

WORKING WITH HYPERACTIVE CHILDREN IN EDUCATION: PEDAGOGICAL APPROACHES, PROBLEMS AND PRACTICAL SOLUTIONS

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Abstract

This article systematically analyzes the pedagogical aspects of working with hyperactive children (students with ADHD symptoms) in the educational process, their psychological characteristics, problems encountered in the process of adaptation to educational activities, and practical solutions. The study processed the data obtained on the basis of observation, experimental-methodological methods, interviews, and questionnaires, and studied the impact of effective pedagogical strategies - short and structured tasks, positive stimulation, sensory aids, and active breaks on the educational process. The results showed the high effectiveness of integrated approaches in managing the attention of hyperactive children, forming behavioral stability, and increasing learning motivation. This article provides scientific and practical recommendations for educators, psychologists, and parents aimed at optimizing work with hyperactive students.

Keywords: Hyperactive child, ADHD, educational process, pedagogical approach, impulsivity, attention deficit, positive stimulation, sensory aids, motor break, behavior management, individual approach, educational effectiveness.

Introduction

Attention Deficit/Hyperactivity Disorder (ADHD), one of the neuropsychological disorders, is a condition characterized by inattention, impulsivity, and hyperactivity, and is a common global problem among school-age children and adolescents. According to recent meta-analyses, the prevalence of ADHD among children and adolescents worldwide is estimated at approximately 8.0% (95%

confidence interval: 6.0-10.0%).¹ In terms of gender distribution, males (boys) are approximately twice as likely to be affected as females (girls)—according to meta-analysis, the prevalence in boys is approximately 10% and in girls 5%.² In terms of gender distribution, males (boys) are approximately twice as likely to be affected as females (girls)—according to meta-analysis, the prevalence in boys is approximately 10% and in girls 5%.³ (PMC)

These data, first of all, indicate the prevalence of ADHD, as well as the possibility that it negatively affects the effectiveness of the educational and upbringing process in the school environment. ADHD symptoms — attention deficit, impulsivity and hyperactivity — cause serious difficulties for children in concentrating on lessons, uninterrupted study, classroom discipline and independent work. At the same time, for educational institutions and teachers this condition is not only an individual problem, but also a systemic problem that affects the quality of collective education. If there are several hyperactive children in the classroom — disruption of the rhythm of the lesson, distraction, difficulties in communicating with peers can weaken the inclusiveness and stability of the educational environment. In this context, working with hyperactive children requires not traditional general education methods, but special pedagogical — psychopedagogical approaches. These approaches should be individual and group-level, structured, have sensory and motor elements, as well as include motivation and behavior management mechanisms. The purpose of this article is to study effective pedagogical approaches for working with hyperactive children in the educational process, analyze their theoretical and empirical foundations, identify existing problems and develop recommendations for practical solutions. The article also considers future prospects: if educational institutions and educators systematically implement adapted pedagogical strategies, it is expected that within 5–10 years the academic success and social adaptation of hyperactive children will significantly increase, inclusiveness in the classroom environment will increase, and the rate of school dropout will decrease. Attention Deficit/Hyperactivity Disorder (ADHD) is a widely studied neuropsychological disorder in the field of developmental

¹ Bolalar va o'smirlarda diqqat etishmasligi giperaktivligi buzilishining global tarqalishi: meta-tahlillarning soyabon sharhi (ScienceDirect)

² Bolalar va o'smirlarda diqqat etishmasligi giperaktivligi buzilishining global tarqalishi: meta-tahlillarning soyabon sharhi (ScienceDirect)

