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HEALTH AND PSYCHO-SOCIAL PROBLEMS OF THE CHILDREN WITH ATTENTION-DEFICIT/ HYPERACTIVITY DISORDER: COMPARATIVE ANALYSIS

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Key words: *primary class pupils, Attention-deficit/hyperactivity disorder, Comorbidity, Psychosocial problems.*

Summary
Background and objectives. AD/HD is one of the most common psychiatric disorders of childhood, with an estimated prevalence 8-11%. Comorbidity is characteristic of this disorder. The authors of this paper are trying to compare manifestation of health and psycho-social problems of the children with AD/HD in groups (with and without bronchial asthma) with the general population.
Material and methods. Health and psycho-social problems were evaluated in three groups of I-IV grade school-children: 1) Primary school children representing general population (N=178). 2) Primary school children with AD/HD, but not suffering from bronchial asthma (N=36). 3) Primary school children with AD/HD and suffering from bronchial asthma (N=36).
Results. In the group of children with AD/HD and bronchial asthma headaches, stomachaches, allergy, sleep problems, inclination to depression were more frequent in comparison with the group of children with only AD/HD (p≤0,05). In the group of children with only AD/HD, unwilled urination problems, disorders and habits of psychological- neurological nature (such as tics, speech impediment, nail biting) are more frequent. Problems of social behavior are also more frequent within the group of children with AD/HD (p≤0,05).
Conclusions. Primary school pupils representing general population face least health and psychosocial problems if compared with the children with AD/HD. Children suffering from AD/HD and bronchial asthma more often complain of somatic symptoms (headaches, stomachaches), allergy, sleep problems, inclination to depression, if compared with the children with only AD/HD. Nevertheless, in the group of children with AD/HD (without bronchial asthma) problems of enuresis, speech impediment and social behavior are more evident.

INTRODUCTION

Attention-deficit/hyperactivity disorder (AD/HD) is one of the most common psychiatric disorders of childhood, with an estimated prevalence 8-11%. AD/HD manifests itself by specificity of gender, as this disorder is 2–3 times more frequent among boys than girls. There is evidence of both a genetic and environmental component to AD/HD. Etiology of activity and attention disorder is inherent or acquired morphological and (or) functional changes in the central nerve system that manifest themselves by very pronounced excitement, but insufficient inhibition processes. In the pre-forehead meninx of the children with AD/HD a lack of neuro-transmissors - dopamine, noradrenalin etc. – is defined that determines problems of attention and self-regulation (1, 5).

Comorbidity is typical of attention-deficit/hyperactivity disorder – people with this disorder are likely to get sick with different diseases. Concerning the temporal order of occurrence, psychiatric conditions may be present before the appearance of first definite ADHD symptoms ("pre-comorbidity", such as temperament factors, sleep disturbance, autism spectrum disorders and atopic eczema). They may coincide with the time when AD/HD symptoms reach a clinically significant level ("simultaneous comorbidity": enuresis, encopresis, developmental dyslexia). The majority of comorbidity, however, appears after the onset of AD/HD in the course of disease ("post-comorbidity": tic

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disorder, depression and suicidality, anxiety disorders, obsessive compulsive disorder, bipolar disorder, conduct and substance use disorders, obesity and personality disorders) (26). Children with multiple comorbid disorders had poorer psychosocial across a range of domains compared with children with none and 1 comorbid disorder (10).

Attention-deficit/hyperactivity disorder is closely related with allergic diseases, such as eczema, atopic dermatitis, rhinitis and bronchial asthma. From 10 to 60% children with AD/HD may suffer from one or several symptoms of allergy. Answering the question what develops first – AD/HD or allergic illnesses – we presume that allergic illnesses are a potential cause or exacerbation factor of AD/HD symptoms. (14, 20, 25). Since, at least for a subgroup of these children, a common biological background for both AD/HD and atopy may be assumed that may involve brain catecholamine, our hypothesis was that in a group of allergic children signs of AD/HD should appear more often than in controls. Higher prevalence rates of asthma in children with AD/HD suggested a common etiology, but further research failed to identify any substantial pathophysiological relationship (2, 20).

The relationship between AD/HD and sleep problems (insomnia) is a complex one that poses many challenges in clinical practice. Parents of children with AD/HD reported significantly more sleep problems than parents of normally developing children. An estimated 25-50% of children and adolescents with attention-deficit/hyperactivity disorder (AD/HD) experience problems with sleep. The most common sleep problems reported in children with AD/HD include delayed sleep onset, sleep or bedtime resistance, prolonged tiredness upon waking and daytime sleepiness. (26, 27). Attention deficits have been reported in up to 95% of OSA (obstructive sleep apnea) patients (9). Sleep problems in children with AD/HD are common and associated with poorer child, caregiver, and family outcomes (24). It is important to note that treatment by psycho-stimulants makes influence on manifestation of sleep problems. The aim of treatment for attention-deficit/hyperactivity disorder (AD/HD) is to decrease symptoms, enhance functionality, and improve well-being (10). Almost a third of stimulant treated AD/HD children were reported to display increased sleep latency or insomnia every night versus 10% of untreated children with AD/HD (22).

A matter of concern is that children and teenagers are likely to experience more frequent traumas and accidents. Researches show that due to hyperactivity and carelessness, these children experience major injuries 10 times more often than children without this disorder (6, 13). Cross-sectional case-control study indicates that though treatment by stimulants increases the costs of health care services, probability of traumas and accidents decreases (12).

Coexistence of tics and attention-deficit/hyperactivity disorder (AD/HD) has important clinical and scientific implications. Tourette's syndrome is a neuropsychiatric disorder characterized by motor and phonic tics. According to different scientific sources, about 10 percent of children suffer from them. The cause is unknown but there are strong genetic factors (15, 18, 19, 21).

