

EARLY ASSESSMENT OF THE RISK OF DYSLEXIA AND DYSGRAPHIA AMONG CHILDREN AGED 5-6 IN THE ASPECT OF EDUCATIONAL AND THERAPEUTIC WORK OF KINDERGARTENS

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***Abstract.** Reading and writing are basic skills that guarantee child's learning. Therefore, it is important that the child has mastered these skills to the best extent. Unfortunately, not all children can meet the requirements in the field of learning to read and write. Problems of varying intensity and range appear, they are caused by various disorders of the perceptual-motor functions. Children who may have problems with reading and writing in the future can already be seen in the kindergarten. Therefore, the aim of the study was to diagnose the risk of dyslexia and dysgraphia among children aged 5-6. The study included 300 children from kindergartens in Biała Podlaska, Poland. The results of the study showed that children at risk for dyslexia and dysgraphia are present in the study group. The most frequent manifestations of these disorders were in the field of fine motor skills, gross motor skills, language functions, visual functions and attention. They were caused by various factors related to the functioning of the nervous system that affect its development. Among the children diagnosed with these disorders, therapeutic measures have been taken to help reduce developmental delays and make it easier for them to learn in primary school.*

***Keywords:** child, dysgraphia, dyslexia, kindergarten, teacher, parents.*

Introduction

Reading and writing are basic skills that guarantee a child acquiring knowledge. Therefore, it is important to master these skills to the highest degree. It is a difficult and long-lasting process, requiring the child to devote time and attention, which despite the normal mental development, is not always able to meet it. The consequence of this is failure in science. Problems of varying intensity and range appear, caused by various disorders of the perceptual and motor functions. Children with such disorders are unable to learn to read and write during school education. They need support in the form of special therapeutic activities. Such children are called children with specific difficulties

in learning to read and write (Bogdanowicz, 2009; Górniewicz, 1998; Kaja, 2009; Klim-Klimaszewska, 2015).

The essence of the problem of specific difficulties in learning to read and write is called dyslexia and dysgraphia in Polish literature. The World Federation of Neurologists in 1968 formally adopted the term dyslexia as a disorder manifested by difficulties in learning to read, despite the use of conventional teaching methods, normal intelligence and favourable social and cultural conditions. It is caused by disturbances of basic cognitive abilities (Bogdanowicz, 2005; Cackowska, 1994; Klim-Klimaszewska, 2015; Krasowicz-Kupis, 2009).

The International Dyslexia Society, dealing with both theoretical and practical aspects of this disorder, explains the concept of dyslexia as “one of many different types of learning disabilities. It is a specific constitutional disorder. It is characterized by difficulties in decoding individual words, which usually reflects inadequate phonological processing capabilities. Dyslexia manifests itself in various difficulties with regard to various forms of linguistic communication, often in addition to difficulties in reading, there are serious difficulties in mastering the activities of writing and correct spelling” (Bogdanowicz, 2009; Klim-Klimaszewska, 2015).

Polish psychologist Marta Bogdanowicz proposed the term “risk of dyslexia” understood as a threat of dyslexia, which she formulated “in the category of the child's lack of full readiness to learn to read and write.” The psychologist mentioned three aspects of the child's readiness to learn to read and write:

- psychomotor readiness - its deficit creates delays and disturbances in the processes of visual and spatial perception, auditory, language and motor skills as well as perceptual and motor integration;
- dictionary and conceptual readiness - defines understanding of the meaning of words, reading comprehension;
- emotional and motivational readiness - the disorder in this area leads to lack of motivation due to the difficulties encountered, fear of failure, low motivation to acquire knowledge through reading (Bogdanowicz, 2009).

In turn, Anna Klim-Klimaszewska, a Polish educator dealing with pre-school pedagogy, states that in the pre-school period there are chances to notice a child who in the future may become dyslexic or dysgraphic. These are children who show selective disorders in psychomotor development, disorders that may (but do not have to) condition in the future the occurrence of specific difficulties in reading and writing. We are talking about the risk of dyslexia and dysgraphia. This risk manifests itself in the form of a set of symptoms, but each child manifests an individual picture of disorders and related difficulties. The risk of

dyslexia and dysgraphia is found when specific difficulties arise in one of the areas in the form of intense, relentlessly persistent symptoms or when they occur in several different areas at a lower intensity. In any case, therapeutic measures should be taken as soon as possible to compensate for the identified deficits (Klim-Klimaszewska, 2015).

