

## RESTLESS MINDS: ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN

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**Abstract:** Attention Deficit Hyperactivity Disorder (ADHD) is today one of the most studied topics in school-age children. It is estimated that it represents one of the main sources of referral of children to the health system (Barkley, 2008). Epidemiologic studies indicate that 3% to 7% of US school-aged children have ADHD (Goldman, Genel, Bezman, & Slanetz, 1998; Pastor & Reuben, 2002). In Brazil, some studies in populations of Brazilian children of school age corroborate these indices (Guardiola, Terra, Ferreira & Londero, 1999; Rohde & cols., 1998; Souza, Serra, Mattos, & Franco, 2001; Freire & Pond , 2005 ). **METHOD:** This is a literature review, of the narrative type, which aims to describe the characteristics and epidemiological situation caused by ADHD in children, from a theoretical point of view, through materials that have already been published on the subject in question, through analysis and interpretation of the literature. The review was carried out from July to August 2023, through searches in the Virtual Health Library (VHL), Latin American and Caribbean Literature in Health Sciences (LILACS), *National Institutes of Health's Library of Medicine* (PubMed) e *Scientific Electronic Library Online* (SciELO). **RESULT AND DISCUSSION:** Hyperactivity can be perceived in several stages of the child's development, and can be observed already in infants, but it becomes much more evident when children are in the pre-school or school stage. Based on TOPCZEWSKI (1999); Some characteristics can be noticed, such as: "when playing, they cannot stick to certain activities for some time, as they quickly lose interest in one activity and go looking for another; they are those children who are always everywhere; they need to be constantly supervised, as they often invent activities that involve danger, which generates great uneasiness for parents; they change toys very often, as they cannot be satisfied with any for a long time; they have a

spirit of destruction, even with their objects; they cannot stay seated at the table during meals; watch television more for a limited time; talk a lot and change the subject quickly, without even finishing the previous thought; any stimulus, however simple it may be, is enough to divert attention from the activity they are developing; they cannot finish a task properly; are very disorganized in their daily lives, with their clothes, with their personal objects, toys and school supplies”.

**CONCLUSION:** Regarding the treatment of ADHD, the first step is always the planning of a multimodal therapy that respects the psychological, behavioral and occupational needs of the child and family. It is necessary to discuss the benefits and harms of pharmacological and non-pharmacological therapeutic modalities, always based on recent scientific evidence.

**Keywords:** Attention deficit; Children; Diagnosis; Treatment.

## INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is today one of the most studied topics in school-age children. It is estimated that it represents one of the main sources of referral of children to the health system (Barkley, 2008). However, the high frequency of ADHD diagnoses (e.g., Louzã Neto, 2010) leads to a critical reflection on the evaluation process, intervention, as well as educational practices in monitoring children and young people both in the family and in the education system. The American Psychiatric Association (2000) defines ADHD as a mental health problem, considering it a two-dimensional disorder that involves attention and hyperactivity/impulsivity (DSM-IV, 1994). Furthermore, the American Academy of Pediatrics considers it the most frequent neurobehavioral disorder in childhood (AAP, 2000).

## METHOD

This is a literature review, of the narrative type, which aims to describe the characteristics and epidemiological situation caused by ADHD in children, from a theoretical point of view, through materials that have already been published on the subject in question, through analysis and interpretation of the literature. Inclusion criteria were: articles in Portuguese and English; published in the period from 2020 to 2023 and that addressed the themes proposed for this research, review-type studies available in full. Exclusion criteria were: duplicate articles, available in summary form, which did not directly address the studied proposal and which did not meet the other inclusion criteria.

The review was carried out from July to August 2023, through searches in the Virtual Health Library (VHL), Latin American and Caribbean Literature in Health Sciences (LILACS), *National Institutes of Health's Library of Medicine* (PubMed) e *Scientific Electronic Library Online* (SciELO). The following descriptors were used: “Attention deficit hyperactivity disorder”, “epidemiological aspect”, “diagnosis”, “treatment” in order to find articles relevant to the subject addressed.

