationship satisfaction) statistics have been reported (Buhrmester et al. 1988).

Parents completed the short version of the Friendship Quality Questionnaire about the relationship quality in their own closest friendship (FQQ-adult), which was adapted from the original questionnaire developed for children by Parker and Asher (1993). Parents were asked to think of their closest friend when responding, excluding their romantic partner and relatives, and some questions were reworded for age appropriateness. A similar adaptation of the FQQ where parents reported on their own friendship quality was used in a previous study, and demonstrated high reliability and predictive validity with children's behavior problems and children's friendship quality (Simpkins & Parke 2001). The FQQ-adult contains 22 items and yields 6 subscales: disclosure, help, conflict, conflict resolution, companionship, and validation. As is traditionally done in the child version of the FQQ, all items, except those on the conflict subscale, were averaged to create a total score ($\alpha = 0.89$), with higher scores indicating more positive parent friendship quality. Items on the conflict subscale were averaged to create a subscale score ($\alpha = 0.67$), with higher scores indicating more negative parent friendship quality.

To assess parent friendship quantity, we used a procedure by Prinstein and La Greca (1999) where parents were

asked 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 and friends). Positive correlations between this measure and the ICQ have been found (Prinstein and La Greca 1999).

Parent facilitation, representing parents' efforts to promote peer-oriented social activities for their children, was assessed using the parent version of the Friendship Facilitation Questionnaire (FFQ; Vernberg et al. 1993). Parents indicated how often they used each of 20 relationship-promoting behaviors in the past 3 months. All items were averaged to create a total score ($\alpha = 0.90$ in our sample), with higher scores indicating more parent facilitation. The FFQ has been found to have acceptable parent−child interrater reliability, internal consistency, and test–retest reliability in previous work (Vernberg et al. 1993).

Teacher-child relationship quality (compensatory/protective factor)

The Student-Teacher Relationship Scale – short form (STRS-SF) is a 15-item questionnaire assessing teacher perceptions of the relationship with an individual student (Pianta 2001). In the current sample, the closeness ($\alpha = 0.83$) and the conflict ($\alpha = 0.87$) subscales were used to measure positive and negative teacher-child relationship quality, respectively. Teachers report both feelings about and observations of a child, in addition to beliefs about how the child feels about them. The STRS-SF has been shown to have good reliability in previous studies (Baker 2006).

Child social competence (outcome)

Parents and teachers each completed the social skills subscale of Social Skills Improvement Scale (SSIS), in which they rated children's social competence on 44 items assessing skills such as communication, cooperation, assertion, responsibility, empathy, engagement, and self-control (Gresham and Elliott 2008). The SSIS has strong normative data, good criterion validity (e.g., can differentiate children of different psychiatric diagnoses), high internal consistency (parent: $\alpha = 0.87$; teacher: $\alpha = 0.94$), and high test-retest reliability (Gresham & Elliott 2008). Standard scores on the SSIS were used in analyses.

Parents and teachers also reported on children's social impairment using the social problems narrow band subscale on the CBCL and TRF ($\alpha = 0.82$ for both scales in the norming sample), respectively (Achenbach and Rescorla 2001). Items assess social problems such as being disliked by peers and being teased. *T*-scores were used.

Data Reduction

Because we wished to limit the number of analyses being conducted, we considered whether the four measures of parent social competence (positive parent friendship quality [FQQ-adult without the conflict subscale], parent facilitation [FFQ], parent friendship quantity, and parent interpersonal competence [ICQ]) could be reduced into one or more composite scores. As these measures have not been combined previously in the literature, we conducted a principal components analysis. One extracted component had an eigenvalue above 1.00 (eigenvalue = 1.57, 40% of variance accounted). A composite score was calculated by multiplying observed scores by each measure's relative loadings (positive parent friendship quality = 0.67, parent facilitation = 0.72, parent friendship quantity = 0.25, parent interpersonal competence = 0.74). Bivariate correlations between these measures (see Table 3) also supported the creation of this composite.

