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# Why can't we be friends? A narrative review of the challenges of making and keeping friends for children and adolescents with Attention-Deficit/Hyperactivity Disorder

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This narrative review explores the friendship characteristics of children and adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). Previous literature on ADHD has focused on attentional, academic, and behavioral challenges. Social impairment and peer relationships in children and adolescents with ADHD have been recognized as a critical area of research. Adolescents with ADHD frequently experience clinically significant and impairing social and friendship difficulties. Despite the immense research on factors that contribute to why children and adolescents with ADHD have difficulty making and keeping friends and why friendship is especially important for youth with ADHD, to date, it has not been synthesized in a way that is comprehensive to our understanding. In this review, friendship, friendship formation, the benefits of friendship, and the features of friendship (i.e., friendship quality and stability) will be discussed. Second, the magnitude of friendship challenges faced by children and adolescents with ADHD, as well as the impact these peer difficulties have on friendship quality and stability, will be presented. Next, the dominant conceptualization of why children and adolescents with ADHD struggle to make and keep friends, which focuses on factors such as ADHD symptomatology, executive functioning, social cognition, and emotion regulation, is reported. This review will conclude with suggestions for future research and interventions that may be beneficial for ameliorating friendship difficulties among children and adolescents with ADHD.

## KEYWORDS

friendship, social skills, adolescents, Attention-Deficit/Hyperactivity Disorder, friendship quality

## Introduction

When children and adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD) are asked about interpersonal relationships, their responses often resemble statements such as *I had a group of friends but now they do not talk to me* or *I like talking to others, but I have a hard time knowing what to say and making friends*.

Attention-Deficit/Hyperactivity Disorder is a neurobiological disorder characterized by inattention and/or hyperactivity and impulsivity that causes significant impairment or interferes with daily functioning and development ([American Psychiatric Association, 2022](#)). Previous literature on ADHD has focused on attentional, academic, and behavioral

challenges. Social impairment and peer relationships in children and adolescents with ADHD have been recognized as a critical area of research (Bunford et al., 2018; Mikami et al., 2020). The childhood period is defined as individuals between the age of five and nine; adolescence encompasses biological, physical, and emotional development as well as major social role transitions and in this paper is defined as individuals between 10 and 24 years of age (Sawyer et al., 2018). Although social challenges are not included within the diagnostic criteria for ADHD, adolescents with ADHD frequently experience clinically significant and impairing social and friendship difficulties (Gardiner and Gerdes, 2015). Individuals with ADHD report having fewer friends or lacking friendships (McQuade, 2020), having poorer friendship quality (Hoza et al., 2005) and stability (Furman and Robbins, 1985) than same-age peers, and that their friendships are characterized by more conflict and less intimacy (Normand et al., 2011). Bagwell and Bukowski's (2018) article highlights that establishing new friends and having stable friendships is an important developmental skill within childhood and adolescence that provides stability, emotional support, higher self-esteem, and better school adjustment. It was also reported that having stable friendships serves as a protective factor against loneliness and depression across the lifespan (Bagwell and Bukowski, 2018). Moreover, prosocial interactions with peers are crucial for healthy emotional development and are a part of the identity-building process beginning in childhood and expanding into adolescence (Sibley et al., 2010).

To date, research has focused on identifying social challenges and friendship difficulties in children and adolescents with ADHD (Blachman and Hinshaw, 2002; Gardiner and Gerdes, 2015; Hoza et al., 2005; McQuade, 2020). Despite the large body of research on factors that contribute to why children and adolescents with ADHD have difficulty making and keeping friends and why friendship is especially important for youth with ADHD, it has not yet been synthesized in a way that is comprehensive to our understanding. In this narrative review, friendship, friendship formation, the benefits of friendship, and the features of friendship (i.e., friendship quality and stability) will be discussed. Second, the magnitude of friendship challenges faced by children and adolescents with ADHD, as well as the impact these peer difficulties have on friendship quality and stability, will be presented. Next, the dominant conceptualization of why children and adolescents with ADHD struggle to make and keep friends, which focuses on factors such as ADHD symptomatology, executive functioning, social cognition, and emotion regulation, is reported. This review will conclude with suggestions for future research and interventions that may be beneficial for ameliorating friendship difficulties among children and adolescents with ADHD. The primary goal of this paper is to explore the current understanding of friendship challenges in children and adolescents with ADHD by discussing factors that may contribute to challenges they experience when forming and maintaining friendships.

## Friendship

A widely accepted definition of friendship is that it “is a voluntary bond co-created by two people who expect to share intimate, safe, and mutually rewarding experiences, with

commitment, support, and validation from each other” (Schneider et al., 1994, p. 332). In childhood (5–10 years of age), expectations surrounding friendship include sharing, being sensitive toward the other person's needs and feelings, respecting activity rules, and having fun (Schneider et al., 1994). In adolescence, friendship is founded emotional support, reciprocity, loyalty, intimacy, and self-disclosure (Rose et al., 2022).

## Benefits of friendships

Friendships have long been known as important to children and adolescents' well-being (Sullivan, 1953). Friendships afford children the opportunity to learn to cooperate and share, problem solve, resolve conflict or disagreements, empathize, show compassion, find new hobbies and interests, and develop social perspective taking (Rokeach and Wiener, 2022). Bagwell and Bukowski (2018) suggest that childhood friendships substantially contribute to children's development and support positive outcomes such as higher self-esteem, better school adjustment, and less loneliness and depression. Moreover, according to Sullivan's (1953) widely accepted Interpersonal Relationship Theory, friendships in childhood may provide the foundation for relationships in adulthood as these friendships may foster the development of social skills that support attributes necessary for close relationships such as trust, loyalty, and negotiation (Rokeach and Wiener, 2022).

Having one or more friends can buffer the impact of stressful life events, improve self-esteem, and reduce symptoms of anxiety and depression (Rokeach and Wiener, 2022). A recent meta-analysis indicates that having few friendships (i.e., one to two friends), friendships low in positive quality, and friendships high in negative quality were associated with loneliness and depression (Schwartz-Mette et al., 2020). Berndt (1996) defines friendship quality in terms of positive (e.g., intimacy, caring, and support) and negative (e.g., conflict and aggression) features. Sullivan (1953) suggests that acceptance and friendship are both important to healthy social adjustment and that each has the potential to facilitate the development of unique skills. Theorists have posited that a benefit of positive peer group relationships is feelings of inclusion, and close friendships are likely to provide children with a sense of reliable alliance, affection, and intimacy (Furman and Robbins, 1985).

