FAIRYTALES CREATION POSSIBILITIES OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER IN DIAGNOSTICS OF PSYCHO-SOCIAL AND COGNITIVE SPHERE

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Abstract

Methods of fairy tales could be applied not only for educational aims but also for diagnostics in socio educational practice. Analysis of children's created fairy tales is one of the ways to know his/her inner and outer worlds. Child's emotional state could be evaluated from his/her created fairy tale text. Child's created fairy tales show his/her social skills and allow to evaluate cognitive sphere. Children with attention deficit hyperactivity disorder tend to have cognitive processes dysfunctions and lack of social skills. During the research, fairytales created by two groups of children were assessed. The first group was represented by primary forms pupils with attention deficit hyperactivity disorder, the other group consisted "natural" population children of the same age. The fairytale content analysis helped to disclose the tendency that in the group of children with attention deficit hyperactivity disorder positive psycho-social content of fairytales seldom predominates. Their fairy tales were with less developed consistency, simple sentences, and from the cognitive point of view less "mature".
The paper discusses the application possibilities of projective methodology – fairytale creation on the basis of visual stimulus – in assessment of children's with attention deficit hyperactivity disorder (AD/HD) cognitive sphere and psycho-social sphere. The authors point out that so far educational science both in Lithuania and abroad lacks methodologies of analyzing fairytales created by children.
Key words*: attention deficit hyperactivity disorder (AD/HD), cognitive sphere, fairytales creation, psychosocial sphere.*

Introduction

Attention deficit hyperactivity disorder (hereinafter – AD/HD) negatively affects child's cognitive sphere, psycho-motorist sphere, social behavior and social adaptation (the concepts of attention deficit (AD/HD) and hyperactivity are used as synonyms in this paper). Any outside irritant prevents to concentration, difficulties appear in acquiring and memorizing information, performing tasks that require deep thinking operations and problem solutions (Mayes et al, 2000; Willcutt, Pennington, 2000; French, Zentall, Bennett, 2003; Rennie, 2003; Zentall, 2005; Junod et al. 2006). Children with attention deficit hyperactivity disorder differ from the so called "normally active" children, as their movements are less purposeful; difficulties of the

small motorics are possible (Barkley, 1995; Tseng et al.; 2004; DuPaul, Stoner, 2003).

Children with AD/HD are often impulsive; their accidental behavior provokes dangerous and embarrassing situations among themselves and their contemporaries, parents, teachers. Problems of social adaptation usually arise because children with this disorder have lower communication skills, weaker motivation; they are inclines to low self assessment and self confidence. These children are more aggressive, their social behavior is often improper, unfavorable psychological states - fear, anxiety, depression, etc. – are characteristic of them (Barkley, 1998; Stormont, 2001; Demaray, Elliott, 2001; Greene et al, 2002; Armstrong, Drabman, 2004; Lauth et al, 2006; Leskauskas, Kuzmickas et al, 2004; Bagwel et al, 2006).

Epidemiological studies performed in different countries of the world show relative prevalence of children with Attention deficit hyperactivity disorder is 6–10 %. Attention deficit hyperactivity disorder manifests itself by specificity of sex, as this disorder is 2-3 times more frequent among boys than girls (Teeter, 1998; Dendy, 2000; Rowland et al, 2002; Dupaul, Stoner, 2003; Brandau, Pretis, 2004; Department of Education U.S, 2003; Ivanaga et al., 2006; Selby, 2006).

Attention deficit hyperactivity disorder very often emerges in school age and manifests itself in the context of child's school activity. This circumstance actualizes and gives meaning to exceptional attention of educational science and practice to the analyzed disorder and elimination of its consequences. As attention deficit hyperactivity disorder may progress and manifest itself later evoking psychological, social, physical problems, its early recognition, assessment and socio-educational help are especially important.