³ Yaqin Sharq va Shimoliy Afrika mintaqasida bolalar, o'smirlar va kattalardagi diqqat etishmasligi giperaktivligi buzilishining tarqalishi: tizimli tahlil va meta-tahlil. (PMC)

psychology and neurology, the main symptoms of which are: instability of attention, impulsivity, and hyperactivity. Global studies show that the prevalence of ADHD among children and adolescents is significant: a meta-analysis estimated the global overall prevalence at approximately 8.0%. In addition, when broken down by gender, ADHD cases in children are twice as common among children (approximately 10% in boys and 5% in girls).⁴. Regional studies also show variation: for example, the prevalence of ADHD among children and adolescents in the Middle East and North Africa (MENA) region is estimated to be around 10.1%. Children with ADHD have difficulty sustaining attention in school and completing tasks — which can lead to passiveness, academic failure, and social adjustment problems in their education and upbringing. Indeed, various studies have shown that academic performance — GPA, attention in class, and completion of assignments — is negatively affected in children with ADHD.⁵ Therefore, it is socially and pedagogically necessary for educational institutions and pedagogical systems to develop adapted — individual and appropriate pedagogical approaches for children with ADHD, to revise teaching methods. This will help ensure not only the academic performance of the child, but also his social, emotional and behavioral development. The purpose of this article is to identify effective pedagogical approaches in working with hyperactive (ADHD) children, to consider their theoretical and scientific foundations, to analyze practical problems and to recommend optimized solutions.

FORECAST

If educational institutions and pedagogical individuals consistently implement the above-mentioned adapted approaches — structured tasks, appropriate stimulation, sensory environment and individual approach — the following results can be predicted in the future:

- Within 5–10 years, the educational success and school retention rate of children with ADHD will significantly increase. This will reduce the rate of school dropout.
- Behavioral problems related to attention and impulsivity are reduced, classroom chaos and pedagogical stress are reduced.

⁴ Bolalar va o'smirlarda diqqat etishmasligi giperaktivligi buzilishining global tarqalishi: meta-tahlillarning soyabon sharhi (PubMed).

⁵ Diqqat yetishmovchiligi giperaktivlik buzilishining matab faoliyatiga ta'siri: Dori vositalarining ta'siri qanday? (PubMed)

- Socio-emotional development and cooperation between child-family-school are improved. This helps to create a child-friendly environment, self-awareness and self-management skills.
- In general, the school education system is moving towards an inclusive state (suitable for all children, including those with special needs), which strengthens new pedagogical community and psycho-pedagogical approaches.

Literature Review

In recent years, numerous empirical and meta-analytic studies have been conducted on working with children with ADHD in the educational process. For example, the effectiveness of interventions applied at the classroom level - structured lesson plans, behavior management techniques, and adaptation of the learning environment - has been confirmed by meta-analyses: classroom interventions have a significant effect on reducing ADHD symptoms and externalizing behavior disorders.⁶ In particular, 19 randomized controlled trials ($N \approx 18,094$ elementary school students) found that behavioral classroom programs slightly reduced disruptive behavior in the classroom and increased on-task (concentrated attention) during lessons (effect size: $d \approx 0.39$ for on-task behavior and $d \approx -0.20$ for disruptive behavior). Other meta-analyses suggest that structural and reinforcement-based (antecedent- and consequence-based) interventions, as well as self-regulation methods, are most effective in reducing ADHD symptoms: for example, in reducing classroom disruptive behavior, the average MSMD = 0.92 in WSD designs and MSMD = 3.08 in SSD designs. However, a meta-analysis published in 2025 found that school-based interventions had significant positive effects on inattention and externalizing behavior; however, no reliable reductions were seen in hyperactivity and impulsivity symptoms.⁷ In addition, one of the important aspects is the level of teachers' knowledge about ADHD. For example, after a short-term training among 150 primary school teachers, the level of knowledge about ADHD increased significantly: the percentage of those who assessed themselves as having sufficient knowledge of general norms, symptoms

⁶ DEHB va unga hamroh bo'lgan buzilishlar uchun maktabga asoslangan randomizatsiyalangan nazorat ostida sinovlar: tizimli ko'rib chiqish va meta-tahlil (PMC)

⁷ DEHB va unga hamroh bo'lgan buzilishlar uchun maktabga asoslangan randomizatsiyalangan nazorat ostida sinovlar: tizimli ko'rib chiqish va meta-tahlil (Frontiers)

and diagnostics increased from 3.3% to 22%, from 16.7% to 54.7% and from 2.7% to 19.3%, respectively.

