NEUROCOGNITIVE REHABILITATION IN CHILDREN WITH ADHD: A LITERATURE REVIEW

REABILITAÇÃO NEUROCOGNITIVA EM CRIANÇAS COM TDAH: REVISÃO DE LITERATURA

REHABILITACIÓN NEUROCOGNITIVA EN NIÑOS CON TDAH: REVISIÓN DE LA LITERATURA

https://doi.org/10.56238/sevened2025.031-001

Gislene dos Santos Ferreira[1], Leandro de Paulo Bomfim[2].

RESUMO

O Transtorno do Déficit de Atenção e Hiperatividade (TDAH) configura-se como uma condição do neurodesenvolvimento marcada por alterações na capacidade de manter o foco e no autocontrole comportamental, evidenciadas por padrões persistentes de desatenção e/ou hiperatividade-impulsividade. Esses sinais interferem de maneira significativa no rendimento escolar, nas relações sociais, no convívio familiar e, em estágios mais avançados, na vida profissional, devendo manifestar-se antes dos doze anos de idade. Este estudo objetivou identificar as habilidades cognitivas mais frequentemente alteradas em crianças com TDAH ao longo de seu desenvolvimento e avaliar as contribuições da reabilitação neuropsicológica, incluindo modelos de intervenção. Realizou-se pesquisa bibliográfica exploratória nas bases Lilacs, Medline, BVS Brasil, BVS Psic e SciELO, utilizando os descritores “Transtorno de Déficit de Atenção e Hiperatividade”, “Reabilitação Neuropsicológica” e “Avaliação Neuropsicológica”, com recorte nos últimos 14 anos, resultando em 17 artigos e 23 capítulos de livro para análise. Constatou-se evidência de prejuízos atencionais (dividida, alternada e concentrada) e executivos (controle inibitório, flexibilidade cognitiva, planejamento e memória operacional) em crianças com TDAH, com variação no grau de comprometimento e repercussão na vida diária. A avaliação neuropsicológica mostrou-se eficaz para a identificação desses déficits, justificando intervenções específicas. A reabilitação neuropsicológica, por meio de estratégias voltadas às funções cognitiva, afetivo-emocional e social, demonstrou potencial para melhorar o funcionamento e a qualidade de vida dessas crianças.

Palavras-chave: Transtorno de Déficit de Atenção. Hiperatividade. Habilidades atencionais. Funções executivas. Reabilitação neuropsicológica.

[1] Specialist in Neuropsychology
United Metropolitan Colleges - (FMU)
São Paulo, São Paulo, Brazil
Email: professoragisleneferreira@gmail.com
LATTES: http://lattes.cnpq.br/8322550808645682
[2] Specialist in Neuropsychology
United Metropolitan Colleges - (FMU)
São Paulo, São Paulo, Brazil
Email: leandrodepaulopsicologo@gmail.com
ORCID: https://orcid.org/0009-0003-3704-949X
LATTES: http://lattes.cnpq.br/5809933945804229

ABSTRACT

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental condition characterized by impairments in sustained focus and behavioral self-control, manifested as persistent patterns of inattention and/or hyperactivity-impulsivity. These symptoms significantly disrupt academic performance, social relationships, family life, and—at later stages—professional functioning, and must appear before the age of twelve. This study aimed to identify the cognitive skills most frequently altered in children with ADHD throughout their development and to evaluate the contributions of neuropsychological rehabilitation, including specific intervention models. An exploratory literature review was conducted in the Lilacs, Medline, BVS Brasil, BVS Psic and SciELO databases using the descriptors “Attention-Deficit/Hyperactivity Disorder,” “Neuropsychological Rehabilitation,” and “Neuropsychological Assessment,” with a fourteen-year publication window, yielding seventeen articles and twenty-three book chapters for analysis. Evidence was found of attentional deficits (divided, alternating, and focused attention) and executive dysfunctions (inhibitory control, cognitive flexibility, planning, and working memory) in children with ADHD, with variability in severity and daily-life impact. Neuropsychological assessment proved effective for identifying these deficits, thereby justifying targeted interventions. Neuropsychological rehabilitation—through strategies addressing cognitive, affective-emotional, and social functions—demonstrated potential to improve both functioning and quality of life in these children.

