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# PSYCHOLOGICAL AND EDUCATIONAL PROBLEMS OF THE CHILD WITH ATTENTION- DEFICIT / HYPERACTIVITY DISORDER

FLORENTINA IONELA LINCĂ

Clinical psychologist, psychotherapist, PhD student , University of Bucharest, Department of Education Sciences  
University of Bucharest, Faculty of Psychology and Educational Sciences, Bucharest, Romania

Corresponding author email: linca.florentina@gmail.com

## ABSTRACT

The diagnosis of ADHD is clinically established by review of symptoms and impairment. The biological underpinning of the disorder is supported by genetic, neuroimaging, neurochemistry and neuropsychological data. Consideration of all aspects of an individual's life needs to be considered in the diagnosis and treatment of ADHD. In this case, the Personalized Intervention Program were made for those students in the school environment. The Personalized Intervention Program is the main method of achieving a personalized and differentiated education and is based on the information collected through the observation method, the case study method and the interview method. It is important to understand that ADHD is a real disorder that causes many difficulties to children. With understanding, patience and help, we can improve the efficiency of the relationships with peers, education and self-esteem. Our role is to encourage intelligent, talented children to believe in their own capacities and to no longer feel incompetent, inferior and inappropriate. All mentioned aspects will be discussed in this paper. To achieve this goal, we made a synthesis of the most relevant research.

**Keywords:** ADHD, etiology, childhood, special educational needs, intervention.

## INTRODUCTION

In this paper, a synthesis of the reference articles will be carried out regarding: the complexity of ADHD symptoms, the comorbid disorders, the causes of the disorder, the correct diagnosis of this disorder, the identification of the pupil with ADHD in the school environment, the work of the teaching staff with this type of pupil, and reducing the symptoms of ADHD through educational or psychotherapeutic intervention programs and medication.

### Definitions and characteristics of Attention Deficit / Hyperactivity Disorder

First of all, in the literature of education sciences and psychology, there are several attempts to define the attention deficit / hyperactivity disorder.

Attention Deficit/Hyperactivity Disorder, on the other hand, was known until 1775 under the following names: Minimal Cerebral Deficit, Minimal Cerebral Dysfunction, Hyperkinetic Childhood Disorder, Attention Deficit Disorder with/without Hyperactivity, and, since 1987, attention deficit/hyperactivity disorder [1, 2, 3].

Taylor (2011) adds to the definition of Attention Deficit/Hyperactivity Disorder described by Barkley (1997), namely ADHD is a neuro-behavioral development disorder, and lack of persistence in activities requiring cognitive involvement, the tendency to pass from one activity to another without having finished the first, disorganized behavior and excessive activity [4, 5].

Attention Deficit/Hyperactivity Disorder is a widespread neurobiological condition

affecting 5- 8% of school-age children with symptoms that persist in adulthood in more than 60% of cases (approximately 4% of the adult population) [6].

Undoubtedly, ADHD is a complex condition (which affects four times as many men as women) [7] and there is no simple explanation, despite a significant amount of research that try to isolate the causes of this disorder [8].

In the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, the symptoms occurred in ADHD were limited to those associated with cognitive (attention deficit) and behavioral (hyperactivity/impulsivity) deficits, while deficient emotional self-regulation, a relevant source of morbidity, was left out [9].

According to the American Psychiatric Association (2013), there are three types of ADHD [9]:

I. *Combined/mixed subtype*

II. *ADHD Predominantly Inattention*

III. *ADHD Predominantly Hyperactivity and Impulsivity*

At the same time, there was a need to make clear differences between the child's symptoms with the predominantly inattentive type and with the predominantly hyperactive type.

Thus, Diamond (2006) presents the following: the symptomatology of the child with the predominantly inattentive type of ADHD and of the predominantly hyperactive type of ADHD is characterized by dissociated cognitive and behavioral profiles, distinct comorbidities, different responses to medication and various neurobiological problems [10].

The underlying cognitive deficiency of the predominantly inattentive subtype is in working memory. Working memory deficiency in many children with predominantly inattentive subtype is accompanied by significantly slower response times, a feature that covers with poorer working memory,

in general. Primary disorder in the prefrontal cortex is involved. The primary neural circuit affected may be a frontal-parietal one [10]. People with the inattentive subtype of ADHD are not so distracted that they are slightly bored. This subtype has a deficiency in the speed of information processing from the external environment [11]. His problem consists more in motivation than in inhibition. He is a searcher of challenges and can take risks, although he is shy. He has social problems because he is very shy, passive and withdrawn [10]. He also has a visual and muscular sensory integration and a lower body balance than the other subtype, but also lower than normal children of the same age [12]. He is self-aware and introvert [10].

On the other hand, the primary deficit in the predominantly hyperactive/impulsive subtype consists in inhibiting the response. He presents a primary disturbance of the striatum, and the primary neural circuit affected may be a fronto-striatal one. Often the hyperactive is inadequately self-conscious, has social problems because he is very assertive and impulsive: he takes things that belong to others, fails to wait for his turn and works without first considering the feelings of others [10].

Depression, anxiety, learning disorders are often comorbid with predominantly inattentive subtype [13, 14]. In contrast to this subtype, the hyperactive/impulsive subtype has the following comorbidities: behavioral disorder (aggressiveness), disruptive behavior and even the oppositional defiant disorder [10, 13].

It was assumed that the DAT1 gene is more closely related to the predominantly hyperactive subtype of ADHD than the predominantly inattentive subtype, whereas the DRD4 gene is more closely related to the predominantly inattentive subtype of ADHD than the predominantly hyperactive subtype, and that the primary neuronal circuit affected in the predominant hyperactive subtype

of ADHD is the fronto-striatal, while the primary neural circuit afflicted in the predominantly inattentive subtype is fronto-parietal [15].

