

Investigation of morphological parameters in mentally disabled children

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Abstract

The aim of the paper is to evaluate two morphological parameters in children with and without mental disability, in order to identify possible disturbances. In the research, we started from the following hypothesis: children with mental disability record altered values of height and weight parameters, compared to children without mental disability. We included in the research 35 female subjects aged 15-17, with different degrees of mental disability. Findings have shown that height and weight in children with mental disability have similar values to the parameters of children without mental disability. Thus, all somatic parameters of these subjects may not to be influenced by the degree of mental disability, and this aspect should be studied in a future research.

Key words: *height, weight, Down's syndrome*

Rezumat

Prezenta lucrare are ca scop evaluarea unor parametri morfologici la copiii cu și fără dizabilitate mentală, în vederea identificării eventualelor perturbări ale acestora. În cadrul cercetării, am pornit de la următoarea ipoteză: copiii cu dizabilitate mentală au valori modificate ale indicilor talie și greutate, față de copiii fără dizabilitate mentală. Am inclus în cercetare 35 de subiecți de sex feminin, cu vârste cuprinse între 15-17 ani, cu diferite grade de dizabilitate mentală. Rezultatele obținute în cadrul măsurătorilor arată faptul că talia și greutatea copiilor cu dizabilitate mentală au valori similare cu cele ale copiilor fără dizabilități. Ca urmare, există posibilitatea ca ansamblul parametrilor somatici al acestor categorii de subiecți să nu fie influențat de gradul dizabilității mentale, aspect care ar trebui cercetat într-un studiu ulterior.

Cuvinte cheie: *talie, greutate, Sindrom Down*

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Introduction

The term mental disability designates the significant reduction of mental capabilities, which determines a series of alterations of the individual’s adjusting reactions and mechanisms to the changing conditions of the environment and to social cohabitation standards within a certain cultural area. This disability state makes the individual incapable and inferior compared to the other members of the community. WHO statistics report that mental disability affects 3-4% of children; it comprises various degrees of intensity and manifestation forms (1).

According to scientific literature, several types of mental disability are distinguished: mild, moderate and severe. The category of intellectually disabled children requires special attention from the specialists, considering their heterogeneity. Education intervention through exercising has also been studied and applied, with great outcomes. Within this category, because of particular characteristics, it is worth underlining children with Down’s syndrome, the most frequent organic form of mental retardation. Langdon Down (1866) described the condition as Mongolian idiocy. However, K. Blessing found that 60% of the cases actually range in the categories of imbecility and mental deficiency; hence, only 40% suffer from idiocy (2).

Morphological particularities of the period 14-18 years old

Some authors identify the notion of adolescence with that of puberty. Adolescence comprises the period between the first signs of puberty and the finalization of individual, somatic, organic and mental features (3). After the end of puberty, the child becomes a young person who – from the perspectives of morphofunctional development, exercise capacity and mental characteristics – turns more and more into an adult. Research has found that, around the age 16-17, certain indices of

physical development – such as height, weight and chest circumference – are similar to those of adults, while around 18-19, they almost reach the adult level of morphological features.

In the post-puberty period, somatic development slows down. Post-puberty growth and development is a long process and it can take 6-8 years or more, if we consider the criterion of stature.

Taking into account the chronological age, the post-puberty growth and development period extends to 20-22 years old in females and 23-35 years old in males (3, 4).

Purpose and hypothesis

Considering the scarcity of data in scientific literature on the growth and development of disabled children, this paper evaluates the phenotypization of morphological parameters in children with and without mental disability, in order to pinpoint possible perturbations of these parameters.

Our investigation started from the following hypothesis: mentally disabled children have different indices for height and weight, compared to children without mental disability.

Material and method

Our investigation comprised 35 female subjects, aged between 15 and 17, with different degrees of mental disability. (Table I)

The tests were applied in the kinesiotherapy practices of the “Sf. Andrei” School in Gura Humorului, of the “Laurenția Ulici” Foster Care Centre in Gura Humorului and of the “Constantin Păunescu” School Iași. At the “G. Ibrăileanu” High-school in Iași, we used the gymnasium. For assessing the height, we used a stadiometer, while for weight, we used a digital scale.

We have processed the data statistically in SPSS 13 for Windows.

Table I. Repartition of subjects by education establishment

No. crt.	Education establishment	No. of subjects	Case observation
1.	“G. Ibrăileanu” High-school, Iași	10	Without disability
2.	“Sf. Andrei” School, Gura Humorului	10	Mild mental disability
3.	“Laurenția Ulici” Foster Care Centre, Gura Humorului	10	Severe mental disability
4.	“Constantin Păunescu” School, Iași	5	Down’s Syndrome

Findings and discussions

After calculation the height means (Table II), we have found that the group of children without mental disability and the group of children with severe mental disability have very similar values: 154.5 cm and 154.7 cm. The most significant difference was found between the group of children without mental disability (154.5 cm) and the group of children with mild mental disability (147.7 cm): 6.8 cm. We have also found similar values between the group of children with mild mental disability (147.7 cm) and the group of children with Down’s syndrome (148.6).