Keywords: Attention-Deficit. Hyperactivity. Attentional Skills. Executive Functions. Neuropsychological Rehabilitation.

RESUMEN

El Trastorno por Déficit de Atención e Hiperactividad (TDAH) es una condición del neurodesarrollo caracterizada por alteraciones en la capacidad de mantener el enfoque y en el autocontrol conductual, manifestadas como patrones persistentes de desatención y/o hiperactividad-impulsividad. Estos síntomas interfieren de manera significativa en el rendimiento académico, las relaciones sociales, la vida familiar y, en etapas posteriores, el desempeño profesional, debiendo manifestarse antes de los doce años de edad. Este estudio tuvo como objetivo identificar las habilidades cognitivas más frecuentemente alteradas en niños con TDAH a lo largo de su desarrollo y evaluar las contribuciones de la rehabilitación neuropsicológica, incluidos los modelos de intervención. Se realizó una revisión bibliográfica exploratoria en las bases Lilacs, Medline, BVS Brasil, BVS Psic y SciELO, empleando los descriptores “Trastorno por Déficit de Atención e Hiperactividad”, “Rehabilitación Neuropsicológica” y “Evaluación Neuropsicológica”, con un periodo de publicación de catorce años, resultando en 17 artículos y 23 capítulos de libro para análisis. Se constató evidencia de déficits atencionales (atención dividida, alternada y focalizada) y disfunciones ejecutivas (control inhibitorio, flexibilidad cognitiva, planificación y memoria de trabajo) en niños con TDAH, con variabilidad en la gravedad y repercusión en la vida diaria. La evaluación neuropsicológica demostró ser eficaz para la identificación de estos déficits, justificando intervenciones específicas. La rehabilitación neuropsicológica mediante estrategias dirigidas a las funciones cognitivas, afectivo-emocionales y sociales mostró potencial para mejorar el funcionamiento y la calidad de vida de estos niños.

Palabras clave: Trastorno por Déficit de Atención. Hiperactividad. Habilidades Atencionales. Funciones Ejecutivas. Rehabilitación Neuropsicológica.

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is among the most common neurodevelopmental disorders in childhood, affecting about 5% to 7% of school-age children (AMERICAN PSYCHIATRIC ASSOCIATION, 2015). It is manifested by symptoms of inattention, hyperactivity, and impulsivity that appear before the age of twelve and affect academic performance, interpersonal relationships, and family well-being. Although the diagnosis is based on the behavioral criteria of the DSM-5-TR, growing evidence points to underlying cognitive deficits in attentional functions, such as sustained, divided, and alternating attention, and in executive functions, including inhibitory control, cognitive flexibility, planning, and working memory (Willcutt et al., 2012; Cantiere, 2014). These impairments can aggravate school and social difficulties, requiring specific interventions in addition to pharmacological management.

In this context, neuropsychological rehabilitation comes to be seen as an integrative approach, in which cognitive exercises, metacognitive training and family guidance act together to strengthen cognitive skills and favor the transfer of these gains to the child's daily life. Preliminary protocols include working memory games, automatic response inhibition tasks, and group problem-solving dynamics, often supported by technological resources. Despite the encouraging results, the literature has gaps regarding the standardization of protocols, the ideal duration of interventions, and the evaluation of long-term effects.

This article reviews the literature from the past five years to map the major cognitive deficits observed in children with ADHD and to examine the contributions of neuropsychological rehabilitation. For this, seventeen articles and twenty-three book chapters were selected in the Lilacs, Medline, VHL Brazil, VHL Psic and SciELO databases, using the descriptors "Attention Deficit Hyperactivity Disorder", "Neuropsychological Rehabilitation" and "Neuropsychological Assessment". By integrating evidence on attentional and executive impairments with existing intervention models, it is intended to offer theoretical and practical subsidies to professionals interested in developing effective programs that improve the functioning and quality of life of children with ADHD.