The predominantly inattentive subtype of ADHD is not helped by methylphenidate and a very small number of children are helped by amphetamine. The predominantly hyperactive/impulsive subtype responds positively to methylphenidate (Ritalin) in moderate and high doses [10, 16].

Although the American Psychiatric Association (2013) in the Diagnostic and Statistical Manual of Mental Disorders clearly displays the symptoms for each subtype of ADHD, a problem of the contemporary world is the overdiagnosis of children with such a disorder. About 11% of US primary school students in 2013 were diagnosed with ADHD. This figure represents a 41% increase in the number of children diagnosed with ADHD compared to those diagnosed in the past decade. Approximately 2/3 of those diagnosed received stimulants as treatment. 19% of high school boys and 10% of girls enrolled in high school were diagnosed with ADHD. About 1 in 10 high school boys were under special medication for ADHD. Sales of medicines for ADHD grew almost double, from \$ 4 billion in 2007 to \$ 9 billion in 2012. Concerns over overdiagnosis are warranted by these figures. It is essential to recognize that an extremely large proportion of these children did not benefit from a complex, multi-level diagnosis. These children were examined by the family doctor (Mental Health Surveillance Among Children - United States, 2005-2011, 2011) [17].

Finally, behavioral manifestations of a pupil with attention deficit/hyperactivity disorder (ADHD) should be differentiated from behavioral manifestations of the student with other behavioral/behavioral difficulties/disciplinary problems.

Opposing and defiant behaviors, characteristics of the child with a difficult behavior,

differ from ADHD in that the first opposes resistance to school tasks because he does not want to meet the demands of authoritarians. These symptoms can be distinguished from the aversion to sustained school tasks, which involves sustained effort, by the fact that the child forgets the instructions or the impulsivity of the child with ADHD.

The hyperactivity of a child with ADHD should be distinguished from behavioral tics, repetitive motor behaviors in that hyperactivity is generalized, not manifested by fixed and repetitive behaviors.

The child with ADHD, unlike the mentally handicapped and the learning disorder, is not inadvertent due to lack of interest in school or due to limitations of intellectual abilities. The child with ADHD who also has an intellectual deficit has excessive symptoms of inattention and hyperactivity for his or her mental age.

At the same time, the child with ADHD is different from the one who has anxiety disorders because inattention and agitation are not accompanied by rumors and concerns about different events [9].

Therefore, a child with attention deficit and hyperactivity disorder has a real health problem, characterized by impulsive behavior, a lack of self-motivation, attention and working memory problems [18]. The presence of ADHD does not cause a child to be mischievous or to have an antisocial attitude. The difference between normal but difficult behavior and ADHD cannot be clearly defined in terms of white or black. Such a child is not deliberately difficult, but simply acts without analyzing it [19].

### **Attention deficit/hyperactivity disorder (ADHD) - etiology**

The etiology is discussed in the literature in the field of genetics. It is complex because its exact causes have not yet been fully elucidated. ADHD seems to come from a combination of several genetic and environmental

factors that alter the developing brain, resulting in structural and functional abnormalities [20].

There are epidemiological studies in which it is alleged that ADHD is a disorder of neural development, characterized by a pattern of behavior that could affect the performance of people diagnosed in the social, educational and professional environments. However, ADHD has a negative impact on all areas of neuro-development and the psychosocial interactions of affected persons.

The main objectives of this type of research are genes encoding / encodes the dopamine components of dopaminergic, noradrenergic and serotonergic system. Dopamine is a catecholamine neurotransmitter involved in controlling movement, learning in mood, emotion, cognition, sleep and memory. It is a natural precursor of norepinephrine and epinephrine, of the catecholamine with stimulating action on the central nervous system [21].

Dopaminergic disorders are associated with several neuropsychiatric disorders. Dopamine active transporter 1 (DAT1, also known as SLC6A3), was first investigated, because the carrier protein is involved in the modulation of the effects of stimulating drugs commonly used to treat ADHD. Dopamine receptors, particularly DRD4 and DRD5, are also strongly associated with the development of ADHD [22].

There have been few studies of the molecular genes related to the noradrenergic system. Such studies have focused mainly on the gene encoding / encodes the dopamine-beta-hydroxylase (D $\beta$ H), which catalyze the degradation of dopamine into norepinephrine, with direct effects on the overall level of dopamine in the brain. Serotonergic system may also participate in the etiology of ADHD, in particular serotonin receptor (HTR1B) and transporter genes (SCL6A4) [23, 24].

There is evidence that GABAergic and glutamatergic system plays an important role in the pathophysiology of ADHD. Children with ADHD do not appear to have twice the level of glutamate higher than the normal. Glutamate is an excitatory neurotransmitter in neuronal cells. In addition, children with ADHD have a low level of gamma-aminobutyric acid (GABA), which acts as a inhibitory molecule-stimulated neural cells [25]. Genetic studies have reported an association between ADHD and a number of variations of glutamate receptor gene (Grm1, GRM5, GRM7 and GRM8) [24].

Environmental factors associated with ADHD, epidemiological, include psychosocial adversity, maternal mental illness, domestic violence, stress, smoking and alcohol consumption in prenatal and childhood. In a longitudinal study conducted in Brazil by Pires and his colleagues tried to correlate family environment and pregnancy diagnosis of ADHD in children and symptoms described by various informants (mothers and teachers). These authors found that family dysfunction, lack of social support for mothers, traumatic life events and disagreements during pregnancy were associated with ADHD [26].