Among the children with AD/HD, cases of nocturnal enuresis or even encopresis (1, 5, 28) occur.

Researches show that annual health care service costs for children with AD/HD are higher than for the general population. Services of psychical health care of children with AD/HD are far more expensive, as they visit primary health care specialists 1,6 times more often and 10 times more often apply for consultations at psychical health care specialists. Medicaments are often prescribed for children of this group, and that condition 3-4 times higher pharmacy fills (7). Compared with the group of children with bronchial asthma, it is evident that health care services for children with AD/HD are bigger (4, 8). More precise comparative research on AD/HD groups' health care service costs show differences among ethnic groups of children with AD/HD. Among children with AD/HD nonwhite Americans use fewer AD/HD related services that white Americans (17).

Children with attention-deficit/hyperactivity disorder are often impulsive, aggressive and tend to provoke conflict situations when communicating with adolescents and adults (16). Scientific studies found a high incidence of comorbidity in children and adolescent psychiatry. In population of children and adolescents is most often described and researched comorbidity of depression, anxiety disorders and antisocial behavior disorders (3). Most adolescents (69.8%) continued to meet full criteria for AD/HD, were known to specialist services and exhibited high levels of antisocial behavior, criminal activity and substance use problems (11). Family and educational institution environment makes a big influence on child's social behavior. Positive microclimate can "soften" children's with AD/HD social behavior problems, whereas bad microclimate can make them "sharper" (16).

The aim of the research is to compare manifestation of health and psycho-social problems of children with AD/HD and general population.

As attention-deficit/hyperactivity disorder can progress and manifest itself in later age evoking psychological, social, physical problems, early identification of this disorder is of high importance. Health and psycho-social problems should be noticed on time and evaluated. Application of

timely means in decreasing health problems of the children with AD/HD prevents complications and is an important factor of child's harmonious development.

Attention-deficit/hyperactivity disorder belongs to disorders of neuro-biological nature. Reasonably we can make a presumption that this disorder is not clinically different from the cultural point of view. There are attention-deficit/hyperactivity disorder diagnostic criteria (DSM-IV, The Diagnostic and Statistic Manual of the American Psychiatric Association; ICD X International classification of diseases). In Lithuania these terms have been used since 1997, when TLK-10 – International Disease Classification, 10th edition was started to be used. Nevertheless, health indicators of children with AD/HD may differ, as they depend on health priorities provided in different countries, financial, human health care system resources. The educational and social outcomes of this disorder and ways of elimination also differ by cultural specificity, as they depend on society attitudes, social, economic situation, traditions of education at school and at home.

The research that this article presents had an aim to disclose Lithuanian primary class pupils' with AD/HD health, psycho-social problems and to compare them with the general population of the same age. As comorbidity is typical of AD/HD, there might be children with not only this disorder, but with one or more physical and psychical health problems. We have noticed that there is a lack of global cross-sectional case control studies that could disclose differences and similarities of different people with AD/HD disorder. By this article we are trying to present health and psycho-social problems of the children with only AD/HD and with AD/HD and bronchial asthma.

MATERIALS AND METHODS

The participants of the research were parents of I-IV class pupils who assessing their children's health and psycho-social problems. Health and psycho-social problems were assessed in three groups. Totally the sample of the respondents was 250 primary class pupils from different regions of Lithuania 55,6% (N=139) boys and 44,4% (N=110) girls.

Primary class pupils representing general population. The concept "general population" was chosen in order not to use authoritarian concepts "normal population" and "control group", as in this group naturally might be very different pupils (with different learning achievements; one or two even with AD/HD). When forming the sample of the respondents, the criterion of representativeness was taken into consideration. We have chosen *probabilistic – systematic selection* of respondents. Therefore, every third pupil of each class was included into the list of respondents, if his/her parents voluntarily agreed to participate in the inquiry. General population was represented by 178 primary class pupils (48,6% (N=86) boys and 51,4% (N=91) girls). In or-

Table 1. **Criteria of health and Psycho-social problems and habits assessment**

	Health problems
Headache	*The problem exists* – headaches are not related with other diseases (infections, flu). This occurred 3 or more times during the last half a year.
Stomachache	*The problem exists* – stomachaches are not related with the diseases of the digestive tract. This occurred at least 3 times during the last half a year.
Allergy	*The problem exists* – when a child is allergic to dust mites, food products (eggs, nuts, citruses, milk products etc.), blooming plants, cut grass, sand etc., sneezing, coryza, skin rash, itching may also occur.
Ticks	*The problem exists* – expressed symptoms of face twitch or blink.
Enuresis	*The problem exists* – when a child wets his bed at night or his trousers at day time at least 2 times in half a year.
Encopresis	*The problem exists* – when a child unwillingly evacuated at least 2 times in half a year.
	Psycho-social problems and habits
Fear of nocturnal parting	*The problem exists* – if a child at least 2 times in half a year was afraid to sleep alone. Therefore he or she slept with parents, brothers/sisters who do not fully accept that or were trying *to change such behavior but without results.*
Problems of falling asleep	*The problem exists* – when a child at least once a week has difficulties of falling asleep and is lieing with his open eyes willing to sleep, though any social factors (toys, parents' wishes) do not affect positively.
Awakening	*The problem exists* – when a child several times per month or often awakes and is lieing without falling asleep.
Children's experienced fears	The provided situations allowed determining certain children's fears. A child is afraid 1) to go by car, bus, train; 2) to ride carousels or use a lift; 3) of big gatherings of people; 4) to stay alone at home; 5) to be in closed premises (lifts, telephone booths, to go in the tunnel;) 6) to be in open places (squares, to go by bridge); 7) of strangers (to visit unknown people) 8) to speak in public (e.g. to ask in the shop); 9) of spiders, mice, rats, frogs; 10) of lightning, thunder, darkness; 11) of height.
Nail biting	*The problem exists*– if a child is inclines to bite nails.
Stammer	*The problem exists* – frequent repetition of vowels and consonants, frequent repetition of the beginning of a word, long pauses, breaking the rhythm of speech expression.
Inclination to depression	*The problem exists* – if a child was sad, spiritless, in a bad mood, mood swings could be noticed at least a couple of times in recent half a year.
Self-injury	*The problem exists* – if a child more than once has consciously injured himself.
Smoking	*The problem exists*– parents have seen or know that their child has tried to smoke.
Using alcohol	*The problem exists*– parents have seen or know that their child has tried to use alcohol.
Lying	*The problem exists*– if a child often or constantly (every day) lies.
Stealing	*The problem exists* – if a child has tried to steal something (valuable or not) in the last half a year.
Damaging somebody's property	*The problem exists* – if a child has tried to encroach on somebody's property in the last half a year.
Running away from home	*The problem exists* – if a child at least once per half a year ran away from home (without informing parents) and returned in the morning of the next day.