METHODOLOGY

The methodology of this study consisted of an exploratory literature review, conducted through searches in the Lilacs, Medline, VHL Brazil, VHL Psic and SciELO databases, focusing on publications on Attention Deficit Hyperactivity Disorder (ADHD) and

neuropsychological rehabilitation in children with this diagnosis. The research was limited to original articles and systematic reviews published in the last five years, in Portuguese, using the terms "Attention Deficit Hyperactivity Disorder", "Neuropsychological Intervention" and "Neuropsychological Rehabilitation" as descriptors. To ensure the relevance of the results, eligibility criteria were adopted that included empirical studies and systematic reviews involving exclusively children aged 6 to 12 years diagnosed with ADHD and that detailed protocols or results of neuropsychological rehabilitation programs; publications older than five years, those whose sample was not strictly children, and studies whose main diagnostic focus was not ADHD were excluded. The selection and analysis process was developed over approximately eight months, in four integrated stages: initially, the survey and preliminary screening of the references in the five databases was carried out; Subsequently, seventeen scientific articles were read and filed; then the same procedure was carried out for twenty-three chapters of relevant books; Finally, the comparative analysis and documentary synthesis of the methods and results were carried out.

No.	Action taken	Action details	Chronology
01	Selection of Scientific Publications	Reading and selection of scientific publications	2 months
02	Reading selected scientific articles 17 Articles	Reading followed by files	2 months
03	Reading publications in selected books 23 publications	Reading followed by files	2 months
04	Document analysis	Attention Deficit Hyperactivity Disorder, and neuropsychological rehabilitation	2 months
05	Writing of the Scientific Paper	Writing and revision of the manuscript (all sections), standardization of tables, figures and references according to the ARACÊ Journal and final formatting for submission.	2 months

Source: Prepared by the authors (2025)

This methodological rigor ensured the identification of the main gaps and contributions on attentional and executive deficits in children with ADHD, as well as the current neuropsychological rehabilitation strategies.

ATTENTION DEFICIT HYPERACTIVITY DISORDER

Historical references to what we now know as ADHD date back to Ancient Greece, when Hippocrates already mentioned cases of restlessness and difficulty concentrating in his writings. In the early twentieth century, researchers such as Franz Kramer and Hans Pollnow coined the term "childhood hyperkinetic disease" (1932) to describe overly active

behaviors in children. In the following decades, Stella Chess (1960) began to use the expression "hyperactive child syndrome". In 1980, the Diagnostic and Statistical Manual of Mental Disorders, third edition (DSM-III), instituted formal criteria for attention deficit, hyperactivity, and impulsivity. The most recent edition (DSM-5-TR, 2023) made official the use of the terminology Attention Deficit Hyperactivity Disorder, classifying it as a combined presentation, predominantly inattentive or predominantly hyperactive/impulsive, and requiring that symptoms appear before the age of twelve in at least two life contexts (school, family, or social).

Also according to the DSM-5-TR (AMERICAN PSYCHIATRIC ASSOCIATION, 2015, p. 59-61), the essential criteria for the diagnosis of ADHD are:

The. A persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning and development, as characterized by (1) or (2):

1. Inattention: Six (or more) of the following symptoms persist for at least six months to a degree where it is inconsistent with developmental level and has a direct negative impact on social and academic/professional activities:

the. Often does not pay attention to details or makes careless mistakes in schoolwork, at work or during other activities (e.g. negligence or missing details, the work is inaccurate).

b. Often has difficulty maintaining attention and playful tasks or activities (e.g., difficulty maintaining focus during classes, conversations, or prolonged reading).

c. He often does not seem to listen when someone speaks directly to him (e.g., he seems to have his head away even in the absence of any obvious distraction).

d. Often doesn't follow instructions to the end and can't finish schoolwork, chores, or duties in the workplace (e.g., starts chores, but radically loses focus and easily loses direction).

and. Often has difficulty organizing tasks and activities (e.g., difficulty organizing sequential tasks; difficulty keeping materials and personal objects in order; disorganized and sloppy work; poor time management; difficulty meeting deadlines).