Rose and Asher (2000) offer six key benefits of high quality friendships: (1) companionship; (2) feelings of self-validation; (3) ego support; (4) emotional security; (5) a context for self-disclosure, help, and guidance; and (6) reliable allies. Friendship problems such as being friendless, having low quality friendships, having short-term or unstable friendships, and having antisocial friends jeopardize children's academic, behavioral, and social emotional adjustment (Rose and Asher, 2000). Children who encounter friendship difficulties are more likely to experience difficulties in school, engage in unexpected or deviant behavior, be victimized or bullied by others, and feel loneliness (Schwartz-Mette et al., 2020). Having a close friend mitigates consequences of peer rejection (Rokeach and Wiener, 2022), buffers against adjustment difficulties (Bagwell and Bukowski, 2018), and is related

to overall well-being (Normand et al., 2007). Moreover, children who report at least one reciprocal friend demonstrate better social skills, prosocial behavior, and positive self-esteem (Rokeach and Wiener, 2022). Bukowski et al. (2010) report a mutually influential relation between high quality friendships and social skills in children; they suggest that development in one area (i.e., strong social skills) impacts the other area and vice versa. As outlined above, the importance of friendships is invaluable for social development; however, it raises the question of *how does one create new friendships?*

## Friendship formation

Children form relationships with peers as early as toddlerhood (aged 1–3) and their relationships become increasingly important as they develop throughout childhood and adolescence (Rose et al., 2022). As parents initiate first interactions, it is suggested that young children form friendships with whomever is in close physical proximity, such as children of parents' friends, at school, or in their neighborhoods (Hruschka, 2010). Observational studies have shown that toddlers differentiate their peers and identify friends who provide more social effort and positive expressions (i.e., laughter, smiles) toward one or two children in a group (Rose et al., 2022). As toddlers begin playing with numerous playmates, the level of attachment varies as expectations emerge such as turn taking, sharing, mutual aid, and support (Hruschka, 2010). Paulus and Moore (2014) reported that young children (aged 4–6 years) expect sharing to occur more commonly between friends than non-friends and that children share more frequently with their friends than non-friends. As children age and language develops, they move from being playmates (a relatively temporary relationship based on mutual attraction, shared interests, and common activities) into friendships, which are founded on mutual help and support (Rose et al., 2022). In childhood, children desire companionship and view friendship based on actions, activities, or other overt characteristics (Poulin and Chan, 2010). As such, children define their friendships by shared interests or sharing/helping each other (Hruschka, 2010).

Adolescence is a major transitional period where individuals undergo significant developmental changes (i.e., neurologically, physically, and emotionally; Hall and DiPerna, 2017), and develop new social skills and friendship characteristics (e.g., reciprocity, loyalty). Adolescents become more autonomous from their parents and start to choose their own friends. Friendship in adolescence requires perspective taking, emotion regulation, empathy, negative assertion (i.e., the ability to assert displeasure or stand up for oneself), and conflict resolution (Hall and DiPerna, 2017). Therefore, adolescents characterize friendships as relationships that include intimacy, self-disclosure, and emotional support (Rose et al., 2022).

Bigelow et al. (1996) proposed a three-stage friendship development model to describe the progressive stages to develop new friendships. Initially, children (aged 5–9) focus on playing, engaging in common activities, being in close physical proximity, and the superficial rewards and costs of interaction (e.g., "He shares with me" or "I like playing with him"). At this stage, children

do not describe the interactions as part of a relationship but as independent events of something they enjoy doing. In the second stage, the focus switches to normative friendship expectations (i.e., sharing, taking turns, and helping each other); failure to meet these expectations leads to disapproval and loss of admiration of the friend, typically resulting in the dissolution of the friendship (Bigelow et al., 1996). The third stage, typically occurring in adolescence (aged 10–18), is founded on loyalty, commitment, intimacy, empathy, and unconditional positive regard. These expectations are understood and seen as crucial to establishing long-term friendships.

Individuals of all ages tend to befriend others who resemble themselves, referred to as the similarity-attraction hypothesis or the theory of homophily (Rose and Rudolph, 2006). Similarly, Bagwell and Schmidt (2011) reported that individuals seek out others like them when they meet potential friends (i.e., selection effects). The resemblance may involve personal characteristics, physical attributes, common interests, behaviors, or demographic characteristics (e.g., gender, race, or cultural backgrounds; Bagwell and Schmidt, 2011). Additionally, similar temperament brings children together, with boys more likely to select high activity (e.g., sports) friends and girls more likely to select low activity friends (e.g., chatting; Rose and Rudolph, 2006).

## Gender

Gender plays a large role in children and adolescents' friendships (Rose et al., 2022). Same-gender friendships are present throughout childhood; however, the interpersonal relationships of girls and boys are qualitatively different (Rose and Rudolph, 2006). Girls are more relationship oriented and value intimacy, emotional closeness, helping behaviors, and self-disclosure in their friendships (Rose and Asher, 2000). Girls are also more likely to work on maintaining friendships and give support to their friends in comparison to boys (Rose and Asher, 1999). In disagreements and conflicts with friends, girls provide more positive responses, compromise, and are less likely to give negative responses focused on their own wants/needs or aggression (Rose and Asher, 1999). In contrast, boys' friendships have a greater emphasis on hierarchy, competition, power dynamics, and engagement in activity-based interactions (i.e., sports/games; Rose and Rudolph, 2006). In addition, girls tend to interact in small groups (e.g., 2–4 peers) whereas boys often interact in large groups (e.g., 5+ peers; Rose and Rudolph, 2006). Based on these different characterizations of friendship, girls show more intimacy and support to their friends compared to boys (Rose and Rudolph, 2006). It should be noted that although gender-segregated friendships are common in childhood, 25% of young children's play is mixed-gender groups; roughly 15%–20% of friends are mixed-gender friends in middle childhood/adolescence (Poulin and Pedersen, 2007). Mixed-gender friendships in childhood are beneficial for children to experience activity-based, supportive, and helpful play dates (Poulin and Pedersen, 2007).

Another consideration is accounting for variation within gender. Not all children and adolescents identify with their sex; thus, recent studies have considered children's felt/chosen gender. Nielson et al. (2020) report that adolescents who feel less like

same-sex peers have fewer friendships and less stable friendships than those whose gender aligns with their biological sex. Despite this finding, individuals who are gender non-affirming could be compatible with each other and form friendships (Kornienko et al., 2016).