der to select as different *geographical territory* as possible, the research covered several territorial units of Lithuania: Kaunas city, Kaunas district, Siauliai city, Kedainiai city and district, Radviliskis city, Akmene city, Klaipeda district, Alytus city, Skuodas district. The average of age of the children representing general population was *7,9 years*.

Primary class pupils with attention-deficit/hyperactivity disorder (without bronchial asthma). The respondents of this group have children with attention-deficit/hyperactivity disorder that has been diagnosed by children's psychiatrists. 36 primary class pupils with AD/HD (without bronchial asthma) were included into this group: 86,1% (N=31) boys, 13,9% (N=5) girls. The average of this group children's age was *8,3 years*.

Primary class pupils with attention-deficit/hyperactivity disorder and bronchial asthma. For these children children's psychiatrist has diagnosed attention-deficit/hyperactivity disorder, whereas children's pulmonologist has confirmed bronchial asthma. This sample was formed of 36 primary class pupils with AD/HD and bronchial asthma: 61,1% (N=22) boys, 38,9% (N=14) girls. The average of age was *8,7 years*.

A questionnaire was prepared for the parents who assessed their children according to two large spheres consisting of particular features: the first was *"Health problems",* the other – *"Psycho-social problems and habits"*. The research was carried out according to the adapted questionnaire of G.Esser, B. Blanz, B. Geisel, M.Laucht (1989), that was created for evaluation of 6-14 year-old children's health, peculiarities of psychological and social behavior from the point of view of their parents (23). Health problems were assessed according to seven spheres such as headaches, stomachaches, allergy, ticks, enuresis, encopresis, and growth disorders. For assessment of psycho-social problems 14 spheres were chosen: sleep problems (fear of nocturnal parting, difficulties of falling asleep, awakening), experienced fears, nail biting, ticks, inclination to depression, self-injury, smoking, using alcohol, lying, stealing, damaging other people's property, running away from home. According to the criteria below, it was assessed whether children's health and psycho-social problems manifested themselves during the last half a year (Table 1).

Children's health was assessed according to features that imply particular illnesses, such as allergies, involuntary muscle twitches – neurotic ticks, speech problems (stammer) or symptoms, such as headaches, stomachaches. That means that one group of questions allowed making conclusions about particular disorders of children's health, whereas the other group of questions let us determine complaints that do not belong to separate group of illnesses, but may be one of the features of concrete illness. For example, stomachache can be one of the gastritis symptoms, and headache – one of the features of migraine. For statistical data calculation the nominal scale was chosen, where the format of answers *"It occurs constantly"* and *"It occurs"* were joint into one answer format *"The problem exists";* whereas the format *"It does not occur"* was left as independent - *"The problem does not exist"*. Such evaluation format allowed performing a comparative test of three unrelated sample means (Anova test) and finding statistically significant differences. Such evaluation formal also allows disclosing probability (%) of particular health and psychosocial problems in the groups of analyzed population.

RESULTS

This part of the article presents the results of the research that will allow making conclusions about children's particular health and psycho-social problems and determine complaints that do not belong to separate group of illnesses, but may be one of the features of concrete illness. On the basis of the complaints, such as long-term headaches, it is possible to make a presumption that a child is sick with migraine. When a child complains of chronic stomachaches, he might be sick with gastritis or gastric ulcer. More precise diagnostics requires objective medical research, such as ultrasound, laboratory research, computed tomography etc. In the context of this research, it was meaningful to look at the manifestation of the mentioned problems subjectively, depending on parents' opinion.

Answer coding was used – the problem exists (1), the problem does not exist (0) that allowed finding the mean of categories and disclosing the probability (%) of health and psycho-social problems' manifestation. Statistical differences were determined by using Anova test that allows comparing means of several groups and finding statistically significant differences.

The research showed that headaches and stomachaches were the most frequent among the children with AD/HD and bronchial asthma. In general, it can be stated that every second child of this population suffers from these symptoms. Headaches and stomachaches are not so frequent among the population of children with only AD/HD (without bronchial asthma). 19% of primary class pupils with AD/HD suffer from chronic headaches; 22% of them feel chronic stomachaches. It does not mean that headaches and stomachaches do not occur in the population of primary class pupils. Headaches are typical of 11% of the general population pupils, whereas 14% of them suffer from stomachaches. Having applied the Anova test for evaluation of unrelated samples, statistically significant differences

