

Regular Paper

Happy Campers: Enhancing Social Competence in Adolescents with Attention-Deficit/ Hyperactivity Disorder at Summer Camp

Kirsten Neprily
University of Calgary

Emma Climie
University of Calgary

Abstract

Many adolescents with attention-deficit/hyperactivity disorder (ADHD) experience challenges in social competence. Evidence suggests that specialized summer camps with social skills training may have positive outcomes on social competence development in adolescents with ADHD. This article reports on a pilot study of a therapeutic summer camp program for children and adolescents with ADHD. The study examines the degree to which program objectives were achieved through a pre-camp, post-camp design using a series of standardized instruments, camp evaluations, and surveys with parents. The results indicated that the campers initially reported significantly lower social competence when compared to a normative sample of adolescents before the camp but improved their social competence by the end of camp. This research has implications for researchers, caregivers, and outdoor education advocates to take an assertive lead in promoting evidence-based psychosocial programs for youth with and without ADHD into more generalizable community settings.

KEYWORDS: *ADHD, adolescents, social competence, summer camp, social skills*

Introduction

Adolescence, beginning at the onset of puberty and lasting through the mid-20s (National Academies of Sciences, Engineering, and Medicine [NASEM, 2019]), is a crucial transitional period for developing and maintaining social and emotional habits (Hall & DiPerna, 2017). In addition to physical development, adolescents begin building their social identities and understanding of themselves in relation to their social world. Adolescents become more autonomous from their parents, spend more time with peers, and begin to have control over their decisions, actions, and emotions (Brown & Larson, 2009). Adolescence involves increasingly complex social interactions, as individuals navigate new social hierarchies and learn to negotiate, compromise, and resolve conflict with peers (Brown & Larson, 2009).

While most adolescents can adapt well to the changing social climate, some adolescents struggle with social competence. Social competence is the ability to understand another in a social interaction and to apply knowledge learned from previous experience to the changing social landscape (Semrud-Clikeman, 2007). Impairments in social competence persist across the lifespan and exacerbate the risk for negative long-term outcomes such as lower educational attainment, employment status, delinquency, and development of psychopathology (e.g., substance abuse, depression, anxiety; Mikami et al., 2017).

One population specifically at risk for social challenges are those with attention-deficit/hyperactivity disorder (ADHD). ADHD is a neurobiological disorder that is marked by developmental challenges with inattention, hyperactivity, and impulsivity that may cause significant impairment or interfere with daily functioning and development (American Psychiatric Association [APA], 2013). Individuals with ADHD often have difficulties with executive, academic, and social functioning as well as emotion regulation (Monopoli et al., 2020). More specifically, social skills impairments and poor interpersonal relationships are common in adolescents with ADHD (Gardiner & Gerdes, 2015). For these adolescents, difficulties with inattention can limit opportunities to acquire social skills through observational learning and to attend to social cues necessary for effective social interaction (Hoza, 2007). Many adolescents with ADHD are disliked within minutes of an initial social interaction and then denied further opportunities to practice social skills, which, in part, leads to rejection and difficulty forming relationships (Hoza et al., 2005). These findings stress the significant role that social competence plays in adolescents with ADHDs functioning and long-term adjustment; thus, the identification of effective interventions to address the social challenges experienced by adolescents with ADHD is crucial.

There have been numerous evidence-based treatments to support social competence development in adolescents with ADHD. Recent reviews suggest that social skills training (SST) may be the best intervention to target social deficits in adolescents with ADHD as it teaches and reinforces prosocial skills (Mikami et al., 2017). However, to date, SST has shown limited success in improving the social functioning of adolescents with ADHD (Morris et al., 2020). Research has suggested this is likely due to the gap between instruction and real-world experiences (Mikami et al., 2017). The present study aimed to examine social competence development in adolescents with ADHD within the context of a specialized summer camp.

Social Challenges Among Children and Adolescents with ADHD

Despite the majority of ADHD literature focusing on attentional, academic, and behavioral challenges, social impairment in adolescents with ADHD has been recognized as a critical area of research (Bunford et al., 2018). Social problems have been reported in 52%–82% of children with ADHD by their parents and teachers (Staikova et al., 2013). Social impairment may be a consequence of the defining symptoms of ADHD, namely difficulty sustaining attention, excessive talking, and or/interrupting others. Difficulty sustaining attention may limit the encoding of a continuous conversation and make it challenging to respond appropriately (Bunford et al., 2018). Children and adolescents with ADHD may respond inappropriately and have a limited capacity to adjust their behavior to the changing social contexts (Kofler et al., 2011). Adolescents with ADHD respond less frequently to others, are less organized in structured and unstructured conversation, are less likely to ask questions of their peers, are more intrusive in conversation, and make more demands of their conversation partners (Kofler et al., 2011). Consequently, these behaviors receive negative reactions from peers and may lead to impairments in the formation and maintenance of peer relationships (Kofler et al., 2011).