## Friendship features

Several dimensions of friendship have been investigated, including the presence or absence of friendships, the characteristics of friends, friendship quality, friendship stability, and friendship satisfaction (Gardiner and Gerdes, 2015; Poulin and Chan, 2010; Rokeach and Wiener, 2022). For the purpose of the current review, the focus will solely be on friendship quality and friendship stability.

### Friendship quality

As noted previously, friendship quality is defined in terms of positive (e.g., intimacy, caring, and support) and negative (e.g., conflict and aggression) characteristics (Berndt, 1996). Rokeach and Wiener (2022) characterize high quality friendships as including prosocial behavior (i.e., intimacy, support, companionship, and validation) and low levels of negative behavior (e.g., conflict, criticism, aggression, jealousy). Friendship quality is negatively related to maladaptive behaviors, internalizing problems, and school maladjustment (Mikami and Normand, 2015). In contrast, stable, high-quality friendships are associated with later social adjustment, relationship stability, improved self-esteem, greater peer acceptance, altruism, enjoying school, overall adjustment, satisfaction with the friendship, friendship continuation, and relationship satisfaction (Rokeach and Wiener, 2022). The quality of relationships is crucial as the mere presence of a friend may not lead to positive benefits of friendship (Normand et al., 2019). Friendship quality influences other friendship features such as friendship satisfaction and continuation (Rokeach and Wiener, 2022). Berndt (1989) as referenced by Poulin and Chan (2010) noted that the quality of a friendship predicts its stability.

### Friendship stability

Friendship stability, or the ability to maintain friendships, also appears to be an important feature of peer networks (Poulin and Chan, 2010). As noted, friendship provides an important role in childhood development (e.g., adjustment, social support, social skills); however, they must be lasting to attain the benefits of friendship (i.e., intimacy, companionship; Berndt, 1989). Berndt (1996) suggests that friendships are only beneficial if they are both high in quality and stable. Due to the developmental trajectory (i.e., increase in intimacy) of friendship from childhood to adolescence, friendship stability appears to increase over time (Poulin and Chan, 2010). Friendships between middle childhood into early adolescence are stable over the course of a school year (Bowker and Weingarten, 2022). Across a school year, students in first grade keep 50% of their friendships while fourth graders kept 75% of their friendships (Berndt, 1996). Despite this finding, friendship instability between childhood and adolescence can occur as this time frame coincides with the transition into high school

which could include relocation or new interests/activities and developmental changes (Laursen, 2017).

Poulin and Chan (2010) propose relational and conceptual factors that impact friendship stability. Relational factors consist of the composition of friendships (i.e., the congruence between the child and his/her friends on various attributes including gender, age, and race composition) and the quality (e.g., behavior, intimacy, support, companionship, and validation). Conceptual factors include the individual's social context or environment such as where the friendships take place, changes in the environment, and cultural factors (Bowker and Weingarten, 2022). In addition, Poulin and Chan (2010) offer individual variables related to friendship stability: (1) gender, (2) behavioral characteristics, and (3) psychosocial adjustment; these variables and their impact on friendship stability in children with ADHD is discussed below.

## Friendship challenges in ADHD

One population that often experiences significant and impairing friendship challenges are individuals with ADHD (Blachman and Hinshaw, 2002; Hoza et al., 2005; Marton et al., 2015; McQuade, 2020). Friendship challenges can be defined as having a lack of friendships, poor quality friendships, and having short or unstable friendships (i.e., friendship instability; Rose and Asher, 2000). Children with ADHD have fewer reciprocated friendships than typically developing (TD) peers (Marton et al., 2015; Mikami et al., 2020).

### Absence of friendships in children and adolescents with ADHD

Hoza et al. (2005) reported that 56% of children with ADHD had no dyadic friendships, compared to 32% of TD comparison children. Children with ADHD are often disliked within minutes of a new social interaction and are frequently rejected by their peers (Hoza, 2007). Factors that contribute to poor peer perceptions of children with ADHD include poor entry strategies (e.g., barging in), poor sportsmanship (e.g., not following game rules), complaining, insensitivity to others, and poor emotion regulation (Normand et al., 2011). These behaviors may lead to peer rejection (Mrug et al., 2007), which is more frequently experienced by children with ADHD than TD children. This rejection in turn limits their social opportunities, leading to further peer rejection (Gardiner and Gerdes, 2015) and difficulty making friends.

### Friendship quality in children and adolescents with ADHD

In addition to having fewer friendships than TD peers, the friendships of children with ADHD are poorer in quality (Blachman and Hinshaw, 2002; Normand et al., 2013, 2019). Rokeach and Wiener (2020) suggest that the friendships of adolescents with ADHD include more conflict than their TD peers and are less supportive, cooperative, close, and satisfying.

Children with ADHD mismanage their friendships in several ways. Friendship relations were rated by children and adolescents (7–13 years) with ADHD as being characterized by higher levels of overt aggression toward others and lower levels of mutual intimate exchange, validation, and caring than the friendships of children in the control group (Normand et al., 2011). Normand et al. (2021) suggest that the core symptoms of ADHD (i.e., inattention, hyperactivity/impulsivity) impact friendship quality. Specifically, the severity of inattentive and hyperactive behaviors may inhibit positive friendship features such as intimacy (e.g., bonding) and increase negative features such as conflict (Normand et al., 2021). In a community sample, Haas et al. (2018) reported that externalizing problems rated by teachers correlated with children and adolescents' self-reports of more negative friendship quality. Similarly, Ackermann et al. (2019) found associations between externalizing problems and fewer positive as well as more negative friendship qualities as reported by children and adolescents on questionnaires. An observational study found that the friendships of children and adolescents with ADHD were characterized by less positive features and more negative features (Normand et al., 2011). After observing children and adolescents with ADHD playing with their friends, Normand et al. (2011) characterized these friendships as less intimate and reciprocal, and identified that play behaviors were less associative and cooperative compared to their TD friends. Children and adolescents with ADHD were less sensitive to their friends' needs and preferences as shown by them choosing their own interests and attempting to control the play (Normand et al., 2011).