Bearing in mind the proper development of the child, including his literacy skills, which are the basis of school education and guarantee a successful school start, research was carried out on a group of children aged 5-6 attending Polish kindergartens in Biała Podlaska. The main research problem is presented in the form of a question:

Whether and to what extent the examined children are at risk of dyslexia and dysgraphia? The main problem mentioned was specified in two questions:

1. What are the main symptoms of the risk of dyslexia and dysgraphia in the examined children?
2. How do the teachers work with the child at risk of dyslexia and dysgraphia?

Methodology of the Research

The research was carried out over a period of three months (September - November, 2017). It was preceded by obtaining a consent from the parents of the children. Due to the practical advantages of the research, they were accepted by both teachers and parents, which influenced their efficient organization. All examined children (300 people) came from the urban environment. Two research methods were used in the research. The first one was a pedagogical test with the Dyslexia Risk Scale standardized by the abovementioned Marta Bogdanowicz (Bogdanowicz, 2005). This test is used to assess the risk of dyslexia among children aged 5-6, before starting primary school. In order to learn the methods of work of teachers with children of the risk of dyslexia and dysgraphia, individual interviews with teachers who conduct didactic and therapeutic classes in kindergartens were conducted. For this purpose, a method of a diagnostic survey and an interview technique were used.

Results of the Research

Analysing the research on the assessment of the occurrence of risk of dyslexia and dysgraphia in 5-6-year-olds from municipal kindergartens in Biała Podlaska, it was first examined whether such a risk occurs among the examined group of children. The obtained data is presented in Table 1.

Table 1 The risk level of dyslexia and dysgraphia in the examined children

No.	The risk level of dyslexia and dysgraphia	Number of children in %				Total
		Girls		Boys		
		5-year-olds	6-year-olds	5-year-olds	6-year-olds	
1.	No risk of dyslexia and dysgraphia	9.50	23.90	4.80	19.00	57.20
2.	The borderline risk of dyslexia and dysgraphia	-	-	9.50	9.50	19.00
3.	Moderate risk of dyslexia and dysgraphia	-	-	14.30	9.50	23.80
4.	High risk of dyslexia and dysgraphia	-	-	-	-	-
	Total	9.50	23.90	28.60	38.00	100.00

Based on the analysis of data from Table 1, it can be stated that 57.2 % of the examined children were not at risk of dyslexia and dysgraphia. This group included all girls. In 19 % of the examined children there was a borderline risk. It concerned 5- year-old boys (9.5 %) and 6 year-old boys (9.5 %). A moderate risk of dyslexia and dysgraphia occurred in 23.8 % of the examined children, of which 14.3 % were boys aged 5 and 9.5 % - boys aged 6 years. These results were the basis for further research to determine the extent to which the disorder occurred.

In the next stage, the risk level of dyslexia and dysgraphia in the area of large motor skills was examined. The data obtained is presented in Table 2.

Table 2 The risk level of dyslexia and dysgraphia in the area of gross motor skills

No.	The risk level of dyslexia and dysgraphia	Number of children in %				Total
		Girls		Boys		
		5-year-olds	6-year-olds	5-year-olds	6-year-olds	
1.	No risk of dyslexia and dysgraphia	9.50	23.90	19.00	23.80	76.20
2.	The borderline risk of dyslexia and dysgraphia	-	-	4.80	4.80	9.60
3.	Moderate risk of dyslexia and dysgraphia	-	-	4.80	4.80	9.60
4.	High risk of dyslexia and dysgraphia	-	-	-	4.60	4.60
	Total	9.50	23.90	28.60	38.00	100.00

Data from table 2 indicate that the risk of dyslexia and dysgraphia in the area of gross motor skills was found in 23.8 % of the examined boys. The borderline risk and moderate risk in this area showed 4.8 % of both 5 year- old and 6 year- old boys. 4.6 % of 6-year-old boys showed a high risk level of dyslexia and dysgraphia.

Then, the research was conducted to assess the risk level of dyslexia and dysgraphia in the field of fine motor skills. The obtained results are presented in Table 3.