Methods of fairytales might be applied not only with *educational*, but also with *diagnostic* purposes. Analysis of fairytales created by child is one of the ways of his internal and external world cognition. As psychologists point out (Oklender, 1997, Zinkevich - Evstegneeva, Grabenko, 2002; Cherniaeva, 2003; Zinkevich - Evstegneeva, Tichnonova, 2005), the text of child's fairytales shows his emotional state, feelings and his anticipated possible ways out of the problematic situation. Moreover, fairytales created by child (fantastic narratives) provide information not only about his social skills, but help to evaluate his linguistic and cognitive abilities (Capps et al, 2000).

There is an interest in fairytales created by children in Lithuania (Braziene, 2005; Braziene, Jakutiene, Ramaneckiene, 2005; Braziene, Dambrauskiene, 2006), though detailed research has not been performed. Fairytales created by children with attention deficit hyperactivity disorder have not attracted serious attention either. Foreign researchers also state that creative works of children with attention deficit hyperactivity disorder have not been properly analyzed (Renz, 2003).

Problem of Research

Attention deficit hyperactivity disorder has not been seriously analyzed in Lithuania. It should be pointed out that socio-educational research on Attention deficit hyperactivity disorder as an independent object has not been thoroughly analyzed in Lithuania. That leads to the conclusion that there is no research on overcoming this disorder by socio-educational means in Lithuania.

Possibilities of projective methodologies, such as fairytale creation on the basis of visual stimulus have not been developed when assessing cognitive sphere and psychological condition of children with Attention deficit hyperactivity disorder.

Research Focus

The aim is to compare the content of fairytales created by children with attention deficit

hyperactivity disorder and the same age children of "natural" population in psycho-social and cognitive aspects.

Research object is the content of the fairytales created by children.

Methodology of Research

General Background of Research

Fairytale illustrations represent projective methodology and are used as primary stimulating material for fairytale creation. Having chosen one of the pictures of analogous plot, a child creates a fairytale. Fluency of story, plot and grammatical (syntactical) structures were significant in cognitive sphere evaluation. Content analysis allowed to evaluate sphere of social behavior by categorizing socially positive and negative contexts.

Sample of Research

Sample of the research was defined by systematic selection in primary forms of 5 schools in various cities of Lithuania. Every third pupil was selected to participate in the research that allowed to keep age and gender proportions.

By creation fairytales the features of psychosocial and cognitive sphere of the primary forms children's groups with AD/HD (N=29) and "natural" population of the same age (N=112) were systematically compared. As attention deficit hyperactivity disorder is of neuro-biological origin, psychiatrist's consultation is necessary to prove it. For proving the diagnosis parents voluntarily took their children to children's psychiatrist (only children with AD/HD).

Instrument and Procedures

The general principles of testing (illustrated in figure 1) are as follows:

1) calm room where children were telling individual fairytales;
2) primary forms pupils were given four associated pictures; they had to choose one out of the four and to create a fairytale on it;
3) fairytales created/told by children were recorded in written form;
4) the time of fairytale creation/telling was unlimited (children were not interrupted);
5) the course of research was as equal (objective) as possible, children's fairytales were recorded by the same person – one of the authors of this paper.

Figure 1: Visual stimuli for fairytale creation (Braziene, 2004).

Data Analysis

Content data analysis of pupils' created fairytales was performed and allowed to define categories in fairytales. SPSS package was used to define statistically significant differences between two groups (children with AD/HD and children without AD/HD).

Results of Research

In order to assess cognitive and psycho-social manifestation of children with AD/HD, their fairytales were assessed according to 30 primary features (indicators) representing cognitive and socio educational spheres (See figure 2). Literature content and grammatical structure were assessed according to *the structure of features worked out beforehand*. Psycho-social content was assessed by *content analysis.*

Content Indicators – 30	
Psychosocial sphere	**Cognitive sphere**
Positive psycho-social content (11 categories) Negative psycho-social content (15 categories) End of the fairytales (1)	Fluency of fairytale (1) Simple sentences (1) Compound sentences (1)

Figure 2: Assessment indicators of fairytales created by children.

