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| RESEARCH ARTICLE

The Role of Parent–Child Attachment and Sleep Hygiene in the Development of ADHD in Children

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| ABSTRACT

Attention-Deficit/Hyperactivity Disorder (ADHD) is a multifactorial neurodevelopmental condition shaped by biological, environmental, and psychosocial influences. Beyond genetic vulnerability, emerging evidence highlights the developmental significance of contextual factors such as parent–child attachment, sleep hygiene, and emotional competence. This literature review synthesizes empirical findings examining how these three domains contribute to the development of ADHD in children. Understanding these mechanisms may help inform more comprehensive, family-centered approaches to ADHD prevention and management. Secure parent–child attachment was consistently associated with better emotional regulation, internalization of behavioral control, and reduced ADHD symptomatology, whereas maternal anxiety and low emotional availability were linked to greater symptom severity. Sleep hygiene also demonstrated a strong relationship with ADHD manifestations, with poor sleep routines, sleep disturbances, and inadequate sleep quality correlating with higher levels of inattention, hyperactivity, and emotional dysregulation. Interventions targeting sleep hygiene have been shown to improve both sleep and behavioral outcomes in ADHD populations. Furthermore, studies examining attachment and sleep jointly show that secure attachment promotes healthier sleep quality, and sleep quality partially mediates the relationship between attachment and well-being. In conclusion, the literature suggests that parent–child relational processes and sleep-related behaviors interact to shape self-regulatory development, which may influence ADHD symptoms.

| KEYWORDS

Parent-child attachment, sleep hygiene, emotional competence, ADHD, children

| ARTICLE INFORMATION

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1. Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental condition characterized by a continual pattern of inattention and/or hyperactivity-impulsivity that impacts development or functioning. Wandering off target, not following directions or completing tasks, having trouble maintaining focus, and being disorganized are behavioral manifestations of inattention in ADHD that cannot be attributed to lack of comprehension. Hyperactivity includes excessive fidgeting, tapping, or talkativeness as well as excessive motor activity (like a youngster running around) when it is inappropriate. Impulsivity is the term used to describe impulsive, spontaneous, and potentially harmful behaviors (e.g., darting into the street without looking). The etiology of ADHD is multifactorial, including genetic, environmental, and physiological influences. About 74% of ADHD cases are heritable, which shows a strong genetic influence (APA, 2022). Various environmental factors such as exposure to substances and toxins during pregnancy, complications during childbirth, nutrition, psychosocial problems, exposure to heavy metals and chemicals, play a role in increasing the risk of ADHD (Ayu, 2017). In psychosocial factors, early family interaction patterns may affect the course of ADHD or lead to the secondary development of conduct issues, but they are unlikely to be the cause of ADHD (APA, 2022).

Children and adults with ADHD frequently exhibit emotional dysregulation or emotional impulsivity, which commonly find themselves agitated, easily upset, and emotionally overreactive (APA, 2022). If not managed and treated appropriately, many negative outcomes result from improper management and treatment of ADHD symptoms, including delayed academic achievement, diminished intimate relationships, low self-esteem in adulthood, alcohol or substance abuse, decreased financial stability, high rates of criminal activity, comorbidity risk factors, and elevated mortality (Kosheleff, 2023). Because of these broad consequences, proper handling of ADHD needs consideration of both biological and contextual factors, including family environment, sleep patterns, and emotional traits. Children's self-control and behavioral adjustment are influenced by the quality of parent-child attachment (Augustin, 2024). Depending on their consistency and quality, sleep regimens have been demonstrated to either exacerbate or alleviate symptoms of ADHD. In people with ADHD, emotional competence is frequently decreased, which exacerbates symptoms and impairs functioning. This research uses a literature review method with the inclusion criteria of articles that are written in English and Indonesia, examining these variables in relation to ADHD, while studies focusing on other disorders were excluded. The aim of this review is to examine how parent–child attachment, sleep routine, and emotional competence contribute to the development and manifestations of ADHD symptoms in children.