Exposure to tobacco smoke prenatal and / or childhood could be extremely harmful to the neurodevelopment of the child, because it induces changes that alter the dynamics of cells, triggering a cascade of risk factors that affect the neurotoxic sensory processing unwholesome action of neuronal nicotinic acetylcholine receptors (nAChRs) by exposure to nicotine modulates synaptic plasticity in early childhood; most likely endogenous influences; cholinergic transmission and modifies the cell, physiological processes and behavioral processes in critical periods of development processes [27].

Studies on ADHD have identified some interactions between smoke exposure during prenatal and variants specific genotypic,



particularly affecting DAT1, DRD4 and sub acetylcholine receptor alpha-4 (CHRNA4) [28]. For example, children with two copies of a DAT polymorphism had a higher risk of ADHD when they also had exposure to prenatal maternal smoking [29].

Some evidence suggests that prenatal exposure to alcohol causes pathological changes that increase the risk of ADHD, mainly due to the effect of alcohol on modulating expression transport system catecholamines. Kim and colleagues found that prenatal exposure to ethanol in significant concentrations physiological induced phenotypes behavior hyperactive, inattentive and impulsive rats and their offspring are associated with increased protein expression DAT and cut ties methyl CpG 2 (MeCP2), protein expressed in the prefrontal cortex and striatum [30].

Neuro-imaging studies indicates that ADHD is a result of the operation anatomical abnormalities and connectivity in the line fronto-striatal, fronto-temporal, frontal-parietal and / or fronto-striatal-parietal-cerebellar circuits. In addition to the circuits mentioned, structures and specific areas of the brain have also received attention, and include, among others, the prefrontal cortex, previously caudate cingulate cortex, globus pallidus, parietal regions, temporal regions, corpus callosum, splenium, vermis of the cerebellum and cerebrum [31].

Neuropsychological combined studies with imaging methods of the brain detected functional changes in neural networks in the brain areas specific issues related to *executive functions* [32, 33].

In recent years, studies have suggested that dysfunction executive is the headline deficit in ADHD [31, 20].

*Executive functions* are a set of cognitive skills associated with functions of the prefrontal cortex, which allow individuals to focus and to shape behavior to achieve the objectives set [20].

Currently these functions are divided into two categories. The first category is purely cognitive and used in tasks that require manipulation of abstract concepts such as attention, working memory, planning, cognitive flexibility, alternation and inhibition. This category of executives is mainly closely related functions dorsolateral prefrontal cortex. In turn, the second category of executives is used in tasks that require motivation and emotions, and is associated with orbitofrontal and ventromedial cortex. Although the assessment neuro-psychological make a significant contribution to the understanding of ADHD, most tests are conducted in artificial environments, and the results do not reflect the deficits shown by children affected lives daily. Scale, such as the checklist of child behavior (CBCL), are currently used to detect deviant behavior of children in different life situations, like school. Besides providing quantitative measures, CBCL allow for certain features of the two categories of executive positions, including emotional self-regulation [33].

The adult form of attention deficit/hyperactivity disorder has a prevalence of up to 5% [34]. Family studies in clinical samples suggest an increased familial liability for adult form of attention deficit/hyperactivity disorder compared with childhood ADHD, whereas twin studies based on self-rated symptoms in adult population samples show that there is a moderate heritability (41%) [35]. However, using multiple sources of information, the heritability of clinically diagnosed adult form of attention deficit/hyperactivity disorder and childhood ADHD is very similar [35].

Results of candidate gene as well as genome-wide molecular genetic studies in adult form of attention deficit/hyperactivity disorder samples implicate some of the same genes involved in ADHD in children, although in some cases different alleles and different genes may be responsible for adult

versus childhood ADHD. Linkage studies have been successful in identifying loci for adult form of attention deficit/hyperactivity disorder and led to the identification of *LPHN3* and *CDH13* as novel genes associated with ADHD across the lifespan.

*LPHN3* was associated with ADHD in a large sample of children and adults, and subsequently replicated in an independent adult form of ADHD sample. The function of this gene, which encodes a G-protein-coupled receptor, is still not well understood [36, 10].

In addition, studies of rare genetic variants have identified probable causative mutations for adult form of attention deficit/hyperactivity disorder. Use of endophenotypes based on neuropsychology and neuroimaging, as well as next-generation genome analysis and improved statistical and bioinformatic analysis methods hold the promise of identifying additional genetic variants involved in disease etiology. Large, international collaborations have paved the way for well-powered studies. Progress in identifying adult form of attention deficit/hyperactivity disorder risk genes may provide us with tools for the prediction of disease progression in the clinic and better treatment, and ultimately may help to prevent persistence of ADHD into adulthood [35].

Bonvicini, Faraone, & Scassellati (2016) pharmacogenetic and biochemical studies,"container-title":"Molecular Psychiatry","page":"872-884","volume":"21","issue":"7","source":"PubMed Central","abstract":"The adult form of attention-deficit/hyperactivity disorder has a prevalence of up to 5% and is the most severe long-term outcome of this common disorder. Family studies in clinical samples as well as twin studies suggest a familial liability and consequently different genes were investigated in association studies. Pharmacotherapy with methylphenidate (MPH) confirmed significant role of *BAIAP2* and *DHA* in the etiology of ADHD exclusively in adults. The *DHA*

was associated with hyperactivity in adults with ADHD, and it seems to be essential for prenatal and postnatal brain development. On the other hand, *BAIAP2* is expressed at higher levels in the left human cerebral cortex and participates in neuronal proliferation, survival and maturation [34]. It encodes the insulin receptor tyrosine kinase substrate protein of 53 kDa (IRSp53), a member of a group of downstream signaling molecules that participate in the signal transduction pathways of insulin and insulin-like growth factor [37]. Moreover, *BAIAP2* expression in rat cerebral cortices is enhanced by treatment with MPH. This association was found for ADHD in adults, but not in children, suggesting a distinct genetic load between persistent and remitting ADHD and a potential genetic marker for persistent ADHD [37].

