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Original article ■

Analysis of Subtypes and Other Associated Conditions of Attention Deficit and Hyperactivity Disorder (ADHD) in School Population from 6 to 12 Years of Age

Lydia Sushevska¹, Nicholas Olumchev¹, Mirjana Saveska¹, Hadzhihamza Kadri²

¹City Hospital "September 8th - Skopje", Skopje, Macedonia

²University Clinic for Psychiatry and Medical Psychology, Skopje, Macedonia

SUMMARY

Attention deficit hyperactivity disorder (ADHD) is a neurobehavioral developmental disorder that is usually diagnosed in children, with the appearance of symptoms up to seven years. The diagnosis was twice more frequently confirmed in boys than in girls. ADHD is characterized by symptoms of inattention and/or impulsiveness and hyperactivity, which can seriously affect many aspects of behaviour and performance in school and at home. ADHD may be accompanied by other disorders, such as oppositional defiant disorder, conduct disorder, anxiety or depression.

The study involved 400 participants. For the measurement of ADHD symptoms, the Vanderbilt-teacher rating scale and Vanderbilt-parent rating scale were used.

According to the teacher rating scale, a subtype of attention deficit and the opposite-defiant disorder were dominant conditions. From the parent rating scale - predominantly hyperactive/impulsive type of disorder, as well as the oppositional defiant disorder.

Key words: attention deficit hyperactivity disorder (ADHD), hyperkinetic syndrome, subtypes, oppositional defiant disorder (ODD).

Corresponding author:

Lydia Sushevska •

e-mail: lsusevska@hotmail.com •

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) or hyperkinetic disorder (further in text) is a neurobihevioural developmental disorder (1, 2) usually diagnosed in children, with the appearance of first symptoms before the age of seven (3, 4). ADHD is diagnosed twice as often in boys than in girls (5). Common symptoms (6, 7) for ADHD are impulsivity (6), hyperactivity (6) and inattention (8). These symptoms can seriously affect many aspects of behaviour and performance in school and at home. In approximately 80% of children with ADHD, the symptoms persist into adolescence and even to adult age. The effects of ADHD significantly affect the person throughout childhood and adult life, especially if it is not managed optimally so that children with this disorder may have low professional status, criminal acts and abuse of substances (9). Parents and the environment suffer as a result of behavioural problems associated with ADHD (10, 11). Many people manifest these behaviours, but not to the point where they significantly affect work, relationships or learning.

Hyperkinetic disorder can accompany other disorders such as oppositional defiant disorder (ODD), conduct disorders, anxiety or depression (7, 12). High rates of psychiatric comorbidity were found in psychiatric and pediatric patient populations. Hyperkinetic disorder is not an artifact of diagnostic criteria that comorbid conditions themselves are not artifacts when these criteria overlap.

There is a complex interaction between ADHD and commonly observed comorbid psychiatric disorders such as oppositional defiant disorder (ODD), conduct disorder, anxiety, depression, bipolar disorder, and substance abuse. Comorbidity greatly affects diagnosis, prognosis and treatment of ADHD.

Classification

According to ICD -10, this disorder is categorized under the code F 90. According to this classification, there are the following forms: F 90.0 - Disorder in the activity and attention, F 90.1 - Hyperkinetic behaviour disorder, F 90.8 - Other hyperkinetic disorders and 90.9 - Unspecified hyperkinetic disorder (13).

In this classification, there is no satisfactory division in relation to the symptoms of the disorder. It should be borne in mind that with the attention disorder and hyperactivity, there are aggressiveness, impulsivity, delinquency or anti-social behaviour (14). The existing classification has no clear distinction of clinical images by which you can classify this disorder.

According to DSM-IV symptoms, ADHD is categorized and has three subtypes of the disease: 1. inattention 2. hyperactivity/impulsivity and 3. combined subtype (15).

The purpose of this trial is the determination of the subtypes and conditions associated with it.

MATERIAL AND METHODS

The study is a prevalence study, transversal (cross sectional study, synchronic study).

The target group is students from the first to fourth grade in the town of Štip, educated according to the old program (primary school) and a new program (nine-year). The total number of students is 2.000, aged 6-12 years attending four primary schools in the town of Štip. The number of participants in the survey is 400 respondents (in order to make better screening). Every fourth student of each class was observed and the average number of the students in the classes was 23.

For the purposes of research, parents and teachers were included.

