



ORIENTATION AND MOBILITY OF VISUALLY IMPAIRED CHILDREN IN RELATION TO THE CATEGORY OF LOW VISION AND TYPE OF VISUAL IMPAIRMENT

ORIJENTACIJA I MOBILITET DJECE OŠTEĆENOG VIDA U ODNOSU NA KATEGORIJU SLABOVIDNOSTI I VRSTU OŠTEĆENJA VIDA

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Original Scientific Article

Received:09/03/2022

Accepted: 27/04/2022

ABSTRACT

The aim of this research was to examine the orientation and mobility of children with visual impairment in relation to the category of low vision and the type of visual impairment. The research included a sample of 35 respondents with visual impairment, aged between 7 and 15 years. The research was conducted in Sarajevo at the Center for Blind and Visually Impaired Children and Youth "Nedžarići". The results of the research showed that in relation to the category of low vision, there were no statistically significant differences between arithmetic means, nor statistically significant correlations between respondents with severe low vision and respondents with moderate low vision. In relation to the type of visual impairment, there were also no statistically significant differences in orientation and mobility between visually impaired children.

Keywords: Orientation and mobility, visually impaired children, low vision.

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SAŽETAK

Cilj ovog istraživanja bio je ispitati orijentaciju i mobilitet kod djece sa oštećenjem vida u odnosu na kategoriju slabovidnosti i vrstu oštećenja vida.

Istraživanjem je bio obuhvaćen uzorak od 35 ispitanika sa oštećenjem vida, starosne dobi između 7 i 15 godina. Istraživanje je provedeno u Sarajevu u Centru za slijepu i slabovidnu djecu i omladinu „Neđarići“. Rezultati istraživanja pokazali su da u odnosu na kategoriju slabovidnosti između ispitanika sa teškom slabovidnosti i ispitanika sa srednje teškom slabovidnosti nije bilo statistički značajnih razlika između aritmetičkih sredina, niti statistički značajnih korelacija. U odnosu na vrstu oštećenja vida takođe nije bilo statistički značajnih razlika u orijentaciji i mobilitetu između djece oštećenog vida.

Ključne riječi: Orijentacija i mobilitet, djeca oštećenog vida, slabovidnost.

INTRODUCTION

Orientation in space is the ability of the organism to react to any change in the surrounding environment, i.e. that it places the analyzers in the best position for analyzing the reception of stimuli and responses to them (Dikić, Žigić, 2010).

In addition to the term orientation and movement, the term mobility is often used, but it does not mean only movement through a certain space or locomotion, but also "mental orientation", i.e. the ability of an individual to recognize the environment and its spatial and temporal relationships. Mobility contains two components: mental orientation and physical loco-motion. Mental orientation is the respondent's ability to recognize his environment in its temporal and spatial relationship to themselves, and locomotion is the respondent's ability to move from one place to another by means of his own organism. Mental orientation and movement are fundamental concepts of mobility, but they do not take place completely separately, but are mutually dependent (Zovko, 1994).

Orientation is getting to know and evaluating, and mobility is mastering the space. Mobility includes all movements and motor skills involved in movement. Placing the foot on the floor, placing the heel of the toes, controlling the body to maintain balance, etc. (Jablan, 2007).

Mobility for visually impaired children has a significant cognitive value because it expands the possibility of gaining direct experience of various objects and phenomena with which they come into contact; mobility expands the space of a blind child and increases the adaptive potential of a visually impaired person (Ražo Alibegović, 2013).

Visually impaired children are ready to walk at the age of one year. However, walking is usually absent during this period, which is attributed to a delay in reaching for objects that serve as auditory stimuli.

Some authors attribute delayed walking to the lack of a mental map in locomotion and overly protective attitudes of parents, to an inadequate social bond between a blind child and parents. A factor of delay in mobility is an insufficiently developed body image and the position of the body in space. A good body image is important for orientation in space because one's own body is often the only safe reference point.

We say that something is in front, behind, to the right or left, up or down precisely in relation to one's own body. In blind people, the vertical position of the body is important for maintaining the correspondence between the body and the environment (Jablan, 2007).

Developmental delays in visually impaired children during the first year of life, which are related to loco-motor development and the development of fine motor skills, are caused by direct and indirect effects of the low vision (Ferrell, 1986; Fraiberg, 1977; Jan, Freeman and Scott, 1977; Leung and Hollins, 1989, Warren, 1984).

Orientation and mobility components include sensory concepts, motor development (total motor skills), environmental and social awareness, formal orientation and mobility skills, safety issues, use of local community resources, use of assistive technology, and efficient movement (Anthony et al, 2002; Griffin-Shirley, Tryst, & Rickard, 2000; Hill, Rosen, Correa, & Langley, 1984).

The main aim of this study was to determine the differences in orientation and mobility in visually impaired children in relation to the category of low vision and the type of visual impairment.

RESEARCH METHODS

Sample of respondents

The research included a sample of 35 respondents with visual impairment, aged between 7 and 15 years. Based on the definition given by the World Health Organization, the respondents from our sample with regard to visual acuity (visus) were classified into 2 categories:

I category – visus respondents 0,01-0,05 (severe low vision)

II category - visus respondents 0,1-0,3 (moderate low vision).

From 16 respondents with severe low vision, 7 were male and 9 were female. From 19 respondents with moderate low vision, 12 of them were male and 7 were female. With regard to the type of visual impairment (diagnosis), visually impaired respondents were divided based on visual apparatus damage into: functional visual impairment and organic visual impairment. Out of 35 respondents, 17 had functional visual impairment, and 18 had organic visual impairment.