Standard scores on the positive parenting and involvement subscales of the APQ ($r = 0.52$; $p < 0.001$) were averaged to create one positive parenting score. Standard scores on the APQ inconsistent discipline subscale and on the PS overreactivity subscale ($r = 0.44$; $p < 0.001$) were averaged to create one negative parenting score.

Data Analytic Plan

Because of site and sex differences on some study variables, we included them as covariates in our main analyses. There were no site differences on 15 of 20 demographic variables, 4 of 8 risk factors, 7 of 8 compensatory factors, and 3 of 4 outcome variables of child social functioning. These details are in Tables 1 and 2, however, we highlight that parents (but not teachers) in Vancouver rated children as lower in comorbid problem behaviors, and teachers (but not parents) in Vancouver rated children as lower in social skills and higher in negative teacher-child relationship quality, compared to in Ottawa/Gatineau. There were also no sex differences on 19 of 20 demographic variables, 8 of 8 risk factors, 8 of 8 compensatory/protective factors, and 1 of 4 outcome variables of child social functioning. However, girls were less likely to be White or mixed race [$\chi^2(4, N = 213) = 9.43$, $p = 0.045$], and tended to have more social problems as rated by parents (boys: $M = 66.46$, $SD = 9.04$; girls: $M = 70.28$, $SD = 8.27$; $p = 0.003$) and teachers (boys: $M = 54.37$, $SD = 8.36$; girls: $M = 68.61$, $SD = 8.78$; $p = 0.012$), as well as poorer social skills as rated by parents (boys: $M = 76.65$, $SD = 10.77$; girls: $M = 71.74$, $SD = 11.24$; $p = 0.003$), compared to boys. There were no significant correlations between the outcome variables and other demographic variables including psychotropic medication use, age, or minority race status.

Table 3 Correlations between risk factors, compensatory factors, and outcome variables

Variable	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. P Externalizing	0.44**	0.44**	0.10	0.30**	0.28**.	0.23**	−0.07	0.03	−0.16*	0.08	0.04	0.12	−0.04	0.01	0.02	0.30**	−0.04	−0.37**	−0.23**	0.40**	0.17*
2. T Externalizing	–	0.06	0.23**	0.07	0.05	0.07	0.04	0.13	0.06	0.01	−0.05	0.02	−0.02	0.06	−0.11	0.76**	0.01	−0.11	−0.63	0.09	0.57**
3. P Internalizing		–	0.25**	0.16*	0.19**	0.10	−0.02	0.07	−0.11	−0.12	−0.14	−0.08	−0.07	−0.02	−0.04	0.01	0.11	−0.34**	−0.06	0.60**	0.08
4. T Internalizing			–	−0.02	−0.02	−0.02	−0.08	−0.02	−0.12	−0.05	0.01	−0.04	−0.00	0.09	−0.14*	0.13	0.04	−0.15*	−0.24**	0.19**	0.45**
5. Negative Parenting				–	0.80**	0.89**	−0.23**	−0.16*	−0.24**	−0.17*	−0.24**	−0.05	−0.13	−0.04	−0.13	−0.08	−0.07	−0.18**	−0.09	0.11	−0.02
6. inconsistent					–	0.44**	−0.10	−0.06	−0.12	−0.01	−0.11	0.03	−0.02	−0.05	−0.09	0.04	−0.03	−0.14*	0.10	0.09	0.03
7. overreactive						–	−0.26**	−0.19**	−0.27**	−0.24**	−0.27**	−0.11	−0.17*	−0.03	−0.12	0.08	−0.08	−0.17*	−0.06	0.07	−0.05
8. **Positive Parenting**							–	0.88**	0.86**	0.48**	0.25**	0.27**	0.50**	0.05	0.10	0.06	−0.11	0.22**	0.10	−0.02	−0.09
9. positive parenting								–	0.52**	0.35**	0.18**	0.19**	0.35**	−0.01	0.05	0.10	−0.04	0.13	0.06	0.01	−0.02
10. positive involvement									–	0.50**	0.25**	0.28**	0.53**	0.09	0.13	−0.01	−0.15*	0.25**	0.11	−0.04	−.13
11. P Social Competence										–	0.74**	0.67**	0.72**	0.25**	0.11	−0.03	−0.37**	0.25**	0.01	−.07	−0.09
12. ICQ											–	0.28**	0.33**	0.13	0.01	−0.07	−0.16*	0.18**	−0.03	−0.11	0.00
13. positive P friendship quality												–	0.26**	0.05	.17*	0.04	−0.54**	0.10	0.04	0.03	−0.06
14. FFQ													–	0.06	0.08	−0.06	−0.12	0.17*	0.02	−0.10	−0.04
15. P friend quantity														–	0.01	0.02	−0.11	.04	0.03	−0.01	0.12
16. Negative P Friendship Quality															–	−0.23**	0.02	−0.04	−0.06	0.10	0.05
17. Positive T-C Relationship																–	−0.07	0.09	0.44**	0.03	−0.06
18. Negative T-C Relationship																	–	−0.07	−0.54**	0.05	0.42**
19. P Social Skills																		–	0.19**	−0.30**	−0.09
20. T Social Skills																			–	−0.07	0.43**
21. P Social Problems																				–	0.19**
22. T Social Problems																					–