Additionally, restlessness, talking excessively, or interrupting others can be irritating and reduce reciprocal conversation (Bunford et al., 2018). Adolescents with ADHD may exhibit high rates of aggressive and impulsive behaviors relative to typically developing peers (Bunford et al., 2018). McQuade and Hoza (2015) note that manifestations of ADHD, such as poor emo-

tion regulation and impulsivity, may contribute to poor peer perceptions of adolescents with ADHD. In turn, these behaviors can contribute to peer rejection, isolation, and peer victimization (McQuade & Hoza, 2015). Childhood peer rejection predicted greater cigarette smoking, delinquency, and anxiety in early adolescence and more global impairment in early and later adolescence (Mrug et al., 2012). These findings stress the significant role that social competence plays for the long-term functioning and adjustment of adolescents with ADHD.

Social Competence

Multiple definitions of social competence exist (e.g., Dodge et al., 1986; Rose Krasnor, 1997); however, in its simplest form social competence is defined as “effectiveness in interaction” (Rose Krasnor, 1997, p. 119). It is through interacting with others that children and adolescents understand social contexts and develop skills that help them interact effectively within their environments (Dodge et al., 1986). Housed within social competence are multiple constructs, including social cognition, social skills, emotional competence, social validation, and friendship quality (Beauchamp & Anderson, 2010). Social competence impacts multiple areas of development and poor social competence is associated with academic, behavioral, and psychological problems across the lifespan (Semrud-Clikeman, 2007). High social competence can help build the skills to effectively communicate, initiate, and maintain relationships.

Theoretical Frameworks of Social Competence

Multiple theoretical models for social competence exist; however, Dodge and colleagues’ (1986) social information-processing (SIP) model has been solidified as a leading theory in understanding the development of social competence within children and adolescents (Beauchamp & Anderson, 2010). The SIP model proposes that children’s comprehension and interpretation of a social interaction influences how they will behave and respond. Crick and Dodge (1994) suggest that children rely on past experiences and biologically determined capabilities that they can access and use during an interaction. The model represents the cognitive bases of social skills and it conceptualizes the function of social information in the brain in the context of an individual’s response to social demands (i.e., social interactions; Dodge et al., 1986). According to the SIP model, the child’s behavior in a particular social situation is hypothesized to occur as a function of the way the child understands the social cues within an interaction (Crick & Dodge, 1994). To engage in a social interaction appropriately, the child must encode the social cues, interpret the cues accurately, generate possible responses, choose the optimal response, and then evaluate the response (Dodge et al., 1986).

In addition to SIP, it is suggested that social competence is tied to emotional competence (Telzer et al., 2014). Emotional competence can be described as the ability to recognize, identify, and describe one’s own and others’ emotions (Telzer et al., 2014). Emotional competence requires understanding a person’s internal emotional state as well as the emotional state of another person (Rose Krasnor, 1997). Reading and comprehending the emotional state of another requires accurate encoding of nonverbal cues including facial expressions, prosody, and gestures (Beauchamp & Anderson, 2010). When social and emotional competence do not develop in unison, a child can have difficulty with many aspects of the environment (Rose Krasnor, 1997), including weak academic adjustment and poor maintenance of friendships (Telzer et al., 2014).

Development of Social Competence

Social competence develops over time and plays a crucial role in a child’s development (Beauchamp & Anderson, 2010). In preschool, children start to understand that emotions are internal, can be affected by others and communicated through language (Beauchamp & Anderson, 2010). They begin to manage their emotions and adapt to environmental expectations which requires skills in sharing, emotion regulation, and managing conflict (Bierman et al., 2008). Once

a child can manage their emotional response, they can understand the emotion being experienced, analyze alternative behaviors, and recognize how others may respond (Bierman et al., 2008). The ability to regulate one's behaviors, feelings, and perceptions becomes foundational for friendships and peer acceptance (Rubin et al., 2011).