Table 3 The risk level of dyslexia and dysgraphia in the field of fine motor skills

No.	The risk level of dyslexia and dysgraphia	Number of children in %				Total
		Girls		Boys		
		5-year - olds	6-year - olds	5-year - olds	6-year - olds	
1.	No risk of dyslexia and dysgraphia	9.50	23.90	4.80	14.30	52.50
2.	The borderline risk of dyslexia and dysgraphia	-	-	23.80	14.20	38.00
3.	Moderate risk of dyslexia and dysgraphia	-	-	-	9.50	9.50
4.	High risk of dyslexia and dysgraphia	-	-	-	-	-
	Total	9.50	23.90	28.60	38.00	100.00

The analysis of data from table 3 shows that the risk of dyslexia and dysgraphia in the field of fine motor skills was noted in 47.5 % of boys. The borderline risk in this area occurred in 23.8 % of 5-year-old boys and 14.2 % of 6-year-old boys. In 9.5 % of 6-year-old boys examined, a moderate risk level of dyslexia and dysgraphia in the fine motor skills was found. On the other hand, there was no high risk level of dyslexia and dysgraphia in the field of fine motor skills in the studied boys.

The next stage of the research was to diagnose the risk level of dyslexia and dysgraphia in the sphere of visual functions. The results are shown in Table 4.

Based on the data from table 4, it should be stated that the risk of dyslexia and dysgraphia in the sphere of visual dysfunction occurred in 23.7 % of the examined boys. The borderline risk was found in 4.8 % of 5-year-old boys and 9.5 % of 6-year-old boys. Only 5-year-old boys had a moderate risk level of dyslexia and dysgraphia in the field of visual function - 4.8 % and a high risk level in this area - 4.6 %.

Table 4 The risk level of dyslexia and dysgraphia in the sphere of visual functions

No.	The risk level of dyslexia and dysgraphia	Number of children in %				
		Girls		Boys		Total
		5-year - olds	6-year - olds	5-year - olds	6-year - olds	
1.	No risk of dyslexia and dysgraphia	9.50	23.90	14.30	28.60	76.30
2.	The borderline risk of dyslexia and dysgraphia	-	-	4.80	9.50	14.30
3.	Moderate risk of dyslexia and dysgraphia	-	-	4.80	-	4.80
4.	High risk of dyslexia and dysgraphia	-	-	4.60	-	4.60
	Total	9.50	23.90	28.50	38.10	100.00

In the next stage of the research, the risk level of dyslexia and dysgraphia in the sphere of linguistic and perceptual functions was diagnosed. The obtained results are presented in Table 5.

Table 5 The risk level of dyslexia and dysgraphia in the sphere of linguistic and perceptual functions

No.	The risk level of dyslexia and dysgraphia	Number of children in %				
		Girls		Boys		Total
		5-year - olds	6-year - olds	5-year - olds	6-year - olds	
1.	No risk of dyslexia and dysgraphia	9.50	23.90	-	4.80	38.20
2.	The borderline risk of dyslexia and dysgraphia	-	-	-	14.20	14.20
3.	Moderate risk of dyslexia and dysgraphia	-	-	19.00	14.30	33.30
4.	High risk of dyslexia and dysgraphia	-	-	9.50	4.80	14.30
	Total	9.50	23.90	28.50	38.10	100.00

Based on the data presented in Table 5, it can be concluded that the risk of dyslexia and dysgraphia due to linguistic and perceptual dysfunction occurred in 61.8 % of boys. The borderline risk of dyslexia and dysgraphia in terms of linguistic and perceptual functions was noted only in 14.2 % of 6-year-old boys. On the other hand, 33.3 % of boys had moderate risk, including 19.0 % of 5-year-old boys and 14.3 % of 6-year-old boys, while high risk was reported in

14.3 % of boys, including 9.5 % of 5-year-old boys and 4.8 % of 6-year-old boys.

Next, the risk level of dyslexia and dysgraphia in the sphere of linguistic and expressive functions was determined. The results are shown in Table 6.