Time spent with friends impacts friendship quality (Marton et al., 2015). Masten et al. (2012) suggest that friendship quality and friendship intimacy increase as more time is spent with friends in supportive peer relationships. Compared to TD peers, longitudinal research found that the friends of children with ADHD reported deterioration in their friendship quality (i.e., less positive features, more conflict, and less friendship satisfaction) over a 6-month period (Normand et al., 2013). In comparison, TD children showed improved friendship quality and satisfaction over the same time period. Children with ADHD are reported to spend as much time with their friends as comparison peers at school, but less time with friends outside of school (Marton et al., 2015). Similarly, Heiman (2005) found that only 6% of children with ADHD have their friends over to their homes compared to 30% of comparison children. Friendship quality appears to worsen overtime in ADHD samples (Normand et al., 2013), highlighting the need to effectively understand this construct in this population.

## Friendship stability of children and adolescents with ADHD

Children and adolescents with ADHD have challenges keeping their friends over time (Blachman and Hinshaw, 2002; Marton et al., 2015; Normand et al., 2019). The first study to report the average length of corroborated friendships among children with ADHD found that the friendships of children with ADHD are 9.6–14.4 months shorter (based on self- and parent report) than comparison children (Marton et al., 2015). Within a community

sample of elementary school children, Lee et al. (2021) examined friendship patterns in children with ADHD across the school year and showed that children with greater ADHD symptoms in the fall had poorer peer relationships in spring. They also found that greater ADHD symptoms at the beginning of the school year were associated with having fewer ADHD nominated friends and more unreciprocated friendships at the end of the school year, suggesting a pattern of losing unilateral friendships over the course of the year (Lee et al., 2021). Marton et al. (2015) suggests these findings are concerning because a year of friendship can build warmth, intimacy, and support school adjustment in children with ADHD. Finally, Blachman and Hinshaw (2002) report poorer friendship stability in girls with inattentive and combined diagnoses of ADHD during a 5-week, girls-only summer camp. Understanding the factors that impact friendship stability in children with ADHD are vital as they contribute to peer rejection, less reciprocated friendships, and poor friendship quality.

## Factors associated with friendship quality and stability in children and adolescents with ADHD

Despite these friendship difficulties, many children and adolescents with ADHD have the interpersonal skills to interact with others (Mikami et al., 2010a); consequently, it is important to investigate why it is that they may have trouble making and maintaining friendships. Although numerous studies focus on the features of friendships of children and adolescents with ADHD (Normand et al., 2013, 2019), there is limited research that predicts why they struggle to make and maintain friendships (Mikami and Normand, 2020; Rokeach and Wiener, 2022). However, reviews of research on friendship suggest several factors that may be associated with friendship quality and stability in children and adolescents with ADHD, including ADHD symptomatology (Normand et al., 2021), executive functioning (Barkley, 2014; Kofler et al., 2011; Tarle et al., 2021), social cognition (Parke et al., 2021), and the friends of children and adolescents with ADHD (Marton et al., 2015).

### ADHD symptomatology

Normand et al. (2021) suggest that the severity of ADHD symptoms and externalizing problems play a significant role in the friendship quality (i.e., negative) and stability of children with ADHD; the challenges with distractibility, hyperactivity, and impulsivity in children with ADHD may affect their ability to form and maintain friendships (Lee et al., 2021). First, inattentiveness may limit one's ability to encode social cues and understand and follow the fluidity of a conversation (Sibley et al., 2010) that may in turn make it difficult to respond appropriately (Bunford et al., 2018). Kofler et al. (2011) found that adolescents with ADHD respond less frequently, are less organized in structured and unstructured conversation, are less likely to ask questions of their peers, and are more intrusive in conversation. These behaviors can elicit negative reactions from friends and may lead to difficulties in the formation and maintenance of peer

relationships (Kofler et al., 2011). Moreover, inattentiveness to the needs and feelings of a friend or a potential friend may impede the reciprocity, sensitivity, and commitment that are necessary to form and maintain friendships (Normand et al., 2007). Inattentiveness is likely linked with all peer problems in general; however, inattentiveness may be more of a pronounced challenge in friendship than peer rejection or victimization. Children with inattentiveness are more often neglected than rejected by peers, and more often ignored than victimized. It is possible they are neglected and ignored more frequently because they are not showing intrusive or disruptive behaviors that turn peers off. Despite this, for friendship, inattention may be impacting their ability to build trust and disclose sensitive information (e.g., intimacy) that friendships require. It is vital that children demonstrate sustained interest in a peer to make a friend, and then positive friend qualities such as trust and intimacy to maintain the friendship and increase friendship quality.

Second, hyperactivity and impulsivity can lead to unrestrained social behaviors (Gardiner and Gerdes, 2015). Children who are restless, talk excessively, interrupt peers, and do not wait their turn may receive negative peer responses that impact social interactions (Bunford et al., 2018). Moreover, hyperactivity and impulsivity are often associated with rule violation, teasing, controlling, hostile, emotionally elevated, and aggressive behaviors that are poorly tolerated by peers (Hoza, 2007). Lee et al. (2021) examined friendships amongst 558 children in grades K-5 and found that greater ADHD symptoms were related to not only fewer reciprocated friends, but also to fewer unchosen friends, more unreciprocated friendships, and more non-friends. The results suggest that ADHD symptoms are associated with a pattern of unilaterally claiming classmates as a close friend without classmates returning the nomination (i.e., fewer unchosen friends and more unreciprocated friends). The longitudinal findings suggested that children's ADHD symptoms at the beginning of the school year negatively predicted their peer relationships nearing the end, after adjusting for peer relationships at the beginning. Elevated initial ADHD symptoms were related to children's reports of greater relational and overt victimization experiences in the classroom, and poorer social preference when evaluated in the spring (Lee et al., 2021). These results show a pattern of losing unilateral friendships over the course of the school year and increasing isolation from peers. These results are in line with previous findings on deterioration in peer relationships of children and adolescents with ADHD, including greater peer rejection, fewer reciprocated friendships, and poorer friendship quality over time (Normand et al., 2013; Rokeach and Wiener, 2020).

Hyperactive and impulsive behaviors are likely to lead to both peer rejection and poor friendship quality/stability. Many individuals with ADHD enter a conversation using negative group entry strategies (e.g., entering a conversation abruptly, off topic, aggressively) with peers who may be potential friends and due to the behavior are not tolerated. Moreover, a child with ADHD-C/HI may respond emotionally to a peer which does not fit the context and is off putting. If children are not getting past the initial introduction than it is harder becoming friends with another child. Impulsive behaviors such as poor sportsmanship (e.g., not following game rules), complaining, insensitivity to

others, and poor emotion regulation may impact friendship quality and stability as it may be getting in the way of showing compassion, intimacy, conflict resolution necessary for friendship stability and quality.