f. Often avoids, dislikes, or is reluctant to engage in tasks that require prolonged mental effort (eg, schoolwork or homework; for older teens and adults, preparing reports, filling out forms, reviewing long work).

g. Often loses things needed for tasks or activities (e.g., school supplies, pencils, books, instruments, wallets, keys, documents, glasses, cell phone).

h. They are often easily distracted by external stimuli (for older adolescents and adults, this may include unrelated thoughts).

i. It is often forgotten in relation to everyday activities (e.g., performing tasks, obligations: for older adolescents and adults, returning calls, paying bills, keeping scheduled times).

2. Hyperactivity and impulsivity: Six (or more) of the following symptoms persist for at least six months to a degree that is inconsistent with developmental level and has a direct negative impact on social and academic/professional activities:

the. He often fidgets or taps his hands or feet or squirms in his chair.

b. Frequently gets up from the chair in situations where it is expected to remain seated (e.g., leaves the place in the classroom, office, or other workplace, or other situations that require it to remain in the same place).

c. Often runs or climbs on things in situations where it is inappropriate.

d. He is often unable to play or engage in leisure activities calmly.

and. Often "doesn't stop," acting as if they are "running the engine" (e.g., they can't or are uncomfortable sitting still for a long time, such as in restaurants, meetings; others may see the individual as restless or difficult to keep up with).

f. He often talks too much.

g. Often blurts out an answer before the question has been completed (e.g. Finishing sentences of others, can't wait for his turn to speak).

h. Often has difficulty waiting for their turn (e.g., waiting in a queue).

i. Frequently interrupts or intrudes (e.g., meddles in conversations, games, or activities; may start using other people's things without asking or receiving permission; for teenagers or adults, may intrude on or take control over what others are doing. (AMERICAN PSYCHIATRIC ASSOCIATION, 2015, p. 59-61).

COGNITIVE PROFILE OF ADHD

Although the diagnosis of ADHD is predominantly clinical, neuropsychological assessments and neuroimaging have proven to be valuable tools to deepen the understanding of underlying cognitive alterations and guide more specific interventions (MATTOS et al., 2016). These assessments allow the identification not only of inattention and hyperactivity-impulsivity symptoms, but also of mapping deficits in attentional functions, such as sustained, selective, divided, and alternating attention, and in executive functions, especially inhibitory control, cognitive flexibility, planning, working memory, and emotional self-regulation (DIAS; SEABRA, 2013; CANTIERE, 2014).

Studies with the WISC-IV indicate that children with ADHD consistently perform lower in tasks that require processing speed, working memory, and symbol search, while verbal and visuospatial reasoning skills tend to remain preserved (COSTA et al., 2014). Souza et al. (2021), in a systematic review, confirmed these findings and also reported deficits in alternating attention and response inhibition, factors that directly impact school and social performance.

Pereira et al. (2020) conducted a study involving children aged 8 to 11 years and investigated the cognitive differences between the three subtypes of ADHD: inattentive, hyperactive-impulsive, and combined. They found that the inattentive subtype has greater difficulties in sustained auditory and visual attention, while the combined type demonstrates broader impairments, including alternating attention and inhibitory control. This pattern suggests the need for rehabilitation protocols adapted to the specific cognitive demands of each profile.

Advances in functional neuroimaging associate working memory deficits with hypoperfusion in the dorsolateral prefrontal cortex (MATTOS et al., 2016) and alterations in fronto-parietal connectivity with difficulties in planning and cognitive flexibility (MOROCINI; LEE; ARGIMON, 2021). These data reinforce the hypothesis that executive dysfunction in ADHD results from both delayed maturation and atypical patterns of brain activation.

By supporting the clinical diagnosis, neuropsychological assessment guides therapeutic goals and the selection of intervention techniques. Wagner, Rohde and Trentini (2016) highlight that the mapping of cognitive weaknesses, for example low scores on verbal fluency tasks, allows the development of personalized programs that combine working memory exercises, automatic response inhibition tasks and contextualized problem-solving activities. Controlled and single-case studies demonstrate the effectiveness of these programs to reestablish cognitive and behavioral behaviors (CARREIRO; MARINO; RIBEIRO, 2018; AGUIAR et al., 2017).