Table 6 The risk level of dyslexia and dysgraphia in the sphere of linguistic and expressive functions

No.	The risk level of dyslexia and dysgraphia	Number of children in %				Total
		Girls		Boys		
		5-year-olds	6-year-olds	5-year-olds	6-year-olds	
1.	No risk of dyslexia and dysgraphia	9.50	23.90	9.50	19.00	61.90
2.	The borderline risk of dyslexia and dysgraphia	-	-	-	-	-
3.	Moderate risk of dyslexia and dysgraphia	-	-	19.10	19.00	38.10
4.	High risk of dyslexia and dysgraphia	-	-	-	-	-
	Total	9.50	23.90	28.60	38.00	100.00

Analysis of the results presented in Table 6 allows to conclude that the risk of dyslexia and dysgraphia in the sphere of linguistic and expression functions was noted in 38.1 % of boys. This group showed a moderate risk level of dyslexia and dysgraphia in this area. 5-year-old boys were 19.1 % and 6-year-old boys – 19 %.

The last study concerned diagnosing the risk level of dyslexia and dysgraphia in children in the scope of attention. The data obtained is presented in Table 7.

Table 7 The risk level of dyslexia and dysgraphia in the scope of attention

No.	The risk level of dyslexia and dysgraphia	Number of children in %				Total
		Girls		Boys		
		5-year-olds	6-year-olds	5-year-olds	6-year-olds	
1.	No risk of dyslexia and dysgraphia	9.50	23.90	-	4.80	38.20
2.	The borderline risk of dyslexia and dysgraphia			19.10	23.70	42.80
3.	Moderate risk of dyslexia and dysgraphia	-	-	9.50	9.50	19.00
4.	High risk of dyslexia and dysgraphia	-	-	-	-	-
	Total	9.50	23.90	28.60	38.00	100.00

The analysis of data from Table 7 shows that the risk of dyslexia and dysgraphia in the scope of attention occurred in 61.8 % of the boys examined. In this group, the borderline risk was found in 42.8 % of the examined, including 5-year-old boys- 19.1 % and 6-year-old boys - 23.7 %. Both 9.5 % of 5-year-old and 6-year-old boys had a moderate risk level of dyslexia and dysgraphia due to attention disorders.

Summing up the conducted research it should be stated that in the examined group of children the risk of dyslexia and dysgraphia was recorded only in boys. The largest group were boys who are at risk of dyslexia and dysgraphia due to attention disorders - 42.8 % of respondents (borderline risk level), then linguistic and expressive functions - 38.1 % (moderate risk level) and fine motor skills - 38.0 % (borderline risk level). High risk level of dyslexia and dysgraphia was reported in the areas of gross motor skills (4.6 %), visual functions (4.6 %) and linguistic and perceptual functions (14.3 %). Nevertheless, no general high risk level of dyslexia and dysgraphia was found in any child.

Working with the child who is at the risk of dyslexia and dysgraphia

Based on the analysis of interviews conducted with 12 teachers, methods of working with children who were diagnosed with the risk of dyslexia and dysgraphia were learned. Therapeutic classes with these children were conducted by a teacher who had qualifications and professional competences in this area. Classes were held systematically, the teacher worked with one child or with a group of 3-5 children from 20 to 30 minutes during the day. These types of activities required individualization because children had a different degree of risk of dyslexia and dysgraphia, and dysfunctions did not always concern the same areas of the disorder.

All tested teachers used the following methods:

1) Marta Bogdanowicz's Good Start Method - This is a Polish modification of the French Le Bon Depart method, meaning "good departure and start" developed by the Dutch physiotherapist Thea Bugnet van der Voort. Its assumption is simultaneous development of language functions, observation functions (visual, auditory, tactile, kinaesthetic - sensation of movement and motor skills) and cooperation between these functions, i.e. perceptual and motor integration. These are functions that underlie complex reading and writing activities. Thanks to them, it is possible to perform proper movement activities at the right time and space, in harmony with cognitive activities, including language. Improvement in this area is recommended for children preparing to learn to read and write, but it is necessary for children who have delays in the development of these functions. Equalizing developmental disharmony for children with the risk of dyslexia and dysgraphia can effectively prevent school failures.