Unquestionably, ADHD is a complex disorder (which affects men more than women) and there is no simple explanation despite a significant amount of research, which try to isolate the causes of this disorder [38]. None of the studies led to the identification of genes significantly related to the occurrence ADHD, but rather explains small part of their contribution to the occurrence of this disorder [31]. ADHD seems to come from a combination of several genetic and environmental factors that alter brain developing, resulting in structural and functional abnormalities [20, 39].

We can conclude that all this information is a solid argument in favor of the hypothesis that attention deficit/hyperactivity disorder is an issue affecting the ability to adapt to school requirements, on a cognitive, social and school plan.

### **ADHD - comorbidities**

Comorbid affections in the clinic are commonly found in the child with Attention Deficit/Hyperactivity Disorder (ADHD).

Some studies have correlated the manifestation of ADHD with the existence of sensory

integration disorders. Approximately 16% of the general population has symptoms of sensory integration disorder. In attention deficit/hyperactivity disorder, the frequency of sensory integration disorder rises from 40 to 84% in various studies [40].

Sensory processing disorder is a heterogeneous condition that includes, according to the new nosology, three subtypes: sensory modulation disorder, sensory discrimination disorder and sensory processing based motor disorder [41].

Sensory modulation disorder refers to the difficulty of the subject to adjust his responses to sensory stimuli in the environment. The subject may be over-responsive (responds too much or for a long time to stimuli), a sub-reactive (responds too little or needs very strong stimulation to become aware of the presence of a stimulus) [42, 43].

Two subtypes are proposed in sensory motor disorders: postural disorder, which reflects balance problems and weight center stability, and dyspraxia, which involves difficulties in sequencing movements and in motor planning [40].

Sensory discrimination disorder refers to the difficulty of interpreting the specific character of each sensory stimulus (eg, intensity, duration, spatiality, and temporality of the sensation). It may be present in any of the seven sensory systems (vestibular, proprioceptive and the five basic senses) [41].

ADHD and sensory problems can appear together and interact. No published article on sensory processing problems was found in children with ADHD. A systematic search, conducted on two Pub-Med scientific systems (by January 2010) and Google Academic, generated 255 summaries on sensory processing in children, including 11 studies on sensory issues in children with ADHD. Problems of sensory processing in children with ADHD are not a well-studied area. Scientific findings do not support the fact that any of the subtypes of ADHD would

be distinct disorders in terms of sensory processing problems. However, comorbidity with oppositional disorders and anxiety are predictors of more severe sensory processing problems in children with ADHD [44].

An important task of the central nervous system is to configure how sensory information becomes related to adaptive responses and significant experiences. Neural systems linking the gap between sensation and action provide substrates for “intermediate” or “integrative” processing [40].

Sensory integration disorders are neurological disorders resulting from the inability of the brain to integrate certain information received from five basic body sensory systems (visual, auditory, tactile, olfactory and gustative), from the vestibular system and/or proprioceptive systems. Sensory information is normally detected, but is perceived abnormally, thus affecting daily activities [45].

Children with ADHD have more difficulty in tactile information processing, not necessarily due to a lack of tactile attention, but due to the deterioration of central processing of somato-sensory information [46].

There may also be a situation where a child with attention deficit/hyperactivity disorder is extremely touch sensitive. This situation is responsible for the adrenal cortical - pituitary - hypothalamic axis [47].

Another touch-sensitive affect in the case of a child with attention deficit/hyperactivity disorder is that of maintaining the balance of the body. It has been shown that a child with ADHD cannot control the balance of his or her body, body posture, and if he/she does not have learning difficulties, he/she does not receive vestibular stimulation assistance [45].

Attention deficit/hyperactivity disorder in childhood is associated with hearing disorders, but is not a specific feature. Hearing information disorders differentiate ADHD from autism. People with hearing disorder have normal peripheral hearing, but

they may be unsafe about what they hear. Difficulty in hearing discrimination or localization and distraction are other forms of hearing disorder. Hyposensitivity to sounds or sub-recording of sounds can motivate parents to seek professional help for their inappropriate children. It may seem a learning disability, but it is not [48].

ADHD is also associated in childhood with visual information processing disorders, but also with photophobia [49].

Concluding, attention deficit/hyperactivity disorder in childhood is a disorder which may be associated with disturbances in sensory integration, but it cannot be simply distinguished from other behavioral disorders by considering this aspect.

At the same time, in the international literature, the symptom of ADHD in the childhood was associated with mental deficiency.

Fuller and Sabatio (1998) argued that ADHD and mental deficiency coexist in the child, but there is a risk that ADHD is not identified when talking about a child with mental deficiency [50]. Dekker and Kott (2003) found a 15% prevalence of ADHD co-existence in people with mental retardation [51].

Simonoff et al. (2007) conducted a study involving 192 children aged 12 to 15 years old with ADHD and mental retardation. The authors have demonstrated the existence of ADHD symptoms in children with mental retardation, and there is a negative linear relationship between ADHD symptoms and low IQ ( $\beta = -0.087$ ,  $p < 0.001$ ). The findings of this study were that symptoms of ADHD are exacerbated in people with mental retardation. There is no evidence that this exacerbation can be explained by inadequate expectations or by confusing associations with other emotional, behavioral or cognitive problems [52].