*$p < 0.05$. **$p < 0.01$

P = parent, T = teacher, C = child; bold variables = variables entered into regressions; unbold variables = variables used to create composites

Table 4 Main models: effects of risk and compensatory/protective factors on child social skills

Home Context Outcome: Parent-Rated Child Social Skills	β	t	p
Step 1			
Parent-Rated Externalizing Behavior	−0.18	−2.26	0.025
Parent-Rated Internalizing Behavior	−0.33	−4.41	<0.001
Negative Parenting	−0.09	−1.33	0.186
Sex[a]	−0.23	−3.36	0.001
Site[b]	0.11	1.61	0.110
Step 2			
Parent Social Competence	0.20	2.85	0.005
Step 3			
Externalizing Behavior*Parent Social Competence	−1.10	−2.69	0.008
Internalizing Behavior*Parent Social Competence	−0.36	−0.71	0.480
Negative Parenting*Parent Social Competence	−0.04	−0.14	0.887
School Context Outcome: Teacher-Rated Child Social Skills	β	t	p
Step 1			
Teacher-Rated Externalizing Behavior	−0.60	−10.47	<0.001
Teacher-Rated Internalizing Behavior	−0.13	−2.22	0.027
Sex	−0.03	−0.47	0.638
Site	0.17	3.04	0.003
Step 2			
Positive Teacher-Child Relationship Quality	0.39	7.79	<0.001
Step 3			
Externalizing Behavior*Positive Teacher Relationship	−0.53	−1.22	0.224
Internalizing Behavior*Positive Teacher Relationship	−1.13	−2.29	0.023

[a]Sex coded 1 for boys, 2 for girls

[b]Site coded 1 for Vancouver, 2 for Ottawa/Gatineau

We tested our main hypotheses using hierarchical multiple regression. All continuous predictors were centered. To test Hypothesis 1 (predicting social resilience in the home context), parent-rated child social skills was the criterion variable. The risk factors of parent ratings of child externalizing behavior, child internalizing behavior, and negative parenting were entered together at Step 1 along with the covariates of sex and site. The compensatory factor of parent social competence was entered at Step 2, and the cross-products between the risk factors and parent social competence (to test this as a protective factor) were entered together at Step 3.

To test Hypothesis 2 (predicting social resilience in the school context), teacher-rated child social skills was the criterion variable. The risk factors of teacher ratings of child externalizing behavior and child internalizing behavior were entered together at Step 1 along with the covariates of site and sex. The compensatory factor of positive teacher-child relationship quality was entered at Step 2, and the cross-products between the risk factors and teacher-child relationship quality (to test this as a protective factor) were entered together at Step 3.