The Good Start method does not only have a prophylactic and therapeutic aspect, but also a diagnostic aspect. Based on the observation of the child's behaviour, analysis of the difficulties that arise during the exercise and mistakes made, we can infer about their causes, that is, the type and depth of the disorder. In this method, a musical element related to movement plays an important role. The combination of music, singing, movement and art activates the entire nervous system and has a comprehensive impact on the child. In the Good Start Method, three basic forms were created. In each of them there are proposals for various programs to choose from, depending on the needs of the children with whom we work. The forms of the Good Start Method complement each other, constituting successive stages of the simulative and therapeutic work, initially on the non-letter material, and then on the material including printed and written letters. The Good Start Method is a proposal to prepare to learn to read and write polisensorically (i.e., multi-sensory) learning letters of the alphabet and to spell the short words that cause spelling problems. As a result, individual forms of the method create subsequent stages in the process of education, prevention and therapy (Bogdanowicz, 2009; Opolska, 1997).

In the opinion of teachers who have experience in the use of this method in therapeutic work with children with dyslexia and dysgraphia, the effectiveness of this method is particularly high in children with attention deficits, visual functions, small and large motor skills. In a situation where the child's dyslexia and dysgraphia is at a high level, the therapy started in kindergarten should be continued in primary school. Certainly, it cannot be ascertained that it is 100 % effective due to the wide spectrum of factors determining dyslexia, including genetic factors. Teachers believe that if this method of therapy helps some children, they should use it in practice.

2) Dorota Dziamska's Education through movement - It is a system of forms and methods of education and therapy that uses the natural, spontaneous movement of the body in the process of its development. The system is based on the planned support for the development of long-term memory through proportional stimulation of its three sectors: procedural memory, episodic memory and semantic memory. The basic element of each exercise is Movement. Mechanisms of procedural memory are activated when learning a specific sequence of movements. The second element of the exercises is sound, music and rhythm, that is, those factors that affect the emotional experience of the exercise. The third element of each exercise is knowledge, because the effect of the exercise, most often taking the form of a plastic impression, becomes the starting point for interesting conversations that the teacher uses to implement the planned content. Knowledge is facts that are stored in semantic memory. Movement of individual body parts during exercise guarantees the activity of many senses. The child, playing, performs a series of activities that quickly

follow one another or even occur at the same time. Children draw, listen to music, lead their eyes through the pages, talk and even walk. If they perform so many activities at the same time, they are integrated movements of different parts of the body, or sensory integration. This integration causes that at the same time the smoothness of the hand movements needed in the learning of writing is perfected, changes in the accommodation of the eye lens are made and the eye muscle is strengthened, which helps the child in the first attempts to read. These integrated movements lead to the creation of a picture, to the activation of the senses and support of cognitive processes. The Education by Movement system is a collection of exercises that improve the individual functions of the developing organism. During exercise, children draw graphomotor signs to the rhythm of the melody being listened to. Depending on the child's age, appropriate signs and their combinations are used in a more complex character (Dziamska, 2010; Klim-Klimaszewska, 2015).

In the opinion of teachers using the presented method, its effects and effectiveness depend on the regularity and involvement of children. Teachers in practice use not all but some elements of this method, because the degree of dyslexia disorders has a decisive impact on its use. Teachers noted high effects in the therapy of children with disorders in the field of small and large motor skills, memory and visual functions.

3) Educational Kinesiology of Paul E. Dennison - This is a method involving the use of the natural physical movement necessary to organize the work of the brain and body in order to self-structuring learning (experience) and creative self-fulfilment of the individual. It results from the fact that natural physical development is the basis for self-improvement of basic habits of seeing, listening, organizing internal mental activities, skills, spontaneity and creative activities. Physical movement and the development of the intellect are particularly strongly associated with each other in childhood, and the development of the child should follow the natural path, based on the natural mechanisms of integration of thought and movement (Dennison & Dennison, 2003).

The basis of the creative method of kinesiology are exercises focused on the development of various systems of movement coordination and psychophysical functions. They were divided into four groups:

- a) Movements that allow crossing the centreline. They stimulate the work of both gross and fine motor skills. The main mechanism of "unity of thought and movement", which is the basis of these exercises, favours the refinement and integration of the connections of the right and left hemispheres of the brain and the comprehensive collection of material at the level of analysis and generalizations.