The creative task was given in order to reflect the cognitive and social behavior spheres by the research results. When assessing *the cognitive sphere*, attention was paid to consistency of the fairytale, development of the plot and grammatical (syntactical) structure of the fairytale. *The sphere of social behavior* was disclosed the content analysis, where categories reflecting socially positive and negative text content were pointed out in the fairytales created by children.

Table 1. Authentic examples of fairytales created by primary forms pupils.

Indicators	Authentic examples
Positive psycho-social content	
External help (social, natural)	*„When she lost her way, her parents and grandmother were looking for her".*
Work activity (planted tree, etc.)	*„He collected many fruits".* *„A boy planted a tree".*
Care, guardianship (watering, bandaging a tree, etc.)	*„A granddaughter went to gather berries for her grandmother".* *„A boy approached the tree both in summer and winter".*
Friendship	*„The girl made friends with an elk".* *„She met a boy and they went further together".*
Rational choice	*„Later all of them made friends".* *„The boy saw a pit in the ground and got into it. The storm passed and he got out of the pit".*
Nature renewal (re-growing of trees, its branches, greening, etc.)	*„The tree was growing very fast".* *„Next morning he came and saw a very big fir tree".*
Determined wish, aim	*„A girl made a wish to plant a chestnut".* *„The girl wanted to grow a fir tree".*
Nature aesthetics (beautiful fir tree, etc.)	*„A boy saw a very beautiful tree".* *„A young girl saw a very beautiful fir tree".*

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 25, 2010

Indicators	Authentic examples
Human aesthetics (beautiful girl, etc.)	*„A girl had beautiful hear and wore nice clothes".* *„She saw a handsome young man".*
Cultural etiquette (thanking for the health)	*„The girl said thank you".* *„Thank you for decorating me".*
Manifestation of pleasant feelings (people and nature are happy)	*„All people were very happy".* *„She was surprised how beautiful the fir tree was".*
Negative psycho-social content	
Aggression	*„Her husband wanted to cut the tree".* *„The stepmother broke dog's legs".*
Aggression 2 (demonstration of power) from micro-environment	*„He brought an ax and cut the fir tree".* *„The man got frightened that the tree wanted to catch him".*
Aggression 3 (demonstration of power fighting with the evil)	*„Then the horse was asked to take the witch as far as possible".* *„the samurai killed that evil soul".*
Social segregation (orphan, etc.)	*„Once upon a time there lived an orphan".* *„One beautiful day an orphan went".*
Social deficiency (lack of home, food)	*„She was so hungry".* *„He was a poor man".*
Nature decay (breaking of trees, branches, tree without trunk, without fruit, etc.)	*„He saw a leafless tree".* *„Next day the tree was leafless again".*
Manifestation of unpleasant feelings/ frustration (e.g. cry, fear)	*„The girl is crying".* *„She was crying until the storm stopped".*
Punishment (e.g., turning out of one's house)	*„The fir tree says: "Go home and never come back".* *„When brother went to war, the girl was told to work hard".*
Escaping from a real situation (e.g. an orphan left, etc)	*„The girl went to the forest".* *„The boy got frightened and ran home".*
Illness/death	*„He berries a dog".* *„Girl's mother was dead".*
Physical discomfort (pain, cold, etc.)	*"The girl was cold".* *„She went through the wet snow".*
Climatic exceptions (severe storm, strong wind, etc.)	*„the wind was so strong".* *„She got into such a strong storm".*
Nature anti-aesthetics (ugly tree, etc.)	*„That tree was ugly".* *„Some fir trees were crooked".*
Human anti-aesthetics (ugly woman, etc.)	*„The boy's hair was unkempt".* *„the skirt was strange, like a rag".*
Call for help (cried for help, etc.)	*„The man stretched out his arms and cried".* *„The boy cried: "Help!"*