2. Parent-Child Attachment in ADHD Development

Attachment refers to an affectionate, gratifying relationship between a child and a caregiver such as a parent who makes the child feel safe, secure, and protected (Bowlby, 1969). According to Ranson and Urichuk (2008), parent-child attachment (PCA) security is one of the elements influencing future socioemotional functioning as well as mental and physical health. Research in children 4-11 years old by Dekkers (2021) revealed that compared to children with regular development, children with ADHD reported less stable attachment representations, also the attachment representations of children with ADHD were more ambiguous and disjointed. Additionally, ADHD symptoms in children were found to be adversely correlated with maternal emotional availability (EA), with the non-hostility (peaceful, not aggressive) subscale showing the most negative correlation (Augustin, 2024). Maternal emotional availability is a multifaceted concept that refers to a reciprocal, loving, genuine, and sensitive emotional relationship between a parent and child (Duman, 2025). Also, in bivariate correlations, there is a negative correlation between child attachment representation and child ADHD symptoms, but after child sex and oppositional behavior were taken into account, the association disappeared (Augustin, 2024).

Setiawati et al., (2018) also found that higher maternal anxiety was associated with more severe ADHD symptoms in children. As Bowlby (1969) said attachment is when parents make children feel safe and secure, while maternal anxiety will not develop them. This suggests that maternal anxiety may indirectly contribute to ADHD development through its impact on attachment quality. Dekkers et al., (2021) revealed that there are children's reactions to parenting techniques and the results obliquely indicate developmental mechanisms. While insecure or disordered attached children reacted more strongly to consequent-based reinforcement, securely attached children were more receptive to antecedent-based structure (such as routines and predictable expectations). These patterns imply that children's internalization of parental supervision and behavior regulation is shaped by attachment. The fact that insecure or disorganized attachment has been linked to an increased risk of developing ADHD symptoms may be explained by these variations in regulation development. Beside that, children with ADHD benefit from social skill therapy in terms of emotional control, peer interactions, and social communication. (Puspitasari, 2025).

3. Sleep Hygiene in ADHD Development

Sleep is important for the health and well-being of all people, especially children. Children's sleep characteristics, including length, timing, quality, and variability, are increasingly linked to a variety of health effects (Matricciani, 2019). Sleep hygiene refers to modifiable behaviours and environmental changes that can be used to enhance the quality and duration (Hauri, 1977). While children who use gadgets more than the WHO's suggested one-hour daily screen time limit are more likely to experience sleep difficulties (Barmen, 2025).

ADHD is frequently associated with sleep disorder or disturbance (Hvolby. 2015). Children with ADHD have a comparatively high percentage of sleep disorders, with most experiencing trouble falling and staying asleep (Permatawati, 2018). Miniksar (2021) found that sociodemographic variables and familial traits affect sleep quality in healthy children and children with ADHD (Miniksar, 2021). The more sleep issues there are, the higher the ADHD symptom score and ADHD symptoms can also be brought on by or made worse by sleep disorders, and the severity of sleep disturbances is correlated with the ADHD symptom score (Yin, 2022). Sleep hygiene intervention is effective in improving sleep problems in ADHD children. Shokravi (2016) revealed that when mothers were given a sleep hygiene education intervention that was implemented through a training session, a brochure, two phone calls and instructional text messages, the sleep problems in the children with ADHD improved. Additionally, Noyan (2024) also proved that sleep hygiene training in children with ADHD by using group training and eight weeks of telephone interviews evaluated via parents resulted in significant improvement in children's sleep and ADHD symptoms. So, by using behavioral sleep therapies we can lessen the severity of their attention-deficit-hyperactivity disorder to help children with ADHD sleep better.