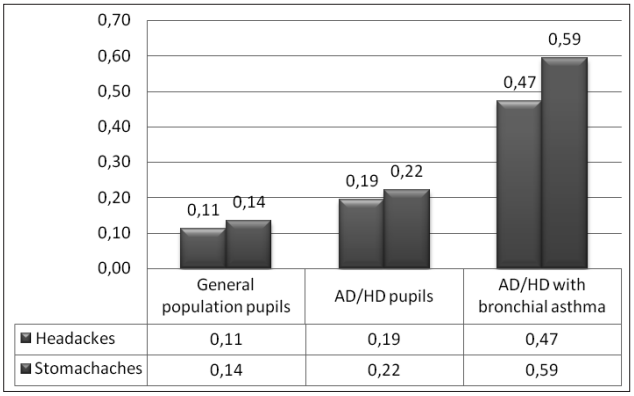

Fig. 1. Manifestation of headaches and stomachaches in the analyzed groups of primary class pupils (mean)

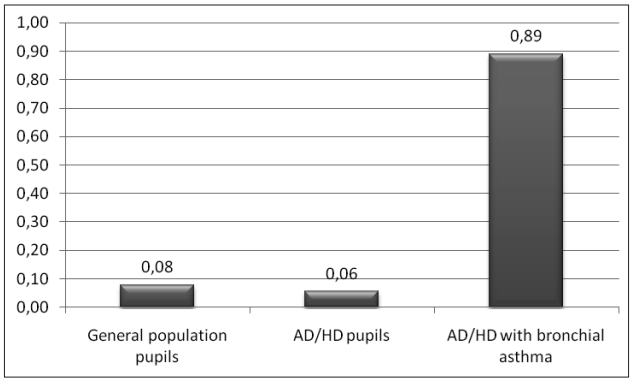

Fig. 2. Manifestation of allergy in the analyzed groups of primary class pupils (mean)

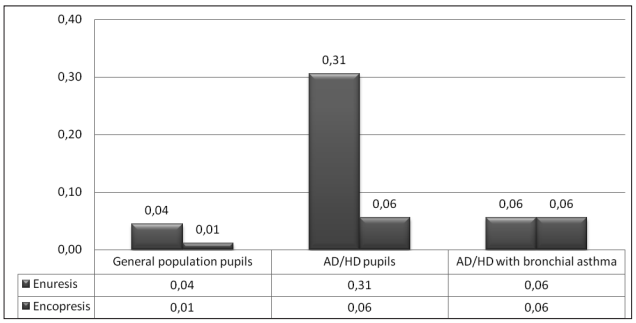

Fig. 3. Manifestation of nocturnal enuresis and encopresis in the analyzed groups of primary class pupils (mean)

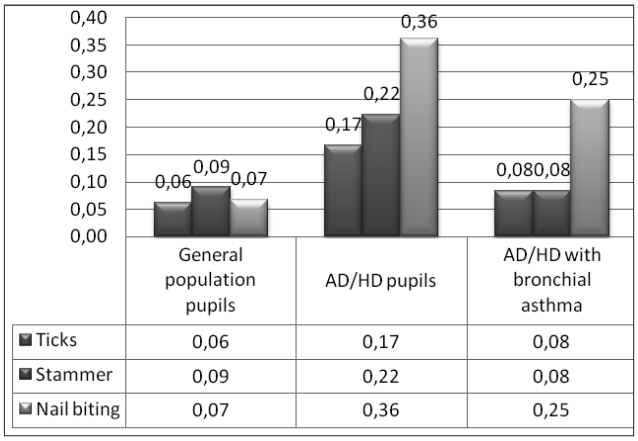

Fig. 4. Psychological-neurological disorders and habits in the analyzed groups of primary class pupils (mean)

were acquired. They show that children with AD/HD and bronchial asthma more frequently experience headaches (F=14,852, p=0,00), stomachaches (F=20,665, p=0,00) compared with the children representing AD/HD and general population (Fig. 1).

The information provided by parents about their children's disorders of allergic nature showed that 8% children from the general population and 6% children with AD/HD (without bronchial astma) suffer from allergy (Fig. 2). In the group of the children with AD/HD and bronchial asthma this disease is especially frequent - 89%. On the basis of the research results, it is possible to make a conclusion that nine children out of ten with AD/HD suffer from disorders of allergic nature. The parents of this group of children identify the following reasons of allergy: food products of protein nature (eggs, nuts), pollen, must, animal dandruff, dust, cut grass etc. Statistically significant differences allow stating that primary class children with AD/HD and bronchial asthma are far more sensitive to different irritative agents that arise allergy. They also more often experience different manifestations of allergic nature: allergic rhinitis, atopic dermatitis, eczema (F=112,983, p=0,00).

Parents' inquieries showed that the problem of nocturnal enuresis is most typical of children with AD/HD. 1/3 (31%) of the primary class pupils with AD/HD face this problem (Fig. 3). This problem is not so relevant to the other two groups. This problem is not significantly relevant to the other two analyzed population groups, as it is typical to a several times smaller part of children. Having applied the Anova test, statistically significant differences were acquired. They show that children with AD/HD suffer from nocturnal enuresis much more than those with AD/HD and bronchial asthma and the general population (F=14,875, p=0,00). There were no statistically significant differences showing that encopresis is more typical of any particular group of children (F=2,161, p=0,117).

While assessing manifestation of stammer in all the three groups, it was evident that children with AD/HD suffer most from this problem (22%). Children with AD/HD and bronchial asthma as well as the children of ge-

neral population more seldom have stammer problems (F=2,886, p=0,05). The research showed that there were no relevant differences in manifestation of ticks in the analyzed groups of populations (F=2,254, p=0,107).

In comparison with the general population, nail biting is more typical of the children with AD/HD (F=14,602, p=0,00). 36% children with AD/HD and 25% children with AD/HD and bronchial asthma have a habit of nail biting, whereas in the general population of children of the same age this phenomenon is not widely spread and reaches 7% (Fig. 4).