In exploratory analyses, we substituted low positive parenting (in place of high negative parenting) as a risk factor, and low parent social difficulties (in place of high parent social competence) as well as low negative teacher-child relationship quality (in place of high positive teacher-child relationship quality) as compensatory/protective factors. We note that of the four measures that make up the composite score of parent social competence (positive parent friendship quality, parent facilitation, parent friendship quantity, and parent interpersonal competence), only positive parent friendship quality (i.e., the FQQ-adult subscales of disclosure, help, conflict resolution, companionship, and validation) had a related, negative construct (i.e., negative parent friendship quality, measured by the conflict subscale on the FQQ-adult). Thus, low negative parent friendship quality was used as our measure of low parent social difficulties. Finally, we also re-conducted the analyses for Hypotheses 1 and 2 with low child social problems as the criterion variable, in place of high child social skills.

Results

Descriptive Statistics

Tables 1 and 2 present descriptive statistics on the demographic and study variables, respectively, as well as comparisons across sites. Correlations between study variables can be found in Table 3.

Hypothesis 1: Home Context

These analyses are in Table 4. In terms of risk factors, parent ratings of higher child externalizing behavior and child internalizing behavior, but not negative parenting, were associated with poorer parent-rated social skills in children as main effects. After statistical control of risk factors, high parent social competence was associated with better child social skills as a main effect. There was a significant interaction between child externalizing behavior and parent social competence such that the negative impact of externalizing behavior on social skills was mitigated at 1 *SD* above the mean on parent social competence ($\beta = -0.07$, $t(146) = -0.80$, $p = 0.430$) compared

to 1 *SD* below the mean on parent social competence ($\beta = -0.42$, $t(146) = -3.88$, $p < 0.001$). There were no other significant interactions.

Hypothesis 2: School Context

Also presented in Table 4, the risk factors of child externalizing behavior and child internalizing behavior, as rated by teachers, were associated with poorer teacher-rated social skills in children as main effects. After statistical control of risk factors, positive teacher-child relationship quality was associated with better child social skills. There was a significant interaction between teacher-rated internalizing behavior and positive teacher-child relationship quality such that the negative impact of internalizing behavior on social skills was mitigated at 1 *SD* above the mean on teacher-child relationship quality ($\beta = -0.30$, $t(186) = -1.91$, $p = 0.058$) compared to 1 *SD* below the mean on teacher-child relationship quality ($\beta = -0.70$, $t(186) = -2.04$, $p = 0.043$). No other interactions were found.

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

Table 5 contains these results. Regarding risk factors, low positive parenting was associated with poorer parent-rated child social skills as a main effect (whereas this was not found for high negative parenting). Regarding compensatory factors, low negative parent friendship quality did not relate to better child social skills (unlike what was found for high parent social competence). Low negative teacher-child relationship quality was not associated with better teacher-rated child social skills as a main effect (whereas this was found for high positive teacher-child relationship quality). Similar to the results for positive teacher-child relationship quality as a protective factor, there was an interaction between teacher-rated internalizing behavior and negative teacher-child relationship quality, such that the negative impact of internalizing behavior on social skills was mitigated at 1 SD below the mean on negative teacher-child relationship quality ($\beta = -0.21$, $t(186) = -0.86$, $p = 0.391$) compared to 1 SD above the mean on negative teacher-child relationship quality ($\beta = -0.54$, $t(186) = -1.60$, $p = 0.111$). Regarding child social problems as the outcome measure instead of child social skills, parent ratings of child internalizing behavior predicted more parent-rated child social problems. Teacher ratings of child externalizing and internalizing behavior predicted more teacher-rated child social problems. Unlike what was found for the outcome variable of child social skills, no compensatory/protective factors were found to relate to low social problems.