After the selection criteria, 6 articles remained, which were subjected to thorough reading for data collection. The results were presented in a descriptive way, divided into thematic categories addressing: describing the subtitles or points that were mentioned in the discussion.

## RESULT AND DISCUSSION

Epidemiologic studies indicate that 3% to 7% of US school-aged children have ADHD (Goldman, Genel, Bezman, & Slanetz, 1998; Pastor & Reuben, 2002). In Brazil, some studies in populations of Brazilian children of school age corroborate these indices (Guardiola, Terra, Ferreira & Londero, 1999;

Rohde & cols., 1998; Souza, Serra, Mattos, & Franco, 2001; Freire & Pondé, 2005 ).

The disorder has a 9:1 male-to-girl prevalence in clinical samples (Barkley, 2002; Rohde & Halpern, 2004a) and a 3:1 ratio in general population samples (Offord et al., 1992; Barkley, 1998; Rohde & Halpern, 2004). It is noteworthy that epidemiological studies refer to the age group from 7 to 14 years old (Rohde & Mattos, 2003), although it can persist during adult life, as observed by Biederman and Faraone (2005).

According to Sam Goldstein (2006), ADHD usually appears in early childhood and affects approximately 3% to 5% of the population throughout their lives, regardless of their level of intelligence, education level, socioeconomic class or ethnicity. According to recent studies, ADHD is more perceived in boys than in girls, in a ratio of 2:1; in boys, the main symptoms are impulsivity and hyperactivity, and in girls, inattention. Indexes vary according to the source of information. It affects 6% to 8% of school-aged children.

Another observed point is the higher incidence of ADHD in boys, who are twice as likely to receive such a diagnosis, which can be explained by the hyperactive behaviors that are more observed in this public. In addition, boys also tend to have externalizing conditions, such as defiant disorder or conduct disorder. Girls are more likely to develop an internalizing condition such as anxiety or depression (TUNG et al., 2016; WOLRAICH et al., 2019)

## CLINICAL CHARACTERISTICS

Hyperactivity can be perceived in several stages of the child's development, and can be observed already in infants, but it becomes much more evident when children are in the pre-school or school stage. Based on TOPCZEWSKI (1999); Some characteristics can be noticed, such as: "when playing, they

cannot stick to certain activities for some time, as they quickly lose interest in one activity and go looking for another; they are those children who are always everywhere; they need to be constantly supervised, as they often invent activities that involve danger, which generates great uneasiness for parents; they change toys very often, as they cannot be satisfied with any for a long time; they have a spirit of destruction, even with their objects; they cannot stay seated at the table during meals; watch television more for a limited time; talk a lot and change the subject quickly, without even finishing the previous thought; any stimulus, however simple it may be, is enough to divert attention from the activity they are developing; they cannot finish a task properly; are very disorganized in their daily lives, with their clothes, with their personal objects, toys and school supplies". (TOPCZEWSKI, 1999, p. 35).

Some of the characteristics of the predominantly inattentive person, according to Smithe Strick (2012), may include: frequently failing to pay attention to details; having difficulties maintaining attention in tasks or playful activities; often seem not to listen when spoken to; sometimes not following instructions if not finishing homework; difficulty in organizing; lose things frequently and are easily distracted by irrelevant sights and sounds.

Smithe Strick (2012), regarding the predominant hyperactive and impulsive, there are the following characteristics: frequently, not stopping with hands and feet, and moving in the chair; leave your seat frequently in classrooms and other places; having trouble playing quietly; talk excessively; often give hasty answers and have difficulty waiting their turn. With regard to the third classification of ADHD, in which it presents the combined type, it is where all the characteristics mentioned above are manifested.

Therefore, it makes explicit the school as the place where, generally, children who present the described behaviors are quickly identified. All these three characteristics in ADHD are present in the DSMV (Diagnostic and Statistical Manual of Mental Disorders). Being predominantly inattentive (F90.0), predominantly hyperactive/impulsive presentation (F90.1) and combined presentation (F90.2), this classification, according to the DSMV.