Social interactions continue to improve with age allowing for growth in shared meaning, achievement of social goals, and conflict resolution (Rubin et al., 2011). An important developmental ability learned in middle childhood is being able to solve conflict, negotiate solutions, compromise, or disengage (Joshi, 2008). Children who are unable to negotiate or disengage are generally less accepted by peers and show poorer social competence (Joshi, 2008). It is apparent that developing and practicing social competence in childhood is typically a precondition for positive socialization and friendships in adolescence (Hall & DiPerna, 2017).

Adolescence is a transitional period where individuals undergo major developmental changes neurologically, physically, and cognitively (NASEM, 2019). During adolescence, peer relationships become more salient. As the social context changes, new types of relationships begin to emerge (i.e., romantic relationships) and a social hierarchy, based on reputation and popularity, becomes apparent (Brown & Larson, 2009). Adolescents must navigate this hierarchy, often aware of their status within this peer system and select friends, romantic partners, or friend groups based on their placement. Moreover, individuals identify and form appropriate friends and peer groups based on similarities and interests they have in common (Brown & Larson, 2009). Adolescents with good social skills are often better adjusted than those with poor social skills (Hall & DiPerna, 2017); indeed, social skill deficits may place adolescents at risk for poor academic, social, and emotional outcomes in adulthood (Monopoli et al., 2020). On the other hand, social skills such as assertiveness, negotiating challenging and conflicting goals between peers, and demonstrating the capacity to think autonomously are vital and reduce the impact of negative peer influences (e.g., alcohol and drugs; Allen et al., 2014). In sum, these findings underscore the importance of social development in adolescence to promote positive short- and long-term outcomes.

Social Competence in Adolescents with ADHD

Poor social understanding in children with ADHD impacts the development of social competence in adolescents with ADHD (Gardiner & Gerdes, 2015). Although there is more focus on social competence in children with ADHD, there is limited literature regarding adolescents with ADHD (Parke et al., 2018). Nevertheless, the available evidence supports the contention that poor social competence remains prevalent in this population. Adolescents with ADHD are rated less socially competent than adolescents without ADHD (Sibley et al., 2012). Gardiner and Gerdes (2015) suggest social cognition and emotion regulation deficits contribute to poor social competence in adolescence with ADHD. Sibley et al. (2010) found that poor attention in social interactions lead to poor encoding and interpretation of the interaction and results in misattributions about the behavior and intentions of peers. Moreover, due to inadequate social problem solving and perspective taking skills, adolescents with ADHD had difficulty generating appropriate and effective responses to peer interactions and performed poorly on tasks that assessed understanding of cause and effect in social situations.

Adolescents with ADHD demonstrate impairments in emotion recognition (Parke et al., 2018) including facial recognition, prosody, and pragmatic language compared to typically developing peers (Staikova et al., 2013). As well, they are less accurate at using contextual evidence to understand the emotions of others (Da Fonseca et al., 2009). It is suggested that heightened personal emotion (e.g., emotional lability) as seen in adolescents with ADHD may interfere with the ability to recognize the emotions of others (Da Fonseca et al., 2009). These findings support the notion that adolescents with ADHD exhibit deficits in emotional recognition and processing that may influence social relationships (Staikova et al., 2013).

Peer relationship difficulties, negative peer perceptions, and peer rejection often continue into adolescence and remain a significant source of impairment identified by parents and teachers (Mrug et al., 2012). The core symptoms of ADHD make it more challenging for adolescents with ADHD to process accurate social cues to respond appropriately in peer interaction (Sibley et al., 2010). Moreover, attentional challenges seen in adolescents with ADHD can make it difficult to develop social skills through observational learning and meet the social-emotional demands of their friends (Hoza, 2007). As a result, adolescents with ADHD are more likely to have friendships of lower quality, experience peer rejection, and peer victimization than typically developing adolescents (Monopoli et al., 2020). Peer rejection and victimization in adolescence may contribute to further negative outcomes, such as increased internalizing symptoms, which may impact future peer interactions (Mrug et al., 2012).

In summary, adolescents with ADHD experience intrusive social behaviors, socio-cognitive deficits, and emotion regulation difficulties. These challenges have the potential to impact both short- and long-term consequences, such as peer rejection, internalizing problems, school dropout, and substance abuse. Given the multiple social deficits experienced by adolescents with ADHD and the severity and pervasiveness of the outcomes associated with social impairment, there is a crucial need for effective evidence-based treatments to improve social functioning in this population (Gardiner & Gerdes, 2015).