Indicators	Authentic examples
End of story	**Neutral:** *„Then she jumped out of the tree and went home".* *„That girl was walking from the hill".* **Sad:** *„She went home crying".* *„The man was shouting, but nobody came".* *„Then the trees broke".* *„The sisters were not given food, because they had asked not very sincerely".* *„The girl became very sad, when she saw a cut fir tree".* **Happy:** *„The girl stopped crying and found her beloved".* *„A helicopter rescued the boy".*

The categories (See table 1) were given the following relative titles:

– 11 categories reflecting positive psycho-social content of fairytales: *,,external help", ,,work activity", ,,care", ,,friendship", ,,rational choice", ,,nature renewal", ,,determined aim", ,,nature aesthetics", ,,human aesthetics", ,,cultural etiquette", ,,manifestation of pleasant feelings", total number of positive sentences, total number of neutral sentences.*

– 15 categories reflecting negative psycho-social content of fairytales: *,,aggression" (from micro-environment, from macro-environment), ,,social segregation", ,,social deficiency", ,,nature decay", ,,manifestation of unpleasant feelings", ,,punishment", ,,illness/death", ,,physical discomfort", ,,climatic exceptions", ,,nature anti-aesthetics", ,,human anti-aesthetics", ,,call for help", total number of negative sentences.*

The results of the research were analyzed applying content analysis of the fairytales created by children. The coding of the text content used – *the feature is present (1), the feature is absent (0)* – allowed calculation of the *mean* of categories and to disclose the probability of certain plot line (%).

In order to disclose in detail the manifestation of psycho-social content in the fairytales created by children, Student t test was applied for comparison of means of positive and negative social indicators among the primary forms pupils with AD/HD and "natural" population. This statistic method helped to define statistically differences between the two groups.

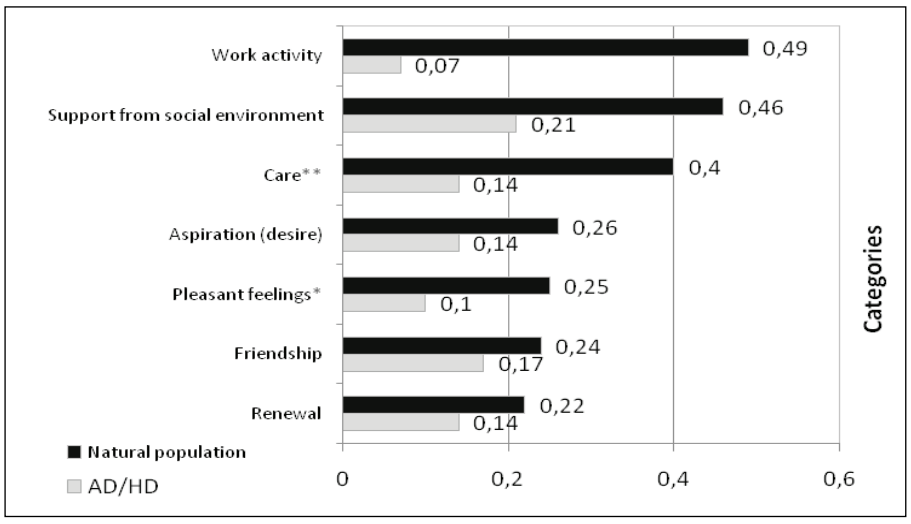

Figure 3: Categories reflecting positive psycho-social content of fairytales (*p=0.000; **p≤0.01; *p≤0.05).**

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 25, 2010

The analysis of the categories reflecting positive and negative psycho-social content of the fairytales in both groups shows that there are fewer positive indicators in the fairytales created by primary forms pupils with AD/HD, whereas negative indicators predominate. Qualitative representation of categories is in axis x and quantitative representation (means) is on axis y. Statistically significant differences between children with AD/HD and the "natural" sample groups represented in figure 3 were as follows: „*Work activity"* (t=6.231; df=89.101; p=0.000), „*Support from social environment*" (t=2.845; df=52.019; p= 0.006), „*Care*" (t=3.264; df=60.392; p=0.002), „*Pleasant feelings*" (t=2.126; df=60.848; p=0.038).

