

## Students With ADHD And Their Connection To Dogs

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### Abstract

There has been limited research on how to best support students with ADHD academically, socially, and psychologically through animal-assisted interventions (AAIs). This study explores how AAIs may serve as a supplemental therapy for individuals with ADHD, whether or not they take medication. Dogs are widely recognized as beneficial to humans, serving as therapy dogs, service dogs, emotional support animals, and search and rescue dogs. Even without formal training, they can naturally boost dopamine levels, reduce stress, promote responsibility, and provide motivation. The purpose of this paper is to investigate the connection between dogs and humans and evaluate how this relationship may be particularly beneficial for individuals with ADHD. A notable gap was identified in the existing literature: very few studies have examined AAIs in adolescents with ADHD. Addressing this gap could provide valuable support in school and other high-stress contexts, offering an additional or alternative form of intervention alongside medication and traditional therapy.

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### Introduction

Nearly  $\frac{1}{3}$  (32.2%) of high school students diagnosed with the combined type of ADHD drop out of school (Children's Hospital Orange County, 2023). ADHD is diagnosed when six or more ADHD symptoms have occurred for at least six months to a degree that shows inconsistency with their age and development level, and that negatively impacts everyday activities. Although the individual symptoms may be apparent in neurotypical people, such as hyperactivity, attention issues, and impulsivity, an ADHD diagnosis is only appropriate when there is a combination of at least 6 symptoms. According to the DSM, ADHD is characterized by three primary symptoms: inattention, hyperactivity, and impulsivity, which may co-occur or present as predominantly inattentive or hyperactive-impulsive. Symptoms of ADHD may be mild, moderate, or severe (Administration, 2016). To help with these symptoms, many people who have ADHD use medications that work by increasing neurotransmitter levels of dopamine and norepinephrine in the brain. When you increase the amount of these neurotransmitters, it helps those with ADHD manage their symptoms. However, ADHD medications do have side effects; the most common ones include decreased appetite, weight loss, anxiety, and difficulty sleeping (Cleveland Clinic, 2022). ADHD is the most diagnosed neurobehavioral condition among U.S. children, leading to an Adderall shortage in 2022. ADHD medications for ADHD became less common, mainly because medications are often a first-line treatment, making them the most commonly prescribed controlled substances to kids in the country (Beata Mostafavi, 2025).

Early on, society thought of ADHD as a defect in children. In 1936, Bensedrine was approved as a medicine for ADHD, with side effects. However, this medicine was largely ignored until later as there was no understanding of neurodivergence yet at this time. Parents and

teachers thought that the kids were misbehaving intentionally or being delinquent intentionally. It was only in 1968 that the APA recognized ADHD, but called it “hyperkinetic reaction of childhood.” In 1955, however, another medicine called Ritalin became popular as a treatment for ADHD. In the DSM's third edition in 1980, they called it attention deficit disorder (ADD). At this time, scientists still did not believe hyperactivity was a symptom of the disorder. Then, in 1987, the APA finally brought in all the different symptoms to call it ADHD, attention-deficit hyperactivity disorder. In the 1990s, ADHD diagnoses were more common and accepted, with a broader range of treatments and medications (Holland et al., 2021).

Animal-assisted intervention (AAI) is the broader term that includes any use of animals to help people with therapy, education, and activities. AAIs started with domesticated animals, more specifically, dogs, being implemented into mental illness therapies and hospitals. These were the first types of AAI because pets were great companions and made sick patients feel better and more comfortable in hospitals. Using dogs for animal-assisted therapy (AAT) came into place for Veterans after the World Wars, who were struggling with PTSD and trauma from the war. In the 1950s, Boris Levinson worked with the idea of AAT, finding that dogs can help in therapy and that children respond positively to dogs (Ruegg et al., 2024).

ADHD doesn't only affect what's written in the name, like attention and hyperactivity, but also factors such as socializing and increased risk of other mental health conditions. More specifically, ADHD can affect people's relationships, emotional regulation, and behavioral issues, and it's more common to have a co-occurring condition like anxiety with ADHD. These factors can affect their home life and relationships with their family, but more importantly, their life at school in both their learning ability and social relations. The biopsychosocial model

describes human-animal interactions and how they benefit each other. The model shows how stress reduction can lead to social, biological, or psychological effects, and then causes a domino effect where, when someone is under stress, it impacts their health and mentality (Gee et al., 2021).

### **Methods**

This review paper used keywords such as “animal-assisted interventions”, “animal-assisted therapy”, “animal-assisted education”, and “dogs” AND “students with ADHD”. Google Scholar was used with keywords to search for research papers to study. These searches were done between June and July 2025, where I found 40 articles and used 35 of them in my paper.

