

SOME ASPECTS OF THE HUMAN BIOLOGICAL STUDIES IN DISABLEDS

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Abstract: The differences among the bio-medical, psychological and pedagogical views of the mental disability are analyzed. From the biological or medical point of view, the main problem is the syndromes, like metabolic disorders or chromosomal anomalies. The "mental retardation" is verified among the features. The severity of mental disability is a psychological diagnosis which is completed sometimes by the structure of intelligence or the features of personality, according to the results of intelligence and personality tests.

Special educators focus on the mental disability. The severity and the aetiological background are taken into consideration as factors determining the strategy of education. In this view, the mental disability is not a disease, but a stage which is irreversible and can not be cured according to our present knowledges.

The anthropological research of the disabled has a special biological interest: in this way, the influences of the different aetiological background on the growth and psychique are known. On the other hand, this kind of research is important also for the disabled persons. Having grown up, most of them can make physical work and very important question if they are able to do it. The strategy of their physical education is based on this kind of research.

Summarising the above mentioned theoretical background, the current studies of this field will be reported.

Key words: Disabled; Symptoms; Syndromes.

There are many different views of the disabilities and disabled people in the society. The view of the non-professionals is not the topic of the present paper: the beliefs and intolerant attitudes could be an issue of another dissertation. The view of the professionals is diverse, too, according to their field. While the different views can often make it difficult to understand each other which is then always at the expense of the disabled people, the author would like to try to highlight these differences.

In focus of the human biological view there is the syndrom, the origin of it, the pathological mechanism of the induction of the symptoms, the epidemical aspects, etc. The medical view is supplemented by therapic relations, in addition to the above mentioned ones. While the illness can be seldom cured or treated, medical help usually aims to allay the symptoms only. Another important part of their interest is the aetiology of the syndroms in question. Mental disability is mentioned among these symptoms, without regard to its severity, usually just as "retardatio mentalis". As an example, the symptoms of Down syndrome in a medical school-book are on the *table 1*. This means mental retardation from the biological point of view is just one of the symptoms, not necessarily the most important.

In focus of the psychological interest there is the impaired personality. One of its important features is the intelligence, which is described by a number of well proved intelligence tests. This way mental disability is classified according to the severity as it is demonstrated in *table 2*. The result of the most current tests is not only a quotient, but is also shows the structure of abilities. The latter is of great importance, e.g. in the employment rehabilitation of mentally disabled adults. The intelligence tests can be completed by the examination of social abilities and other features of the personality.

Special educators focus on the symptoms of mental disability, because its severity determines the possibilities of teaching, development and education. These features, obviously together with the results of the medical and psychological examinations, play an important role in those significant decisions, which in many cases determine the whole life of a handicapped person, such as selection or employment.

Table 1. The symptoms of Down syndrome

Obligatory symptoms	Facultative symptoms
Mental deficiency	Brachcephaly
Oblique eyehole	Epicantus
Microcephaly	Plicata
Muscle hypotony	Gotic palate
Disproportioned physique	Hoarse and low voice
	Clinodactyly
	Wide distance of toes
	Rectus diastasis
	Arthrochalasis
	Pastosus skin
	Acromicry
	Simian line

Table 2. The severity of mental retardation

Hungarian practic	IQ	International practic	IQ
Debilitas	0.70 — 0.50	Severe	0.70 — 0.50
Imbecillitas	0.50 — 0.20	Mild	0.49 — 0.35
		Moron	0.34 — 0.20
Idiotia	0.20 —	Profound	0.20 —

Therefore the view of the pathology of the handicapped is essentially different from the common biological and medical view. The starting point is not the syndrome, but the symptom, to which those syndroms arte matched which can cause the symptoms in question. The approach of the aetiology of the handicapped considers the age when the child was injured (*Table 3*). The question is: which syndromes can result in those severe mental or physical disabilities, hearing or visual impairment, where the special educational promotion is needed. The aetiological background, as well as the severity of the disability, influences the strategy of education. For example the stagnant or progressive state of a symptom determines the use of residual functions in the education.