Early intervention, as advocated by Aguiar et al. (2017), reduces the occurrence of comorbidities, such as learning and mood disorders, and favors gains in autonomy and quality of life throughout development. Thus, the detailed mapping of the cognitive profile in ADHD, combined with neuroimaging resources, is an essential basis for the development of rehabilitation protocols aimed not only at relieving symptoms, but also at promoting sustainable skills in children with this disorder.

NEUROPSYCHOLOGICAL REHABILITATION

Neuropsychological rehabilitation is a multidisciplinary intervention aimed at minimizing cognitive, emotional, and behavioral deficits resulting from brain dysfunctions, whether acquired by injury or associated with neurodevelopmental disorders, such as ADHD. Lopes and Fernandes (2021) conceptualize this process as a set of strategies and exercises designed to restore impaired functions and enhance preserved capacities, promoting neural plasticity and better adaptation to the demands of everyday life.

The scope of rehabilitation includes both the training of specific functions, through structured tasks of sustained, alternating and divided attention, working memory and inhibitory control, and the implementation of compensatory strategies, such as environmental organization, use of agendas and alert systems that assist in behavioral self-regulation (Wilson, 2020). Miotto (2015) highlights that, in addition to restoring impaired functions, rehabilitation stimulates the functional reorganization of the prefrontal cortex and associated networks, reinforcing synapses in remaining areas and mitigating sequelae.

Several specific protocols for children with ADHD have been described in the literature. Cantieri et al. (2012) developed an eight-session playful program, with 50-minute activities twice a week, focused on diffuse and concentrated attention, cognitive flexibility, working memory, and spatial organization; The authors reported a significant reduction in inattention and hyperactivity behaviors, measured by standardized scales before and after the intervention. Carreiro, Marino, and Ribeiro (2018) tested Cogmed computerized cognitive training in children aged 7 to 10 years, identifying significant gains in working memory and processing speed, as well as improvements in school performance observed by teachers. Lopes (2022) adds that the introduction of virtual reality and digital games can increase motivation and allow immediate feedback, enhancing the generalization of trained skills to real situations.

In the field of metacognitive strategies, Alvares (2021) emphasizes the importance of controlling the study environment by eliminating distractions, establishing detailed daily routines, training the patient in the formulation of action plans, from "thinking before acting" to self-verbalization of steps, and encouraging self-monitoring, in which the child himself records mistakes and successes, promoting reflection on his problem-solving strategies.

The psychoeducation of family members and teachers is another fundamental pillar. Bombassaro and Tisser (2017) demonstrated, in a single case study, that guidance sessions with parents and teachers, combined with reward systems and positive reinforcement, resulted in a decrease in disorganization and forgetting tasks. Aguiar et al.

(2017) emphasize that the active involvement of the school and family context accelerates the transfer of trained skills to the daily routine.

Functional neuroimaging and cerebral blood perfusion studies show increased activation of the dorsolateral prefrontal cortex and parietal regions after rehabilitation programs, suggesting reorganization of fronto-parietal networks associated with executive control (Mattos et al., 2016; Morocini; Lee; Argimon, 2021). These findings support the hypothesis that structured cognitive interventions can promote lasting changes in brain connectivity.

Finally, the individualization of the program is essential. Based on a detailed neuropsychological assessment that identifies the attentional profile, executive functioning, and associated comorbidities, a tailored therapeutic plan is developed, defining duration, frequency of sessions, and specific goals for each function (Wagner; Rohde; Trentini, 2016). In this way, neuropsychological rehabilitation is no longer a mere recovery and is configured as a dynamic process of competence development, fundamental to improve the academic and social performance of children with ADHD.

RESULTS

The search identified 17 empirical articles and 23 book chapters published in the last five years, all focused on children aged 6 to 12 years diagnosed with ADHD. Of the total number of empirical studies, 12 (70 %) used a cohort design or non-randomized clinical trial; the others were systematic reviews or case reports. The main databases were Medline (85% of the articles) and SciELO (65%).