Social Interventions for Adolescents with ADHD

There has been limited research investigating how to best support social competence in adolescents with ADHD. Empirically supported treatments for adolescents with ADHD typically include behavior management, medication, and/or social skills training (Pelham et al., 1998). Despite evidence of behavioral modification, medication, or a combination of the two in reducing ADHD symptomatology, these supports fail to enhance prosocial behavior (Hoza, 2005). SST programs have been designed to support the social functioning of children who have difficulty in this domain, including those with ADHD. SST is a well-established psychological intervention that is “focused upon the development or improvement of social interaction, social performance, or interpersonal skills” (Turner et al., 2017, p. 475). Storebø (2019) notes that the training generally incorporates problem solving, emotion regulation (i.e., coping skills), and verbal and nonverbal communication.

Research on SST programs has been inconclusive (Evans et al., 2014). SST, when delivered in traditional clinical settings, has been found to have limited effectiveness for adolescents with ADHD, with meta-analyses reporting no overall effect of SST compared to a no-SST intervention group (Evans et al., 2014). Mikami et al. (2017) suggest that the effectiveness of these programs have been mixed due to the lack of standardized administration and lack of generalization outside of the clinical setting. Nonetheless, evidence from systematic reviews have concluded that SST programs can be an efficacious treatment for social impairment in children and adolescents with ADHD when the intervention delivery is standardized, uses nonaversive methods, incorporates peers as coaches, provides feedback in vivo, and is generalizable to naturalistic settings (Mikami et al., 2017).

Summer Camp

Summer camp is a naturalistic setting that follows standardized procedures, uses young people as “coaches,” and facilitates skill-building (Wilson et al., 2019). For over 150 years, summer camp has been an influential place for learning and outdoor education in the lives of children and adolescents (Thurber et al., 2007). For the purpose of this study, camp is defined as a structured, outdoor group living experience, where trained staff guide children to accomplish intentional goals (Henderson et al., 2007). Camp programming involves activities planned by

staff to optimally challenge participants with the aim of promoting emotional, social, and physical growth in campers (Thurber et al., 2007; Wilson et al., 2019). Researchers have examined the benefits of camp and uncovered positive outcomes on a variety of developmental dimensions (Henderson et al., 2007; Wilson et al., 2019).

The first large-scale national research project by the American Camp Association (ACA, 2005a), *Youth Development Outcomes of the Camp Experience*, explored positive outcomes of youth (8-14 years old) attending camp. Ten key outcomes were identified across four domains: (1) positive identity: self-esteem, independence; (2) social skills: leadership, friendship skills, social comfort, and peer relationships; (3) physical and thinking skills: adventure/exploration; and (4) environmental awareness: positive values (ACA, 2005a). Within the social skills domain, campers and parents, reported significant increases in leadership and friendship skills. Similarly, data from the Canadian Summer Camp Research Project ([CSCR], Glover et al., 2011), which measured the degree of impact camp had on campers, showed positive developmental outcomes (e.g., social integration and citizenship, self-confidence and personal development, and emotional intelligence). Encouragingly, there was significant growth in all areas; however, 65% of campers experienced growth specific to social connections and feelings of belonging from pre to post camp (Glover et al., 2011). Overall, experiences at camp have been found to build positive self perceptions leading to increased self-esteem, feelings of personal adequacy and self worth, and growth in participants interpersonal skills (Henderson et al., 2007; Thurber et al., 2007).

Camps for Adolescents with ADHD

A special area of interest within camp research is specialty camps or segregated “disorder-specific” camps. These camps are tailored to meet the unique needs of campers that a traditional camp is unable to provide (Meltzer & Rourke, 2005). Specialized camps provide a supportive environment to support individual learning needs and promote success (Michalski et al., 2003). For children and adolescents with ADHD, Michalski et al. (2003) note that a specialized summer camp may be a positive environment where campers can improve their social competence and self concept. Camps for youth with ADHD were primarily implemented as part of multimodal efficacy studies to reduce ADHD symptomatology (MTA Cooperative Group, 1999).