A nominal scale was chosen for measuring the variables of the fairytales created by children (assessment format: *feature present; feature absent.* It helped to disclose the probability of the appropriate fairytale plot line (%). It was defined that the probability that children with AD/HD would mention "*Work activity"* in their fairytales was 7%, whereas the group of the "natural" population - 79%. It was stated that the probability of "*Support from the social environment"* would be 21% in the fairytales of the primary forms pupils with AD/HD, whereas in the group of the "natural" population - 46%. It is interesting to note that in the fairytales of the children with AD/HD there are fewer plots reflecting *"Care", "Pleasant feelings".* This argument can be supported by the fact that only 4% of the fairytales created by AD/HD children reflect care, whereas in the fairytales of the "natural" population sample - 40%. The probability is that the category „*Pleasant feelings*" in the fairytales created by the children with AD/HD will be 10%, in the "natural population" - 25%. Though any statistic difference has not been defined, there are fewer other categories reflecting a positive psycho-social content of the fairytales of the children with attention deficit hyperactivity disorder, e.g. „*Reawakening*", „*Friendship*", „*Aspiration*".

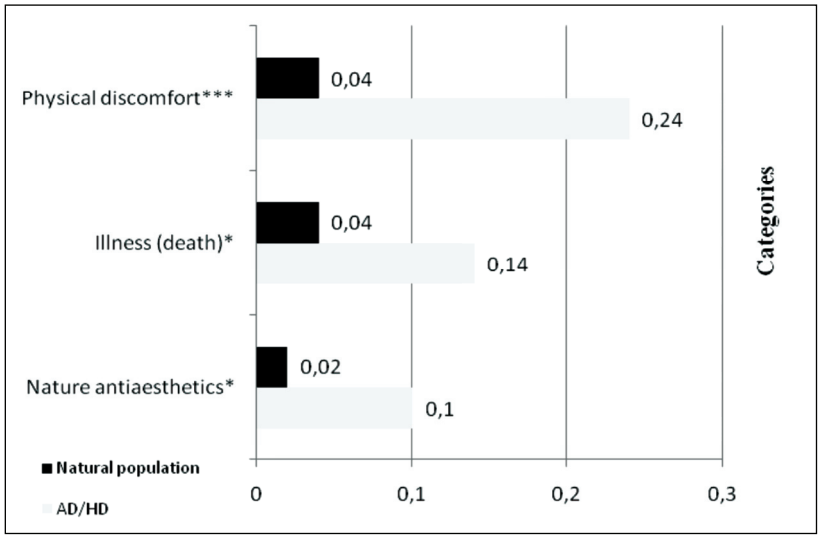

Figure 4: Categories reflecting negative psycho-social content of the fairytales (*p=0.000; **p≤0.01; *p≤0.05).**

It is possible to state that the manifestation of the categories reflecting negative psycho-social sphere is more frequent among the fairytales of the children with AD/HD in comparison with the "natural" population group (See figure 4). For example, the category "*Physical discomfort*" was noticed in 24% of the fairytales created by the children with AD/HD. In the fairytales of the "natural" population group they were several times less frequent. The probability that „*Illness (death)*" is more frequent among the children with AD/HD, as 14% of the children

of this group and only 4% of the "natural" population express this category in their fairytales. The probability of detecting the category of "*Nature anti-aesthetics*" is 10% among the primary forms pupils with AD/HD, and only 1% among the "natural" population. Statistically significant differences between children with AD/HD and the "natural" sample groups were as follows: "*Physical discomfort*" (t=-2.475; df=30.801; p=0.019); „*Illness (death)*"(t=-2.107; df=32.352; p=0.037); "*Nature anti-aesthetics*" (t=-2.216; df=30.818; p=0.028).