Discussion

Few studies have investigated social resilience in ADHD and most have focused on risk factors for social impairment (Dvorsky & Langberg 2016). Using a resilience framework, we identified risk, compensatory, and protective factors for social competence at home and at school among children with ADHD. Because we expected context-dependent effects of factors, one model examined home behavior problems, parenting, and parent social competence as predictors of children's social skills as home, while another model examined school behavior problems and teacher-child relationship quality as predictors of children's social skills at school. We found that child behavior problems and low positive parenting predicted poorer child social skills. However, high parent social competence and positive teacher-child relationship quality were associated with better child social skills after statistical control of risk factors. Further, high parent social competence mitigated the association between comorbid externalizing behavior and poorer child social skills; both high positive and low negative teacher-child relationship quality mitigated the association between comorbid internalizing behavior and poorer child social skills.

Risk Factors

Externalizing and internalizing behavior in children were each uniquely associated with poorer child social skills after accounting for the other type of problem behavior. Thus, having both comorbid behaviors may compound risk for poor social competence (Fanti & Henrich 2010). For example, being both aggressive and socially anxious could constitute a double barrier to a child having peer experiences that disconfirm fears of rejection – the lack of such peer experiences could then discourage children's social skill development.

Contrary to hypotheses, negative parenting was not associated with child social skills. However, consistent with findings by Ray and colleagues (2017), low positive parenting marked by low parent involvement and praise did relate to poorer child social skills. Parent involvement may have associations with child social competence because it has direct influences on how much children socialize with peers. For example, the parent involvement subscale of the APQ contains some parenting behaviors that result in social interactions between the child and peers (e.g., "You drive your child to a special activity"), such that low involvement may indicate fewer peer interactions and, therefore, reduced opportunities for the child to learn social skills. These direct influences may be more important than factors that contribute indirectly to children's social competence such as inconsistent or overreactive parenting. That is, parenting

Table 5 Exploratory models: positive versus negative constructs of risk and compensatory/protective factors

Low Positive Parenting replacing High Negative Parenting Outcome: Parent-Rated Child Social Skills	β	t	p
Step 1			
Parent-Rated Externalizing Behavior	−0.19	−2.53	0.012
Parent-Rated Internalizing Behavior	−0.33	−4.45	<0.001
Positive Parenting	0.14	1.99	0.048
Sex	−0.21	−3.12	0.002
Site	0.09	1.31	0.181
Step 2			
Parent Social Competence	0.19	2.41	0.017
Step 3			
Externalizing Behavior*Parent Social Competence	−1.14	−2.79	0.006
Internalizing Behavior*Parent Social Competence	−0.36	−0.71	0.477
Positive Parenting*Parent Social Competence	0.03	0.07	0.942
Low Negative Parent Friendship Quality replacing High Parent Social Competence Outcome: Parent-Rated Child Social Skills	β	t	p
Step 1			
Parent-Rated Externalizing Behavior	−0.18	−2.26	0.025
Parent-Rated Internalizing Behavior	−0.33	−4.41	<0.001
Negative Parenting	−0.09	−1.33	0.186
Sex	−0.23	−3.36	0.001
Site	0.11	1.61	0.110
Step 2			
Negative Parent Friendship Quality	−0.01	−0.13	0.895
Step 3			
Externalizing Behavior*Negative Parent Friendship Quality	−0.26	−0.66	0.512
Internalizing Behavior* Negative Parent Friendship Quality	−0.17	−0.48	0.630
Negative Parenting*Negative Parent Friendship Quality	0.26	1.21	0.228
Low Negative Teacher Relationship replacing High Positive Teacher Relationship Outcome: Teacher-Rated Child Social Skills	β	t	p
Step 1			
Teacher-Rated Externalizing Behavior	−0.18	−2.26	0.025
Teacher-Rated Internalizing Behavior	−0.33	−4.41	<0.001
Sex	−0.09	−1.33	0.186
Site	−0.23	−3.36	0.001
Step 2			
Negative Teacher Relationship	−0.14	−1.49	0.138
Step 3			
Externalizing Behavior*Negative Teacher Relationship	−0.13	−1.59	0.105
Internalizing Behavior*Negative Teacher Relationship	−0.06	−0.14	0.013