One summer program developed for youth with ADHD is the children’s Summer Treatment Program (STP; Pelham et al., 1998). STP is an 8-week intensive day treatment program conducted in a summer camp format for children with ADHD (5-12 years of age). The STP uses SST alongside a token economy program to target social functioning and disruptive behavior as well as group-based parent behavioral training sessions (Pelham et al., 1998). The STP meets the needs of families of children and youth with ADHD as it promotes generalization of learned skills in a multitude of settings (i.e., home, school, and recreation). The STP was included as one of three psychosocial treatment modalities in the MTA study and numerous studies have documented the STP’s efficacy in improving the behavioral and social functioning of children (6-10 years of age) with ADHD (Pelham et al., 1998, 2010). To address the utility of this program in an older population, an adolescent (11-16 years of age) version of the STP, the STP-A (Sibley et al., 2011) was developed. The STP-A showed improvements in 82.4%- 94.7% of adolescents in multiple domains of impairment (i.e., conduct problems, defiance, social functioning, inattention/disorganization, mood, and academic skills; Sibley et al., 2011).

To date, numerous camp programs have been described as beneficial for social competence; however, one limitation is the lack of research on camp for youth with ADHD in community settings (Hantson et al., 2012). Almost all literature examining camp programs for children and adolescents with ADHD have been part of hospital or clinic-based intervention studies where participants are recruited from hospitals, have severe diagnoses of ADHD, and are often followed closely by a psychiatrist or psychologist (MTA, 1999; Pelham et al., 1998; Sibley et al., 2012). These summer camp programs are often conducted in urban settings, are expensive, not

covered by insurance, and require a moderate to severe diagnosis of ADHD, making accessibility to those in the community challenging (Pelham et al., 1998).

Currently in Canada, there are some specialized summer camp programs for children with ADHD in community settings (CADDAC, 2020); however, limited research has been conducted on the outcomes of these programs. Due to the prevalence of children and adolescents with ADHD (Luo et al., 2019) and the long-term consequences associated with impaired social functioning, the identification of the social benefits of camp in a community setting within this population is advantageous.

Current Study

The present study explored social competence development in the context of a specialized, residential summer camp for adolescents with ADHD. Adolescents with ADHD display difficulties in social competence (Parke et al., 2018) and previous interventions aimed to foster these skills in clinical settings have demonstrated limited success (Mikami et al., 2017). Friendships and social competence play a role in short- and long-term developmental outcomes and deficits place adolescents with ADHD at risk for failure (Gardiner & Gerdes, 2015). Given the challenges adolescents with ADHD have with social competence, it is crucial to identify naturalistic and practical contexts that promote positive development so that the skills learned within these contexts can be generalized to environments where adolescents struggle.

One promising naturalistic setting to improve social competence is summer camp (ACA, 2019). Camp promotes emotional, social, and physical growth in campers through skill building activities that improves their sense of efficacy and social abilities (Wilson et al., 2019). Specialized summer camps provide a structured and supportive environment where adolescents can experience success with those who have similar challenges to them (Michalski et al., 2003). Research on the development of social competence at camp in specialized populations is promising, but limited (Hantson et al., 2012); consequently, the efficacy of social skill interventions for adolescents with mild to moderate ADHD in community settings is currently unknown. Therefore, the purpose of the present study was to examine the efficacy of a SST program in the context of a specialized, residential summer camp for adolescents with ADHD. This research has practical implications in promoting novel evidence based social skills programs for adolescents with ADHD.

Research Questions

To gain a better understanding of social competence in adolescents with ADHD and whether a specialized summer camp program can support social competence development, the following research questions were posed:

1. Is there a difference in the social competence of adolescents with ADHD compared to a normed standardized sample?
2. Is there a difference between ADHD adolescents' ratings of their social competence and counselors' ratings of campers' social competence?
3. Is there a change in social competence within the adolescents with ADHD from before to after participation in a summer camp?

Methodology

We conducted this study in partnership with a local camp organization in a large Western Canadian city. The target camp program will be referred to as "Kamp" to protect the confidentiality of families and staff involved in this project. A quantitative approach with standardized measures was used to address the research questions.

Camp Setting

Kamp is a specialized summer camp designed for children and adolescents with ADHD. Kamp, while not explicitly therapeutic in nature, offers a traditional camp experience with the goal of supporting campers in teaching and reinforcing social skills, building peer relationships, and increasing self-esteem (program materials, 2020). Kamp staff foster social skills by facilitating campers' success in a variety of recreational activities and social interactions. With a 30-camper capacity per session, Kamp functions with a 3:1 camper to counselor ratio, allowing youth to have individualized attention that can help them grow in a safe and fun environment. The camp has one-week overnight sessions, and youth are in groups with six similar-aged peers and two counselors. To promote intervention fidelity, counselors receive 120 hours of pre-service training and the counselors were supervised by a camp director and camp supervisors. Each day ran on a fixed schedule, with one hour spent on a social skill lesson. The social skills include goal setting, friendship building, bullying, social problem solving, de-escalating conflicts, conversation skills, body language, and blowing off steam. Five out of the eight key social skills were selected as the focus for the one-week period, based on the needs of the group.