It is interesting that one category reflecting *positive psycho-social content* of the fairytales, *was not more frequently detected in the group if the children with AD/HD*, in comparison with the "natural" population. A vice versa case is with the categories reflecting psycho-social contents of the fairytales. There was no category *reflecting negative psycho-social content* of the fairytales *that might be detected more frequently in the group of "natural" population.* The categories reflecting positive and negative psycho-social content of the fairytales are not analyzed in this paper.

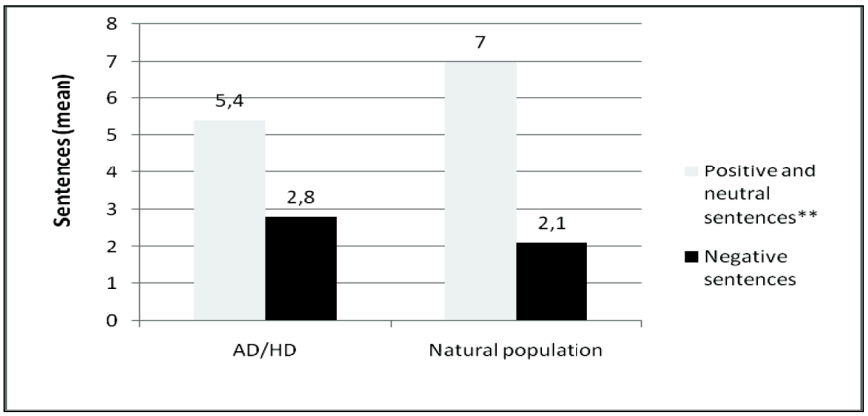

Figure 5: Sentences with positive and negative content in the fairytales created by children.

Having analyzed the content of the fairytales created by children (Figure 5.), it was stated that children with AD/HD use fewer positive sentences. Sentences expressing negative moods and thoughts predominate. The mean of the negative sentences in the fairytales created by children with AD/HD reaches mean of 2,8 whereas in the "natural" population group – 2,1. The mean of positive and neutral sentences in the fairytales created by the children with AD/HD is 5,4, and in the comparative group – 7.

The ends of the fairytales created by primary forms pupils were assessed according to three categories: *a) sad; b) neutral; c) happy.*

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 25, 2010

Figure 6: End of the fairytales.

Fairytales with a happy end were almost two times more frequent created be the "mixed" (natural) population in comparison with the AD/HD group. Another tendency was that fairytales with a sad end were more than two times frequent among the group of hyper-active children.

The analysis of the topics of the fairytales with a sad end points to the conclusion that the heroes of the fairytales created by AD/HD children suffer from social environment fear the same way as the authors (in some fairytales the authors identify themselves as the heroes and tell their stories as their own). On the one hand, they try hard to adapt to the environment; on the other hand, they feel the hostility from the people around them. Fruitless attempts to achieve one's goals, constant failures cause powerlessness and disappointment (See figure 6).

The consistency of fairytale was evaluated according to three criteria: *3 – fluent story (meets the requirements for the fairytale genre); 2 –partially fluent; 1 – not fluent.* The consistency of the fairytale: personages identified, their aims are clear, the story has all structural parts (the plot, the culmination).