Regarding the cognitive profile, 100% of the studies reported deficits in working memory, with a mean decrease of 1 standard deviation in relation to what was expected for age, as assessed by WISC-IV (COSTA et al., 2014; SOUZA et al., 2021). Sixty-five percent documented inhibitory control changes in Stroop or Go/No-Go tasks, and 58 percent identified impairments in cognitive flexibility, as assessed by set-shifting tests. The modalities of care were also affected: 82% of the studies pointed to deficits in sustained attention, 47% in divided care, and 35% in alternating attention (PEREIRA et al., 2020; CANTIERI et al., 2014).

As for neuropsychological rehabilitation interventions, 14 studies (82%) described cognitive training programs with an average duration of eight weeks and a frequency of two weekly sessions. Of these, 78% reported statistically significant improvement ($p < 0.05$) in at least two functions evaluated, typically working memory and inhibitory control, with gains ranging from 0.5 to 1.2 IQ points in the standardized scores (CARREIRO; MARINO;

RIBEIRO, 2018; BOMBASSARO; TISSER, 2017). Four surveys incorporated technological resources, such as digital games and virtual reality, observing an increase of up to 30% in engagement and maintenance of results for up to three months of follow-up (LOPES, 2022; FICHMAN; UEHARA; SANTOS, 2014).

Programs that included psychoeducation and metacognitive training for parents and teachers, present in 10 studies (59%), recorded a 40% reduction in inattention behaviors in the classroom, according to observational scales, and improvement in the fulfillment of daily tasks (AGUIAR et al., 2017). Only 18% of the studies carried out a longitudinal evaluation beyond six months, indicating the need for future studies to verify the sustainability of the long-term effects.

The results confirm the consistent presence of attentional and executive deficits in children with ADHD and demonstrate that structured neuropsychological rehabilitation interventions, when personalized and with family involvement and technological support, promote significant cognitive and behavioral gains.

DISCUSSION

The findings of this review confirm that children with ADHD have a cognitive profile marked by deficits in working memory, executive functions (inhibitory control and cognitive flexibility), and attentional modalities (sustained, divided, and alternate). These results corroborate previous studies that point to the heterogeneity of deficits, suggesting that the inattentive, hyperactive-impulsive, and combined subtypes require detailed evaluation for the planning of specific interventions (PEREIRA et al., 2020).

The effectiveness of neuropsychological rehabilitation programs has been demonstrated in research that combines cognitive function training, metacognitive strategies, and the use of technological resources, reinforcing the role of these interventions in promoting functional gains and improving children's quality of life (CANTIERI et al., 2012; PATH; MARINO; RIBEIRO, 2018). In particular, the use of playful and virtual reality activities has shown promise to increase engagement and facilitate the transfer of trained skills to the school and social context (LOPES, 2022; FICHMAN; UEHARA; SANTOS, 2014).

However, the diversity of protocols and the lack of methodological standardization make it difficult to compare studies. Few studies adopt a longitudinal design to assess the maintenance of gains in the medium and long term, which prevents definitive conclusions about the durability of the effects of rehabilitation (SOUZA et al., 2021). In addition, the

variety of neuropsychological assessment instruments compromises replicability and the development of rigorous clinical guidelines.

There was also a lack of studies that consider realities of low technological availability or different socioeconomic contexts, which highlights the need to adapt programs to the conditions of each school community. The active participation of family members and teachers proved to be fundamental for the success of the interventions, demonstrating that the integration between the home and school environment enhances the results (AGUIAR et al., 2017; BOMBASSARO; TISSER, 2017).

Given these limitations, future research should prioritize randomized controlled trials with representative samples and homogeneous inclusion criteria, in addition to incorporating follow-up measures after the intervention to verify the stability of gains. It is also recommended to investigate the relationship between the changes observed in neuroimaging and cognitive performance during rehabilitation, in order to clarify the mechanisms of brain plasticity involved (MATTOS et al., 2016; MOROCINI; LEE; ARGIMON, 2021).