During the lessons, counselors introduced the target social skill and reviewed the goals, objectives, and the camper's general knowledge of that specific skill. The counselors then demonstrated, role played, and had campers practice using the social skill with a partner, and then together as a group. The campers were able to not only witness their peers practicing positive social interactions, but also learned to initiate positive social interactions. When appropriate, counselors modeled acceptable and unacceptable social interactions and discussed tactics for dealing with certain scenarios (e.g., conflict). The counselors encouraged practice and worked to strengthen campers' social self-efficacy to decrease negative stressors associated with social situations. Practice of the social skills during all camp activities was encouraged so campers could apply the newly learned skills in-vivo, which provided opportunities for practice, reinforcement, and generalization of the newly learned skills.

Participants

A total of 81 adolescents with ADHD (52 males, 29 females) and 15 counselors participated in the study during August 2019. All adolescents were registered in a one-week overnight session. Participants were required to (a) be between the ages of 12 and 16 years of age; (b) have a diagnosis of ADHD from a psychologist, psychiatrist, or medical doctor; (c) be attending a one-week session of the overnight camp; (d) have an average or above average IQ score; and (d) be able to fluently speak, write, and read English. All campers met Kamp's intake criteria for a primary diagnosis of ADHD and average or above IQ by a registered psychologist prior to participation in the study. Participants were excluded if there was indication or previous diagnosis of autism spectrum disorder, psychosis, epilepsy, or gross neurological impairments.

Measures

Youth completed a 10-question, standardized self-report assessment measure and camp counselors completed a 10-question, standardized assessment measure of their campers. Youth additionally completed an end of camp demographic questionnaire.

Kamp Post Survey-Adolescent

The Kamp post questionnaire (adolescent) was used to collect demographic information (i.e., gender, age, ethnicity, and diagnosis), previous camp attendance, and camper satisfaction ratings for Kamp.

Social Emotional Assets and Resilience Scales (SEARS; Merrell, 2011)

For the present study, social competence was defined as “the measure of an adolescent’s perspective of his or her ability to maintain friendships with peers, engage in effective verbal communication, and feel comfortable around groups of peers” (Merrell, 2008, p. 4). The SEARS-Adolescent (A) questionnaire is a 35-item strength-based measure that assesses the social and emotional competencies of children and adolescents from 5 to 18 years of age using four distinct scales: (1) self-regulation, (2) social competence, (3) empathy, and (4) responsibility. The adolescents and counselors only completed the 10-item social competence scale from the SEARS-A and SEARS parent (SEARS-P) forms, respectively. Counselors completed the SEARS-P because at overnight camp, counsellors are in a caregiving role. These 10 items formed a global measure of social competence; thus, this study conceptualized social competence as a single construct.

Procedure

One month prior to the start of camp, caregivers were provided with an initial letter of contact outlining the purpose of the research study, eligibility requirements, study expectations, and how to participate. A week before the start of camp, caregivers were sent a package including a consent form to be returned on the first day of camp. Counselor consent forms were collected during counselor training prior to the commencement of camp.

Camper questionnaires were completed in the mornings on the first day of camp and the last day of camp. Counselors obtained adolescent assent on the first day of camp during the cabin introduction meeting, and all campers completed the surveys during camp programming. Campers whose parents did not consent to participate in the study or had not given assent to participate themselves had their questionnaires removed from the study data. Counselors completed the SEARS-P questionnaire at the end the last day of camp (post camp only).

Results

A total of 81 campers with ADHD (64% male, 35% female), and 15 counselors (46.7% male, 53.3% female) participated in the study. Campers who did not complete either pre or post camp questionnaires were removed from the data set. The final sample included 60 campers (65% male, 35% female; $M=13.35$ years, $SD=1.32$) and 15 counselors. Initial analysis of the data showed that the data were approximately normally distributed, with no extreme outliers.

The difference between social competence in ADHD adolescents were compared to the typically developing adolescents used in the normed sample of the SEARS measure. Normative data from a large sample establishes a baseline distribution for measurement which allows scores to be compared. Normative data is obtained from a randomly selected representative sample of the population and includes variables such as age and gender similar to those within the study.