Research instruments

To measure the ADHD symptoms, there are many scales that are used in the world (ex.TOVA, Conors, Brown, Copeland, SNAP-IV, VANDERBILT). In our country, there is still no standardized scale, and we decided to use the Vanderbilt-scale as a measuring instrument. It gives a solid display of symptoms associated with behaviour, global impression of giving the child an opportunity to follow another type of disorder or condition covered and contained in the statements of the scale.

For determining the symptomatology of ADHD, two scales were used, including: Vanderbilt teacher assessment scale and Vanderbilt parent assessment scale. Co-morbidity was determined by means of specific items on a scale that provides insight into other situations; this disorder is characterized by opposition and defiance (ODD), behaviour disorder (conduct disorder), anxiety or depression.

Research results

The results of this screening study showed that in 84 (21%) respondents the symptoms of the disorder in the activity and attention were registered.

According to the statements of teachers 60 (15%) of the analyzed children, opposed to 46 (11.5%) children, according to statements of parents, had ADHD symptomatology. The difference in the number of respondents with and without ADHD assessed by teachers or parents is statistically insignificant ($p > 0.05$) (Table 1, Figura 1; Table 2, Figura 2).

Table 3 and Figure 3 present the distribution of different subtypes of ADHD after the analysis of the teacher rating scale and parent rating scale.

As can be seen, according to the teacher scale, the predominant subtype of attention deficit dominates in 38 (63.3%) respondents, while 17 (28.3%) partici-

pants were diagnosed with ODD (oppositional defiant disorder). The same number and percentage of respondents - 14 (23.3%) have combined inattention/hyperactivity type of RAV and anxiety or depression, while in one subject, according to this scale, there was a predominantly hyperactive/impulsive type.

According to the parent scale, ADHD was represented with predominantly hyperactive/impulsive type

of disorder reported in 19 (41.3%) students.

ODD (oppositional defiant disorder) was also registered in 19 (41.3%) respondents. Eleven (23.9%) students were diagnosed with predominant type of attention deficit. Combined inattention/hyperactivity type, according to this scale, was reported in 4 (8.7%) participants, while conduct disorder was registered in one participant.

Table 1. ADHD - absent/present

ADHD	N	%
Absent	316	79.0
Present	84	21.0
Total	400	100

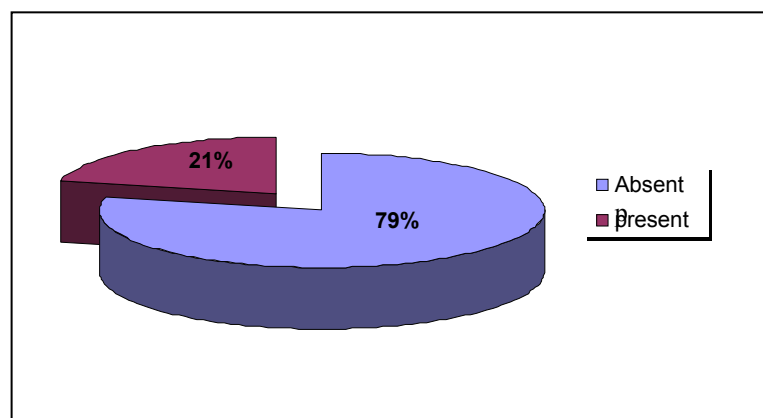


Figure 1. ADHD - absent/present

Table 2. ADHD - teacher/parent

ADHD	TEACHER		PARENT	
	N	%	N	%
Absent	340	85.0	354	88.5
present	60	15.0	46	11.5
Total	400	100	400	100

Yates chi-square=1.84 df=1 p=0.17

Table 3. ADHD - types

ADHD	TEACHER		PARENT	
	N	%	N	%
Predominant type of attention deficit	38	63.33	11	23.91
Predominantly hyperactive/impulsive type of disorder	1	1.67	19	41.3
Combined inattention/hyperactivity type	14	23.33	4	8.7
ODD	17	28.33	19	41.3
ANXIETY OR DEPRESSION	14	23.33	8	17.39
CONDUCT DISORDER	0	0	1	2.17