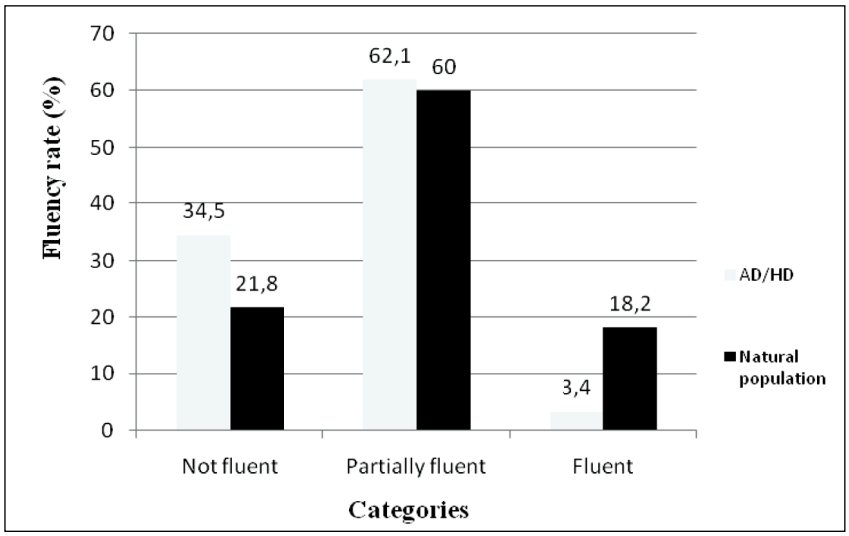

Figure 7: The fluency of the fairytales created by children.

As Figure 7 illustrates, only 3.4% of the children with AD/HD were successful in expressing their thoughts fluently and consistently developing the subject of the fairytale, whereas in the "natural" population 18.2 % of the children managed that. The assessment of children's fairytales was based on the major rule – the more fluent the story, the highest score was given. Therefore comparative analysis of means among the two groups of children was reasonable. The independent samples T test identified statistically significant differences that lead to the conclusion that primary forms pupils with AD/HD are less successful in expressing fluently their thoughts and consistently developing the story. The mean of fluency of AD/HD children's fairytales was 1,7, whereas in the group of the "natural" population reached 2,0 (t=2.129, df=50.242; p=0.035).

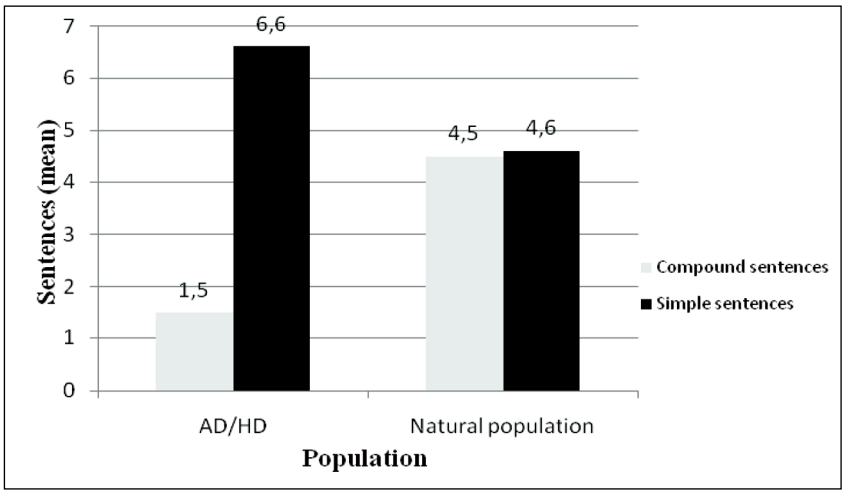

Figure 8: Simple and compound sentences in the fairytales created by children.

Statistically significant differences were defined among the sentences used by the AD/HD and the "natural" population groups (See figure 8). The mean of the compound sentences used by AD/HD group was 1,5, whereas in the "natural" population group it reached 4,5 (t=6.539; df=98.960; p=0.000). That draws to the conclusion that the grammatical (syntactic) structure of the fairytales created by AD/HD children is rather poor, as their sentences are less developed, i.e. more simple sentences are used in comparison with the compound ones.

Discussion

The research showed that fairy tale method could be applied for educational and diagnostic purposes. Analysis of children's created fairy tales is one of the ways to know about his/her emotional state. Child's created fairy tales show his/her social skills and allow to evaluate linguistic and cognitive abilities (Oklender, 1997; Capps et.al., 2000; Zinkevich-Evstegneeva, Grabenko, 2002; Zinkevich-Evstegneeva, Tichnonova, 2005, Piscalkiene, 2008).

