

PART I: ACTUAL ISSUES IN MODERN PEDAGOGY

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DIFFERENCES IN THE ACADEMIC PERFORMANCE AND BEHAVIOUR OF STUDENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER BASED ON PREVALENT SUBTYPE OF THE CONDITION

Vasileios Peristeropoulos, PhD in Special Education,

*South-West University "Neofit Rilski"
of Blagoevgrad, Bulgaria*

Abstract: *Attention Deficit Hyperactivity Disorder (hereinafter – ADHD) is a disorder with a very high prevalence in the children. The syndrome is characterized by issues in relation with lack of attention, hyperactivity and impulsivity. Owing to the nature of these problems, children face great difficulties at school, which demands great levels of attention, adherence to specific rules and large periods of stillness. Hence, low academic results and behavioural troubles are occurred very commonly in students with ADHD. The disorder can be divided on three subtypes depending on the dominant symptoms: Inattentive, Hyperactive-Impulsive and Combined subtype. The purpose of this study was to investigate the difficulties of 54 students (26 belonged to the Inattentive subtype, 9 to the Hyperactive-Impulsive subtype and 19 at the Combined subtype) with ADHD in the school environment and investigate the hypothesis that there are differences in academic achievement and behaviour based on the subtype of the disability. Application of subjective (teacher opinions) and objective (standardized tests) academic performance and behaviour measurement research instruments was made. The analysis of the results indicates that the subtype of the condition affects the behaviour and the academic performance of students with ADHD to a certain extent.*

Keywords: *ADHD, Inattentive subtype, Hyperactive-Impulsive subtype, Combined subtype*

INTRODUCTION

Individuals with Attention Deficit/Hyperactivity Disorder (ADHD) usually present inattention issues (they cannot keep focus for large periods of time), hyperactivity (they need to move even in situations or contexts that is considered inappropriate) or impulsivity (they find it difficult to control spontaneous behaviour when it is expected to do so).

Depending on the dominant symptoms, the Diagnostic and statistical manual of mental disorders (APA, 1994) subcategorize the disability in three subtypes: Inattentive (when the main symptoms are associated with lack of attention), Hyperactive-Impulsive (when the main symptoms are related to hyperactivity and/or impulsivity) and Combined subtype (when main symptoms include inattention and hyperactivity-impulsivity).

Since the school requires specific type of behaviour, long periods of stillness and attention during the teaching hours, students with ADHD face great difficulties in it (McConaughy et al, 2011).

These complications result in presenting behavioural issues and weaknesses in academic performance. Depending on the prevalent symptoms of the syndrome, there can be differences among students who belong to different subtype of ADHD (Gaub & Carlson, 1997; Milich, 2001).

RESEARCH AIMS

No matter the subtype of ADHD, individuals with the disorder share common problems regarding their academic performance. In addition, they regularly display unacceptable behaviour in the school environment.

Considering their differences in their dominant characteristics, children who belong to different subtypes of ADHD, might have also variances in these problematic areas. Therefore, this study tries to find out if there are differences based on prevailing subtype of ADHD, in terms of academic performance, behaviour and gender.

RESEARCH METHODOLOGY

Primary education teachers participated in this study. Their selection was random, with the rule of having at least one student with ADHD. Detailed instructions for the proper use of the research tools were given. The study used subjective (teacher opinions) and objective (standardized tests) academic achievement measures with the intention of determining the nature of the issues that students with the disability face in the school environment. The study examined the academic performance, behaviour and gender of the children. The sample included 54 students of the second and third grade of Greek primary schools with the condition.

Table 1 shows the gender and the subtype of the children who formed the sample.

Table 1

Sample of the study (gender and subtype)

Subtypes of ADHD	Gender				Total	
	Boys		Girls			
	f	%	f	%	f	%
Inattentive subtype	16	40	10	71.4	26	48.1
Hyperactive-Impulsive Subtype	7	17.5	2	14.3	9	16.7
Combined subtype	17	42.5	2	14.3	19	35.2
Total	40	100	14	100	54	100

Source: estimated by author

METHOD OF ANALYSIS

In order to collect the appropriate data, teachers had to apply specific research tools in the students with the disorder:

- *Diagnostic test*: The developmental level in basic pedagogical areas of the students was investigated. It had quantitative scales (memory of numbers, copy of shapes, memory of pictures, memory of shapes, graph distinction, vowels recognition and synthesis of vowels) and qualitative scales (common sequences, visual-motor coordination and perception of left and right).

- *Observing behaviour record forms*: The frequency of unacceptable behaviour of the children that was in relation with the symptoms of the disability at each hour of the school curriculum.