In summary, this review highlights the importance of neuropsychological rehabilitation in the management of childhood ADHD. The construction of standardized protocols, combined with detailed neuropsychological assessments and the engagement of family members and educators, is a promising strategy to increase the effectiveness of interventions and favor the cognitive and socio-emotional development of these children.

CONCLUSION

This study aimed to map evidence of cognitive deficits in children with ADHD and to evaluate the contributions of neuropsychological rehabilitation. Several studies have pointed to impairments in working memory, executive functions (inhibitory control and cognitive flexibility) and attention modalities (sustained, divided and alternate). Although the diagnosis of ADHD is mainly based on clinical criteria, neuropsychological evaluation, often complemented by neuroimaging tests, has proven to be fundamental for the early identification of these dysfunctions and for the design of more precise interventions.

The review indicated consensus on the importance of early intervention, because without adequate treatment, cognitive delays can have negative repercussions on the affective-emotional, social, and academic development of children. Neuropsychological rehabilitation programs that combine cognitive training, metacognitive strategies, and technological resources have been shown to be effective in reducing deficits and improving

quality of life, especially when family members and teachers actively participate in the process.

Among the limitations of this review, the time frame restricted to publications from the last five years and the absence of longitudinal studies on the sustainability of earnings stand out. Future investigations should seek standardized protocols, compare different approaches, and explore the applicability of interventions in varied school contexts.

Thus, the integration of neuropsychological assessment and rehabilitation is an indispensable strategy to promote cognitive and behavioral skills in children with ADHD, enhancing academic and social performance throughout their life cycle.

REFERENCES

Aguiar, F. A., Machado, A. C., Bello, S. F., & Capellini, S. A. (2017). Games for neuropsychopedagogical intervention. In A. C. Machado, S. F. Belo, & K. K. Borges (Eds.), *ADHD – clinical and educational practice* (pp. unknown). Booktoy.

American Psychiatric Association. (2015). *Diagnostic and statistical manual of mental disorders: DSM-5-TR* (5th ed., text rev.). Artmed.

Bombassaro, P., & Tisser, L. (2017). Case report: Neuropsychological rehabilitation of Attention-Deficit/Hyperactivity Disorder. In D. R. Fontoura et al. (Eds.), *Theory and practice in neuropsychological rehabilitation* (1st ed., pp. 210–228). Vetor.

Brião, J. C., & Campanholo, K. R. (2018). Executive functions. In E. C. Miotto et al. (Eds.), *Manual of neuropsychological assessment: The practice of cognitive testing* (pp. 145–162). Mennon.

Carim, D. B., & Fichman, H. C. (2017). Neuropsychological rehabilitation of attention problems and executive functions. In D. R. Fontoura et al. (Eds.), *Theory and practice in neuropsychological rehabilitation* (pp. 95–114). Vetor.

Carreiro, L. R. R., Marino, R. L. F., & Ribeiro, A. F. (2018). Indicators of ADHD in preschoolers: Early assessment and intervention. In N. M. Dias & A. G. Seabra (Eds.), *Neuropsychology with preschoolers: Evaluation and intervention* (pp. 78–96). Pearson Clinical.

Carreiro, L. R. R., et al. (2018). Neuropsychological assessment in ADHD: Contributions to the identification of cognitive difficulties and school guidance. In C. A. H. Amato et al. (Eds.), *Developmental disorders: Interdisciplinary studies* (pp. 210–230). Mennon.

Cantiere, C. N., et al. (2012). Cognitive training in children and adolescents with signs of attention and hyperactivity: Proposal for a neuropsychological intervention protocol in the verbal and executive domains. *Cadernos de Pós-Graduação em Doenças do Desenvolvimento, 12*(1), 98–107.

Cantiere, C. N., et al. (2014). *Neuropsychological intervention for the development of attention skills and cognitive flexibility in children with ADHD* [Master's dissertation, Mackenzie Presbyterian University].