4. The Relationship between Parent-Child Attachment and Sleep Hygiene

Children's sleep quality improves when mothers and their toddlers have a closer bond (Muskananfola, 2018). Yang (2020) found that poor sleep quality was positively correlated with parental rejection and negatively correlated with parental warmth. Sciberras (2017) stated that sleep issues in children with ADHD have been linked to parenting and sleep hygiene. In particular, improved sleep hygiene was linked to lower levels of daytime sleepiness, less delayed sleep start, and fewer sleep duration issues, whereas more consistent parenting was linked to lower bedtime resistance. While parenting consistency was linked to reduced levels of sleep anxiety and more delayed sleep onset, greater parental warmth was linked to decreased delayed sleep onset as well as increased parasomnias and anxiety. Internalizing and externalizing comorbidities, stimulant prescription use, and child age and gender did not affect these correlations. The finding was also supported by another research that revealed secure attachment to both parents in children is associated with fewer problems and better sleep quality. Also, attachment security is associated with higher subjective well-being. Additionally, this association was partially mediated by sleep quality, which means that children who were securely attached also had better sleep, which contributed to their higher levels of wellbeing (Perpetuo, 2023).

5. Conclusion

This review highlights that the development of ADHD symptoms is influenced not only by genetic and neurobiological factors but also by relational and behavioral contexts. Secure parent–child attachment supports healthier emotional regulation and behavioral control, whereas insecure or disorganized attachment may increase vulnerability to attentional and regulatory difficulties associated with ADHD. Sleep hygiene also emerges as a key contributor, as poor sleep quality is consistently linked to greater ADHD symptom severity. Importantly, attachment security and parental warmth are associated with better sleep quality, suggesting an integrated pathway that develops healthier sleep and in turn, supports more adaptive attention and behavior.

Future research should focus on longitudinal designs to clarify whether attachment and sleep hygiene serve as causal risk factors or developmental moderators of ADHD. Studies integrating attachment-based parenting interventions with structured sleep-hygiene programs may provide insight into combined preventive or therapeutic strategies. Additionally, more research is needed in diverse cultural contexts, including Indonesia, to better understand how family dynamics and daily routines interact with ADHD symptoms across different environments.

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References

[1] American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787
[2] Amin Shokravi, F. , Hakim Shooshtari, M. and Shahhatami, H. (2016). The Impact of a Sleep Hygiene Intervention on Sleep Habits in Children with Attention Deficit/Hyperactivity Disorder. Journal of Pediatric Perspectives, 4(12), 4117-4126. doi: 10.22038/ijp.2016.7285
[3] Augustin, M., Mall, V., & Licata-Dandel, M. (2024). ADHD symptoms in middle childhood: The role of child attachment and maternal emotional availability in an inpatient clinical sample. *European Journal of Investigation in Health, Psychology and Education, 14*(6), 1572–1584. https://doi.org/10.3390/ejihpe14060104
[4] Ayu. N. H. F., & Setiawati, Y. (2017). Interaksi faktor genetik dan lingkungan pada attention deficit/hyperactivity disorder (ADHD). Jurnal Psikiatri Surabaya, 6(2), 98–107. https://doi.org/10.20473/jps.v6i2.19434
[5] Barmen, N. F., Lestari, P., Setiawati, Y., & Rahmatullah, I. (2025). Relationship between gadget usage duration and sleep pattern in children aged 3–5 years in Pucang Sewu Village Surabaya. *World Journal of Advanced Research and Reviews*, 27(1), 867–877. https://doi.org/10.30574/wjarr.2025.27.1.2600
[6] Bowlby, J. (1969). Attachment and Loss, Vol. 1: Attachment. Attachment and Loss. *New York: Basic Books*. https://share.google/qrePKghX5sURK8cHs
[7] Dekkers, T. J., Hornstra, R., van den Hoofdakker, B. J., de Jong, S. R. C., Schaaf, J. V., Bosmans, G., & van der Oord, S. (2021). Attachment representations in children with and without attention-deficit/hyperactivity disorder (ADHD). *Brain Sciences,* 11, 1516. https://doi.org/10.3390/brainsci11111516
[8] Duman, A. E. (2025). Parental emotional availability: A conceptual review. *Psikiyatride Güncel Yaklaşımlar - Current Approaches in Psychiatry, 18*(2), 547–564. https://doi.org/10.18863/pgy.1680105
[9] Gaye Türkmen Noyan, G. B. D., & Örengül, A. C. (2024). A randomized controlled trial of effects of sleep hygiene training and progressive muscle relaxation training in children with ADHD. *Sleep Medicine*, 117, 169–176. https://doi.org/10.1016/j.sleep.2024.03.001
[10] Hauri, P. (1977). Current concepts: The sleep disorders. Kalamazoo, MI: The Upjohn Company.
[11] Hvolby, A. (2015). Associations of sleep disturbance with ADHD: Implications for treatment. Attention Deficit and Hyperactivity Disorders, 7(1), 1–18. https://doi.org/10.1007/s12402-014-0151-0
[12] Kosheleff, A. R., et al. (2023). Functional impairments associated with ADHD in adulthood and the impact of pharmacological treatment. *Journal of Attention Disorders*, 27(7), 669–697. https://doi.org/10.1177/10870547231158572