## DIAGNOSIS

The diagnosis of ADHD is fundamentally clinical (Araújo, 2002; Rohde & cols., 2000), usually based on operational criteria of classification systems such as DSM-IV-RTM and ICD-10 (WHO, 1993), with the help of neurological examinations (Barkley & cols., 2002; Rohde & Halpern, 2004).

The DSM-IV-R<sup>TM</sup> criterion involves analyzing the frequency, intensity, amplitude (persistence in one more context) and duration (at least six months) of the symptomatic inattention-hyperactivity-impulsivity triad. Inattention is manifested by frequent changes of subject, lack of attention to other people's speech, distraction during conversations, inattention or non-compliance with rules in recreational activities, constant switching of tasks, in addition to reluctance to engage in complex tasks that require organization.

Hyperactivity is characterized by excessive speech, day and night movement (during sleep), difficulty sitting still, while impulsivity involves acting without thinking, changing activities, difficulty organizing work, need for supervision and difficulty with subject to wait their turn in recreational activities or in group situations. These symptoms must be accompanied by significant impairments in the individual's development (functional criterion), be present in at least two (contextual criterion) and occur before the age of seven

(temporal criterion, a non-excluding marker).

The diagnosis must be redone every six months, suggesting a dynamic and transitory aspect of the disorder. The relationship between inattention, hyperactivity and impulsivity, over the last six months, can result in different subtypes of ADHD diagnosis and the six-month time stamp seems to be important.

According to the DSM-IV-R<sup>TM</sup> (APA, 2003) three subtypes of the disorder were defined for ADHD, with a predominance of: (1) inattention, (2) hyperactivity/impulsivity and (3) combined. Thus, it is possible to diagnose the presence or absence of hyperactivity. Combined ADHD is characterized by the presence of six or more symptoms of inattention and six or more symptoms of hyperactivity-impulsivity.

The highest incidence in children and adolescents is of the Combined type, with no data on adults (APA, 2003). Predominantly Inattentive ADHD is characterized by six or more symptoms of inattention and less than six symptoms of hyperactivity-impulsivity. Predominantly Hyperactive-Impulsive ADHD must have six or more symptoms of hyperactivity-impulsivity and less than six symptoms of inattention.

According to Rohde and Halpern (2004,) although different nomenclatures are observed, the ICD-10 classification system, with Hyperkinetic Disorder, and the DSM-IV-TR<sup>TM</sup>, with Attention Deficit Hyperactivity Disorder, present more similarities than than disagreements in diagnostic guidelines. ADHD can manifest itself in isolation despite the high incidence of comorbidities, that is, the simultaneous occurrence of two or more disorders or other organic problems (Rohde & Benxzik, 1999).

## ETIOLOGY

ADHD seems to result from a complex combination of genetic, biological, environmental and social factors. By highlighting genetic factors in ADHD, some studies indicate familial phenotypic markers (Todd, 2000). The biological factor of ADHD transmission has been demonstrated in comparative studies of monozygotic and dizygotic twins, who do not live in the same city, and adopted children (Kazdin & Kagan, 1994; Johnston & Mash, 2001; Michelson & cols., 2001; Rutter & Sroufe, 2000).

Familial recurrences have revealed a high rate of hereditary influence, from 25.1% to 95% (Biederman, Faraone, Keenan, Knee & Tsuang, 1990; Biederman & Faraone, 2005; Faraone & cols., 2005; Thapar & cols., 1999), against 4.6% of the general population. It is noteworthy that genetic studies involving ADHD do not exclude cultural and family influences and exposure to stressful events (Biederman & Faraone, 2005; Rotta, 2006; Rohde & Halpern, 2004).