Table 3. The aetiology of mental retardation

1. Gametopathia
1.1. Monogen damages
1.2. Chromosomal disorders
1.2.1. Autosomal disorders
1.2.2. Gonosomal
2. Chiemopathia
2.1. Zygopathia
2.2. Embryopathia
2.3. Fetopathia
3. Perinatal damages
4. Postnatal damages

It is worthy to mention, that a change of the pathological cases has happened in the last decades. In the 1940s, the serious traumas or syphilis were frequent as aetiological background of severe mental disability. From the beginning of the 1950s these disappeared, but meningitis and encephalitis showed up. This was the time, when it became possible to cure encephalitis caused by microbes, but after recovering from the illness, modest mental retardation often remained. Nowadays the biggest problem is dismaturity. The injury happens earlier and therefore the impair-

ment is more serious. In the previous decades multiple handicaps were exceptional cases, nowadays it is more and more frequent.

Human biological studies of the disabled select the examined group usually on the basis of the same type of handicap as common feature and often do not even consider the severity of the disability. This is due to the pressure of circumstances. In most cases one can not find out the aetiological background from the available documents. Aetiological classification can not be substituted by a selection according to the severity, however, it is worth separating children with mild retardation from those with modest retardation. The latter are pathological cases and early, consequently severe impairments occur much more frequently among them.

Under the pressure of necessity this was also our method in our longitudinal examination of growth, which we have already been doing for twenty years among mentally disabled boys. Therefore we separated the group of children with mild and modest retardation. It makes the situation more difficult, that in this institute the more severe forms of mild retardation are more frequent. Therefore it seemed worthwhile to distinguish the genetic injuries from the damages after conception. The previous group consists of children with Down syndrome and some with aminoaciduria, unfortunately not diagnosed in details. A methodological problem is that there are only few children in this group and for a longitudinal growth-examination it will probably be good enough only a small sample of children with Down syndrome.

This work was completed by examinations of physical fitness. Such examinations have not been made in Hungary yet and only very few documented data can be found. The methodology of the question is not worked out either. There were some similar examinations made among mentally disabled adults who took part in intensive sport activities, but most of the applied methods can not be used among children. The procedures standardized for non-handicapped children can not be adapted either, because the tasks are too difficult for them to understand. The importance of this examination is reinforced by the fact, that most of these people will do physical work in their adulthood, except for a smaller group of the visually handicapped and the physically disabled. An essential element of the quality of life is occupation, even in the cases of people with modest retardation. Build and physical fitness are fundamental questions of success at work.

It is an especially interesting question for human biologists dealing with growth, how the different syndromes effect growth and body build. The main problem of studying this question is that one can collect find a sample, big enough for a statistical analysis, only from very few syndromes. It is important that the description of the rare syndromes should contain some often neglected parts, such as measures body measures or dermatoglyphics, even without detailed comments. Then collecting these data we could get closer to understand the question, however, probably only the next generation will benefit from it. Another lack is, that while data about the growth of the mentally disabled are available, none have been collected among visually and hearing impaired and physically disabled people. It is a pity, because a number of important results are to be expected in this field, especially on build.

Most people are familiar with the problems of examinations before school age, when mental retardation and mental deficiency has to be diagnosed and differentiated. These are the children with their IQ between 70 and 90, and the result of the intelligence test can not be used alone to make the final decision. This examination is crucial, because it

will determine, which type of school the child will start to attend. Earlier the usual practice was, that the child went to a special class, where the number of the class was smaller and the teacher was an experienced one or a special educator. If the development of the retarded child could continue studying in the ordinary school. If the development of the child did not begin and it seemed a real mental deficiency, the child got to a special school. Nowadays, because of financial difficulties, the decision often is that the child should start school a year later which, without intensive developmental work, can not solve the problem. The retardation of the mental development can not be corrected later and it is to be feared that the retardation will endure.

Our opinion was, that we have to involve the assessment of the biological age in the solution of the problem. This is possible through the assessment of the skeletal and dental age, both can be defined with large certainty. In this case we have three estimations of the actual maturity: (1) age (chronological age); (2) psychical age (intelligence age, drawing age, sociawl age); (3) biological age (bone age, dental age, measures of the body).

It is also to be mentioned, that there is a rarely used but effective confirmation of the assessed biological age: the relation between the body measures of the child in question with the respective measures of a non-handicapped child of the similar age, backwardness or its advancement.