Sleep problems are most typical of children with AD/HD and bronchial asthma. 42% of them suffer from difficulties to fall asleep, 19% have a fear of nocturnal parting and 22% face problems of awakening at night. The group with AD/HD also faces this problem, though much more seldom - 17% of children representing this group experience fear of nocturnal parting and difficulties of falling asleep. Manifestation of sleep problems is least in the general population. Statistically significant differences allow stating

Table 2. Situations that expose children's fears

Samples	To go by car, bus	To ride carousels, lifts	Big atherings of people	Staying alone at home	Closed premises	Open places	Strangers	Public speaking	Spiders, mice, frogs	Lightning, thunder	Height
Existing fears											
Sample of the general population	5,9%	37,7%	16,7%	45,1%	40%	14,9%	20%	38,5%	68,3%	80,4%	59,6%
Sample of AD/HD	8,8%	29,4%	11,8%	36,4%	45,5%	23,5%	23,5%	26,5%	47,1%	73,5%	66,7%
Sample of AD/HD and bronchial asthma	6,2%	43,8%	34,4%	51,6%	59,4%	18,8%	37,5%	51,6%	58,1%	87,1%	53,3%

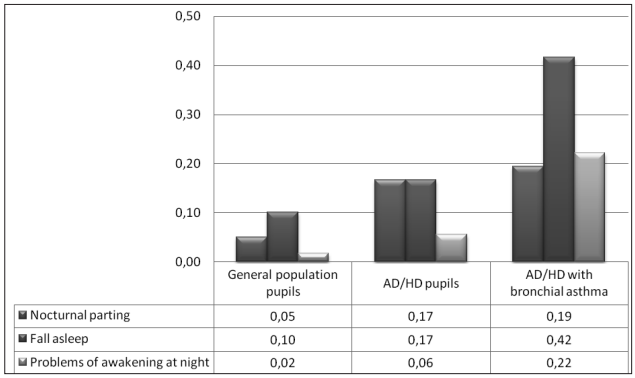

Fig. 5. Manifestation of sleep problems in the analyzed groups of primary class pupils (mean)

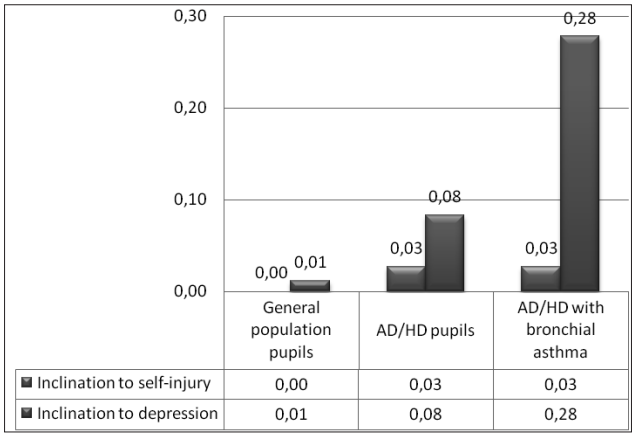

Fig. 6. Manifestation of psychological problems in the analyzed groups of primary class pupils (mean)

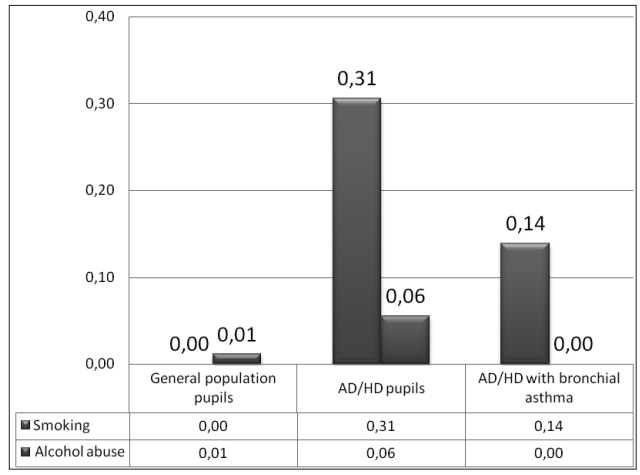

Fig. 7. Use of toxic substances in the analyzed groups of primary class pupils (mean)

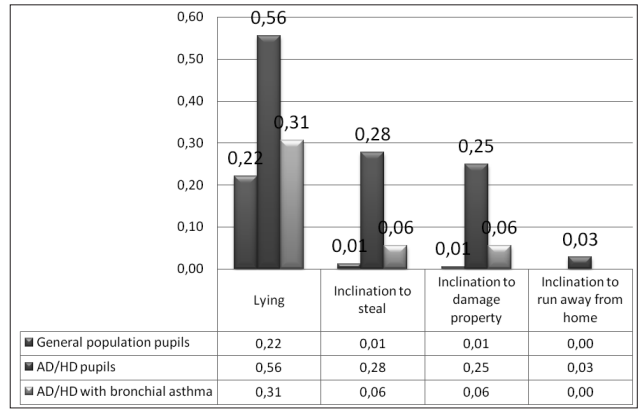

Fig. 8. Social behavior problems in the analyzed groups of primary class pupils (mean)

that primary class pupils with AD/HD (with and without bronchial asthma) far more often experience fear of nocturnal parting than those representing the general population (F=5,666, p=0,00). Falling asleep problems (F=12,322, p=0,00) and nocturnal awakening (F=14,107, p=0,00) are most typical of the children with AD/HD and bronchial asthma (Fig. 5).

Parents whose children have AD/HD and bronchial asthma, indicated their children's inclination to depression (Fig. 6). Almost 1/3 of the children representing this group have this problem, whereas even in the group of AD/HD children this problem is several times less. Inclination to depression is very rare in the group of the general population, as it was identified only by 1% of parents. This conclusion is statistically reliable. (F=22,097, p=0,00). The research showed that children's inclination to self-injury is not a widely spread phenomenon, and it is not typical of any particular group of children (F=2,498, p=0,08).