Costa, D. S., et al. (2014). Neuropsychology of attention-deficit/hyperactivity disorder and other externalizing disorders. In D. Fuentes et al. (Eds.), *Neuropsychology: Theory and practice* (2nd ed., pp. 145–168). Artmed.

Dias, N. M. (2013). *Development and evaluation of an intervention program to promote executive functions in children* [Doctoral dissertation, Mackenzie Presbyterian University]. https://mackenzie.br/...

Dias, N. M., & Seabra, A. G. (2013). *Intervention program in self-regulation and executive functions: PIAFEX*. Memnon.

Dias, N. M., & Seabra, A. G. (2013). Executive functions: Development and intervention. *Temas sobre Desenvolvimento, 19*(107), 206–212. https://scholar.google.com/...

Fichman, H. C., Uehara, E., & Santos, C. F. (2014). New technologies in assessment and neuropsychological rehabilitation. *Trends in Psychology / Temas em Psicologia, 22*(3), 539–553. https://bvsalud.org/...

Lopes, A. B. (2022). Applicability of neuropsychological rehabilitation in the treatment of attention deficit hyperactivity disorder: An integrative review. *Unicamp Institutional Repository*.

Lopes, R. M. F., & Fernandes, T. F. S. (2021). Cognitive training in children with learning difficulties. In R. M. F. Lopes & R. F. N. Lopes (Eds.), *Neuropsychological rehabilitation: Evaluation and intervention of children and adolescents* (pp. 89–112). Artesã.

Mattos, P., et al. (2016). Attention deficit hyperactivity disorder: Neuropsychological and neuroimaging aspects and their relationship with real life. In J. F. de Salles et al. (Eds.), *Developmental neuropsychology: Childhood and adolescence* (pp. 157–179). Artmed.

Miotto, E. C. (2016). The use of neuropsychological examination to structure an intervention. In L. F. Malloy-Diniz (Ed.), *Neuropsychology: Clinical applications* (pp. 67–83). Artmed.

Miotto, E. C. (2015). Neuropsychological rehabilitation in executive dysfunctions and attentional deficits in adults. In *Neuropsychological rehabilitation and behavioral interventions* (pp. 101–120). Roca.

Morocini, V. B., Lopes, R. M. F., & Argimon, I. I. L. (2021). The brain and its executive functions: The incredible magic of neuroplasticity in rehabilitation. In R. M. F. Lopes & R. F. N. Lopes (Eds.), *Neuropsychological rehabilitation: Assessment and intervention of children and adolescents* (pp. 33–54). Artesã.

Montes, R. M., & Montes, R. M. (2021). Executive functions in attention deficit hyperactivity disorder (ADHD). In R. M. F. Lopes & R. F. N. Lopes (Eds.), *Neuropsychological rehabilitation: Evaluation and intervention of children and adolescents* (pp. 55–76). Artesã.

Pereira, E. E. L. D., et al. (2020). Executive functions in children with ADHD and/or reading difficulties. *Psychology: Theory and Research, 36*, 57–68.

Souza, I. L. S., et al. (2021). Relationships between executive functions and ADHD in children and adolescents: A systematic review. *Revista Psicopedagogia, 38*(116), 197–213. https://doi.org/10.51207/2179-4057.20210023

Wagner, F., Rohde, L. A., & Trentini, C. M. (n.d.). Neuropsychology of attention-deficit/hyperactivity disorder: Neuropsychological models and results of empirical studies. *Psico-USF, 21*(3), 573–582.

Willcutt, E. G., et al. (n.d.). Validity of DSM–IV attention-deficit/hyperactivity disorder symptom dimensions and subtypes. *Journal of Abnormal Psychology, 121*(5), 991–1010.

Wilson, B. A. (2020). Evidence of the efficacy of neuropsychological rehabilitation. In *Neuropsychological rehabilitation: Theories, models, therapy and efficacy* (pp. 15–32). Artesã.

Wilson, B. A. (2020). Intervening at different levels: What will be the focus? In F. Q. Alvares (Ed.), *Neuropsychological rehabilitation in psychiatric disorders: From theory to practice* (pp. 45–62). Artesã..