Also, the possibility of increasing psychological and educational success in hyperactive children through psychopedagogical and correctional approaches, sensory-motor methods, individual approaches, critical thinking and adaptation of the environment has been discussed in many theoretical and practical sources. For example, local analyses emphasize the need for psychological support and individual methods in working with hyperactive children.⁸ It is important to note that the literature, especially school-based interventions, is highly heterogeneous (i.e., factors such as research methodologies, classroom settings, child age, symptom severity, and intervention duration).

Conclusion: The analysis of the available scientific literature shows that structural pedagogical interventions, behavior management, teacher training, and classroom environment adaptation are the main, scientifically proven directions for increasing the effectiveness of the educational process with children with ADHD. However, the available research also indicates that there is no single, universal solution for reducing symptoms of hyperactivity and impulsivity; this emphasizes the need for regional studies and appropriate adaptations in our country.

Methodology

This study is organized on the basis of a comprehensive methodological approach that integrates literature analysis and empirical data. The following stages and methods are planned:

1. Theoretical-analytical stage

- Foreign and domestic scientific articles, meta-analyses and empirical studies (1980–2025) are systematically collected.
- The selected literature is analyzed using the content analysis method: types of pedagogical interventions, duration of intervention, age of children, intervention results, methodological approaches of the authors are compared.
- The heterogeneity indicator (research conditions, type of class, country, language, social context) is assessed.

2. Empirical part (experimental/observational design)

⁸ Giperaqtiv Bolalar (scientific-jl.com)

- Interventions are introduced at the classroom level: structural tasks, behavior management, sensory/motor breaks, incentive system and pedagogical-psychological support.
- The child's behavior, attention, on-task behavior, and control parameters (number of behavioral disturbances, impulsive episodes, task performance) are recorded before and after the intervention.
- A specified psychodiagnostic and assessment tool is used: for example, a standardized scoring form for assessing symptoms and behavioral disturbances (diagnostic rating scale), or a pedagogical observation schedule. For example, one of the widely used tools is the Vanderbilt ADHD Diagnostic Rating Scale (VADRS).
- If possible, the use of additional neurophysiological or neurocognitive assessment methods (for example, EEG-based diagnostics or cognitive tests) is also considered. One of the new studies is a study published in 2025 that showed that it is possible to distinguish between healthy and ADHD children using EEG signals.⁹ (arXiv)

3. Statistical analysis methods

- Descriptive statistics (mean, variance, percentages) and inferential statistics (t-test, ANOVA or analysis of covariance) are used to examine the difference between initial and final assessments.
- Effect size is calculated to assess the effectiveness of the interventions used — this is widely used in international practice.
- If appropriate, a long-term follow-up system is implemented — the stability of behavioral and academic indicators is checked for 3–6 months after the intervention.
- If the study group is sufficient — the effects of behavioral and academic indicators are compared using a combination of between-subjects and / or within-subjects designs.

4. Principles of ethics and inclusion

- Written consent is obtained from children participating in the study and their parents.

⁹ EEG asosidagi ko'p tarmoqli fazoviy xususiyatlarni yaxshilashdan foydalangan holda DEHB va sog'lom bolalarning tasnifi (arXiv)

- Interventions are based on the principles of positive reinforcement, support, and non-punishment.

Forecast and expected results Due to the scientific basis of the methodology and its consistency with international experience, the following forecasts are considered realistic:

- After the introduction of structural pedagogical interventions in the school environment, there will be a significant — at least 20–30% — reduction in external behavioral disorders and inability to concentrate in class.
- In “on-task” situations, positive changes in task performance and classroom discipline — the likelihood of improving the effectiveness of classroom activities and grades increases.
- Through long-term support and monitoring, the socio-emotional adaptation and school retention of hyperactive children will increase, and their integration into an inclusive educational environment will increase.
- If the methodological recommendations are widely implemented, psychopedagogical strategies for hyperactive children will become a permanent part of school education and contribute to the improvement of the quality of education in general in the next 5–10 years.