#### ***Benefits of children spending time with pet dogs***

We all know that dogs are a “man’s best friend”, and the specific reasons for this might not be obvious. Dogs are truly remarkable animals, offering us numerous benefits that help us live and thrive every day. It’s well known that owning a dog can provide support and give a sense of meaning to one's life. In a survey, pet owners reported that owning a dog and specifically being responsible for caring for it can lead to improved psychological well-being and a gratifying relationship with their dog (Kanat-Maymon et al., 2021). Although owning a dog can provide benefits to people of all ages, there are specific and notable benefits to children. By interviewing pet owners, researchers found that the bond between a child and a dog is so strong that it allows for the benefits dogs can provide to children to be stronger than usual, where they treat the dog as if it’s a person or friend (Muldoon et al., 2019).

A clinical study with kids ages 7 to 12 found that children growing up with a dog can lead to a very special bond that can cause benefits in social skills, physical activity, and reduced anxiety (Gadomski et al., 2015). In a survey completed by kids ages 4-10 years old to figure out the benefits of having a pet dog on young children, it was found that having a dog also gives children a sense of responsibility and purpose; Gadomski (2015) found that children who had pet dogs were significantly less likely to show signs of anxiety. For example, studies such as (Kertes et al., 2018) show that children experienced significantly lower cortisol levels when their pet dog was present during stressful tasks. Elevated cortisol is an indication of stress, which can also be elevated in people who are experiencing anxiety. Research shows that dogs not only provide stress management but also emotional and social benefits.

### ***Impacts of dogs on stress and cognition***

We know that being around a friendly dog can make people feel happy and relaxed. Even brief contact with a dog can lower stress and anxiety due to the release of oxytocin, a hormone associated with bonding and calmness. While effects are stronger with a familiar dog because of the ability to have more contact and create a closer bond, even unfamiliar dogs can prompt benefits to humans (Beetz et al., 2012). These types of interactions can create moments of social benefits, emotional relief, and stress relief in environments where it's not common to have those moments, such as in schools, hospitals, or therapeutic settings.

The physiological benefits of interacting with dogs go beyond stress and anxiety. For example, a controlled study found that interacting with a real dog increased prefrontal brain activity in healthy participants compared to participants who interacted with a plush animal. (Marti et al., 2022). Increased prefrontal brain activity means you are more engaged in thinking,

concentrating, making decisions, or managing your emotions. This kind of brain activity is usually a sign of mental effort or emotional involvement.

***Dogs in the classroom provide academic benefits to children***

As stated before, dogs can primarily benefit humans in managing their stress and anxiety. According to Rothkopf (2021), results showed that students have a positive attitude towards dogs, AAI's, and dog-assisted intervention (DAI) at their home universities. This study shows that kids, at least in this context, prefer dogs, indicating they would be comfortable with dogs being allowed and active on campus. Results showed that compared to students without ADHD, those with ADHD showed deficits in their values of academic success, goal setting, metacognitive behaviors, cognitive behaviors, self-motivation, and completing work even when motivated (Sibley et al., 2019).

In schools now, dogs have been integrated into reading programs, and what they have found in them is impressive. In Lenihan's (2016) study, she found that therapy dogs can increase children's retention in reading programs and increase enthusiasm in elementary school. Another study found that reading scores improved, but this time, they used the Classroom Canines Program. In this case, students and teachers believed that they had improved as learners, enhanced their confidence, attitude, cooperation, and social relations with friends and teachers.

These academic improvements can also lead to enhanced well-being and self-confidence. For example, Beetz (2013) reported that students working with therapy dogs showed better attitudes toward school, were more willing to participate, and showed greater emotional regulation. Specifically, in Schnuck (2018), they studied psychosocial intervention with and

without canine-assisted intervention (CAI) for kids with ADHD. They found that kids with ADHD in the group with CAI had decreased symptoms compared to those without the dogs. They also found that kids with ADHD in the CAI group had higher social skills. Research conducted by Mombeck (2023) found that dogs in classrooms encouraged inclusive behavior and reduced social stereotypes, thereby creating a more welcoming environment. In Chadwick's (2022) study, she found that using animal-assisted interventions would be valuable in helping young people take on more responsibility and, in turn, improve emotional regulation in settings where it might be challenging for children.

### ***Dogs confer improved social behavior and emotional regulation in children with ADHD***

More broadly, dogs can be used in other types of interventions outside the classroom, with benefits for social behavior and relationships in children with or without ADHD. These AAs can not only help kids with ADHD gain a sense of responsibility, but they can also improve their emotional regulation in social and emotional situations (Chadwick et al., 2022).