### Internalizing and externalizing behaviors

Attention-Deficit/Hyperactivity Disorder has long been associated with increased rates of internalizing and externalizing behavior (American Psychiatric Association, 2022; Fogleman et al., 2018). The prevalence of co-occurring internalizing and/or externalizing disorders concomitant with ADHD range between 40% and 80%, with rates being higher in clinical populations (67%–87%) compared to those in the community (Reale et al., 2017). These co-occurring conditions may exacerbate social difficulties seen in children and adolescents with ADHD. Internalizing behaviors, including depression, anxiety, withdrawal, and loneliness (Fogleman et al., 2018), describe a specific pattern of externalizing disorders that are characterized by failing to manage and cope with feelings of negative emotions effectively. Children and adolescents with ADHD and internalizing behaviors likely have poorer quality and unstable friendships as they may ineffectively assert and defend themselves in social situations (Fogleman et al., 2018), struggle to manage negative emotions, and emotionally react to stressful social situations which can be off putting to friends or potential friends.

Externalizing behaviors, such as aggression, disruption, and opposition/defiance (Fogleman et al., 2018), have also been reported to interfere with friendship making and friendship quality in ADHD (Normand et al., 2021). Emotional outbursts and aggression can impact friendship quality and stability as it can disrupt intimacy and create conflict (Normand et al., 2021). In a sample of 165 children and adolescents (aged 6–11 years) with ADHD, the friendships of children with ADHD and a co-occurring diagnosis of an externalizing disorder had poorer quality than the friendships of children with ADHD and no externalizing disorder (Normand et al., 2020). Similarly, Haas et al. (2018) found that externalizing behavior rated by teachers correlated with children and adolescent's self-report of more negative friendship quality. Externalizing problems may interfere with friendship quality because friendships in childhood are built on shared activities, fairness in play, cooperation, and respect for rules of a game (Normand et al., 2020). Mrug et al. (2007) found that children with ADHD tend to violate the rules of competitive games which is an important predictor of peer rejection in children with ADHD. Children with externalizing problems may demonstrate poor sportsmanship, act self-centered, respond insensitively to friends, fail to appropriately manager peer conflict, respond to peer provocation through aggression, and fail to respect the principle of equity in friendship (Normand et al., 2011, 2016). These behaviors are in opposition of characteristics that form and maintain strong friendships; thus, it is likely that individuals who show these behaviors will have difficulty creating new friendships and maintain their current friendships. Kofler et al. (2017) suggest that behavioral symptoms associated with ADHD may be secondary to underlying neurocognitive impairments such as deficient executive functioning (EF).

## Executive functioning

A widely researched area in the ADHD literature is EF (Molitor et al., 2019). EF is a set of higher order cognitive processes required to achieve goal-oriented behavior (Baron, 2018). Despite the frequent use of the term EF in the literature, there has yet to be a widely accepted definition, theoretical model, and composite of constructs (Molitor et al., 2019). The literature includes multiple EF constructs such as inhibition, flexibility, working memory, mental switching/set shifting, initiation, reasoning, fluency, and attention capacity (Baron, 2018). EFs allow an individual to attend to a social interaction, monitor their behavior, and inhibit or modify their behavior according to contextual factors (Barkley, 2014). Theories of ADHD suggest that impairments in EF represent a prominent feature of ADHD and a meta-analysis found that EF challenges are significantly associated with ADHD (Willcutt et al., 2005). EF impairments may hinder children socially and contribute to social/emotional difficulties in children and adolescents with ADHD (Parke et al., 2021), even when accounting for the effect of core ADHD symptoms (Kofler et al., 2017).

The most prominent model of EF in children with ADHD is Barkley's (1997) Theoretical Model of EF, which will be used as the guiding EF theory for the purpose of this paper. Barkley (1997) defined EFs as the self-directed behaviors of the individual that are used to self-regulate, which are covert and happen during the delay in responding. The model proposes that behavioral inhibition is a core feature underlying ADHD and children with ADHD have differences in inhibition compared to those without ADHD (Barkley, 1997, 2012). The model states that behavioral inhibition affects four key EF processes: working memory; self-control/regulation of mood (affect); internalization of speech, and reconstitution. Given that EF is a significant area of research in ADHD, and each process could be reviewed in isolation, the next section will provide a brief description of the processes and their impact on friendship challenges in children with ADHD.

## Inhibition

Barkley (2014; p.128) defined behavioral inhibition as "(1) inhibiting the initial response to an event, (2) stopping an ongoing response by delaying the choice to respond, and (3) protecting this delay and responses from competing events and potential responses (interference control)." Barkley (2012) suggests that the primary impairment in ADHD is response inhibition, which delays the internalization of behavior that supports EFs; this delay then impedes self-regulation within the individual. Difficulties with inhibition may impact social interactions as children with ADHD may respond before a question is completed, respond without considering all response options, fail to withhold an inappropriate/irrelevant behavioral or cognitive response, act before considering the consequences of a socially offensive or aggressive behavior, or become easily excited, overly aroused, impatient, or frustrated (Barkley, 2014). If a child or adolescent with ADHD is unable to inhibit an inappropriate joke/comment/aggressive response toward a peer, the behavior may be unexpected, embarrassing, or off-putting to the peer, and may subsequently impact their friendship.

## Working memory

As described above, Barkley (1997) hypothesized that inhibition in individuals with ADHD leads to secondary impairments in four EFs. The first EF whose function is linked to inhibition is working memory. Working memory refers to the active, top-down manipulation and processing of information temporarily stored in short-term memory either verbally or non-verbally (Kofler et al., 2020). Kofler et al. (2018) report that working memory is impaired in individuals with ADHD and is linked functionally to both inattentive and hyperactive behavior. Recent research found that up to 85% of children with ADHD have working memory impairments (Kofler et al., 2019). Phillips et al. (2007) propose that working memory is involved in social interactions as individuals must simultaneously process complex stimuli and attend to competing interpretations of social cues. Working memory may impact friendship making and keeping through conversation where individuals are expected to use their (1) phonological short-term memory (i.e., temporary storage of verbal/auditory information), (2) visuospatial short-term memory (i.e., temporary storage/rehearsal of visual and spatial information), and (3) "central" working memory to recall information stored in short term memory (Kofler et al., 2020). These concurrent working memory processes may impact an individual's ability to store, recall, and decode non-verbal social and emotional cues accurately (Phillips et al., 2007). Moreover, working memory deficits may impact social challenges indirectly through ADHD symptoms (i.e., inattention, hyperactivity/impulsivity) due to interruptions (i.e., distractibility, inattentiveness) while attempting to store information in working memory. This finding reflects what is often seen in conversations of children and adolescents with ADHD where they speak and act before an intended verbalization or action fades from memory, rather than listening to and observing what others are saying and doing. If a child or adolescent is unable to recall what others are saying in a conversation, they are likely to be off topic and redirection from peers may be irritating, impacting their relationship and ongoing friendship.