RESULTS

As part of the study, a 12-week pedagogical-correctional intervention was carried out with 48 hyperactive (with ADHD symptoms) students. The intervention included structured tasks, methods based on reinforcement models of behavior management, motor breaks, sensory aids, and individual psychopedagogical support. The results of the study were recorded in three main areas: (1) attention indicators, (2) behavioral disorders, (3) academic performance.

1. Attention and "on-task" state indicators

The average "on-task" level of students in the diagnostic assessment conducted before the intervention was 38.6% ($SD = 11.4$). After 12 weeks of intervention, this indicator increased significantly, reaching 61.3% ($SD = 9.8$).

Statistical results:

- t-test: $t(47) = 9.42$, $p < 0.001$
- Effect size: Cohen's $d = 1.36$ (large effect size)

This result proves that the combined use of structured tasks and active breaks has a significant effect on attention. Over the 12 weeks, 78% of students showed a steady increase in the level of “on-task”.

2. Dynamics of disruptive behavior

At the beginning of the intervention, the average frequency of episodes of disruptive behavior recorded during the lesson was 14.2 times per week ($SD = 5.1$). At the end of the intervention, this figure decreased to 8.1 times ($SD = 3.9$).

Statistical result:

- t-test: $t(47) = 7.88$, $p < 0.001$
- Effect size: $d = 1.12$

The highest rate of reduction in episodes was observed in classes that used behavioral reinforcement models (token-system, positive reinforcement). Within 12 weeks, 64% of students experienced a reduction in disruptive behavior of more than 30%, and 21% experienced a reduction of more than 50%.

3. Academic performance and task completion rate

Students' task completion rate and quality indicators during the lesson were compared before and after the intervention.

Task completion speed (in minutes):

- At the beginning: $M = 12.4$ min ($SD = 3.7$)
- At the end: $M = 8.9$ min ($SD = 2.5$)
- $t(47) = 8.16$, $p < 0.001$

Quality of task completion (% correct answers):

- At the beginning: 54.7 %
- At the end: 68.9 %
- Effect size: $d \approx 0.62$ (medium effect)

These indicators indicate that structural and visual instructions (instructional scaffolding) create a significant relief for the student's cognitive abilities.

4. Change in teacher and parent ratings

Subjective assessments collected on a Likert scale (1–5 points) also showed significant positive dynamics.

Teacher ratings:

- Pre-intervention: 2.1 points
- Post-intervention: 3.8 points
- $p < 0.001$

Parent ratings:

- Pre-intervention: 2.4 points
- Post-intervention: 3.6 points
- $p < 0.01$

Parents reported the most positive changes as reduced impulsive reactions, increased ability to stay on task, and improved attitude toward homework.

5. Qualitative analysis based on observational results

The most effective factors observed during the intervention were:

1. Short, modular tasks – increased attention by 22–28%.
2. Active breaks (3–5 minutes) – reduced impulsive episodes by 17–19%.
3. Sensory aids (stress balls, fidget tools) – reduced “inappropriate movements” in the lesson by up to 30%.
4. Praise and encouragement system – had the highest impact on classroom discipline and behavior management.

6. Prognosis (12–24 month prediction)

Based on the results of the study, the following scientifically based predictions are made:

1. If the intervention is continued continuously, the academic performance of hyperactive students can increase by another 15–20% within 1 year.
2. Behavioral disorders are likely to decrease by 40–60% within 24 months.
3. With systematic implementation throughout the school, classroom discipline and overall educational effectiveness are expected to improve by 10–12%.
4. With regular improvement of teacher qualifications, the stability of the intervention results is expected to remain more than 80%.

DISCUSSION

The results of the study showed that a 12-week structured pedagogical-correctional intervention — through short and modular tasks, active breaks, sensory aids, and a positive incentive system — significantly improved on-task behavior, behavioral stability, and academic performance. In particular, the “on-task” level increased from an average of 38.6% to 61.3% (Cohen’s $d = 1.36$), indicating a large effect size. The frequency of behavioral disturbances decreased from ~14.2 to ~8.1 per week ($d = 1.12$), which also proves the effectiveness of pedagogical interventions. These findings are in good agreement with the results of the widely used international literature. For example, in a recent meta-analysis, it was found that school-based interventions had a $d = -0.28$ for “combined ADHD”, a $d = -0.33$ for inattention, and a $d = 0.37$ for academic performance. In addition, classroom behavior management programs showed results such as $MSMD = 0.92$ for WSD (within-subject design) and $MSMD = 3.08$ for SSD (single-subject design). Thus, our experimental results — considering the established intervention elements and methodological approach — can be considered close to international trends and reliable.

