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GENERAL SKILLS RELATED TO THE AGE OF CHILDREN WITH INTELLECTUAL DISABILITY

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Abstract

Intellectual disability is a developmental deficit, a significant limitation of the intellect that leads to poor adaptation to the requirements of everyday life. Disability is not a disease in itself, but is the consequence of the development of a pathogenic process. A diagnosis of intellectual disability brings with it certain unique ways of intervening that need to be properly understood and addressed. The neuropsychological evaluation of the development of children with mental disabilities identified deficits in the functioning of cognitive processes in terms of memory, attention, and perception. Depending on its cause, the Intellectual Disabilities may be stable and non-progressive or may worsen over time. In return, early intervention can improve coping general skills. As a method, we selected for this paper the Portage Development Scale, to establish the comparative differential values of children with mild intellectual/ mental disability (MID) and typical developmental (TD), in the age category of 4.5-6 years. The analysis of the connections observed between the cognitive processes in the pre-schooler with intellectual disabilities and their consideration, facilitates the elaboration of the correct structuring of an intervention program in order to stimulate the cognitive development.

Keywords: Motor skills, mild intellectual disability, perception and coordination disorders, self-service

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1. Introduction

Mental / intellectual disability, one of the major mental dysfunctions, is still an indefinite notion precisely. The term is generally very vague and covers a wide variety of disorders, both in etiology, symptomatology and pathogenesis (OMS-FCI, 2004). Intellectual disability (ID) is a neurodevelopmental disorder that is characterized by deficits in both intellectual functioning and adaptive functioning, whose onset is in the developmental period (Purugganan, 2018). Deficits affect the functioning of adaptive functioning, so that the individual does not meet the standards for his developmental age (Rusu, 1997).

The organization of the process according to knowledge involves a structuring of external stimuli, a program adapted to the type of mental organization (Gherguț, 2001). The cognitive domain covers all mental skills and processes. In DSM-5, intellectual disability (intellectual developmental disorders) is characterized by deficits in general mental abilities, such as reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and experiential learning (American Psychiatric Association, & American Psychiatric Association, 2013).

1.1. Psychological evaluation of pre-schoolers with intellectual disabilities

The analysis of the specialized literature, the theoretical substantiation, followed by the establishment of the psychological levels of the psychic development of the pre-schoolers, led us to the thorough psychological study of the subjects participating in the experiment. When one examines the characteristics of difference for an individual with intellectual disability, one notes several components, all of which are to some extent dynamic. First is the matter of achievement and performance, in the measured or standard sense (Elias & CRoCkER, 2009). Psychological assessment includes the following components: anamnesis, comprehensive history taken from parents, relatives, present symptoms, including concrete descriptions of specific behaviors in different situations, their change over time, or in other circumstances, circumstances. The assessment should include data on past events, how different people approach these behaviours, adaptive functioning, personal autonomy, data on communication and social functioning. "In order to make the idea of evaluation a rigorous concept, we must have a predefining of evaluation procedures with concrete references on the nature of the activity to be evaluated and its pedagogical utility" (Vlad, 1999, p. 102).

Other eloquent information is the details of previous recovery and medication treatment, with a particular focus on the side effects of medications that could cause the symptoms present. Such evaluation, introduced in psychology, is called dynamics, and belongs to the scientist Lev Vagotsky. Starting with Vagotsky's theory, a number of other researchers, such as Feuerstein, Brown, and Guthke, have developed independent lines of research. The premises of the research and the degree of research of the problem revealed the contradiction that denotes, on the one hand, the deficient state of a complex function of the psyche of children with intellectual disabilities, and on the other hand, the functional incapacity of existing psycho-pedagogical models, which would positively influence their psychobehavioral development.

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2. Problem Statement

The preliminary stage of the research was carried out in order to identify the sample of preschoolers, enrolled in the 2018-2019 school year in the middle group. The aim was to select two groups of subjects: 60 children with mild intellectual / mental disabilities (MID) enrolled in preschool education in inclusive groups and 60 children with typical development (DT) enrolled in preschool education in kindergartens in Bacau County, from the age category of 4.5-6 years.

The criterion for screening preschoolers with mild ID was the presence of intellectual disabilities, evaluated and certified by the Commission for Complex Assessment of Children with Disabilities within General Directorate for Social Assistance and Child Protection Bacău and the Bacău County Center for Resources and Educational Assistance, later analyzed by us. The level of psychophysical development of preschoolers with TD was assessed by the family doctor, fixed in the medical record, and by the psychologist at the time of their entry into the preschool institution.