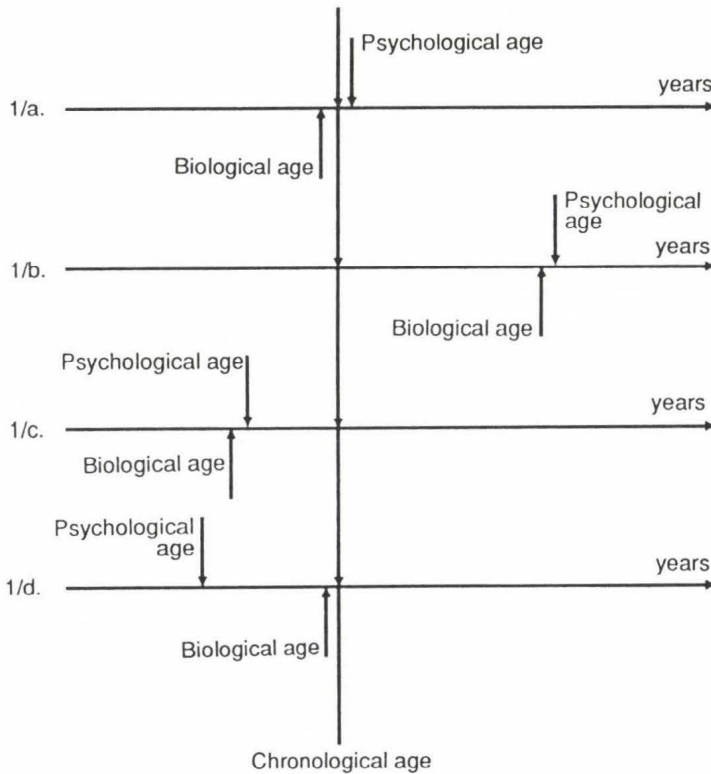


Fig. 1: Association among the chronological, psychological and biological ages

These three parameters correlate with each other but they are by far not the same.

– Several times the three figures are practically the same (*Fig. 1/a*). In the rest of the cases special treatment is needed.

– Another good case is, and therefore we do not deal with it, when the child can be psychically more developed, than the chronological or the biological age (*Fig. 1/b*).

– If both the psychical and the biological age are behind the chronological age, then it is considered as a developmental delay (*Fig. 1/c*).

If this child gets into an environment which is advantageous for his development, it is very much possible, that the child will soon reach the level of his age. However, this does not happen automatically, only with the help of such a special environment.

– Finally in the worst case, the biological age is the same as the chronological age or might be even higher, but the psychical age is considerably retarded (*Fig. 1/d*). These cases are regarded as mentally disabled. Since this means a discrepancy of the development, which is abnormal and there is little chance to spontaneous improvement.

The number of children with special needs is growing. These are not only the handicapped, but also children with learning difficulties, dyslexia, dysgraphia and dyscalculia. These deficiencies of partial abilities often turn out when the school age examinations are made or in the first class. The main reason of these symptoms were earlier considered as the injury of the territory of the three lobes (a part of the brain behind the fossa lateralis) or MCD (minimal cerebral dysfunction). It has been recently recognized, that the pollution, primarily the heavy metals can also be among the reasons. A current investigation reported, that in the blood of children living close to main roads with heavy traffic 15 microgramm pro 100 ml lead was found, instead of the recommended 0 microgramm pro 100 ml. The clinical symptoms of the pollution can not be proved, because the amount is not enough for that. But the heavy metals distract the biochemistry of the neurotic cells and while the enzymes for its treatment are missing, they can not evacuate from the organism. The majority of these children living in that area are the so-called children at multiple disadvantages and most of them attend the special school. Not or not primarily because of their intelligence, but because there is no other school for children who are not good enough to follow the speed required in the primary schools, and this is also the case of the ones with partial disabilities.

We have to note, that the success of the work among disabled, and especially mentally disabled people is seldom commensurate with the efforts. It is very important, that special educators get informed about human biological studies as quickly as possible. In this way the results of the research can be built into the educational and teaching concepts, and would help special educators to ease the state of the disabled. This is a biological fact, which we are so dreadfully powerless to fight against.

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