The composite score of parent social competence is made up of positive parent friendship quality, parent facilitation, parent friendship quantity, and parent interpersonal competence. Of these four measures, only positive parent friendship quality contained a related, negative construct measuring parent social difficulties (i.e., negative parent friendship quality). Thus, low negative parent friendship quality was used to indicate low parent social difficulties; we acknowledge that this only assesses one aspect of parent social competence (friendship quality), and not the others. Therefore, we also tested positive parent friendship quality by itself as a compensatory/protective factor, and it was not significantly associated with parent ratings of child social skills

may constitute a more distal influence on child social competence when the pathway of influence occurs through modeling of parent behaviors by child or through changes in child attachment style (Finger et al. 2010). Indeed, evidence shows that parents' direct involvement (i.e., time spent with adolescents and their friends) predicts child friendship quality after accounting for indirect factors such as parental warmth and acceptance (Updegraff et al. 2001).

Compensatory and Protective Factors

Parent social competence was associated with better social skills in children, as a compensatory factor. In our study, our measure of parent social competence involved both direct (i.e., parent facilitation) and indirect (i.e., positive parent friendship quality, parent friendship quantity, parent interpersonal competence) aspects. It is possible that the preadolescent age of our sample made distinctions between these two types of parent factors less important. For example, parental guidance and consultation on social activities have been related to more positive friendship quality, social skills, and cooperative behavior in early adolescents in the 7th and 8th grade (Mounts 2011); however, these same parent behaviors also predicted less assertiveness and sense of responsibility over a 9-month period (Mounts 2011). 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. The present findings also suggest that parent social competence may be more important for children with ADHD and comorbid externalizing behaviors; this concurs with Mikami et al. (2010) and Gregson (2015). These children may have visible behavior problems to peers and other adults and may particularly benefit from parents who are socially skilled enough to facilitate and monitor playdates, and effectively communicate with other parents.

High closeness within teacher-child relationships was also associated with better teacher-rated social skills in children with ADHD as a compensatory effect. This extends previous literature finding associations between positive qualities of teacher-child relationships and child social functioning (Hughes & Chen, 2011) to an ADHD sample. We wonder if positive relationships with teachers may be especially important for children with ADHD relative to typically-developing children, because this population tends to have poor social relationships with peers, parents, and teachers (Mikami et al. 2013). Therefore, whereas typically-developing children may have many potential sources from which they can learn social skills, this may be less true for children with ADHD.

A good teacher-child relationship (both high closeness and low conflict) protected against the negative association between teacher-rated internalizing behavior and teacher-rated social skills. Such a relationship may be particularly important for children who are shy and anxious because it increases their comfort to explore with peers. A study of 169 first grade children found that for children who were rated as shy by parents, closeness with teachers protected against avoidance and asociality with peers as well as general school avoidance; conflict with teachers predicted less prosocial behavior and more social exclusion by peers as well as asociality (Arbeau et al. 2010). These findings concur with an attachment perspective which suggests that shy and anxious children who form closer relationships with a teacher may come to feel more secure in the school environment (Bergin and Bergin 2009). Accordingly, children with low emotional security tend to be more socially inhibited, however, this association can be mitigated for those experiencing high teacher support (Thijs and Koomen 2008). Increased interactions with peers may allow children with ADHD and comorbid internalizing behaviors to practice important social skills.

Finally, it was interesting that these compensatory and protective factors were only significantly associated with the presence of child social skills, as opposed to the absence of child social problems. We wonder if parent and teacher compensatory/protective factors are more related to children's ability to enact appropriate social behaviors (social skills; e.g., being polite to adults, playing well with peers), rather than to their difficult interpersonal relationships with peers (social problems; e.g., disliked by peers, being teased). Although this is speculative, perhaps this is because enacting socially skilled behaviors is relatively more under the child's control and therefore more influenced by parent and teacher behaviors toward the child, whereas social problems, indicating how peers react to the child, may be influenced by peers' stigma, peers' behavior, and the child's reputation.