- b) Exercises that stretch the muscles of the body. They eliminate the negative impact of various reflexes, including the “defensive reflex”. When the muscles are stretched and have the correct length, they transmit to the brain a signal that the person is relaxed, calm and ready for cognitive work. At the brain's work level, this means that it is possible to flow information from the back of the brain to the frontal areas, causally conditioned by the limbic system, which is the “gate” through which messages (experience) get to the higher areas of the brain and at the same time being a source of joy.
 - c) Exercises energizing the body or, in other words, providing the necessary speed and intensity of nervous processes between the cells and the brain's nerve cell groups. The basis of the exercises is a thorough knowledge of the areas of reflex and “psychological” functioning of the body.
 - d) Deepening exercises that favour an increased, positive attitude or affect the emotional-limbic system of the brain cooperating with the centres of self-perception of the “I”. These exercises stabilize and rhythm the nervous processes of the organism, which favours educational achievements (Dennison & Dennison, 2003; Bartska, 2004; Klim-Klimaszewska, 2015; Mańkowska, 2005).
- 4) Jean Ayres Sensory Integration Method - It is a method supporting the development of neurological processes in the brain, a system of exercises designed to teach the brain proper response to external stimuli. The method is addressed not only at those children who have nervous system disorders, but also to children with emotional disorders resulting from a constant sense of insecurity and negative self-image. It can also be used in preventive work with children developing properly. The method is referred to as scientific play therapy. The child performs exercises and movement games that improve the quality of receiving, transmitting and organizing stimuli, i.e. the overall quality of sensory systems (Ayres, 1991).

During therapy, the child does not learn specific skills, but improves sensory integration and strengthens the nervous processes underlying these skills. Therapy with the Sensory Integration method is based on targeted play. It is a wide range of exercises and activities proposed to the child, which are supposed to trigger specific sensory reactions. In order to improve the organization of the central nervous system, during the therapy exercises that are a “challenge” for the participant of therapy and are stimulating for the brain are used. Exercises must be adapted to the child's developmental level, they cannot be too easy or too difficult. The forms of therapy are very attractive for children and are held in the gym or in a large room, where one can arrange all necessary instruments, such as hammocks, special swings, skateboards, boards and

rotating discs, balance boards, large balls and rollers, tunnels, trampolines, dry pool, suspended ropes, trapezes, inclines, sets of soft blocks, sets for olfactory, visual, auditory stimulation, etc. Such equipment gives the opportunity of great and safe play, expands the field of activity. The child jumps, crawls, overcomes obstacle courses, enjoying himself well. Continuous balancing on the edge of the child's ability improves the organization of the central nervous system and influences the change in behaviour in the motor and emotional sphere, improves linguistic and cognitive functions, and above all manifests itself in a better learning efficiency. Exercises affect the performance of gross and fine motor skills, concentration of attention, visual and auditory skills, they improve emotional functioning, self-awareness and self-esteem. They make not only the body but also the mind work better. Children with auditory and linguistic problems, become more talkative, they remember commands easier, achieve greater progress in reading. The effectiveness of this method is confirmed by European and Polish research (Borkowska & Wagh, 2011; Heydt & Allon, 2003; Klim-Klimaszewska, 2015).

With regard to the conducted research, the teachers confirmed the high effectiveness of this method in children with linguistic and expressive disorders. This is a specific type of dyslexia and the selection of the appropriate method is carefully analysed. Therefore, the method developed by Jean Ayres has a special application in this case.

5) Marianne Frostig Program developing visual perception - These are exercises and games aimed at developing visual perception, perceptiveness and the ability to make a choice. The program is divided into three basic levels: basic, medium, and higher. By observing own body in the mirror while performing tasks, by fingering the pattern on a piece of paper, giving the subjects referred by the teacher, the child improves in the range of various spheres of development. Marianne Frostig proposed exercises and games aimed at developing visual perception, perceptiveness and the ability to make a choice. Their goal is to develop and integrate the ability to coordinate eye movements with precise body movements. These exercises are therefore important for all activities that require precise hand movements. They help all children develop drawing, writing, learning about geometrical figures and their position on the plane. They are also important for developing the awareness of one's own body, the concept and mastery of the ability to control the position of the body, as well as its right and left orientation, hand dominance, coordination, balance, agility, plasticity and muscle strength.

The program consists of a set of 3 exercise books and 3 textbooks. The textbook contains instructions for exercises in a child's exercise book. Exercise books are an integrated selection of tasks that engage all spheres of visual perception at a given level of difficulty. In the exercises that make up the level,

the primary focus is on tasks that shape visual and motor coordination. At the medium level, attention was paid to tasks developing orientation in spatial relations. However, at the higher level, the focus was mainly put on exercises integrating perceptual abilities with the requirements for children in school learning. (Frostig & Horne, 1999; Klim-Klimaszewska, 2015).