Table 3. Correlation between health and psycho-social problems (*Correlation is significant at the 0,05 level; ** Correlation is significant at the 0,01 level; ***Correlation is significant at the 0,00 level)

	Headache	Stomachache	Ticks	Allergy	Sleep problems	Stammer	Nocturnal enuresis	Encopresis	Nail biting	Inclination to depression	Inclination to self-injury	Smoking	Using alcohol	Lying	Inclination to stealing	Inclination to damage other people's property	Inclination to running away from home
Headache		***	*	**	**	*	-	-	*	**	-	*	-	-	-	-	*
Stomachache	***		*	**	**	-	-	-	*	**	-	-	-	-	-	-	-
Allergy	**	**	-		**	-	-	-	*	**	-	*	-	-	-	-	-
Sleep problems	**	**	*	**		*	*	-	*	**	-	*	*	-	-	*	-
Nocturnal enuresis	-	-	-	-	*	*		*	**	**	-	*	-	**	**	*	-
Encopresis	-	-	-	-	-	-	*		*	**	*	*	*	*	*	-	-
Inclination to depression	**	**	*	**	**	**	**	**	*		*	**	-	*	**	-	-
Inclination to smoking	*	-	-	*	*	-	*	*	**	**	*		-	**	***	**	**
Inclination to alcohol	-	-	-	-	*	*	-	-	-		-	-		*	-	-	-

A very important fact that acquires further research is that the problem of smoking is relevant already in the group of primary class pupils with AD/HD (Fig. 7). According to their parents, their children have already tired smoking. 1/3 of the primary class pupils with AD/HD have already tried smoking, what shows their interest on this harmful habit, that might increase and become a dependence. This problem was identified by 17% parents whose children have AD/HD and bronchial asthma. Smoking is not typical of the general population of children, as they have not tried it (F=31,176, p=0,00).

By this research we were trying to find out the dissemination of different social behavior problems in the population of primary class pupils (Fig. 8). 1/25 of the primary class pupils with AD/HD have inclination to steal and damage other people's property, whereas in the group of AD/HD and bronchial asthma children manifestation of this problem reaches only several percents. The problem is least relevant to the general population. All social behavior problems, such as lying (F=8,875, p=0,00), stealing (F=23,435, p=0,00), damaging other people's property (F=22,835, p=0,00), inclination to run away from home F=3,006, p=0,05) are most typical of the children with AD/HD (without bronchial asthma).

When assessing situations where fears manifest, it becomes evident that primary class pupils are mostly afraid of lightning (thunder), spiders (or mice, frogs) and height (Table 1). Though in particular situations, children's fears differ according to the groups of populations. General population (68,3%) is mostly afraid of spiders, mice and frogs. It is interesting to note that children with AD/HD without bronchial asthma are least afraid of spiders, mice and frogs. The applied Anova test that compares results of several groups, shows that children of the general population are most inclined to be afraid of spiders, mice and frogs (Anova test, when F=3,389, p=0,03). Children with AD/HD and bronchial asthma feel more fears associated with social circumstances. According to their parents (foster-parents), not less than every third child (34,4%) feels bigger or smaller fear to be in a big gathering of people, whereas in the groups of general population and AD/HD without bronchial asthma manifestation of such fear is several times less (Anova test, when F=2,919, p=0,05). Children with attention-deficit/hyperactivity disorder and bronchial asthma two times less experience fear of strangers (Anova test, when F=4,120, p=0,01).

In order to determine relations between children's health and social problems, Spearman correlation coefficient (R) was applied. It allows evaluation of direct relations between

variables. The more Spearman correlation coefficient is closer to 1, the stronger relation between variables is. Description of correlation meanings between two attributes: very weak mutual relation, when r =0,00-0,19; weak relation, when r=0,20-0,39; moderate relation, when r=0,40-0,69; strong relation, when r=0,70-0,89; very strong relation, when r=0,90-1,00 (Table 3). Relations between health and social problems are analyzed not according to three groups of respondents, but by assessing them in general (Table 2).

The matrix above illustrates systematic and in many cases statistically reliable relations. It is evident that the variable "Headaches" has the strongest correlation with the variables "Stomachaches" (r=0,45, p=0,00), „Sleep problems" (r=0,22, p=0,00), „Inclination to depression (r=0,33, p=0,00). The variable " Stomachaches" mostly correlates with the variables "Headaches" (r=0,45, p=0,000), „Allergy" (r=0,36, p=0,00), „Inclination to depression" (r=0,32, p=0,00), „Sleep problems" (r=0,24, p=0,00). For determination of the relation between sleep problems and other health and social behavior problems, general index was calculated. It consists of nocturnal fear to sleep alone, difficulties of falling asleep and nocturnal awakening problems. Several statistic relations were determined that show the relation between the variable "Allergy" and "Headaches" (r=0,30, p=0,00), „Stomachaches" (r=0,36, p=0,00) and "Inclination to depression" (r=0,31, p=0,00). The variable "Sleep problems" mostly correlates with the variables reflecting headaches (r =0,22, p=0,00), stomachaches (r=0,24, p=0,00), allergy (r=0,26, p=0,00) and inclination to depression (r=0,25, p=0,00). The variable "Nocturnal enuresis" mostly correlates with the variables "Nail biting" (r=0,22, p=0,00), „Inclination to depression" (r=0,23, p=0,00) and the variables reflecting social problems: „Lying" (r=0,20, p=0,00) and "Inclination to stealing" (r=0,30, p=0,00). Concerning the relation between the variable "Encopresis" with the other variables, it is evident that it mostly correlates with the variable "Inclination to depression" " (r=0,29, p=0,00). The variable "Inclination to depression" has the strongest correlation with "Smoking" (r= 0,21, p= 0,00), „Inclination to stealing" (r=0,23, p=000) and the variables reflecting headaches, stomachaches, allergy, sleep, nocturnal enuresis and encopresis problems. The variable "Smoking" is mostly statistically related with the other social behavior problems, such as "Inclination to stealing" (r=0,50, p=0,00), „Lying" (r=0,35, p=0,00), „Inclination to damaging other people's property" (r=0,32, p=0,00), „Inclination to run away from home" (r=0,24, p=0,00), the variables of psychological origin "Inclination to depression" (r=0,21, p=0,00), „Nail biting" (r=0,23, p =0,00). It is interesting that the variable "Use of alcohol" has no direct relation with the variable "Smoking", but has very weak mutual relation with the variables "Sleep problems", "Stammer", "Lying" (r<0,20).