According to the Barkley model (1997), “inattention in ADHD derives from the malfunctioning of executive functions, characterized mainly by a difficulty in inhibiting behaviors and controlling interferences”. The consequences of failure in this inhibitory process would be responsible for the symptoms of low tolerance for waiting, high need for immediate reward, lack of rule-governed behavior, failure to predict consequences and emission of quick but inaccurate responses (Barkley et al., 2008, Strayhorn, 2002).

## TREATMENTS

ADHD treatment requires a multiple approach, encompassing psychotherapeutic and pharmacological interventions (Anastopoulos, Rhoads & Farley, 2008) with the participation of multiple social agents such as parents, other family members, educators, health professionals, in addition to the child himself.

Three types of ADHD treatment have been employed: pharmacological, behavioral therapy and the combination of pharmacological and behavioral therapies (Swanson & cols., 2001), the latter being considered the most effective form (Jessen, 2001).

In the 1930s, research showed that stimulant drugs such as Methylphenidate and Pemoline increased the level of catecholamines in the brain, temporarily normalizing classic ADHD behaviors (Smith & Strick, 2001; Zametkin & Rapoport, 1987). According to Barkley et al. (2008), the addition of stimulant drugs promotes an alleviation of motor symptoms, impulsivity and inattention and an increase in social interactions and academic performance.

Other drugs with proven noradrenergic action have been shown to be effective in the treatment of ADHD, supporting the noradrenergic hypothesis in the modulation of the Disorder (Biederman & Spencer, 1999). Therefore, pharmacological treatments, especially based on the administration of psychostimulant substances, such as Methylphenidate and Pemoline, have been shown to be useful, being the most used drugs in the treatment of ADHD. Tricyclic antidepressants (Imipramine, Desipramine, Amitriptyline, Clomipramine),  $\alpha_2$ -type receptor agonists (Clonidine, Guanfacine), noradrenaline agonist and Atomoxetine, Modafinil and Bupropion are also used in the treatment of ADHD although they are not first-line medications (Biederman & Faraone,

2005; Guardiola & cols, 1999; Segenreich and Mattos, 2004).

In Brazil, the only psychostimulant available is Methylphenidate (Ritalin® and Concerta®) with two forms of action, short and long. The short-acting medication is marketed under the name of Ritalin®, in the conventional presentation of 10 mg, with a duration of 3 to 4 hours. Ritalin® has a release system in two pulses, mimicking the scheme of short-acting methylphenidate when administered twice a day (Correia Filho & Pastura, 2003; Rotta, 2006). However, Ritalin LA®, has three presentations 20 mg, 30 mg and 40 mg, lasting 6 to 8 hours, with only one daily administration being common. The effectiveness of both formulations is similar (Wilson, Cox, Merkel, Moore & Coghill, 2006). This way, Ritalin LA® differs from Ritalin® by the time of action.

With an action time longer than that of Ritalin LA®, Concerta®, with presentations of 18 mg, 36 mg and 54 mg, has an action time of 10 to 12 hours. Its oral osmotic delivery system (OROS) allows a constant release, avoiding variations in plasmatic concentration. Long-term medication has advantages in terms of maintaining therapeutic effects throughout the day and reducing side effects (Heger & cols. 2006), in addition to favoring therapeutic adherence and avoiding medication use at school (Correia Filho & Pastura, 2003; Heger & cols. 2006; Rotta, 2006).

The effectiveness of the use of these psychostimulants in the treatment of ADHD has been supported by data indicating improved performance on the reaction time and focused attention tests, as well as on the P300 wave clinical test (Klorman, 1991; Lousier, McGranah, & Klein, 1996; Sonnevile, Njikikjien & Bos, 1994; Sykes, Dougkas & Morgentersn, 1972; Van der Meere, Boudewijn, & Stemerdink, 1996).

The medication has been used during

school periods, being commonly suspended on weekends and vacations. The interruption aims to mitigate the long-term side effects and, in the short term, the secondary effects. Among the most frequent short-term effects, there is a reduction in appetite, anorexia, insomnia, anxiety, irritability, emotional lability, headache and abdominal pain. Less frequently, there are mood swings, tics, nightmares and social isolation (Barkley, McMurray, Edelbrock & Robbins, 1990; Rohde & Mattos, 2003; Wilens & cols., 2003). With the lowest frequency, however, involving high danger, psychosis was verified as an effect of the use of Methylphenidate (Schteinschnaider & cols., 2000).