[13] Matricciani, L., Paquet, C., Galland, B., Short, M., & Olds, T. (2019). Children's sleep and health: A meta-review. *Sleep Medicine Reviews*, 46, 136–150. https://doi.org/10.1016/j.smrv.2019.04.011
[14] Muskananfola, F. V. (2018). Correlation between quality of mother–child bonding with toddlers' sleep quality (Undergraduate thesis, Faculty of Medicine, Universitas Indonesia). https://lib.ui.ac.id/detail?id=20493199&lokasi=lokal
[15] Permatawati, M., Triono, A., & Sitaresmi, M. N. (2018). Sleep disorders in children with attention-deficit/hyperactivity disorder. *Paediatrica Indonesiana*, 58(1), 48–52. https://paediatricaindonesiana.org/index.php/paediatrica-indonesiana/article/view/1693
[16] Perpétuo, C., El-Sheikh, M., Diniz, E., & Veríssimo, M. (2023). Attachment to mother and father, sleep, and well-being in late middle childhood. *International Journal of Environmental Research and Public Health,* 20(4), 3399. https://doi.org/10.3390/ijerph20043399
[17] Puspitasari, A., & Setiawati, Y. (2025). Social Skills Training for Children with Attention-Deficit/Hyperactivity Disorder: Current Insights and Future Directions. Medical Forum Monthly, 36(5), 61-65. https://doi.org/10.60110/medforum.360513
[18] Ranson, K. E., & Urichuk, L. J. (2008). The effect of parent–child attachment relationships on child biopsychosocial outcomes: A review. *Early Child Development and Care*, 178(2), 129–152. https://doi.org/10.1080/03004430701666758
[19] Sciberras, E., Song, J. C., Mulraney, M., Schuster, T., & Hiscock, H. (2017). Sleep problems in children with attention-deficit hyperactivity disorder: associations with parenting style and sleep hygiene. *European child & adolescent psychiatry*, 26(9), 1129–1139. https://doi.org/10.1007/s00787-017-1000-4
[20] Setiawati, Y., Mukono, H. J., Wahyuhadi, J., & Warsiki, E. (2018). The relationship between severity of attention deficit hyperactivity disorder (ADHD) with maternal anxiety. *Health Notion,* 2(4), 426–431.
[21] Victoria, V., & Setiawati, Y. (2025). Effectiveness of school-based sensory integration therapy in addressing emotional and behavioral challenges in children with ADHD symptoms. *Medical Forum Monthly,* 36. https://doi.org/10.60110/medforum.360201
[22] Yang, X., Fan, C., Liu, Q., Chu, X., Song, Y., & Zhou, Z. (2020). Parenting styles and children's sleep quality: Examining the mediating roles of mindfulness and loneliness. Children and Youth Services Review, 114, 104921. https://doi.org/10.1016/j.childyouth.2020.104921
[23] Yıldız Miniksar, D., & Özdemir, M. (2021). Sleep quality in children and adolescents with attention-deficit and hyperactivity disorder. *Archives de Pédiatrie*, 28(8), 668–676. https://doi.org/10.1016/j.arcped.2021.09.017
[24] Yin, H., Yang, D., Yang, L., & Wu, G. (2022). Relationship between sleep disorders and attention-deficit-hyperactivity disorder in children. *Frontiers in Pediatrics,* 10, 919572. https://doi.org/10.3389/fped.2022.919572