Children with frequent headaches more often suffer from stomachaches, allergy, sleep problems and are more often inclined to depression. Headaches are less associated with the problems of psychological and social origin. Practically, the same health problems are also typical for the children who suffer from stomachaches. Allergic children are more often inclined to depression; they suffer from headaches, stomachaches, and sleep problems. Children with sleep problems often complain of headaches, stomachaches, inclination to depression; they are often allergic. The biggest concern is about the children who are inclined to depression, as they also have problems of somatic, neurological, psychological origin and social behavior. The children of this group suffer from headaches, stomachaches, allergy, sleep, nocturnal enuresis and encopresis, ticks. They also have social behavior problems (smoking, stealing, lying). The children who have already tried to smoke, have other psychological and social behavior problems, such as nail biting, inclination to depression and other inclinations, such as stealing, lying, damaging other people's property, running away from home (Table 3).

DISCUSSION

This article analyzes attention-deficit/hyperactivity disorder (AD/HD) from the point of view of primary class pupils' health assessment. This disorder is most often noticed in pre-school age and manifests itself in the context of child's school activity. This factor explains the exceptional interest of educational science to the above mentioned disorder and ellimination of its consequences. However, the research conducted in the Western countries prove that attention-deficit/hyperactivity disorder is closely associated with health disorders, as comorbidity is its typical feature. This disorder may develop and continue in later age causing psychological, social, physical problems. This factor explains the exceptional interests of educational, medical, nurse, psychology sciences in the analyzed disorder and elimination of consequences. People with attention-deficit/hyperactivity disorder are more often sick with somatic and/or psychical illnesses (6,10,26).

The research showed that Lithuanian children with AD/HD have more explicit health and psychological problems than children of the same age in the general population. It became evident that manifestation of these problems are affected by comorbidity of this disorder. The research results presented in this article coinside with the results of the research conducted by foreign researchers. This allows

stating that children with AD/HD suffer from headaches, stomachaches more often than those without this disorder (26). Though the differences within the group of AD/HD children's subgroups - diagnosed and not diagnosed bronchial asthma – disclose new facts. The comparative analysis allows stating that headaches and stomachaches of somatic origin are most typical of the primary class pupils with AD/HD and bronchial asthma. The children representing this group are often more sensitive to allergens. Western researchers prove that the manifestation of disorders of psychological – neurological origin is more often identified within the group of children with AD/HD in comparison with those children who do not have it (1,5,15,21). Primary class pupils with AD/HD (without bronchial asthma) more often face nocturnal enuresis problem than the children representing other groups. Disorders of psycho-neurological origin (ticks, stammer) and the habit of nail biting are more typical of the children with AD/HD. Parents whose children have AD/HD and bronchial asthma identified inclination to depression as typical to their children more often than parents of the children representing other groups.

Parents of children with AD/HD reported significantly more sleep problems than parents of normally developing children. Both children groups with AD/HD more often face sleep problems than the general population group.

Children with AD/HD more often face social behavior problems than those who do not have this disorder. The most typical problems are inappropriate behavior with contemporaries, teachers, parents, usage of toxic substances, smoking, lying, running away from home (11,16). The general population group has least social behavior problems. The problem of smoking is already relevant among the primary class pupils, but it is typical only of the children representing the AD/HD group. This group is also leading in social behavior problems, such as lying, stealing, damaging other people's property, inclination to run away from home.

Children with frequent headaches more often suffer from stomachaches, allergy, and sleep problems and are more often inclined to depression. Headaches are less associated with the problems of psychological and social origin. Practically, the same health problems are also typical for the children who suffer from stomachaches. Allergic children are more often inclined to depression; they suffer from headaches, stomachaches, and sleep problems. Children with sleep problems often complain of headaches, stomachaches, inclination to depression; they are often allergic. The biggest concern is about the children who are inclined to depression, as they also have problems of somatic, neurological, psychological origin and social behavior. The children of this group suffer from headaches, stomachaches, allergy, sleep, nocturnal enuresis and encopresis, ticks. They also have social behavior problems (smoking, stealing, and lying). The children who have already tried to smoke, have other psychological and social behavior problems, such as nail biting, inclination to depression and other inclinations, such as stealing, lying, damaging other people's property, running away from home.

The research results presented in this article contribute to scientific knowledge about children's with AD/HD health and psycho-social problems in three aspects. The first aspect is that health and psycho-social problems of primary school (particular age groups) children with AD/HD are analyzed. Another aspect is that the indications of the children with AD/HD are compared with the general population of the same age. The third aspect is special, as it has not been sufficiently disclosed in the scientific area of Western countries. We have tried to look for differences of health and psycho-social problems among the subgroups of children with AD/HD - with and without bronchial asthma.