All and any psychological intervention is carried out in the field of the organism's relations with the environment. The therapist will provide information about ADHD, promoting environmental changes that favor the child's development. The therapist-parent interaction focused on educational practices is one of the targets with the most positive results (Rohde & Halpern, 2004), helping to change aversive educational practices (Benczik, 2002). Education about the disorder for children, parents and teachers is a fundamental part of behavioral and/or cognitive therapies.

Cognitive therapy is based on the understanding that ADHD is a function of a deficiency of cognitive strategies. To this end, it prioritizes its development through interventions such as: self-instruction, registration of dysfunctional thoughts, problem solving, self-monitoring, self-assessment and planning and schedules.

Considering the complexity of the various variables that determine ADHD, the care of children with this diagnosis has preferably been carried out by multidisciplinary teams, and it is important to emphasize that developmental concepts influence assessment and intervention (Bijou & Baer, 1978; Bijou &

Baer, 1978b ).

The functional approach that directs all clinical analysis developed by behavior analysts is also fundamental to the diagnosis of ADHD disorder. Since this is essentially clinical (Araújo, 2002; Rohde & cols., 2000), it is based on interviews with the child and relatives. The interview that subsidizes the physician's clinical analysis will be based on behavioral descriptions of the children, in different contexts and the impact of these behaviors in the family, school and social contexts in general.

Future research involving the relationships between behaviors, educational practices, the media universe and family arrangements that maintain the classic patterns of behavior characteristic of ADHD can greatly enrich the understanding of the influences of certain behavioral contingencies and metacontingencies present in the history and maintenance of ADHD. Attention Deficit/Hyperactivity Disorder.

## REFERENCES

- AAP American Academy of Pediatrics (2000). **Clinical Practice Guideline: Diagnosis and Evaluation of the Child with ADHD.** *Pediatrics*, 5, 1158-1170.
- ARAÚJO, A. P. Q. C. (2002). **Avaliação e manejo de crianças com dificuldade escolar e distúrbio de atenção.** *Jornal de Pediatria*; 78 (supl.1), S104 - S110.
- BARKLEY, R. A., Anastopoulos, A. D., Robin, A. L., Lovett, B. J., Smith, B. H., Cunningham, C. E., Shapiro, C. J., Connor, D. F., DuPaul, G. J., Prince, J. B., Dooling-Litfin, J. K., Biederman, J., Murphy, K. R., Rhoads, L. H., Cunnigh, L. J., Piffner, L. J., Gordon, M., Farley, S. E., Wilens, T. E., Spencer, T. J., Hathway, W. (2008). **Transtorno de déficit de atenção/hiperatividade: manual para diagnóstico e tratamento(3º ed.)**. Porto Alegre: Artmed.
- BENCZIK, E. B. P. (2002). **Transtorno de déficit de atenção/hiperatividade - Atualização diagnóstica e terapêutica.** São Paulo: Casa do Psicólogo.
- BIEDERMAN, J., & Faraone, S. (2005). **Attention-deficit hyperactivity disorder.** *Lancet*, 366, 237-248.
- BIJOU, S. W., & Beer, D. M. (1978b). **Psicología del desarrollo infantil e teoria empírica y sistemática de la conducta.** Editora Trillas: Mexico, vol 1
- Children with and without ADAHD? **A meta-analytic review.** *Journal of Psychology and Psychiatry*, 37, 971-987.
- CORREIA FILHO, A.G., & Pastura, G. (2003). **As medicações estimulantes.** Em L. A. Rohde & P. Mattos (Orgs.), *Princípios e práticas em TDAH - Transtorno de déficit de atenção/hiperatividade* (pp. 161-173). Porto Alegre: Artmed.

