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ADHD in Preschoolers: Research Summary

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Published 2025-10-28 by Higher Learning Lab, a 501(c)(3) nonprofit, Dover, Delaware.

Canonical version: https://www.higherlearninglab.org/portfolio/adhd-in-preschoolers-research-summary/

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By Higher Learning Lab

Citation: Bjorn, G., & Ma, C. F. (2025). *ADHD in preschoolers: Research summary*. Higher Learning Lab. https://doi.org/10.5281/zenodo.23541031

What Caregivers Need to Know About ADHD in Preschoolers

Children with attention deficit hyperactivity disorder (ADHD) often struggle with focus, impulsivity, and hyperactivity. These challenges can be made worse by sleep disturbances, underlying medical conditions, and early trauma. ADHD symptoms can look different in each child, but common issues include difficulty paying attention, emotional outbursts, and trouble following routines.

Many factors contribute to ADHD, including genetics and early-life experiences. Children with a family history of ADHD are more likely to develop symptoms. Additionally, prenatal drug exposure, traumatic brain injury (TBI), and early oxygen deprivation interfere with normal brain development and make self-regulation more difficult.

Sleep problems are also common in children with ADHD and worsen symptoms. Some children have sleep apnea, which disrupts breathing during sleep, making it harder to focus and regulate emotions during the day. In some cases, medical treatment—such as tonsil and adenoid removal (for obstructive sleep apnea) or positive airway pressure therapy (for central sleep apnea)—can improve ADHD symptoms by improving sleep quality.

This review is meant for educational and informational purposes only. This review expressly does not give any medical advice. Consult a qualified medical provider with medical questions.

How Trauma and Early-Life Experiences Affect ADHD

Exposure to stress, abuse, or neglect in early childhood can harm brain development, making it harder for a child to regulate emotions and stay focused. Trauma affects the brain areas responsible for attention, impulse control, and emotional regulation. Children who have experienced chronic stress, parental substance use, or exposure to violence are at higher risk for ADHD symptoms.

Some children with ADHD have also been affected by prenatal substance exposure or early brain injury, which can affect brain development and self-regulation. Any child with ADHD symptoms who snores, breathes through the mouth at night, or sleeps restlessly should be evaluated for a sleep-related breathing problem.

The Two-Way Relationship Between Sleep Problems and ADHD

Many children with ADHD struggle with falling or staying asleep, which can lead to:

- Increased hyperactivity
- Trouble focusing and following instructions
- Emotional outbursts and irritability

Poor sleep makes ADHD symptoms worse, and ADHD itself can make it harder for children to fall asleep due to racing thoughts, restlessness, and difficulty winding down at night.

One major concern is sleep apnea (SA), where a child's breathing repeatedly stops and starts during sleep. Obstructive sleep apnea (OSA) occurs when airway blockage prevents proper breathing, while central sleep apnea (CSA) happens when the brain does not properly signal the body to breathe. Some children with OSA benefit from having their tonsils and adenoids removed to improve breathing. However, some children continue to have sleep disturbances due to CSA, which requires different treatments.

Understanding Central Sleep Apnea (CSA) and Its Causes

CSA occurs when the brainstem (medulla oblongata and pons) does not correctly regulate breathing during sleep. This leads to pauses in breathing, fragmented sleep, and excessive daytime sleepiness, which can worsen ADHD symptoms.

The key muscles affected by CSA include:

- Diaphragm: The main breathing muscle, which may not activate properly.
- Intercostal muscles: Help expand the lungs but may not receive the right signals.
- Upper airway muscles: Poor coordination can contribute to breathing pauses.

CSA is uncommon in otherwise healthy children and is usually evaluated by a pediatric sleep specialist when breathing pauses persist after other causes have been addressed.

- **Supplemental oxygen** to help maintain normal breathing.
- **CPAP or BiPAP** therapy provides air pressure that keeps the airway open.
- **Medications** like acetazolamide help stimulate breathing.
- **Behavioral therapy** and sleep hygiene to improve sleep quality and overall regulation.

Hyperactivity is often a sign of fatigue or exhaustion in very young children. Better sleep goes a long way toward improving ADHD symptoms, including better focus, staying calmer, and feeling more rested during the day. A pediatric pulmonology or sleep medicine specialist can evaluate their sleep and develop a workable treatment plan.

The Importance of Parent Instruction in ADHD Management

One of the most effective ways to help a young child with ADHD is parent training in behavior management. ADHD affects how children follow instructions, regulate emotions, and complete tasks, making daily routines challenging for both the child and their caregiver. Parent training programs teach effective discipline strategies that encourage positive behaviors and reduce stress at home.

What parent training teaches caregivers:

- **Using positive reinforcement:** Rewarding good behavior instead of focusing on negatives.
- **Setting clear and consistent rules**: ADHD children need predictable routines to thrive.
- **Implementing effective discipline:** Using time-outs and removing privileges calmly and consistently, rather than harsh punishment.
- **Helping with transitions:** Giving a child advance notice before changing activities reduces frustration.
- **Providing extra supervision and support**: ADHD children may need reminders and step-by-step guidance when completing tasks.

Evidence-Based Parent Training Programs include:

- Parent-Child Interaction Therapy (PCIT)

- Incredible Years
- Triple P (Positive Parenting Program)

Studies show that behavioral parent training is the most effective first-line treatment for ADHD in young children and can reduce hyperactivity, impulsivity, and defiance while strengthening parent-child relationships.

School and Early Education Strategies

Children with ADHD often struggle with structured school environments, but early interventions can improve focus, social skills, and learning. Behavioral interventions in the classroom—such as visual schedules, short work periods, and movement breaks—can help preschoolers stay on track. Some children with severe ADHD may qualify for **special education services**, such as Individualized Education Program (IEP) or 504 plan, before kindergarten. Neuropsychological testing can help the school district understand the child's specific needs. Working closely with teachers and reinforcing positive behaviors at home also helps children succeed at school.

ADHD Symptoms Over Time

ADHD is often a lifelong condition, but symptoms can change over time. Many children become less hyperactive as they grow, but attention problems and impulsivity may continue into adolescence.

Factors that increase the likelihood of ADHD persisting into adulthood include:

- A family history of ADHD
- Co-occurring conditions (e.g., anxiety, oppositional defiant disorder)
- High levels of early stress or trauma (e.g., >4 ACEs)

However, early intervention, a structured home environment, and parent training can improve outcomes and help children develop better coping skills.

Summary of What Caregivers Can Do

- Seek early diagnosis and intervention when ADHD symptoms are present.
- Address sleep problems early and thoroughly—poor sleep makes ADHD symptoms worse.

- Join a parent training program like PCIT to learn effective discipline techniques.
- Work with a behavioral therapist to create a structured home environment with clear expectations and routines.
- Work with a developmental assessment specialist to identify all behavioral, social, and emotional challenges and develop a comprehensive treatment plan.
- Work with an occupational therapist to improve motor skills, self-regulation, and other functional challenges.
- Communicate with teachers to support the child's learning and behavior at school and explore neuropsychological testing to facilitate support from the school district.

Understanding the connections between ADHD, trauma, sleep, and parenting strategies can help caregivers provide the best support for their child. Parent training, structured routines, and addressing underlying issues like sleep disorders and trauma are crucial for helping children regulate their behavior and improve their focus.