CONCLUSIONS

The comparative analysis allows stating that headaches and stomachaches are mostly typical of the primary class pupils with AD/HD and bronchial asthma. The children representing this group are often more sensitive to allergens. Parents whose children have AD/HD and bronchial asthma identified inclination to depression as typical to their children more often than parents of the children representing other groups.

Primary class pupils with AD/HD (without bronchial asthma) more often face nocturnal enuresis problem than the children representing other groups. Disorders of psycho-neurological origin (ticks, lying) and the habit of nail biting are more typical of the children with AD/HD. This group is also leading in social behavior problems, such as lying, stealing, damaging other people's property, inclination to run away from home.

Both children groups with AD/HD more often face sleep problems than the general population group. The problem of smoking is already relevant among the primary class pupils, but it is typical only of the children representing the AD/HD group. The general population group has least social behavior problems. Children with AD/HD experience more frequent fears associated with social circumstances. Children facing somatic problems, such as headaches, stomachaches, are inclined to experience other health problems. Children inclined to depression mostly face the problems of somatic, psychological and neurological origin. Children with at least one social behavior problem also face other social behavior problems.

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VAIKŲ, TURINČIŲ AKTYVUMO IR DĖMESIO SUTRIKIMĄ, SĄVEIKATOS IR PSICHOSOCIALINĖS PROBLEMOS: PALYGINAMOJI ANALIZĖ

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Raktažodžiai: pradinių klasių mokiniai, aktyvumo ir dėmesio sutrikimas (ADS), komorbidiškumas, psichosocialinės problemos.

Aktyvumo ir dėmesio sutrikimas (ADS) vienas iš dažniausiai sutinkamų vaikų psichinės sveikatos sutrikimų. Šio sutrikimo paplitimas siekia 8-11%. Aktyvumo ir dėmesio sutrikimui būdingas komorbidiškumas. Šį sutrikimą turintys asmenys pasižymi didesne tikimybe sirgti somatinėmis ir/ ar psichinės sveikatos ligomis. Aktyvumo ir dėmesio sutrikimas (AD/HD) neigiamai paveikia vaiko kognityvinę sferą, socialinį elgesį ir socialinę adaptaciją. Šiame straipsnyje siekiama palyginti sveikatos ir psichosocialinių problemų raišką vaikų, turinčių AD/HD, grupėse (turinčių ir neturinčių bronchinę astmą) su bendra populiacija.

Tyrimo medžiaga ir metodai. Tyrime dalyvavo I-IV klasių mokinių tėvai, kurie vertino savo vaikų sveikatos ir psichosocialines problemas. Tyrimas buvo atliekamas pagal adaptuotą G.Esser, B. Blanz, B. Geisel, M.Laucht (1989) klausimyną, skirtą vertinti 6-14 metų amžiaus vaikų

sveikatą, psichologinius bei socialinio elgesio ypatumus tėvų požiūriu. Sveikatos ir psichosocialinės problemos buvo vertinamos trijose grupėse: 1) „Mišrią“ populiaciją atstovaujantys pradinių klasių mokiniai. Pasirinkus tikimybinę - sisteminę tiriamųjų atranką, kas trečias kiekvienos klasės mokinys buvo įtrauktas į tiriamųjų sąrašą (N=178, amžiaus vidurkis 7,9 metai). 2) Pradinių klasių mokiniai, turintys AD/HD be bronchinės astmos (N=36, amžiaus vidurkis 8,3 metai). 3) Pradinių klasių mokiniai, turintys aktyvumo ir dėmesio sutrikimą bei bronchinę astmą (N=36, amžiaus vidurkis 8,7 metai). Statistinė duomenų analizė buvo atliekama taikant kelių nesusijusių grupių vidurkių palyginimo testą One-Way Anova ir statistinio ryšio stiprumą ir pobūdį nusakantį Spearmen'o koreliacijos koeficientą (R).

Rezultatai. Vaikų, turinčių AD/HD ir bronchinę astmą, grupėje dažnesni galvos (47%), pilvo (59%) skausmai, alergija (89%), miego problemos (nuo 20 iki 40%), polinkis į depresiją (28%) lyginant su vien tik AD/HD turinčių vaikų grupe(p≤0,05). Vaikų, turinčių tik AD/HD grupėje, dažnesnės nevalingo šlapinimosi problemos (31%), psichologinio-neurologinio pobūdžio sutrikimai ir įpročiai, tokie kaip tikai, mikčiojimas, nagų kramtymas (nuo 17 iki 36%). Socialinio elgesio problemos, tokios kaip bandymas rūkyti (31%), melavimas (56%), bandymas kažką pavogti (28%), gadinti svetimą turtą (25%) dažniau būdingos tik AD/HD turinčių vaikų grupėje (p≤0,05). Vaikus, kuriuos vargina somatinio pobūdžio problemos, tokios kaip galvos, pilvo skausmai dažniau linkę patirti ir kitas sveikatos problemas (p≤0,05). Daugiausia sąsajomis su somatinio, psichologinio, neurologinio pobūdžio problemomis pasižymi vaikai, turintys polinkį į depresiją. Vaikai, kurie turi bent vieną socialinio elgesio problemą, pasižymi ir kitomis socialinio elgesio problemomis (p≤0,05).

Išvados. Lyginant su AD/HD turinčiais pradinukais mažiausiai sveikatos ir psichosocialinėmis problemomis pasižymi „Mišriai“ populiacijai atstovaujantys vaikai. Vaikai, turintys AD/HD ir bronchinę astmą, daugiau pasižymi somatinio pobūdžio nusiskundimais (pilvo, galvos skausmai), alergija, miego problemomis, polinkiu į depresiją ne vien tik AD/HD turintys vaikai. Tačiau vaikų, turinčių tik AD/HD (be bronchinės astmos) grupėje dažniau išryškėjusios nevalingo šlapinimosi, logopedinės ir socialinio elgesio, problemos.

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