A randomized clinical trial sought to evaluate the effects of recreational swimming activity on cognitive tasks, behavior and academic performance in children aged 9 to 12 years with ADHD. It was found that the swimming exercise program brought about improvements in cognitive and behavioral levels, with better academic performance in reading comprehension and mathematics. Thus, recreational swimming activities can be considered an effective tool in improving the performance of children with ADHD (HATTABI et al., 2022)

## CONCLUSION

Regarding the treatment of ADHD, the first step is always the planning of a multimodal therapy that respects the psychological, behavioral and occupational needs of the child and family. It is necessary to discuss the benefits and harms of pharmacological and non-pharmacological therapeutic modalities, always based on recent scientific evidence.



- GUARDIOLA, A., Terra, A. R., Ferreira, L. T. C., & Londero, R. G. (1999). **Uso de Amitriptilina na Síndrome de Hiperatividade com Déficit de Atenção.** *Arquivo de Neuropsiquiatria*, 57 (3A), 599-605.
- GOLDMAN, L. S., Genel, M., Bezman, R. J., & Slanetz, P. J. (1998). **Diagnosis and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents.** *The Journal of the American Medical Association*, 279, 1100-1107.
- GOLDSTEIN, Sam. **Hiperatividade: como desenvolver a capacidade de atenção da criança.** São Paulo: Papirus, 1998. 246 p.
- HATTABI, S. et al. **A Randomized Trial of a Swimming-Based Alternative Treatment for Children with Attention Deficit Hyperactivity Disorder.** *International Journal of Environmental Research and Public Health*, v. 19, n. 23, p. 16238, 2022
- KLORMAN, R. (1991). **Cognitive event-related potentials in attention deficit disorder.** *Journal of Learning Disabilities*, 24, 130-140.
- LOUSIER, B. J., McGranthy, P. G., & Klein, R. M. (1996). **Error patterns on the continuous performance test in non-medicated and medicated samples of.**
- LOUZÁ NETO, M. R (2010). **TDAA transtorno de déficit de atenção/hiperatividade ao longo da vida.** Porto Alegre: Artimed.
- OFFORD, D. R., Boyle, M. H., Racine, Y. A., Fleming, J. E., Cadman, D T., Blum, H. M., Byrne, C. R.N., Links, P., Lipman, E., Macmillan, H. L. Era, G., Naomi, I., Sanford, M., Szatmari, P., Thomas, H., Woodward, C. (1992). **Outcome, Prognosis, and Risk in a Longitudinal Follow-up Study.** *Journal of the American Academy of Child & Adolescent Psychiatry*, 31 (5), 976.
- ROHDE, L. A., & Benzzik, E. B. P. (1999) **Transtorno de déficit de atenção /Hiperatividade: O que é ? Como ajudar?** Porto Alegre: Artmed
- SATTERFIELD, J. H., & Dawson, M. E. (1971). **Electrodermal correlates of hyperactivity in children.** *Psychophysiology*, 8, 191-197.
- SKINNER, B. F. (1957/1978). **O comportamento verbal** (M. P. Villalobos, Trad.). São Paulo: Cultrix.
- SMITH, Corinne; STRICK, Lisa. **Dificuldades de Aprendizagem de A-Z: guia completo para educadores e pais.** Porto Alegre-Rs: Penso, 2012. 368p. Edição Revista e Ampliada
- TOPCZEWSKI Abram. **Hiperatividade: como lidar?.** São Paulo: Casa dopsicólogo, 1999.
- TUNG, I. et al. **Patterns of comorbidity among girls with ADHD: a meta-analysis.** *Pediatrics*, v. 138, n. 4, 2016.
- WILSON, H. K., Cox, D. J., Merkel, R. L., Moore, M., & Coghill, D. (2006). **Effect of extended release stimulant-based medications on neuropsychological functioning among adolescents with Attention-Deficit/Hyperactivity Disorder.** *Archives of Clinical Neuropsychology*, 21(8), 797-807.