Dogs can serve as social buffers, for example, by providing discussion topics, such as discussing the dog or talking about the species in general. In Neiforth's (2024) study, it was found that groups of children with ADHD aged 6-9 exhibited increased human-directed social interactions when a live therapy dog was present, rather than a stuffed dog provided for another group of similarly aged children. Kids with ADHD showed improvements in concentration in class, communication with teachers, and co-operation with classmates after a year of AAE (Juríčková et al., 2020). Dogs in the classroom can play a decisive role in shaping more positive social dynamics. Their presence can shift social norms, creating a more inclusive and respectful environment. Dogs also promote greater social participation and encourage pro-social

behaviours, such as inviting others into groups, comforting classmates, and reaching out to shy students (Mombeck et al., 2023). Because dogs help buffer stress, they support social bonding and make conversations more natural, and create prompts for them. When students observe others being kind and caring towards the dog, they are influenced and are likely to mirror empathetic and nurturing behaviors with their classmates. In Schnuck's (2018) research, they found that there was improvement in self-competence, self-esteem, and behavior among kids with ADHD. In another research paper, children who were in class with a dog showed significantly improved positive attitudes towards school and their emotions related to learning compared to those in the control class (Beetz et al., 2013). Schnuck (2015, 2018) further demonstrated that children with ADHD in group therapy that included dogs became more socially appropriate, motivated, and self-aware. This serves as another example of how having a dog in a group setting can positively affect the behavior and social compatibility of kids with ADHD.

### ***Physiological markers of improved stress management following AAI***

Research by Motarebesoun (2016) showed that introducing AAI not only improved the children's ADHD symptoms but also significantly boosted the mental and physical well-being of their parents. Physiologically, AAI have been shown to reduce stress in children through measurable biological markers. Beetz (2011) and Meints (2022) showed that real dogs helped lower salivary cortisol levels. Marti (2022) demonstrated that proximity to dogs increased oxygenated hemoglobin in the brain, a sign of enhanced cognitive function. Some studies observed changes in cardiovascular markers. Somerville (2009) found that after kids with ADHD held a dog, there was a significant increase in diastolic blood pressure (DBP) and systolic blood

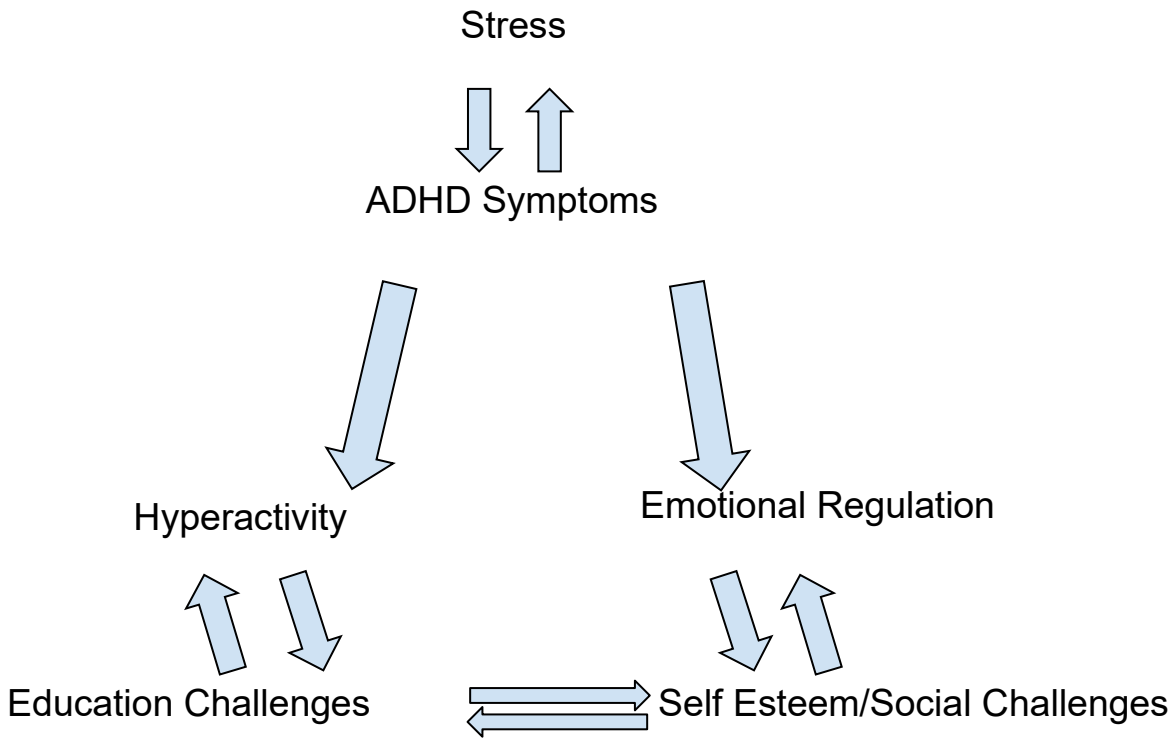
pressure (SBP) after the dog was released. Their heart rate (HR) decreased during both periods, indicating that having dogs around can have a calming effect on children who are more excited and energized. Additionally, Kertes (2018) showed that pet dogs serve as a stress buffer by reducing children's perceived stress and lowering cortisol levels when kids can pet or be in proximity to them.