- *Performance forms in basic modules of the school curriculum*: These forms measured the performance of students in Language, Mathematics and Study of Environment.

- *Performance forms in learning areas in Language and Mathematics*: Academic performance in learning areas of Language (writing, spelling, reading skills, comprehension of text and oral expression) and Mathematics (use of mathematical symbols and arithmetic operations and ability to solve simple mathematical problems and make mental calculations) was recorded.

- *Performance forms concerning general attitude towards the courses of Language and Mathematics*: The teachers evaluated five aspects of academic performance and behaviour in the school. These areas were preparation for class assignments, class participation, classroom work, interaction with classmates and appropriate behaviour.

- *Greek Rating Scale for ADHD*: These questionnaires were completed by the teachers for each child. The aim of this diagnostic tool was to generate a DSM-IV evaluation tool based on the DSM IV criteria, which is considered to be very accurate (DuPaul et al, 2016; Kalantzi-Azizi et al, 2005). This research instrument also contains two subscales for inattentiveness and hyperactivity-impulsivity (each subscale has nine relevant questions).

The statistical processing of data was made with SPSS 26.0. Means (M) and standard deviations (SD) were produced and Bonferroni correction was used in multiple comparisons.

RESEARCH FINDINGS

The results from the observing record forms clearly show that there is statistically significant difference in the incidence of student's disruptive behaviour in the most days of the school week, depending on the subtype of ADHD they belong. In fact, this variation is caused by the difference presented between children with the Inattentive and the Hyperactivity-Impulsivity Subtypes (students with hyperactivity and impulsivity issues present higher incidence of inappropriate

behaviour than inattentive children). Furthermore, the examination of the gathered data from the Greek Rating Scale for ADHD showed that there is a statistically significant correlation between the classification into subtypes of ADHD and the sex of the children. It was found that girls are much more prone to belong to the Inattentive subtype than boys. On the other hand, boys are much more likely to belong to the Combined subtype. It was concluded, there is a statistically important variance in the Subscale for Hyperactivity-Impulsivity due to gender (boys display a much higher score compared to girls, which means that boys who belong in this subtype have more severe symptoms than girls of the same subtype). On the contrary, no statistically significant difference was found in the total scale for ADHD and the Subscale of Inattentiveness in the results of boys and girls.

As concerns the academic behaviour, the other research tools offered evidence, that there was no statistically significant difference in any of the quantitative scales of the diagnostic test, depending on the subtype of the children with the syndrome. On the contrary, statistically significant difference depending on the subtype of ADHD was found in the performance of students in the course of Study of Environment. The variance was caused between children with the Inattentive Subtype and those with the Combined Subtype (the first ones had better performance than those belonging to the Combined Subtype).

However, the overall performance in Language and Mathematics did not vary between the three subtypes of the condition. The analysis of the data from the assessment forms in Language and Mathematics indicated that there is no statistically significant difference depending on the subtype of ADHD in any learning areas of Language and Mathematics with the exception of making mental calculations in Mathematics (Inattentive students are better than hyperactive-impulsive students in this area).

The conclusions from the performance measurement investigation forms in Language and Mathematics are mixed. In Language, there was statistically significant difference caused by the subtype of ADHD in preparation for class assignments and appropriate behaviour (inattentive children had better preparation and behaviour than

hyperactive-impulsive children) and not in interaction with classmates and classroom work.

As far as it concerns Mathematics, it was proved that there was statistically significant variance based on the subtype of ADHD in preparation for class assignments, appropriate behaviour and classroom work (inattentive children had better preparation than children with both inattentive and hyperactivity-impulsivity issues and presented better classroom work and appropriate behaviour than hyperactive-impulsive individuals) and not in their interaction with classmates.

SUMMARY AND CONCLUDING REMARKS

The results indicate that the subtype of the students with ADHD is associated with the gender. Girls with ADHD often belong to the Inattentive subtype, while boys frequently belong to the Combined subtype. Moreover, boys with hyperactivity-impulsivity complications have more serious symptoms than girls of the same subtype.

In terms of behaviour, children in the Hyperactive-Impulsive subtype have higher prevalence of unwanted behaviour than those in the Inattentive subtype. The overall academic performance was not found to vary across the various subtypes of the disorder. The same conclusion applies for the performance in learning areas in Language and Mathematics. However, there seems to be differences based on the subtype of ADHD, in some aspects of the general attitude towards the two modules.

The findings show that the subtype of the condition has effect on the behaviour and to some extent in the academic performance of children and it also associates with the gender of the students. Teachers should consider these conclusions, so as to adjust their teaching methods according to the students' needs. Furthermore, this study targets at encouraging more researchers to investigate the effect of each subtype of ADHD in academic performance and behaviour in bigger samples.

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