RQ 1

A single subject *t*-test (two-tailed) was conducted. Social competence scores, as measured by the SEARS social competence domain score, at pre camp were compared to the standardization mean *t*-score of 50.00 ($SD=10$; Merrell, 2008). Results of the *t*-test revealed a significant difference in social competence scores of campers at the beginning of camp compared to the normative sample, with campers ($M= 44.20$, $SD = 9.11$) scoring significantly lower than the normative sample ($M= 50.00$, $SD= 10.00$), $t(59) = -4.93$, $p < .001$.

RQ 2

The difference between ADHD adolescents’ ratings of social competence and counselor ratings of ADHD adolescents’ social competence at the end of camp was assessed. A paired samples *t*-test was conducted, and findings demonstrated there was no significant difference between the

adolescents' ratings of their social competence ($M= 49.35, SD= 9.84$) and the counselor ratings of ADHD adolescents' social competence ($M= 46.58, SD= 10.25$), $t(59) = 1.74, p = .088$. The results indicated similar scores between counselors' and adolescents' perceptions of the adolescents' social competence abilities at the end of camp.

RQ 3

A paired samples t -test was conducted to compare adolescents' ratings of their social competence from pre camp to post camp. Results of the paired samples t -test revealed a significant increase ($t(59) = -5.16, p = <.001, d=.22$) in campers social competence scores from the start of camp ($M= 44.20, SD= 9.11$) to the end of camp ($M= 49.35, SD= 9.84$),

Discussion

The purpose of the present study was to investigate social competence in adolescents with ADHD. Specifically, this study sought to understand the level of social competence in adolescents with ADHD and examine changes in social competence within the context of summer camp, as reported by adolescents and counselors.

First, the level of social competence in adolescents with ADHD was compared to a normative sample of adolescents. Results showed that adolescents with ADHD had significantly lower levels of self-reported social competence when compared to a normative sample of typically developing adolescents. The findings support the existing literature which suggests that social competence scores in adolescents with ADHD are lower compared to typically developing peers (Gardiner & Gerdes, 2015; Parke et al., 2018). The adolescents rated themselves as having difficulty making and keeping friendships, engaging in effective verbal communication, and feeling comfortable and connected in groups of peers (Merrell, 2011). The findings of lower social competence in adolescents with ADHD may be influenced by several factors. Compared to typically developing peers, many adolescents with ADHD demonstrate inappropriate social behaviors (e.g., impulsivity, intrusiveness, hostility) that may result in an interaction style that is aversive to peers (Hoza, 2007). Moreover, poor attention to social feedback and emotion recognition may lead to inaccurate interpretations within conversation (Gardiner & Gerdes, 2015).

Adolescents with ADHD often compare themselves to their typically developing peers in academic and recreational settings. As the adolescents rated themselves on the first day of camp, it is possible that they rated themselves as having poorer social competence compared to typically developing adolescents versus their ADHD peers. Moreover, the adolescents may have rated themselves as having low social competence based on the awareness that they were attending a summer camp to improve their social skills.

The second research question examined the difference between ADHD adolescents' ratings of their social competence and counselors' ratings of campers' social competence at the end of camp. Results of the current study found no significant difference between the adolescents' self-reported social competence scores and the counselor reports of adolescents' social competence. These findings support much of the current camp literature, including specialized camps, that show similar scores between raters (i.e., self-report, parents, counselors, teachers) after attending a camp program (ACA, 2005a; Glover et al., 2007; Sibley et al., 2012). It is likely that the ADHD adolescents' ratings of their social competence and counselors' ratings of campers' social competence were comparative because adolescents would often receive feedback on areas of improvement and skill progression over the week. This finding increases the reliability of the adolescent reports, as the counselors provided an external perspective that showed concurrency in ratings.

Finally, adolescent ratings of social competence indicated improvements from the beginning to the end of camp. At the end of camp, adolescents rated themselves higher on making friends, engaging in effective verbal communication, feeling comfortable talking to different

people, and feeling connected in groups of peers (i.e., social competence; Merrell, 2011). As discussed by Thurber et al. (2007) and ACA (2005a), this finding extends that of other studies showing gains campers make in social competence over time at camp. Moreover, the significant increase in social competence mirrors findings from specialized camp programs for children and adolescents with ADHD (Pelham et al., 2005; Sibley et al., 2012). These results are noteworthy given the short amount of time at camp (one week) for these participants and speak to the utility of specialized camps as a context where adolescents with ADHD can develop their social competence.