3. Research Questions

The question of the research is: What is the level of development of children's general skills at the moment? In which compartments of the Portage development scale does they need help?

4. Purpose of the Study

i. The purpose of the research was to assess the general skills and the stage at which are preschool children, aged 4.5-6 years with MID and TD.
ii. Hypothesis: We assume that we will identify inconsistencies / differences between the results of children with MID and TD at the coordinates of the Portage development scale.

5. Research Methods

Obviously, we meditated on the elaboration of a psychological assessment tool that would provide us with ample information about the distinctive features that differentiate preschool children with MID from TD preschool children. We have selected for this paper, to expose the comparative differential values of children at the Portage Development Scale.

5.1. Portage development scale

Purpose: a) assessment of the skills of children up to 6 years of age and the stage at which the child should be at a certain age and where the child really is at the time of the assessment; b) evaluation of the areas that the child does not cover and where he needs help.

The Portage Development Scale application provides information on 5 behavioral coordinates: socialization, language, cognitive, motor, and self-service (Verza, 2003). Each coordinate contains a number of items related to the child's age. For the age of 4-5 years at the Socialization coordinate there are 9 items; Language -15 items; Self-service -23 items; Cognitive -22 items; the Engine -16 items. Items

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for the age of 5-6 years, are: Socialization -11 items; the Languages -14 items; Self-service -15 items; Cognitive -22 items; Motor skills -29 items.

The advantages of applying the Portage Development Scale are the following:

i. Can be applied to both verbal and non-verbal children;
ii. If applied correctly, it is extremely objective, because it eliminates possible disturbing factors, environmental inhibitors of the subject;
iii. It is good to be completed by several people, who know very well the child and what he can and does and does not know;

6. Findings

From the perspective of the development of skills and age, respectively on the areas / coordinates of the Portage scale, the central trend of the data for MID and TD shows statistically significant differences, the value of the U-Mann-Whitney test being U = 27.00; p <0.001.

If in TD subjects the assessed age was consistent with the chronological age, for subjects with MID there was a significant delay in skills compared to chronological age, respectively M = 5.4 / M = 4.2. In Table 1 the average scores of MID and TD children at all coordinates / areas of the scale, as well as the ratio between General Aptitudes and chronological age.

Table 1. Area average, U Mann Whitney and r-biserial test results, Portage Scale

Variables	Mediate results		U-Mann Whitney	p	Effect size (r biserial)
	MID	TD			
Chronological age	5.60	5.40	1454.50	0,068	0.19
General skills	4.20	5.40	27.00	< 0,001	0.98
Socialization	4.30	5.30	24.00	< 0,001	0.98
Language	4.00	5.21	25.50	< 0,001	0.98
Self-service	4.20	5.30	50.00	< 0,001	0.91
Cognitive	4.20	5.40	37.50	< 0,001	0.97
Motor skills	4.35	5.50	18.00	< 0,001	0.99

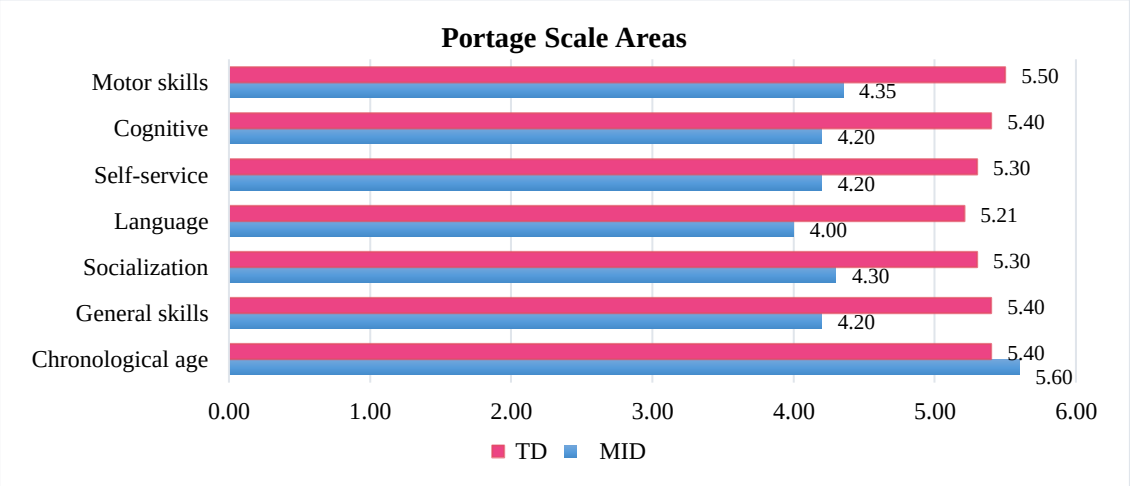

Figure 1. Area average, MID / TD. Portage scale

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In the Cognitive Area, children with MID had an average age of 4.2 years, while children with TD had an average age of 5.4 years ($U = 37.50$; $p < 0.001$); this proves that the level of cognitive acquisition of TD subjects is in line with their chronological age, while in MID subjects, cognitive skills are reduced compared to chronological age.