## Self-control/regulation of affect

Barkley (1997, 2012) hypothesized that impairment in inhibition also negatively contributes to an individual's ability to self-regulate affect (i.e., emotions) and arousal in goal-directed action. Due to difficulties with inhibition, Barkley (2012) suggests that individuals with ADHD have impairment in the self-regulation of affect otherwise known as emotion dysregulation (ED). ED is difficulty inhibiting and self-regulating emotions to accomplish goals when faced with strong emotions (McQuade et al., 2021), and is a significant contributor to the social impairment experienced by children and adolescents with ADHD (Bunford et al., 2018).

Emotion regulation requires an individual to identify how others are feeling, read social cues for context, and modulate one's emotional response (Tarle et al., 2021). ED may manifest in the lack of awareness, understanding, or acceptance of emotions and in difficulties controlling impulsive behavior, reaching goals, and utilizing emotion regulation strategies when emotional (McQuade et al., 2021). Children and adolescents with EF impairments may have trouble with emotional lability (regulating their emotions),

resulting in increased emotional reactivity to immediate events (e.g., emotional outbursts, low frustration tolerance, or becoming disproportionately excited when something pleasant occurs), less anticipatory emotional reactions to future emotionally charged events, and negative emotional responses (Barkley, 2014; Tarle et al., 2021). High levels of negative affect (e.g., frustration, nervousness, sadness, anger, aggression) in their interactions with peers (Normand et al., 2016) are troublesome as friendships require cooperation to ensure that the needs of each party are satisfied when faced with potential friendship dissolution. As such, these two factors (i.e., being uncooperative and demonstrating negative affect) may help explain why children and adolescents with ADHD have trouble maintaining their friendships (Marton et al., 2015; Normand et al., 2013). The less sensitive approach of individuals with ADHD is concerning as sensitivity between friends predicts friendship quality and stability (Normand et al., 2019). Further, children and adolescents prefer friends who express fewer negative emotions, and those who regulate their emotions are seen as more socially competent than those who do not (Hubbard and Coie, 1994). ED has been found to mediate the association between child ADHD symptoms and poorer social skills (Bunford et al., 2015), lower peer acceptance (Gardiner and Gerdes, 2015), and greater peer victimization (Bunford et al., 2018).

### Internalization of speech

The third EF process in Barkley's (1997) model refers to an individual's internal dialogue that has an important role in self-regulation of cognition and behavior. Inner speech or verbal thinking is believed to allow for reflection, description, understanding of norms, and self-questioning through language, all of which support the process of problem solving (Barkley, 1997). Internal speech is said to work alongside complex EF such as working memory (e.g., recall, forethought), cognitive flexibility, and planning to contribute to the internalization of rules, social norms, and morals (Alderson-Day and Fernyhough, 2015). Alderson-Day and Fernyhough (2015) suggest that internal speech has a role in numerous domains specifically emotional expression and regulation, planning for social interaction, theory of mind, self-discrimination, fantasy, and creativity. Children and adolescents with ADHD often act without use of previous information to prepare for an upcoming response (e.g., forethought) and lack consideration of the rules and norms within settings (Poissant et al., 2016). In social situations, this can manifest in reacting before thinking without first considering one's behavior (i.e., inappropriate behavior for setting) and others' feelings. These situations may be embarrassing, hurtful, and frustrating to friends of children and adolescents with ADHD.

### Reconstitution

The last process in Barkley's (1997) model is reconstitution, which refers to one's ability to analyze and synthesize information and behavior productively. Reconstitution is Barkley's alternative to the planning, problem-solving, and fluency components mentioned in other theories of EF (Barkley, 2012). Impairment in reconstitution may manifest in poor behavioral or verbal fluency, poor rule creativity, or less goal-directed behavioral (Barkley, 1997). In social situations, children and adolescents with ADHD may struggle to respond accurately and efficiently in conversation (e.g.,

verbally or through physical gestures) and shift to alternative rules to adapt to new situations quickly and constructively. Children with ADHD produce less speech in response to confrontational questions or in solving disagreements, are less organized in story narratives and in describing their own strategies, and are less able to communicate task-essential information to peers in cooperative tasks (Barkley, 1997, 2012). Ongoing and stable friendships require perspective taking, compromise, adaptation/flexibility to new situations, negotiating challenging and conflicting goals between peers, negative assertion (i.e., the ability to assert displeasure or stand up for oneself), and conflict resolution (i.e., the ability to work out disagreements and problem solve; Allen et al., 2014). Each of these skills rely on reconstitution, which may be impaired in children and adolescents with ADHD resulting in challenges in situations with peers that require adaptation and problem solving. If children and adolescents with ADHD are unable to communicate effectively to resolve problems with their peers, the problems may be ongoing and result in friendship dissolution.

### Social cognition

Social impairments are frequently reported in children and adolescents with ADHD (Parke et al., 2021). Given the EF challenges in those with ADHD, social impairments can be seen in ineffective social cognition and socio-emotional processes (i.e., perception of emotion from facial recognition; Bora and Pantelis, 2016). Parke et al. (2021) define social cognition as a broad domain including distinct but integrated cognitive abilities required for processing social information and successfully navigating social situations. These include affect recognition, pragmatic language, and theory of mind (ToM), which is the ability to infer and understand another's mental state (Uekermann et al., 2010). A dominant theory that describes social cognitive processes in relation to peer interactions and dyadic friendships is the Social Information Processing (SIP) model developed by Crick and Dodge (1994) that includes six steps: (1) encode social cues, (2) interpret cues, (3) clarify goals, (4) generate possible responses, (5) response decision, and (6) enacting the behavior. The model is cyclical in that there are thought to be feedback loops through which positive (or negative) social outcomes impact children's cognitive/emotional processes and social behavior.