Ahuja, Martin, Langley and Thapar (2013) conducted a study involving three groups: the first group consisting of

non-deficient ADHD students ( $n = 874$ ), the second group consisting of mentally deficient students without ADHD ( $n = 58$ ) and the third group of students with ADHD and mental deficiency ( $n = 97$ ). The subjects who participated in this study were aged 3 to 18 years old. The authors, in their study, have shown that a child with ADHD symptoms, either with or without associated mental deficiency, will also develop behavioral disorders and behavioral disturbances ( $OR = 2.38$ ;  $95\% CI = 1.71 - 3.32$  and  $OR = 2.69$ ,  $95\% CI = 1.69 - 4.28$ ). Moreover, the results of this study have also shown that the group of children with mental retardation and ADHD have a high level of behavioral distress symptoms ( $OR = 5.54$ ;  $95\% CI = 2.86 - 10.75$ ), symptoms of disturbance ( $OR = 13.66$ ;  $95\% CI = 3.25 - 57.42$ ) and a high incidence of the diagnosis of oppositional defiant disorder ( $OR = 30.99$ ;  $95\% CI = 6.38 - 150.39$ ) compared to the group of children with mental deficiency without ADHD [8]. However, the child with ADHD, unlike the mentally handicapped and the learning disorder, is not inadequate due to lack of interest in school or due to limitations of intellectual abilities [9].

Finally, ADHD in students from 1-4 grades is associated with learning disorder.

Hyperactives are easier to identify in school than those with attention deficit, who often go into the eyes of others as disordered, distracted, disorganized. Except in serious cases, most students with ADHD do not require special educational services. Almost one third of children diagnosed with ADHD have other learning difficulties [53].

The extent of learning difficulties and their definition is still a controversial issue. Experts believe that this situation is partly due to the heterogeneous nature of these difficulties, and to the unique behavioral pattern that each student faces with such problems. Despite the fact that most definitions of learning difficulties refer to the causes of the phenomenon (neurological causes, brain



dysfunctions, etc.) and despite the fact that most of the descriptions of learning difficulties use medical language (eg dyslexia, dysgraphia, discalculia, etc.), these factors rarely play a diagnostic role. Moreover, in educational practice, there is no justification for the use of these labels, as well as the search for hypothetical causes that can not be proven in the field of education. Given that today a class of students is no longer formed by the performance level principle, nor by other criteria that ensure a relative homogeneity but represent a heterogeneous environment, we can say that pupils with learning difficulties are a category of under-performing [54, 55].

Difficulties encountered by children with ADHD in planning and monitoring of work, acquisition of phonological and spelling capabilities, and in the acquisition of declarative knowledge are well documented in the literature. Research in the field, as Vrasmas (2012) argues, shows that the texts of children with ADHD are short and poor as a structure, vocabulary, grammar structure, although they can develop as many ideas as a typical child for the age in question. In the case of a competition of difficulty, specialized intervention is recommended [53]. Intervention in the case of ADHD is mainly aimed at learning strategies to monitor attention, focus on school tasks, self-regulate behavior. There is also drug treatment that helps but is not recommended in all cases. As with the other difficulties, early detection and intervention are hardly weighing in later evolution.

### **Solutions for improving the symptomatology of the child with ADHD**

First, at the national level, the student/child with ADHD was defined as the student with *"difficult behavior"*, with discipline problems [56].

Thus, the student who has *"a difficult behavior"* is the student with a *"psychological state disagreeing with the moral resonance,*

*towards himself and to others"* [57] and with difficulty in achieving the social, school and behavioral expectation [58].

Difficult behaviors arise at the same time as the incompatibility between a child's abilities and emotional, behavioral and school/social demands or expectations [58, 59, 60].

For the good integration of the child with attention deficit/hyperactivity disorder in the students group, but also for the realization of personalized intervention programs, the teacher needs to know his behavioral manifestations in the classroom [61].

Thus, according to the author cited above, the predominantly hyperactive/impulsive type has the following characteristics: the student with this subtype of ADHD is the most vociferous, he becomes very frustrated, anxious and disturbing, it is very difficult for him to focus on didactic tasks, being able to make big mistakes in solving them, in conversations, can interrupt the interlocutor / does not have the patience that the interlocutor will finish what he has to say, cannot play quietly [61].

The predominantly inattentive type has the following characteristics: he is easy to overlook, has less school performance than his potential, often he is appreciated by the teacher as lazy, without motivation [61].

The mixed type has the following characteristics: this can be manifested to a student by the speed with which he is doing his homework, by his inability to pay attention to the details of the class, and the seeming disobedience of the teacher's instructions, the student tends to fold, the student gets bored quickly, the student is disorganized and forgets, the student's books are disorganized on the bench, the student finds homework with difficulty, and this student is difficult to meet the deadlines for submission his homework [61].

Secondly, the Romanian literature talked about the classroom management in which

students with “*difficult behavior*” were mentioned [56].

Effective classroom management means avoidance of conflicts, stressful situations, and significant limitation of the constant effort of the teaching staff and the classroom students in the classroom, during classes or breaks, for a long time [56].

When discussing the classroom management of a student with ADHD, we consider two elements: prevention (positive and negative strengthening, counteracting unwanted behaviors) and personalized intervention (ensures the integrity and psychological comfort of the student, the teacher and the whole class; the student is given the opportunity to change his behavior, control him, but also the opportunity to adopt new functional behavior) [62].

In the prevention of stress/crisis situations in the school environment, Iuncu (2006) proposes to avoid punishment, which is not a pedagogical or educational means, as it does not consider changing the dysfunctional behavior with a desirable/functional one, nor training a new behavior [63].

However, the intervention is only carried out after a concluding study in order to identifying the needs of which it intervenes. Popenici, Fartusnic, Tarnoveanu (2008) conducted a research on 5 schools in Bucharest on the issue of students with ADHD in primary classes (evaluating teachers’ knowledge regarding the correct identification of students with ADHD potential, identification of information and training needs of teachers with regard to students with ADHD) and how this disorder affects students’ outcomes, classroom activity [56].