The value of the variation coefficient (Table II) outlines that all four groups are homogenous. The most homogenous one was the group of children without mental disability (VC = 3.1%), while the highest variation coefficient was found in the group of children with Down’s syndrome: 12.82%. After calculating the t test and the values of significance threshold for height ($p > 0.05$) (according to Table 2), we point out that there were no statistically significant differences between the four groups.

Table II. Height characteristics in children without disabilities and in disabled children

Group	N	M	M%	SE _{ave}	VC%	t	p
Group 1	10	154.5	100%	1.51	3.1	1.662	0.114
Group 2	10	147.7	95.59%	3.76	8.06		
Group 1	10	154.5	100%	1.51	3.1	0.051	0.96
Group 3	10	154.7	100.12	3.62	7.41		
Group 1	10	154.5	100%	1.51	3.1	0.682	0.531
Group 4	5	148.6	96.18%	8.51	12.82		
Group 2	10	147.7	95.59%	3.76	8.06	1.329	0.2
Group 3	10	154.7	100.12%	3.62	7.41		
Group 2	10	147.7	95.59%	3.76	8.06	0.107	0.916
Group 4	5	148.6	96.18%	8.51	12.82		
Group 3	10	154.7	100.12%	3.62	7.41	0.659	0.537
Group 4	5	148.6	96.18%	8.51	12.82		

Legend: N – number of subjects; M – arithmetic mean; M% – percentage mean; SE_{ave} – standard error for the average; VC% – variation coefficient; t – student test; p – significance threshold.

Table III. Weight characteristics in children without disability and in disabled children

Group	N	M	M%	SE _{ave}	VC%	t	p
Group 1	10	43.73	100%	1.91	13.85	0.027	0.979
Group 2	10	43.76	100.92%	2.79	21.45		
Group 1	10	43.73	100%	1.91	13.85	1.468	0.159
Group 3	10	49.42	113.01%	3.36	21.56		
Group 1	10	43.73	100%	1.91	13.85	0.981	0.38
Group 4	5	56.02	128.10%	12.37	49.41		
Group 2	10	43.76	100.92%	2.79	21.45	1.278	0.217
Group 3	10	49.42	113.01%	3.36	21.56		
Group 2	10	43.76	100.92%	2.79	21.45	0.961	0.386
Group 4	5	56.02	128.10%	12.37	49.41		
Group 3	10	49.42	113.01%	3.36	21.56	0.514	0.631
Group 4	5	56.02	128.10%	12.37	49.41		

After analyzing Table III, which outlines the weight values, it becomes apparent that groups 1 and 2 have very similar values: 43.73 kg for the group of children without mental disability and 43.76 kg for

the group of children with mild mental disability. The most significant difference was found between the group of children without mental disability (43.73 kg) and the group of children with Down’s Syndrome

(56.02 kg): 12.29 kg. However, it must be stated that the difference is not statistically significant.

After assessing the variation coefficient in Table III, we have concluded that group 1 is the most homogenous one: VC of 13.85%. Groups 2 and 3 are relatively homogenous, with very similar values of the variation coefficient: 21.45 for group 2 and 21.56 for group 3. Group 4 is heterogeneous from this perspective: the variation coefficient was 49.41.

After calculating the t test and the values of significance threshold for weight ($p > 0.05$), we mention that there were no statistically significant differences between the four groups.

The results of measurements show that the height and weight of mentally disabled children are similar to those of children with disability, according to Ifrim (5).

Conclusions

This investigation suggests that both the height and weight of children with various disability degrees are not different from those of children without mental disability.

Therefore, our research hypothesis did not confirm. Though the investigation concerned only height and weight, we suggest that the entire set of somatic parameters of these subjects may not be influenced by the degree of mental disability. It is our opinion that this aspect should make the object of a future investigation.

References

1. Cozma T., Gherguț A. (2000) *Introducere în problematica educației integrate*, Iași, Spiru Haret, p. 28-33;
2. Păunescu C. (1976) *Deficiența mentală și procesul învățării*, Editura Didactică și Pedagogică, Bucharest, p. 65;
3. Ionescu A. N., Maziliu V. (1968) *Creșterea normală și dezvoltarea armonioasă a corpului*, CNEFS, Bucharest, p. 34;
4. Albu C., Albu A. (1999) *Psihomotivitatea*, Spiru Haret, Iași, p. 121;
5. Ifrim M. (1986) *Antropologie motrică*, Editura Științifică și Enciclopedică, Bucharest, p. 149.