Preschoolers with MID have a constant interest in the objects around them, in toys, in their functional side; they tend to retain for a long time the things they experience directly; in order to maintain their interest and motivation, they need the support of various teaching materials, brightly colored, presented in different ways. Memorizing perceptual-auditory or verbal information becomes an unproductive exercise if it does not arouse their curiosity / involuntary attention at the moment. They can schematically draw a man, a house, benefiting from guidance, they can name or indicate some geometric figures and colors, below the level of activities demonstrated by typical children of the same chronological age. They can more easily associate similar objects, symbols, letters and numbers, they are able to compare objects that differ little.

In Figure 1, in the Motor Area and the Self-Service Area, the preschool children TD, have results in accordance with the chronological age, respectively: $M = 5.50$ and $M = 5.30$; MID preschool children, in the two mentioned areas (Motor and Self-Service) obtain $M = 4.35$ and $M = 4.20$. The U-Mann-Whitney test, for the Motor area, indicates $U = 18.00$; $p < 0.001$; for the Self-service area - $U = 50.00$; $p < 0.001$.

In children with MID, a slight development of motor coordination and the stability of gestures and movements has been observed, they encounter difficulties in organizing perceptive-motor behaviors and structures in time and space. The body scheme is largely structured correctly, but the laterality is partially fixed; coarse and fine motor skills do not reach the age-appropriate level of development; we have identified and noticed shortcomings in self-care skills, such as dressing and caring, keeping one's own clothes; disabilities and incompetence in socially useful self-management activities.

From the perspective of the Language area, children with MID have a predominantly poor vocabulary, with limited ability to express themselves, have rare, hesitant, slow speech, and have difficulty telling a familiar story with or without pictures. Children use common words such as "sister", "mother", "grandfather", "grandmother", but find it difficult to use complex sentences in communication, or sentences that contain verbs at different times. For them, the word often acts as a sentence or they use sentences that lack pronouns and grammatical binders; sometimes they notice and point out the absurdities in the images or name an image that does not fall into a certain category.

From the perspective of comprehension, understanding of language, they can perform a series of related commands and can choose a pair of objects or images on request. The average for the Language area, related to the chronological age for TD and MID was estimated by the values, respectively: $M = 5.21$; $M = 4.00$; $U = 25.50$; $p < 0.001$.

In the Socialization area, TD children have $M = 5.30$, in MID children, $M = 4.30$; $U = 24.00$; $p < 0.001$. It has been observed that MID preschoolers have difficulty adjusting to group rules, developing few interpersonal relationships. He is involved, however, in symbolic games, playing in small groups of 2-3 children. They begin to cooperate in the game and take the initiative in communication, and their non-

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verbal reactions are accompanied by dialogue. When asked, they share their personal items or other toys with other children.

The size of the effect, estimated with the r-biserial coefficient, calculated at the level of children's skills development on the 5 coordinates, established a large difference between preschool children with MID and TD, between 0.91–0.98.

All discrepancies revealed in preschool children with MID were recorded due to the presence of mental disability, which was not surprising in children with TD.

6.1. Psychopedagogical intervention

The psycho-pedagogical activities were elaborated according to the fields of action based on the educational therapy, related to the characteristics of the intellectual deficit of the subjects of preschool age. Techniques, exercises, games aimed at training and educating children's general skills in cognitive, language, socialization, self-service and motor skills were selected. For the education of cognitions, we focused on age-specific exercises and games with an impact on the formation of knowledge about the environment, educating the spirit of observation, attention, memorizing events and phenomena in the environment with a subsequent description, based on answers to questions or self-standing by image support. Also, we practiced, trained and developed spatial orientation skills with a possible use of oral speech with the correct use of prepositions, article, gender, number and case.