Only recently Lithuanian scientists started to take interest in child's created fairy tales (Braziene, 2005; Braziene, Jakutiene, Ramaneckiene, 2005; Braziene, Dambrauskiene, 2006) unfortunately, children's with AD/HD created fairy tales are not yet analysed by Lithuanian scientists. Foreign scientists agree that not enough attention is paid to fairy tales created by children with AD/HD (Renz, 2003).

Analysis of fairy tales presented in this paper allows to analyse children's with AD/HD individual emotional and cognitive differences. It could be noted that peculiarities of fairy tales created by children with AD/HD are not analysed enough world wide and qualitative research

methods based on projective research methodics (creation of fairy tales based on visual stimuli) do not get enough attention in social sciences. AD/HD as a phenomenon, its development, manifestation and outcomes are being analysed by scientists world wide but as there are no research data analysing children's with AD/HD created fairy tales provided by other scientist the comparison of obtained data is not possible.

Children with AD/HD have cognitive dysfunctions, inadequacy. Their texts are imprecise, no sequence of thought, logics, thoughts are spontaneous (Tannock ir kt., 1993, Lorch et al., 1998; Rennie, 2003; Jacobson, Kikas, 2007). Research data show that children with AD/HD created fairy tales are "poor" in cognitive meaning. Analysis of fairy tales allowed concluding that there are big differences in fluency of fairy tales, proportion between simple and complex sentences.

This research allowed to define some significant differences of created fairy tales energetic field between two groups. As Zinkevich-Evstegneeva, Tichnonova (2003) note energetic fairy tale field is a mood of fairy tale developed by author's feelings and experience, it is significantly important for a teacher or researcher as a primary information about author's emotional state. The number of the indicators reflecting positive psycho-social content of the fairytales created by the children with AD/HD is lower in comparison with the "natural" population group. They also demonstrated a higher number of indicators reflecting negative psycho-social content of the fairytales. Zinkevich – Evstegneeva, Grabenko (2002) argue that emotionally healthy child create happy end fairy tales. The research data showed that children with AD/HD created fairy tales tend to have sad endings. The mentioned above facts indicate that children with AD/HD have lower developed emotionality. Applying elements of this projective methodics in future to child's educational process will allow teacher to get primary information about child's creating fairy tales emotional state and cognitive abilities. Hypothetically it could be said that diagnostic method presented in this paper would allow following changes in child's cognitive development, behaviour and inner emotional balance, evaluating the effectiveness of particular socio educational activity method. Method of fairy tales creation in scientific practise could be perspective object of educational sand psychological research.

Conclusions

1. The comparison of the fairytales created by the children with AD/HD and the "natural" population shows that the number of the indicators reflecting positive psycho-social content of the fairytales created by the children with AD/HD is lower in comparison with the "natural" population group. They also demonstrate a higher number of indicators reflecting negative psycho-social content of the fairytales. Statistically significant differences were determined evaluating the following categories that reflect positive content of the fairytales created by children: „Work activity", „Support from social environment", „Care", „Pleasant feelings".
2. The analysis of the content of fairytales shows that fairytales created by hyper-active children have a sadder end in comparison with the fairytales created by the "natural" population group. It might mean that lower manifestation of positive psycho-social indicators, predomination of negative sentences, sadder end of fairytales disclose lack of communication skills, emotional and social self-confidence, motivation among the children's with AD/HD.
3. Weaker purposefulness, fluency, logical clearness, lower number of compound sentences illustrates the disfunctionality of the cognitive sphere. It might point to the conclusion that disfunctionality of the cognitive sphere is characteristic of these children, as they are less successful in expressing their thoughts fluently, their fairytale stories lack purposefulness, logical clearness.

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