Variables

Anamnestic variables:

1. Visual acuity
2. Type of visual impairment

Variables for assessment of orientation and mobility:

1. orientation towards one's own body
2. body posture
3. operating with concepts
4. physical abilities
5. auditory abilities
6. orientation in a building and some of its rooms
7. orientation in the yard

Measuring instrument

Orientation and mobility were assessed using the Blind Mobility Assessment Instrument (Zovko, 1994). The instrument contains 10 areas in which 159 tasks are embedded. For the purposes of this research, 7 areas were used, which refer to:

- orientation towards one's own body
- body posture
- operating with concepts
- physical abilities
- auditory abilities
- orientation in a building and some of its rooms
- orientation in the yard

An analysis of medical records was used to collect data on visual acuity and type of visual impairment. Analysis of pedagogical-psychological documentation was used to collect data on gender, chronological age and intellectual level.

Research conducting method

The research was conducted in Sarajevo at the Center for Blind and Visually Impaired Children and Youth "Nedžarići". All respondents were examined individually in a separate room and in a pleasant environment.

Data processing methods

After the research, the obtained data was processed with the computer statistical program SPSS 16.0 for the Microsoft Windows operating system. Basic statistical parameters were calculated: minimum and maximum results, arithmetic mean and standard deviation.

The t-test was used to determine the significance of the differences, and the Pearson and Spearman coefficients were used to determine the statistical significance of the correlation between the observed variables.

RESULTS AND DISCUSSION

Orientation and mobility of respondents with visual impairment in relation to the low vision category are shown in Table 1. Between respondents with moderate low vision and severe low vision, there were no statistically significant differences between the arithmetic means, nor was a significant correlation achieved. On the variable of auditory ability, it was not possible to determine statistically significant differences of arithmetic means or the correlation of the difference, because all respondents scored the same number of points on that variable.

Table 1. Orientation and mobility of respondents with visual impairment in relation to the category of low vision

Variable	Severe low vision (N=16)		Moderate low vision (N=19)		t	P _{sig}	r _s	P _{sig}
	M	SD	M	SD				
Orientation towards one's own body	125,50	6,87	121,79	11,56	1,13	0,27	-0,21	0,22
Body posture	18,00	0,00	17,89	0,315	1,33	0,19	-0,23	0,19
Operating with concepts	24,00	0,00	22,63	5,50	0,99	0,33	-0,23	0,19
Physical abilities	24,00	0,00	23,89	0,46	0,95	0,36	-0,16	0,37
Auditory abilities	12,00	0,00 ^a	12,00	0,00 ^a	a.	a.	a.	a.
Orientation in a building and some of its rooms	74,50	2,68	74,26	3,05	0,24	0,03	-0,03	0,86
Orientation in the yard	42,50	3,22	42,58	3,11	-0,07	0,94	-0,03	0,87
Orientation and mobility overall	320,50	8,99	315,05	18,37	1,08	0,28	-0,14	0,43

Table 2. shows the results related to determining the existence of correlation and statistically significant differences of arithmetic means in orientation and mobility in respondents with visual impairment in relation to the type of visual impairment.

It can be observed that there were no statistically significant differences and no correlation between the observed variables. On the auditory ability variable, it was not possible to determine statistically significant differences in arithmetic means or correlation, because respondents with both functional and organic visual impairment achieved the same results.

Table 2. Orientation and mobility of respondents with visual impairment in relation to the type of visual impairment

Variable	Functional (N=17)		Organic (N=18)		t	p _{sig}	r _s	p _{sig}
	M	SD	M	SD				
Orientation towards one's own body	122,11	11,79	124,77	7,46	-0,80	0,43	0,15	0,40
Body posture	17,88	0,33	18,00	0,00	-1,50	0,14	0,25	0,14
Operating with concepts	22,47	5,81	24,00	0,00	-1,03	0,27	0,25	0,14
Physical abilities	23,88	0,48	24,00	0,00	0,36	0,31	0,18	0,31
Auditory abilities	12,00	0,00 ^a	12,00	0,00 ^a	a.	a.	a.	a.
Orientation in a building and some of its rooms	74,06	3,17	74,67	2,57	-0,62	0,54	0,09	0,58
Orientation in the yard	42,41	3,26	42,67	3,07	-0,24	0,81	0,08	0,63
Orientation and mobility overall	314,82	19,21	320,11	9,06	-1,05	0,30	0,10	0,55

In relation to the category of low vision, there were no statistically significant differences between the arithmetic means, nor statistically significant correlations between respondents with severe low vision and respondents with moderate low vision. Both groups of respondents have approximately equally developed abilities of orientation and mobility, regardless of the category of low vision. These results indicate that for both respondents, the remaining senses and not the remains of sight are the dominant channels through which they receive information during orientation and movement.

In relation to the type of visual impairment, there were also no statistically significant differences in orientation and mobility. So, regardless of whether it is a functional or organic visual impairment, it did not affect the ability of orientation and mobility of our respondents. Also, there were no statistically significant correlations between orientation and mobility and the type of visual impairment.

CONCLUSIONS

The results of the examination of the ability of orientation and mobility in relation to the category of low vision showed that there was no difference between respondents with moderate and severe low vision. This leads us to the conclusion that the category of low vision has no influence on the ability of orientation and mobility in visually impaired children. Regarding the type of visual impairment, there were also no statistically significant differences or correlation. Therefore, the type of visual impairment does not have a significant impact on the orientation and mobility of visually impaired children.

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