At the same time, they analyzed the way in which teachers meet the special educational needs of students with ADHD potential and the way in which these cases are distributed in class by gender and other variables.

The results of this study revealed that students with ADHD have a very low degree

of involvement in school activities (low capacity to volunteer), do not follow the rules of their class or school, show a very high degree of indifference to didactic activities, are agitated and give up easily the tasks in which they are involved.

Now, we can talk about personalized intervention program (PIP).

In 1999, Doru Vlad Popovici in his work on *Communication Development in Children with Mental Disorders* described the elements of an intervention program as follows [64]:

1. assessment;
2. setting the environment for the program;
3. determining the subjects to whom the program is addressed;
4. setting long-term and short-term goals;
5. selecting the activities and methods which were used in the intervention;
6. establish institutions and interdisciplinary teams (teachers, psychologists, defectologists, speech therapists, educators, etc.) who will implement the program;
7. cooperation with family and community.

According to Popovici (1999), designing an intervention program focuses on changing the child’s environment, whether school or family, in an organized manner.

The Personalized Intervention Program (PIP) targets a single field of intervention and is based on the student’s interests, skills and performance, on his/her current functional level, but also on the individual characteristics of the child to whom he/she is addressed [65, 66].

According to Cucos (2009), personalized intervention programs aim at the responsibility and self-control of the person to whom the program is addressed [67].

The teacher who draws up the Personalized Intervention Program must also take into account: the student’s developmental characteristics, the type and severity of the student’s disorder, the curricular area, the heterocrony level, interdisciplinarity

in intervention, human resources, materials etc., clear definition of the special needs of the learner to whom the program is addressed, the clarification and the operationalization of the framework objectives of the education, the assessment of the student's abilities in relation to the goals, the didactic activities in group, the application of flexible, interactive teaching methods, the application of formative evaluation methods [68].

A Personalized Intervention Program, on the other hand, takes place in five stages:

- 1) Diagnostic evaluation - includes assessing the student's attitude to the didactic task, assessing the cognitive and metacognitive processes
- 2) Formulation of objectives
- 3) The program - takes into consideration the child's resources and difficulties
- 4) Taking responsibility - the child's knowledge of the goals and the methods by which the objectives are achieved
- 5) The outcome [69].
- 6) The PIP evaluation is based on the progress recorded at the functional level by the student [68].

Specifically, Cucu-Ciuhan (2001) has developed a psychotherapeutic intervention plan for small school children with ADHD. She has used experiential-unifying psychotherapeutic techniques on 40 students diagnosed with ADHD in the general primary cycle. These students were organized into four groups: 3 experimental and one control group, according to two criteria: a training group for teachers who working with students with ADHD (a therapeutic and control intervention group) and group experiential psychotherapy for students with ADHD (a therapeutic intervention and control group). The results of the study revealed that the students who participated in the experienced psychotherapeutic groups registered a significantly higher progress in improving the symptoms of ADHD than those who did not

participate in these groups. The good results of the psychotherapeutic program for students with ADHD do not depend on their intelligence. On the other hand, the behavioral progress of the students whose teachers participated in the professional optimization courses was significantly higher than the students whose teachers did not attend these courses. The effect of teacher participation on professional optimization courses on the behavioral progress of the student with ADHD does not depend on the student's intellectual level [70].

Foloștină (2011) describes the Pyramidal Model of Learning applied to working with a student who has attention deficit and hyperactivity disorder [71].

The justification for choosing such a model is that only by a solid model can be achieved the school success of these students. Egyptian pyramids were grandiose structures because of their solid base.

The components of the Pyramidal Model of Learning are grouped as follows [71]:

1) *The first level*, the pyramid base, is formed from the elements of the learning environment

2) *The 2nd level* consists of the basic blocks, namely: attention, self-regulation, emotions, self-esteem, behavior

3) *The 3th level* contains the symbolic blocks: phonological, orthographic and motor - which helps the child in the processing of the symbolic information of the language

4) *The 4th level* is made up of conceptual blocks: language, images and strategies.

These are elements that help the child understand the meanings and relationships between the learned.

Finally, Barkley (2011) describes the stages of an intervention program aimed at reducing the symptoms of ADHD students by involving the parents of these students [72]. The stages of this program for the difficult child are:

1) *In the first stage*, parents are presented with the causes of the child's difficult behavior.

2) *In the second phase of the Program*, parents learn effective methods to pay attention to the child's behavior.

3) *In the third stage*, each parent learns the right time to praise, appreciate and reward a child's behavior.

4) *In the fourth stage*, parents learn more methods of rewarding child behavior, methods applied to increase the child's compliance with commands, but also to motivate the child.

5) *In the fifth step*, parents learn how to introduce penalties in the Program for inappropriate behaviors in different contexts.

6) *In the sixth stage*, increases the number of contexts, in which the inappropriate behavior of the child is punished.

7) *In the seventh stage*, parents learn how to manage the child's behavior in public places.

8) *In the eighth stage*, the parent learns how to manage the child's behavior at school. This is done through a daily school performance monitoring sheet and a reward system.

9) *In the ninth stage*, parents learn how to handle future problem behaviors using the methods already learned. In addition, they learn how to create and implement a Behavioral Change Program.

10) *In the tenth stage*, parents are attending fixation and follow-up meetings. Parents are invited after a month to meet in order to evaluate how they applied the learned methods or to remove the reward system, wherever they were supposed to, and to be supported, to help manage future behavioral problems. Parents are alerted about possible relapse - the reuse of inefficient methods used before learning the effective ones within this program. A follow-up meeting is scheduled over three months during which progress is assessed [72].