A special place in the content of the activities carried out had the recognition of facial-emotional expressions, motor skills, organization and development of perceptual-motor structures, performing specific actions / activities to care for the common space and work, plants, animals, environment; color, shape, size recognition; developing creativity and imagination, representations; communication and relationship with peers, adults; familiarization with the world of professions / trades and development of environmental dexterity.

During the formative-developmental stage, from the number of preschoolers with MID examined in the stage of the ascertainment experiment, we selected 24 children to form the experimental group (EG) and the control group (CG). The homogeneity of the groups was verified by the U-Mann-Whitney statistical test. The experimental group of preschool children was involved in the intervention.

6.2. Assessing the progress of preschool children with MID, post-intervention

Results on the Portage Development Scale:

Purpose: post-intervention assessment of general skills in preschoolers.

Hypothesis: we assume that the general skills of EG preschoolers developed as a result of the psycho-pedagogical intervention, establishing improvements/ progress on all coordinates, related to CG subjects.

At the testing stage, the two groups had the average values of the close chronological age (the groups being homogeneous), in EG the average chronological age was 5.58 years, and in CG the average chronological age was 5.5 years ($U = 69, 50$; $p = 0.884$). Also, the two groups had the levels of development of general skills, close educational skills, EG preschoolers with an average value of M =

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8.16, and CG preschoolers with an average value of M = 8.25 (U = 68.00; p = 0.809), values that fits under the 5th percentile, in the area of mild intellectual disability.

Following the results obtained in the assessment of general aptitudes (on the whole Portage scale), there is a reluctance in both groups, against the background of the presence of mild mental disability. At the test stage, the homogeneity of the groups was verified, the U-Mann-Whitney test having values between 59.00 and 67.50, and the significance threshold with values between 0.450 and 0.793 (U = 59.00; p = 0.450; U = 67.50; p = 0.793)

At the test / retest stage, Table 2 and Figure 2 show the progress assessed between EG and CG preschoolers.

Table 2. Area average and Wilcoxon test, EG / CG test-retest, Portage Scale

Areas / coordinates	***EG***				***CG***			
	Test M1	Retest M2	Z	*P*	Test M1	Retest M2	Z	*P*
Socialization	4.30	4.39	-3.051	.002	4.18	4.24	-2.646	.008
Language	4.00	4.19	-3.100	.002	3.98	4.11	-3.213	.001
Self-service	4.20	4.39	-3.276	.001	4.08	4.20	-3.066	.002
Cognitive	4.26	4.45	-3.104	.002	4.15	4.27	-3.276	.001
Motric	4.30	4.54	-3.093	.002	4.28	4.39	-2.754	.006
General skills	4.24	4.42	-3.213	.001	4.12	4.23	-3.357	.001