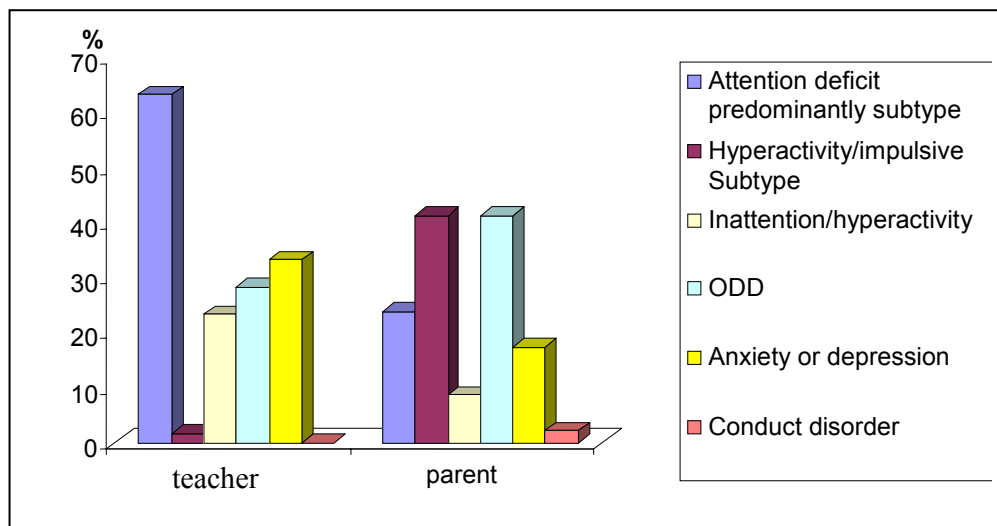


Figure 3. ADHD - teacher/parent

DISCUSSION

The difference in the number of children with ADHD after the statements of parents and teachers is probably due to uncritical and biased attitude of the parents in assessing their children, or the inability of parents to recognize their children's deviations from normal behaviour.

In terms of the predomination of symptoms after the statements of teachers, deficit of attention subtype is prominent. The reason is because the monitoring and development of teaching requires attention, sitting quietly in the chair, following the instructions of the teacher with children who have difficulties with ADHD. In home environment, parents refer to predominantly hyperactive/impulsive type because this type of behaviour is more prominent in that environment in terms

of greater freedom of behaviour. In the class, students compare themselves with other peers and respect the rules of behaviour for the given situation. This was the reason of more common presence of the oppositional defiant disorder at home. Since comorbidity of other psychiatric conditions in patients with ADHD is so high, from 50% to 90%, doctors should always look for comorbid disorders (10, 14). In general, the likelihood of comorbidity is particularly high in children who are resistant to treatment or have severe ADHD which often precedes the comorbid conditions. Early identification and treatment of ADHD, along with monitoring a possible development of comorbid conditions, should be the goal of every doctor who works with children.

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ANALIZA PODTIPOVA I DRUGIH POVEZANIH STANJA POREMEĆAJA HIPERAKTIVNOSTI I DEFICITA PAŽNJE (ADHD) KOD ŠKOLSKE POPULACIJE OD 6 DO 12 GODINA

Lidija Suševska¹, Nikola Olumčev¹, Mirjana Saveska¹, Hadžihamza Kadri²

¹Gradska bolnica „8. septembar - Skoplje“, Skoplje, Makedonija

²Univerzitetska klinika za psihijatriju i medicinsku psihologiju, Skoplje, Makedonija

Sažetak

Poremećaj hiperaktivnosti i deficita pažnje (ADHD) je neurobihevioralni razvojni poremećaj koji se uobičajeno dijagnostikuje kod dece, sa pojavom prvih simptoma do sedam godina. Dijagnoza je zastupljena duplo više kod dečaka nego kod devojčica. ADHD karakterišu simptomi nepažnje i/ili impulsivnosti i hiperaktivnosti, koji mogu ozbiljno da utiču na mnoge aspekte ponašanja i performansi u školi i kod kuće. ADHD može biti praćen drugim poremećajima, kao što je opozitno-prkosni poremećaj (ODD), poremećaji ponašanja, anksioznost ili depresija.

Broj ispitanika koji učestvuju u istraživanju je 400. Za merenje ADHD simptomatologije korišćena je Vanderbilt skala procene nastavnika i Vanderbilt skala procene roditelja.

Po nastavničkoj skali procene dominira podtip-deficit pažnje i opozitno-prkosni poremećaj. Prema roditeljskoj skali dominantno je zastupljen hiperaktivno/impulsivni tip poremećaja, kao i opozitno-prkosni poremećaj.

***Ključne reči:* poremećaj hiperaktivnosti i deficita pažnje (ADHD), hiperkinetički sindrom, podtipovi, opozitno-prkosni poremećaj (ODD).**