Therefore, the symptomatology of the child with ADHD is complex and in order to reduce it, a holistic approach is needed, which takes into account both the characteristics of the child and the learning environment.

Thirdly, literature in Romania and abroad offers a rich amount of theories and methods that could change behavior.

The behavioral change of a student with effective ADHD is the cognitive-behavioral therapy techniques. One of them is self-training, which involves focusing on pregnancy and accurately doing school tasks. This technique should be applied with a reward system [73].

Another technique used in the behavioral change of students with ADHD is self-regulation, which includes: self-monitoring, self-evaluation and self-compensation. Self-monitoring requires the teacher to teach the student to be careful about their behavior in order to make the student aware of their behavior and ability to function independently (Wills and Mason, 2014). Self-compensation and self-evaluation imply that the student compares the self-observed behavior with a set standard and then gives a reward for the goal achieved. It is important to apply this technique together with parental behavioral training [74, 75].

From all the above, it is shown that in order to obtain behavioral change of the student with attention deficit/hyperactivity disorder and for good management of the class in which a child with ADHD is present, it is necessary to include this student in a support group, but also preparing the teacher for working with him, for applying techniques such as self-monitoring and self-training.

### **Special educational and support needs**

The Child with Attention Deficit/Hyperactivity Disorder has been included among those with special support needs and special educational needs in the USA since 1990, when the Individuals with Disabilities



Education Act (IDEA) was adopted. This act ensures that all children aged 3 to 21 years benefit from free and appropriate public education, regardless of their capacity. Having ADHD does not automatically qualify a child for special services according to IDEA. According to the guidelines, students must have a disability, need to have special education or related services due to disability. Although ADHD is not nominated as a disability, it is nominated as a condition in the category "Other Health Impairments" [76]. The child with ADHD is eligible for special educational services if he/she still has learning difficulties and is thus included in an Individualized Educational Program (PEI).

In education literature, at national level, attention deficit/hyperactivity disorder (ADHD) in the child was included in the associated deficiencies category. Associated deficiencies mean the existence of two or more associated deficiencies in the same person. Deficiencies may be accompanied by other disorders [77]. We believe that it can be said about a deficiency just in case of a child with a severe level of attention deficit/hyperactivity disorder. In general, students with ADHD with a mild or moderate level of severity are integrated in regular classrooms.

Therefore, we can not talk about ADHD in the child unless the following concepts are defined: special educational needs, support needs, inclusive schooling, equal opportunities, integration, personalized intervention program, school integration, curriculum, competence.

Thus, the special educational needs (SEN) was adopted for the first time in 1978 in the United Kingdom, and in 1990 it was adopted and introduced into the UNESCO terminology [78]

In Romanian legislation, for the first time, the special educational needs (CES in Romanian abbreviation) is mentioned in the Education Law no. 84/1995. Subsequently, this phrase has also appeared in normative

acts related to the application of the National Education Act of 2001, GD no. 1251 of 2005, Law 448/2006, Order no. 5573 and Order no. 6552 of 2011 [79, 80, 81].

In all these documents, Special Educational Needs are defined as additional educational needs, complementary to the general objectives of the educational process, specific to each individual, specific to the characteristics of a disability/dissorder, learning disorder/difficulty or other nature, which requires a complex (health, social, educational, etc.) assistance.

This name of SEN has been used, both nationally and internationally, along with the terms handicap, disability and deficiency until 2001, creating confusion. In 2001, it was concluded that any student may have special educational needs at some point, and that SENs can be determined by a multitude of situations other than disability or deficiency. Not every child/student with handicap, disabilities or deficiencies also has SENs, which are closely related to the educational environment [78].

Therefore, the learning process calls for the adoption of new teaching methods, in direct relation to the real possibilities, with the student's abilities, so as to meet the educational demands that students feel [55].

Ecaterina Vărășmaș (2008) emphasizes the idea that children with SEN are not only in the area of deficiencies, but they can also be found among those with normal intellect [82].

Therefore, it is important to approach the specialists, because according to this it is necessary to study each child with his/her particularities, which involves a personalized/specific evaluation and intervention.

Every child has a number of specific features that relate to the way, the style, the rhythm and the specifics of his learning. At the same time, a number of children have particularities that justify additional support, specific activities for the realization of

learning tasks; these are special needs, different from most children, and which determine specific measures.

Special needs may have any person/child at certain times because the special needs cover an extremely varied, complex and dynamic reality - from simple problems, driven by the typical development of individuality and personality, to unique problems that cannot solve only with special and specific intervention [83].

Also, at the international level, the definition of handicap and disability was difficult to do. The concept of handicap has moved from the medical sense of loss of physical capacity to the one of social disadvantage resulting from a deficiency. In 1980, Phillip Wood defined the disability as a disadvantage, the result of a causal chain in which a disease, disability and incapacity is attained and handicap is reached [84].

The term of disability was used to define the term of handicap until 2004, thus creating confusion. The World Health Organization (WHO) in *"International Classification of Functioning, Disability and Health"* (CIF) (2004) defined disability as a generic term for deficiencies and restrictions on participation in community/social activities (World Health Organization, 2005).

Special needs refer to all needs of the disabled person, common to those of other people in the society, whose satisfaction depends on participation in community activities and social integration under the conditions of additional, differentiated and appropriate support [85].

In Romanian legislation (GD 1215 / 31.10.2002), support services are defined as *"those services that ensure both independence in the everyday life of the person with disabilities and the exercise of her rights"*. (Government of Romania, 2002) [86].