Study Strengths and Limitations

One strength of this study is that we considered both positive and negative constructs in parenting, parent social competence, teacher-child relationship quality, and child social functioning. This allowed us to disentangle the presence of negative from the lack of positive, in each construct. The sample also contained children with rigorously-assessed and validated diagnoses of ADHD. Because of the diversity of participants included, the results may be generalizable to families from both Western and Eastern Canada.

However, no study is without limitations. First, the design was cross-sectional which precludes conclusions about the temporal ordering and causal relationships between variables. The associations found in this study are likely transactional in nature, with high child social competence leading to better

relationships with parents and teachers, as well as lower behavior problems over time (Burt et al. 2008). Second, we relied upon parent- and teacher-reported questionnaires to measure variables. Children's perspectives of parenting, relationships with teachers, and social functioning may also be important as there is some evidence that they can be uniquely predictive of outcomes (Gaylord et al. 2003). We also did not measure peer perspectives (e.g., peer sociometrics), yet parents and teachers may be unaware of more subtle and covert peer problems such as relational victimization and peer neglect. Third, and importantly, we created separate models for social resilience at home versus at school because we expected risk and resilience processes to be context-dependent. However, shared rater variance may have contributed to our findings. For example, parents who endorse themselves as doing well socially may also be more likely to rate their children as being socially skilled; a teacher who has a more positive relationship with the child may also be more likely to perceive the child as more socially competent. Future studies could address this issue by using a different rater for risk/compensatory factors versus for children's social competence (e.g., observations of parenting predicting parent ratings of child social skills; child ratings of teacher-child relationship quality predicting teacher ratings of child social skills). Lastly, the participants were enrolled in a treatment study, which may lead to overrepresentation of parents who are motivated and organized enough to seek help for their children. Also, the high percentage of White families (i.e., 57–83% depending on site) from middle to high socio-economic backgrounds limits generalization of results to families of other backgrounds.

Clinical Implications

Our results suggest novel potential targets for interventions to promote social competence in children with ADHD. This is important given the poor efficacy of current interventions in remediating peer problems in this population (Morris et al. 2020). First, improving teacher-child relationship quality (higher closeness and lower conflict) may possibly be a useful target of intervention for children with ADHD in general, and particularly those with internalizing comorbidities. It may also be fruitful to investigate the mechanisms between closeness versus conflict in the relationship between teacher-student relationship and child social competence. For example, closeness may best promote children's internal feelings of belonging, and therefore motivate children to follow the teacher's guidance, whereas conflict may be more visible to classroom peers and thus more damaging to peers' perceptions. Some interventions such as Teacher-Child Interaction Training (TCIT; Fernandez et al. 2015) and Banking Time (Driscoll and Pianta 2010), have been found in community samples to increase teacher positivity towards children, and may be promising for children with ADHD.

Second, targeting parent social competence (in general and particularly for children with high comorbid externalizing problems) may also yield benefits. In Parental Friendship Coaching, parents are trained to be friendship coaches for their children with ADHD. A key part of this training involves increasing parents' social skills and building parents' own social connections and ability to network with other families to arrange playdates for their children. Initial results suggest that such training may be helpful in improving friendship behaviors, and friendship quality in children with ADHD and comorbid externalizing disorders (Mikami et al., in press).

Summary

Our results demonstrate that parent social competence, as well as positive teacher-child relationships, may be related to social competence in children with ADHD. The presence of positive parent and teacher constructs was not necessarily equivalent to the absence of negative constructs, suggesting complexity in the study of risk and resilience. In summary, there may be natural processes within the child's environment that promote social resilience, which has the potential to inform future prevention and intervention strategies with this population.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the University of British Columbia and Université du Québec en Outaouais, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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