In the Kertes (2017) study, children had their pet dogs present while their cortisol levels were being measured. This study found that cortisol levels dropped when the children had their pet dog nearby, and it showed how these dogs sought proximity to the kids when they were stressed out and/ had high cortisol levels. The animals can do this because they can activate the oxytocin system and additionally act as social buffers. In research by Meints (2022), children in the control group, who weren't in contact with a dog, showed an increase in stress hormones while at school. However, the kids who were in contact with the dog showed no increase in stress in school. This demonstrates how dogs, at least for children, can serve as a stress buffer in the school environment. This could also correlate with the dog being able to serve as a stress buffer outside of school settings as well.

## **Discussion**

### **Figure 1**

*Cycle of Stress and How It Impacts People With ADHD*



This diagram shows how stress can worsen ADHD symptoms. These challenges reinforce stress, creating a cycle. Research suggests that dogs can be highly beneficial in this context, as they can positively influence each of these aspects of people with ADHD's lives.

Research suggests that AAI and AAE can be very beneficial to students with ADHD, other learning challenges, and stress/anxiety, particularly when dogs are involved. Dogs are also a common choice due to their high trainability, social nature, and ability to form strong bonds with humans, making them well-suited for therapy work. Research indicates that the presence of dogs can foster socialization, promote school engagement, and enhance mental well-being. These effects can lead to improved academic engagement, reduced stress, enhanced focus, motivation, and socialization. Dogs are used most commonly; however, if a child is scared or allergic to dogs, many other animals, such as cats and horses, can also provide similar benefits, although

not to the same extent as dogs. Although robotic animals and plush toys also have positive effects on students' mental health and well-being, their benefits weren't as substantial as those of a real dog. Heightened emotional strain and unpredictable behavior can also cause stress on parents and adult figures in the lives of kids with ADHD, by unintentionally adding more stress due to their kids acting out. However, having dogs around can significantly improve parents' physical and mental health simply because the kids' ADHD symptoms are reduced (Advances in Bioscience and Clinical Medicine 4 et al., 2016). Parents have also found that their anxiety stems from their kids who have ADHD. So when the kids' symptoms were reduced, the parents' stress was also reduced (Moghaddam et al., 2013).

Although many studies show the profound positive impacts of interactions with dogs on young children with ADHD, very few studies have investigated these impacts on teenagers. High school-aged students experience heightened pressure from their parents, peers, and themselves to perform well and gain college admission. This can cause serious mental health issues, most of which go undiagnosed and are not helped. About 7/10 U.S. teenagers (ages 13-17) report that anxiety or depression is a significant problem among their peers. Additionally, while adults report an average of 3.8 on a 10-point scale, American teens rate their stress at 5.8 (American Institute of Stress, 2025). This truly highlights the significant stress and pressure that kids face in their daily lives, with grades, homework, and college preparation being the primary sources of stress (NYU, 2015).

Teenagers are also under more stress than children in other age groups, yet receive the least amount of attention in this type of research. Looking for research on putting high school students with ADHD, were very few articles about them. If there were, they would be about

freshmen and sophomores, not juniors and seniors, who generally face the most stress and pressure throughout high school

Research on AAI and AAE continuously suggests that these approaches can be beneficial for young people with ADHD. Although understudied, these approaches could be especially beneficial for adolescents who are faced with increased stress than younger children. Future research should focus on students with ADHD with alternative methods to help kids, such as AAI, in addition to other existing interventions, such as counselling and meditation or relaxation methods. There should be a more accessible way to help kids with their stress or learning disabilities, such as having a dog on campus, to make it open to all students. A trained, hypoallergenic therapy dog that spends its day at the school, available for interacting with all the children, would be extremely beneficial throughout the year. Although presently this service is only given to students during exam times. This would be an experiment that a few schools could try at first, then it could expand if it worked. If a school didn't have the funds to have a dog on campus. Then, if a teacher or staff member had a dog and chose to do so, they could bring it to school instead of having to leave it at home or in a doggy daycare to interact with the students. It would help all students with mental health and learning disabilities, but especially those with ADHD, because of dogs' abilities to help lower symptoms significantly.

### **Conclusion**

We know from above that AAI's have the potential to help younger kids, and if they can do so, they should also be able to help high school students. If dogs can help alleviate stress, promote socialization, boost motivation, provide calming effects, and lower heart rates and body

tension, then they could greatly benefit students with ADHD at any age, particularly at the high school level. This could be of specific benefit to undiagnosed teenagers, who may not be in a position to access potential medications. In these cases, allowing students access to dogs could offer a version of therapy and medication for students, and help them control their symptoms and stress.

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