The need for support refers to social intervention. It is a requirement for the society, the community, it is a necessity of

the society that only identifies the needs of support and realizing the necessary support for each person, respects the fundamental human rights. Daniel Vasilescu emphasizes, from concrete examples, that the change in terminology reflects the change of mentality and vice versa. Often, it is clear from certain formulations that people with disabilities cannot integrate because of their deficiency and not the barriers in society. Identifying support needs leads to the identification of the specific support alternatives and services a person needs. These alternatives and support services may or may not exist in the local community. Many of these support services are required. At this point in the process, it is very important that social assistants have a map of social services already existing in the community to which certain persons can target [85].

The curriculum is an important component of the educational process. This term translates into content of learning, study program, but also through the direct and indirect experiences of the student in the school environment [85]. It is the *"indissoluble unity"* between: the educational endings, the content of education, the training and evaluation strategies.

Currently, the design of the curriculum has student center and training in the center. Specific and complex skills are being developed.

Potolea, Toma, Borzea (2012) in the *Work of a New Reference Framework of the National Curriculum* identifies three hypotheses of competence, namely: a tool of quality and performance (changes in work/school tasks have led to change skills because knowledge or skills can no longer meet challenges), the objective of training programs (most initial and continuing training programs focus on competencies), the result of learning (competence is an objective and an expected learning product). Centralizing competence on the result has significant implications for trails

and training time. These will vary according to the individual's potential [87].

Equalization of chances is the accessibility of information for all but especially for people with disabilities [68].

School integration, according to Order 5805/2016, is a process of adapting the child to the requirements of the school it follows, establishing positive affective relations with the members of the school group and successfully carrying out the school activities (Ministry of Labor, Family, Social and Elderly Persons, 2016).

Integration means, according to Buică-Belciu (2004), the acceptance of a person with disabilities in the society, without manifestation of discrimination in terms of personal expression, free access, individual assertion and exercise of rights and obligations according to the needs, capacities and options them [68].

Inclusive school raises learning to the rank of general principle, and presupposes beforehand any acceptance that any child can learn. All actors of education learn, change, change. Fundamentally in the teaching-learning process is understanding the interactivity of learning and development. Each participant learns and develops by interacting with others. This is where the teachers learn, as well as school managers and parents and all other members of the community. Inclusive school addresses individualities but also offers solutions to collaboration and learning for learning. Sources of learning, for each one, come from the inter-human relations and from the permanent

experience with the objects, with the peers and with oneself. School is not only a territory of academic knowledge, but also one of practical experiences and inter-human relationships [88].

The inclusive school has emerged as a result of several stages in the education system.

This system was described by Gherguț in 2016, as in the figure 1.

Inclusive school requires everyone to work together creatively in such a way that each student learns. Therefore, a school for all/inclusive school is characterized by: ensuring access to knowledge and information for each student; providing individualized learning; use, training and special arrangement in collaboration with its members; collaborate with families, foreign agencies and other community members; organizing and structuring school flexibility; ensuring the success of all students; building inclusive societies [82].

The inclusive school is *"a step further in the process of attenuation and elimination of educational barriers between normal/typical children and those with various disabilities"* [68].

In conclusion, ADHD is a real affection that causes many difficulties to children. With understanding, patience and help, we can improve them efficiency of the study, relationships with peers, education and self-esteem. Our role is to encourage intelligent, talented children to believe in their own capacities and to no longer feel incompetent, inferior and inappropriate.

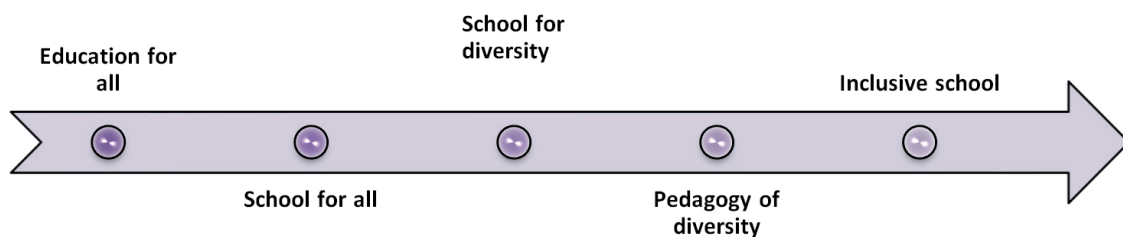


Figure 1. Steps to inclusive school [78]

## CONCLUSION

From all the above, it is clear that a large number of articles and books have been written on ADHD, but in order for a person to make an overview of the clinical table specific to this childhood pathology, to make both a selection of all relevant information in the field and to have a critical thinking developed.

Attention Deficit/Hyperactivity Disorder has a complex symptomatology, which can only be understood if the interested person has clinical knowledge. Hence the need for this work, which brings together all the relevant articles in the field of synthesis, and also succeeds in supporting teachers working with a child with ADHD by explaining the manifest behaviors of this student.

Attention Deficit/Hyperactivity Disorder is, in fact, characterized by the existence of a set of problems (behavioral, cognitive, emotional) that affect the child/student's functioning in several areas of life over a long period of time. Problems are quite serious and impede normal child neurodevelopment [60].

Many studies call into question behavioral change as a way of improving the symptoms of this disorder. In order to obtain the behavioral change of the student with attention deficit/hyperactivity disorder, it is necessary both to include this student in a support group, but also to prepare the teaching staff for working with this type of student.

The teacher should understand that moving a child with ADHD from one class to another does not solve the child/student's educational problems, the fact that through the psychologist he will succeed in identifying such a child and that he can come forward promptly the educational needs of this student.

The entire teaching environment is responsible for resuming a supportive climate for the child with ADHD, encouraging the

class to support the student with difficult behavior.

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