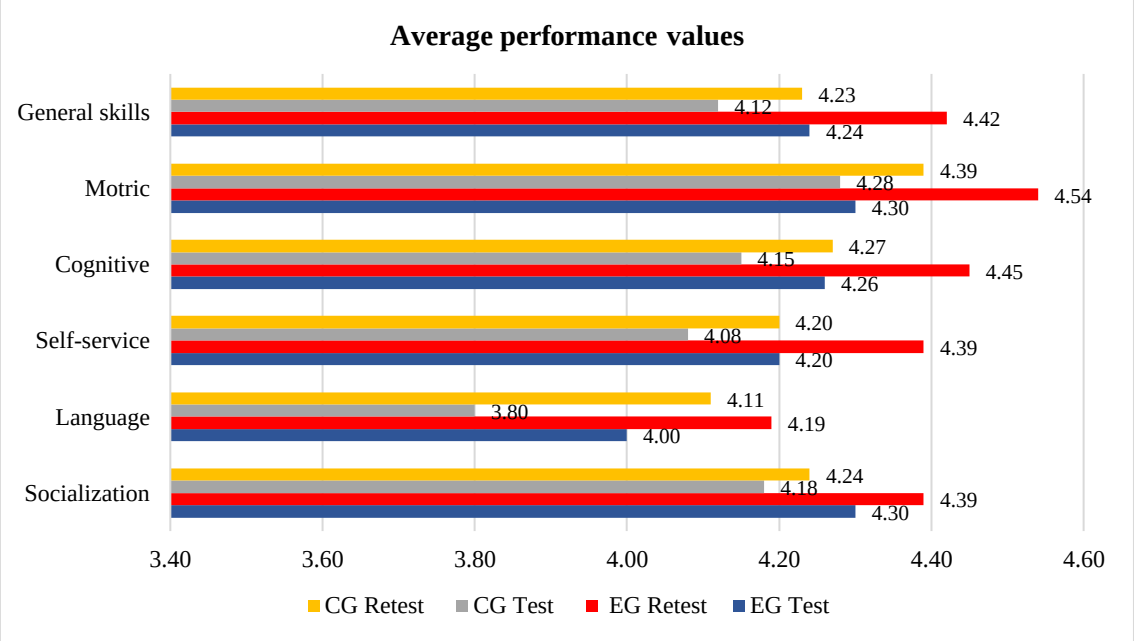

Figure 2. Average performance values, Portage Scale, EG / CG, test-retest

The results obtained in the test-retest, evaluated with the Wilcoxon test, on the 5 areas of development (socialization, language, self-service, cognitive, motor) were significant in both groups. Significant progress was found in EG in: Socialization Area: M1 = 4.30; M2 = 4.39; Z = -3,051; p = 0.002; Language Area: M1 = 4.00; M2 = 4.19; Z = -3,100; p = 0.002; Self-Service Area: M1 = 4.20; M2 = 4.39; Z = -3.276; p = 0.001; Cognitive Area: M1 = 4.26; M2 = 4.45; Z = -3.104; p = 0.002; Motor Area:

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M1 = 4.30; M2 = 4.54; Z = -3.093; p = 0.002. Also, in the CG the progress was significant at: Socialization Area: M1 = 4.18; M2 = 4.24; Z = -2.646; p = 0.008; Language Area: M1 = 3.98; M2 = 4.11; Z = -3,213; p = 0.001; Self-Service Area: M1 = 4.08; M2 = 4.20; Z = -3.066; p = 0.002; Cognitive Area: M1 = 4.15; M2 = 4.27; Z = -3.276; p = 0.001; Motor Area: M1 = 4.28; M2 = 4.39; Z = -2.754; p = 0.006.

Overall, both categories of preschoolers have made significant progress on the Portage Scale, but the level of skills assessed were slightly higher in EG than in CG, the average age of general skills, approaching the 4.5 year level, on retest: EG recorded M1 = 4.24; M2 = 4.42 (Z = -3.213; p = 0.001), and at CG the values were M1 = 4.12; M2 = 4.23 (Z = -3.357; p = 0.001).

Skills acquired by EG subjects, at the Portage scale, after the application of the training program: performs correct orientation movements in the body scheme at the command (bring the left hand to the right eye, the right hand to the left foot, etc.); identifies four to five spatial positions (up, down, front, back, side); distinguish two moments of the day (morning, evening); indicate and name five or six colors, draw a square / rhombus according to the pattern; play skill games (cutouts); associates identical images, recognizes omitted elements from incomplete drawings; sort sticks by length, sort objects by size (three sizes); groups images in relation to four general notions (fruits, birds, vegetables, animals); explains a rather complex necessary relationship (example: „Why do we need books?“), Depending on the case; explains the usefulness of four or five objects (cup, fork, umbrella, boots, table); they understand the opposing analogies (example: „you are a boy, but your sister is“..); counts 8-10 cubes, memorizes details and reports in more detail about three given images; sort and name four or five items in the field of general notions (clothing, furniture, food, toys, etc.); communicate more easily with children and adults, are more receptive and respond more promptly to adult requests; they begin to arrange things themselves; participates in the game with rules in groups of children; they understand and accept the rules of the group more easily.

The application of the U-Mann Whitney test showed insignificant differences at all stages of development investigated using the Portage scale, respectively the areas of Socialization, Language, Self-service, Cognitive, Motor; the values of the U-Mann Whitney test being between 51.00 and 65.00 (and significance thresholds between 0.221 and 0.683).

Although the EG and CG groups remain homogeneous even at the retest stage, there is a decrease in the value of the Mann-Whitney test, the average mean age of general aptitudes, from the test stage (U = 67.50; p = 0.793), to the retest (U = 53.50; p = 0.275), under the influence of the training program (groups being slightly different in retesting, as EG subjects had slightly more advanced skills than CG.

7. Conclusions

In conclusion, however, the results obtained on the Portage scale, at the testing stage there is a delay compared to the level of chronological age, both in terms of developing general skills and the 5 coordinates of development (Socialization, Language, Self-service, Cognitive, Motor), against the background of the presence of mild mental disability. At the retest stage, the Portage Development Scale indicated significant progress in both categories of subjects, slightly higher than the EG group, but the differences were not statistically significant enough between the EG and CG, which suggests that the pace

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of development was not sufficiently accelerated at EG, during the corrective-formative-developmental activities, taking into account the complexity of the aptitude coordinates.

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