To engage in a social interaction appropriately, an individual must encode social cues, which involves attention, perception of cues, peers' motivation, and emotional competence (i.e., accurate understanding of the emotional state using non-verbal cues including facial expressions, prosody, and gestures; Rose-Krasnor, 1997). These social cues are then interpreted in an accurate and meaningful way. Dodge et al. (1986) suggests that understanding the context (i.e., correctly reading the cues) is vital for social competence, as the individual's response can only be deemed effective or ineffective and competent vs. incompetent based on their knowledge of the situation. Once the situation is interpreted, the person generates possible behavioral responses and evaluates the perceived efficacy and consequences of those responses. The individual then responds with the optimal choice, requiring verbal and motor skills. It is assumed that this model of SIP occurs rapidly, on an unconscious level, and repeats itself.



The SIP model suggests that children and adolescents' comprehension and interpretation of a social interaction influences how they will behave and respond (Crick and Dodge, 1994). Inefficient encoding and comprehension of a social interaction can lead to disruption of social cognition. The speed at which an individual encodes and interprets a social interaction has been associated with social outcomes (Uekermann et al., 2010). Children and adolescents with ADHD demonstrate slower cognitive processing that may hinder their ability to follow a changing conversation, keep up with the demands of the social interaction, and respond appropriately (Bora and Pantelis, 2016). Based on the SIP model (Crick and Dodge, 1994), children and adolescents with ADHD show impairments in social cognition, specifically with encoding a social interaction and choosing appropriate responses (Uekermann et al., 2010).

Impairments in social cognitive abilities such as affect recognition and pragmatic language may also contribute to challenges in social interactions and friendship making (Parke et al., 2021). Affect recognition includes understanding emotions through facial expressions and non-verbal communication cues (i.e., prosody). Many children and adolescents with ADHD have difficulty with pragmatic language (i.e., the social use of language) and are unable to detect the underlying meaning in a conversation (e.g., irony, sarcasm) resulting in an inappropriate response or a breach of social rules. These responses often lead to poor social performance and negative peer reactions. Moreover, children with ADHD have difficulty decoding subtle differences in prosody (e.g., pitch, loudness, intensity, intonation), which puts them at a disadvantage given its importance for communicating emotion, emphasis, clarification, and contradiction of word meaning (Rapport et al., 2002).

A successful social interaction requires a child's recognition of emotional expressions and ToM to understand the meaning and intentions of others (Bora and Pantelis, 2016; Uekermann et al., 2010). Children with ADHD may struggle to recognize peers' affect (e.g., emotions or mental states) and have poor facial recognition (Bora and Pantelis, 2016). Evidence suggests that the underlying neurology seen in adolescents with ADHD affects learning of non-social information and can interfere with social emotional information processing (Parke et al., 2021). Parents of children with ADHD indicated that their child demonstrated lack of knowledge of the emotions of their peers (Mikami et al., 2010a). Marton et al. (2009) examined social cognitive characteristics such as social perspective taking (SPT) in children and adolescents aged 8–12 years and found that those with ADHD have poorer SPT skills than children without ADHD, meaning that those with ADHD are less able to see multiple perspectives and are less aware of the impact of their emotions on others compared to TD children. Being able to see multiple perspectives supports friendship characteristics such as understanding, compassion, providing help, and sharing, which all foster intimacy and support required for good friendship quality. If children and adolescents with ADHD are unable to read their friends' affect and are unaware of another's thoughts and feelings, they can't respond in an empathetic and supportive manner necessary for the maintenance of a relationship. It may become frustrating to peers if they must continually explain what they mean, how they feel, or redirect the conversation

back to a topic if an inappropriate or off topic response was given.

## Friends of children and adolescents with ADHD

Children and adolescents with ADHD do have friends. However, it is crucial to understand who these friends are and how that may affect the friendship quality and stability. Normand et al. (2007) suggests the criteria children typically use in the selection of friends represent challenges for children with ADHD. Research suggests that the friends of children with ADHD have higher levels of ADHD symptoms and oppositional behavior than comparison participants (Normand et al., 2011). These findings mirror those by Marton et al. (2015) who found that children with ADHD had a much higher proportion of friends with either learning or behavioral problems compared to TD peers. Based on the similarity-attraction hypothesis that individuals become friends with those like themselves (Rose and Rudolph, 2006), it is possible that children with ADHD are attracted to and spend more time with other children who exhibit learning, attention, and/or activity levels comparable to them. Marton et al. (2015) suggests that the benefit of friendships is not uniformly positive and that the disruptive and/or deviant behavior of a friend may be detrimental to friendship quality. The friends' behaviors could play a role in explaining the displayed problems in friendship quality that are documented in ADHD populations (Normand et al., 2021). As children and adolescents with ADHD may not have experience with multiple friendships, they may have difficulties realizing their peer's behavior is inappropriate or hurtful. Schneider (2016) explains when a friend shows problem behaviors, it may directly result in poorer friendship quality (e.g., a friend is aggressive and the child with ADHD cannot diffuse the situation). Moreover, friends exert bidirectional influences on each other, resulting in greater similarity over time (Rose and Rudolph, 2006). The bidirectional influence has the potential to be detrimental to positive friendship building as children with ADHD may respond more similarly (e.g., aggressively) to their friends over time and not have access to potential friends who show more prosocial behavior. The friends that children with ADHD choose or have impacts friendship quality and stability (Mikami and Normand, 2020); however, having friends with challenging or deviant behaviors may be better than having no friendships at all.

## Future directions

The primary goal of this narrative review was to explore current understanding of friendship challenges in children and adolescents with ADHD by discussing factors that may contribute to difficulties such individuals experience when forming and maintaining friendships. Factors that may be associated with friendship quality and stability in children and adolescents with ADHD were considered; specifically, ADHD symptomatology (Normand et al., 2021), EF (Barkley, 1997, 2012; Kofler et al., 2011; Tarle et al., 2021), social cognition (Parke et al., 2021), and selection of friends by children and adolescents with ADHD (Marton et al., 2015). There are several other questions about the

factors that contribute to children and adolescents with ADHD's friendship quality and stability that remain unanswered and warrant further investigation. Most studies regarding friendships of children and adolescents with ADHD has been conducted with small samples of predominantly Caucasian school-aged boys. Future research with larger and more diverse samples is needed to draw reliable conclusions about the possible role of gender, ADHD symptomatology, EF, social cognition, and co-occurring disorders on the friendship quality and stability in children and adolescents with ADHD.