High efficiency of this method teachers noted in the therapy of children with disorders in the sphere of visual and motor coordination, in perception, orientation in space. These dysfunctions make up the broadly understood concept of dyslexia and dysgraphia.

These methods did not exhaust the entire catalogue of needs of children with dyslexia and dysgraphia. They showed that there is a chance to support the development of children and such opportunities are created by modern kindergartens in order to prepare children to learn to read and write. In some individual cases there is a need for continuing therapy because it is a long process that requires time and patience.

Discussion

Nationwide research on the diagnosis of dyslexia and dysgraphia of school children revealed that 13.1 % of children are affected by this disorder (Jaklewicz, 2014). With reference to the results of the research presented in this article, the aim of which was to find out the risk of dyslexia and dysgraphia among children aged 5-6, it turns out that the percentages of national data are lower. In turn, the results of other studies described by psychologists from two different cities in Poland, carried out with the help of the same research tool (Dyslexia Risk Scale by Marta Bogdanowicz), show detailed developmental disharmonies of children. The highest risk of dyslexia was found in the field of fine motor skills - in 33.3 % of cases, in the concentration of attention - in 25.5 % of cases and gross motor skills - in 22.2 % of cases. It turns out that only in terms of concentration of attention, the results differ significantly, especially in boys, a reduction in attention has been found, in relation to fine and gross motor skills, the results are similar.

The research shows that in Poland about 10-15 % of children encounter difficulties in learning to write and read (Brzezińska, 2004, Kordas, 2004). In the last dozen of years, an increasing number of students with the risk of dyslexia reported to specialist tests have been observed. The number of younger children increases, especially at the age of 6-7.

European research should include the research in Denmark, the United Kingdom and the Netherlands. In Denmark, pre-schoolers and first-grade students were examined in the areas of reading, writing and phonological skills. Children diagnosed with dyslexia received lower phonological scores compared

to high-risk children (Dandache et al., 2014). In the Netherlands and the United Kingdom, literacy and basic cognitive skills were tested for families at risk of dyslexia. The results confirm the high risk of dyslexia among children from dyslexic families (Gooch et. al., 2014; van Bergen, et.al., 2012). In Poland, this direction of such a research has not been noted in recent years, which should certainly be noted due to the need for early therapeutic work.

On the other hand, US studies conducted among pre-schoolers show the need for early individual diagnosis in the field of dyslexia, in order to intervene in relation to those children diagnosed with language difficulties and reading problems (Snowling & Hulme, 2012). Children who are not eligible for help are more likely to have difficulty in social adaptation, they may have emotional and social immaturity, which develop on the basis of school failures and the failure to satisfy the emotional needs of the child (Święcicka, 2005).

In the context of the presented research results and opinions regarding the early diagnosis of dyslexia, attention should be paid to the methods of therapy. The methods of therapy described in the article prove their diversity and the need to individualize work with a child. A common feature of the methods of therapy used in working with a dyslexic child is movement and its various forms. Experts from many countries pay attention to this. In Moldova, experimental studies were carried out using physical exercises in therapy with children (6-7 years) with dysgraphia. Improvements and positive effects of movement on the development of children with dyslexia have been observed (Lupuleac, 2014).

Summing up, it should be stated in the context of the presented dysfunctions that there is the need to distinguish the group of children with the risk of dyslexia as early as possible and the need to monitor their development and to implement therapeutic treatment.

Conclusions

The conducted research has shown that some children at the pre-school education stage may manifest and display symptoms of difficulties in the future learning of reading and writing. The difficulties observed in children are the basis for a professional diagnosis, among others, using the Risk Diagram of Dyslexia by Marta Bogdanowicz. The mentioned diagnostic tool allows to examine various manifestations of this disorder. They are disorders occurring in the field of fine motor skills, gross motor skills, language functions, visual functions and attention. It is caused by various reasons related to the functioning of the nervous system and environmental factors that affect the development of the nervous system in a child. A further stage of pedagogical work with such a child is the appropriate selection of therapy methods for the identified

dysfunctions and their systematic implementation. The presented procedure may lead to complete elimination of developmental delays or reduction of them to a significant extent. Help will be all the more effective the earlier the therapy is taken.

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