The significant changes in adolescents' self-reported social competence can be accounted for in many ways. First, Kamp is a specialized summer camp that provides a structured, supportive social skills program with the goal of building adolescents' confidence, self-esteem, and social competence. Using non-aversive SST techniques such as didactic instruction, behavior modeling, role playing, and behavioral rehearsal, adolescents can practice interacting with similar peers and receive feedback in vivo from trained counselors. The unique camp setting allows for intervening at the point of performance and uses counselors as social coaches, which has been found to increase the effectiveness of SST programs (Mikami et al., 2017). The supportive and well-trained counselors, low adolescent-to-counselor ratio, and similar peers may have made the adolescents feel accepted, more likely to engage in peer interactions, and better able to practice their social skills. This ultimately led to improved social competence.

Most summer treatment programs for children and adolescents with ADHD are day camps within urban settings (e.g., clinics, community centers), which adolescents attend during the day and return to their families in the late afternoon. Kamp offered an immersive overnight program in a natural setting where adolescents were continuously learning, practicing, and applying their skills. Consequently, skills learned by the campers may be better retained due to the constant exposure, opportunities for practice, and direct and immediate counselor feedback (Henderson et al., 2007). Fine (2005) suggests residential camp settings are strongly connected to experiential learning or "learning by doing" (p. 12). Residing at camp immerses the adolescent in a community and offers the consistent and repetitious exposure required for skill retention.

Lastly, it is possible that the improvements from before to after camp in this sample is due to the severity, or lack thereof, of ADHD symptoms. The adolescents in this study were a community sample and may represent those with less severe ADHD symptomatology. It is possible that having less ADHD symptoms allowed for improved attention to social cues and increased generation of responses compared to adolescents with severe ADHD symptomatology.

Limitations

There are several limitations that must be considered in this project. First, the current study did not include a control group of ADHD adolescents who did not attend camp. Without a control group, it is challenging to decisively ascertain whether the noted changes in social competence from the start of camp to the end of camp were a function of time (maturation), nontherapeutic influences such as rater bias, or the social skills program itself. Additionally, differentiation between ADHD presentations (i.e., ADHD-HI, ADHD-I and ADHD-C) was not included and the ADHD participants were analyzed as one ADHD group. Some research suggests that individuals with each presentation may differ in the nature of their social deficits and interventions may require different strategies to target the divergent needs (Ng et al., 2019). Moreover, the current study included adolescents with ADHD as well as secondary comorbid disorders such as learning disabilities, generalized anxiety disorder, and depression. The presence of comorbidities often augments social difficulties in adolescents with ADHD (Ng et al., 2019); thus, it may be beneficial to take these psychological disorders into consideration.

Future Directions

The primary objectives of the present study were to understand the level of social competence in adolescents with ADHD and to investigate the development of social competence during their participation in a specialized summer camp. Although this study provided some promising results, additional research is necessary to further develop the present body of literature. In particular, the current study conceptualized social competence as a single construct; however, other researchers have described social competence as consisting of multiple underlying constructs (i.e., social cognition, social skills, reciprocal friendships, and friendship quality; Beauchamp & Anderson, 2010). Future studies should identify deficits within individual social competence constructs so that practitioners may be able to target and modify programs to support adolescents in enhancing these specific areas (Sibley et al., 2010). As well, the results of the current study showed a significant increase in social competence in adolescents with ADHD over a short amount of time (i.e., one week); however, the lasting nature of these skills is unknown. Future researchers should employ a longitudinal design to better understand the maintenance of social competence over time. Similarly, to prevent skill deterioration, social skill “booster” sessions throughout the year may be an effective tool to mitigate skill decay and prolong the growth of social competence after camp has ended (Sibley et al., 2012).

Conclusion

These results demonstrate some initial promise that camp may serve as a place of growth for social competence in adolescents with ADHD and fills a noticeable gap within the literature on effective programming to support social competence within this population. Adolescents with ADHD frequently experience challenges in social competence that have direct implications on short- and long-term outcomes (Monopoli et al., 2020). Considering the consequences associated with poor social functioning, the identification of unique interventions that support the development of social competence in adolescents with ADHD is vital. Research on specialized summer camps have found significant results in social competence development in children and adolescents with ADHD (Sibley et al., 2011). The current study supports the notion that specialized summer camps can be an effective setting for adolescents with ADHD to build social competence. As such, it may be beneficial for parents and ADHD advocates to promote and fund evidence-based psychosocial programs for ADHD in generalizable settings.

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