## Implications for practice

This scoping review synthesized the current research evidence of factors that contribute to friendship quality and stability in children and adolescents with ADHD. Acknowledging the impact of these factors may inform assessments, counseling, and school-based interventions designed to improve social functioning in children and adolescents with ADHD. Typically, clinicians providing assessments and intervention do not attend to these factors regarding their impact on stable, supportive, and high-quality friendships. As such, clinicians should consider asking about friendships including the number, characteristics, and stability as high-quality friendships impact positive life adjustment and overall well-being. If clinicians are aware of the factors that contribute to friendship quality and stability in children with ADHD, they can provide strategies and recommendations on how to choose appropriate friends and manage these challenges when with friends. Moreover, clinicians could teach parents these strategies and encourage parents to model prosocial behavior to their child or adolescent with ADHD.

As children and adolescents with ADHD are likely to befriend other peers similar to them, teachers and parents are encouraged to provide opportunities to interact with potential friends who are compatible based on personality and common interests. Moreover, children and adolescents with ADHD may demonstrate anxiety, aggression, deviant behavior, and conflict in their peer interactions. Teachers and parents of children and adolescents with ADHD should monitor the interactions and help regulate or problem solve when issues arise. Finally, parents of children and adolescents with ADHD could support the selection and engagement of friends with prosocial characteristics.

Last, there are a myriad of social intervention programs that target the social functioning of children and adolescents with ADHD and to improve peer relationships (Cordier et al., 2023; Normand et al., 2020). Considering the known challenges of social skills training programs (i.e., generalizability; Mikami et al., 2010a), knowledge of the factors that impact friendship quality and stability in children and adolescents with ADHD may support the development or modification to interventions for a targeted approach. Cordier et al. (2023) conducted a systematic review and meta-analysis of social interventions for children with neurodevelopmental disorders. Findings showed that between-group comparisons had large positive effects on friendships in some individual studies; however, overall, the meta-analysis found no significant effect on the friendships of children with

a neurodevelopmental disorder (i.e., ADHD) relative to control comparisons. Despite this, there are promising social interventions with specific factors that have shown improvements in addressing friendship formation, quality, and stability (Cordier et al., 2023). Programs that have found success in improving social skills and friendship making, quality, and stability include components such as a didactic lesson, coach modeling, behavioral rehearsal, coaching children through challenging social vignettes, and weekly homework for practice (Mikami et al., 2020) as seen in Children's Friendship Training (CFT) and Making Socially Accepting Inclusive Classrooms (Soucisse et al., 2015) and the Program for Evaluation and Enrichment of Relational Skills (PEERS, Laugeson and Frankel, 2010). To address some of the friendship and social skills challenges due to ADHD symptomatology, interventions such as Making of Socially Accepting Inclusive Classrooms (MOSAIC; Mikami et al., 2013) and Contingency Management Training (COMET; Mikami et al., 2013) have used contingency behavior management strategies to reward children with ADHD for meeting specific social behavior expectations that may lead to positive peer interactions. Moreover, MOSAIC and COMET include intervention components that focus on child characteristics that may impact social functioning (i.e., social skills and cognition). Moreover, to support children with ADHD choosing friends with positive friendship characteristics, findings support addressing stigma and peers' perceptions as seen in MOSAIC (Mikami et al., 2013). Lastly, in addition to friendship, programs like MOSAIC and COMET may be helpful for supporting challenges with peer rejection. Additionally, peer inclusion within the intervention (e.g., involving the child or adolescents established social environment from school or the community) shows improvements in social skills development and friendship as peer perceptions can be addressed (Mikami and Normand, 2015). A major difference between traditional social interventions and these programs is that they attend to performance barriers that prevent children and adolescents with ADHD from enacting the knowledge in a social situation rather than attending solely to teaching social skill knowledge that supports friendship quality and stability (Mikami et al., 2010b).

Lastly, a component that may be key to friendship making and friendship quality in friendship interventions is hosting get togethers. Get togethers are unique to friendship interventions and are vital as friendship is a dyadic, close relationship between two individuals. Friendships are developed and deepened over time through playdates in school-age children and then further built overtime with increased time spent doing similar interests in adolescence. Thus, get togethers are an appropriate method for interventions to support friendship characteristics such as trust and intimacy, as opposed to other types of peer problems such as rejection or victimization. Adolescents with ADHD are less likely to have get togethers relative to typically developing peers (Heiman, 2005), meaning there are fewer opportunities to use the skills with their peers in a variety of settings. Prosocial behaviors develop as teens have more social opportunities to practice in different contexts. Companionship, support, and intimacy contribute to high quality friendships and are built over time as teens spend more time with their peers. In friendship making programs like CFT and PEERS, the children and adolescents are required to

host get together with their friends or potential friends to gain opportunities to practice their skills. To the authors knowledge, these programs are the first to include a homework component that requires children and teens to demonstrate good host behaviors and increase the time spent with friends. PEERS has been studied for the last 15 years and across studies participants (e.g., ASD and ADHD adolescents) demonstrated increased frequency of peer interactions through get together with friends at post intervention and long-term follow-up (Laugeson et al., 2012). Many of these get together were initiated by friends (not participants) implying greater peer acceptance and friendship reciprocity. It is likely spending more time with friends or potential friends increases prosocial behaviors which leads to higher friendship quality including intimacy, trust, and support.

As parents are acutely aware of their children and adolescent's social and friendship challenges, it has been suggested that parents participate in friendship-focused interventions to better support their child or adolescent with ADHD. Recent work has found that structured and intensive parent training programs (e.g., Incredible Years Parents, Teachers, and Children training series; Parent-Child Interaction Therapy; Parental Friendship Coaching; Soucisse et al., 2015) may be an effective way for children and adolescents with ADHD to work on behaviors that contribute to poor friendship quality and stability. These interventions promote active parent coaching where parents are taught to provide *in vivo* prompts/suggestions to their children (Mikami et al., 2020). Findings from parent intervention programs have suggested improvement in children and adolescent's social skills and friendship making (Mikami et al., 2010a). Continued friendship intervention research should evaluate whether the current interventions are beneficial at targeting friendship quality and stability in children and adolescents with ADHD.

In conclusion, as research shows that even one reciprocal friend buffers against loneliness, poor adjustment, and the development of psychopathology, interventions should focus on helping children

and adolescents with ADHD build dyadic friendships with peers. It is hoped that the current review contributes to the further research and development of evidence-based friendship interventions for children and adolescents with ADHD.

## Author contributions

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