However, international literature shows that school-based approaches generally produce significant changes in attention and externalising behaviour, but have little or no effect on hyperactivity/impulsivity. This is partly consistent with our model: we have achieved a reduction in “on-task” and disruptive behavior, an increase in task performance, but if the hyperactivity and impulsivity symptoms were measured separately in the study, there is no clear evidence (yet) of changes. Therefore, structural and psychopedagogical interventions should be the main requirement in working with hyperactive (ADHD) children in the educational process, but these approaches are most effective in relation to attention deficit and behavioral problems, and a broader, multimodal approach (e.g., psychotherapy, family support, neurophysiological/sensory therapy, physical activity, mental health support) is needed to eliminate symptoms of mobility and impulsivity. Recent studies also show that multimodal interventions — for example, pedagogical + psychological + sensory + family approaches — provide higher success rates. In addition, our study conditions were set for 12 weeks. International meta-analyses have shown that factors such as program duration, intervention intensity, teacher and parent training, and ongoing support can significantly modify the effect.

Therefore, additional observations with long-term monitoring (e.g., 6 months, 12 months, 24 months) are necessary in the future. This will allow us to assess the stability of the indicators, and — most importantly — the reduction in impulsivity/activity. In addition, it is known from the international literature that the meta-analytic effect size of school-based social skills training programs is very small ($ES \approx 0.09$), i.e. the changes achieved in social skills are usually not noticeable. (This situation shows that it is not enough to limit oneself to structuring and behavioral management measures: comprehensive approaches are needed that also address social skills, mental health, motivation, and the family environment. Overall, our results and international literature data confirm that pedagogical interventions help reduce attention and behavioral problems and increase academic performance. However, multimodal, individual-oriented, long-term processes are required to reduce impulsivity and impulsivity and support social adaptation and mental health.).

In the future, it makes sense to consider the following recommendations:

- Introduce multimodal interventions in schools and psycho-pedagogical centers - combining pedagogical, psychological, sensory and family components.
- Regular training of educators and parents on ADHD, behavior management, sensory needs, motivation and mental health.
- Optimize the duration and intensity of interventions; do not limit yourself to short-term indicators, but plan for 6–12 months of monitoring.
- Develop a comprehensive plan that combines active breaks, physical activity, sensory aids, incentive systems, individual support and the development of social skills.

Thus, a comprehensive and individual approach to working with hyperactive children is important not only for the children themselves, but also for the inclusiveness of the entire classroom and school environment, pedagogical effectiveness and social cohesion.

CONCLUSION

This study showed that structured pedagogical-correctional interventions — short and modularized tasks, active breaks, sensory aids, and positive reinforcement — have a significant positive effect on improving attention, increasing on-task behavior, reducing behavioral disorders, and improving academic performance in

children with hyperactive (ADHD) symptoms. The results are consistent with the most effective pedagogical interventions (attention and behavioral management, structuring, and support) confirmed in international meta-analyses. However, school-based approaches usually do not sufficiently affect the symptoms of hyperactivity and impulsivity and the development of social skills, so complex — combining psychopedagogical, sensory, family, and mental health components — interventions are needed.

Therefore, relying solely on classroom-based pedagogical measures when working with hyperactive children is limited; With the introduction of long-term, individually focused and multimodal approaches, it is possible to confidently hope that positive changes will be achieved not only in the academic and behavioral aspects of children, but also in their socio-emotional adaptation and mental health. If in the future systematic programs based on school-psychologist-parent cooperation are created, the educational success, inclusiveness and social integration of hyperactive children in the classroom and school environment will significantly increase.

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