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The etiology and psychomotor characteristics of intellectual disability

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Abstract:

Disability is a broad concept, used not only in the medical world, but permeates many spheres of life. One type of disability is intellectual disability defined as a developmental condition characterized by reduced cognitive functions, including learning abilities, adaptability and skills with a variety of etiologies. People with intellectual disabilities also have sensory-motor disturbances. Depending on the degree of disability, these disorders may be manifested to a lesser or greater extent.

Keywords: Intellectual disability; ID; etiology; psychomotor

Intellectual disability – definition and degrees

The definition of intellectual disability has come a long way in terminology. Its earlier concepts have left in language terms that, even though they are now outdated, are still commonly used, not only in colloquial but also in scientific expressions. These include terms such as mental retardation, disability, handicap, oligophrenia, and mental retardation [1]. Until recently, the name "mental handicap" was commonly used, both in the medical,

pedagogical and psychological environment, in the classifications describing mental disorders: DSM-IV (American Psychiatric Association), 10th edition of AAIDD or in the still valid ICD-10 (World Health Organization) the name was mental retardation (MR). In recent years, however, the professional community has increasingly used the term "intellectual disability" (ID) this is the result of numerous votes from people with disabilities themselves or social organizations that work with such people on a daily basis. The term was also introduced by the American Association on Intellectual and Developmental Disabilities (AAIDD) in the latest edition of the manual describing the definition and classification of intellectual disability. AAIDD defines intellectual disability as "a limitation in intellectual functioning and adaptive behaviors that express themselves in conceptual, social and practical adaptation skills and reveal themselves before the age of 18" [2, 3]. In Poland this term has not yet been adopted in all environments (it is used most rapidly in pedagogical sciences, the slowest in medical science), however, it is important to disseminate it because it corresponds to a more dynamic model of disability, pays more attention to the relationship between the individual and the environment, is consistent with international nomenclature and less stigmatizing people with disabilities [2]. It is worth mentioning straight away the significant difference between the term "disabled person" and "person with disabilities". The former is used more often, not only in everyday language, but also by specialists - however, the proper term is "person with disabilities" because it indicates the individuality of this person, does not close him/her in one dimension of illness or dysfunction, but indicates that it is only one of the characteristics of this person - thus it is less stigmatizing. It is therefore important to promote and use the correct disability-related nomenclature, so that it becomes widely used among as many people as possible [4].

In the latest, still emerging, classification of diseases - ICD-11, WHO proposes the term "intellectual developmental disorders (IDDs)" and defines them as developmental conditions that are characterized by a reduction in cognitive functions, including learning, adaptability and skills, based on a variety of etiologies [5, 6].

Both the DSM-V and the ICD-11 define four degrees of intellectual disability: mild, moderate, severe and profound (the ICD-11 also proposes other and undefined categories for cases difficult to diagnose) [3, 5, 6]. The assessment of the level of disability is based on the examination of intelligence and adaptive functions with standardized, culturally adjusted tests. In the past, a key role was played by the result in the intelligence quotient (IQ) test, but nowadays a comprehensive analysis of functioning in everyday life and society is used, as it indicates the level of support needed, and IQ measurements are less reliable in lower ranges

[3]. In Poland the Wechsler Intelligence Scale (WAIS-R) is usually used to assess intelligence [2].

Table 1. Classification of intellectual disabilities. Own work based on Kijak (2013). [1]

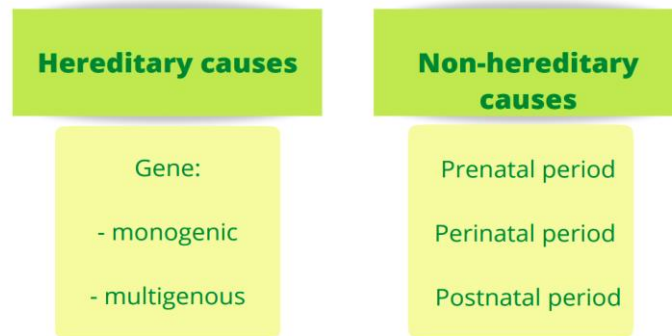
| DEGREES OF INTELLECTUAL DISABILITY | ICD-10 | DSM-IV I V |
|-------------------------------------------|-------------------|-------------------|
| MILD | II level 50-69 | IQ level 50-70 |
| MODERATE | II level 35-49 | IQ level 35-55 |
| SERVERE | II level 20-34 | IQ level 20-40 |
| DEEP | II level under 20 | IQ level 20-25 |

Etiology of intellectual disability

The etiology of intellectual disability is very varied. The causes can be genetic as well as environmental, endogenous or exogenous, arising in the prenatal, perinatal or postnatal period.

Intellectual disability can be divided into: hereditary (including gene- monogenic and multigenous and chromosomal) and non-hereditary (related to the prenatal, perinatal and postnatal period). Monogenic disorders include diseases inherited in an autosomal dominant way (e.g. nodular sclerosis), autosomal recessive (e.g. phenylketonuria) and linked to chromosome X (e.g. Lowe syndrome). Chromosome disorders are with chromosome aberrations, both autosomal and sexual. These include Down's syndrome, caused by trisomy of the 21st chromosome, which is the most common syndrome among the deeper disabilities. The hereditary causes are related to different periods of development. In the prenatal period, the causes of disability may include diseases and infections that the mother suffered during pregnancy - e.g. rubella, toxoplasmosis, but also malnutrition, chemical agents (stimulants, drugs, mercury poisoning), physical factors (e.g. ionizing radiation, X-rays), immunological factors (e.g. serological conflict). In the perinatal and postnatal period, injuries or infections may occur, which may cause intellectual disabilities (such as hypoxia or meningitis) [1, 7, 8].

Figure 1. Causes of intellectual disabilities. Own study based on Kijak (2013) [1]



In a mild degree of disability, one known cause of disability can be identified less frequently and neurological symptoms or

organic brain damage can be found. It is also often correlated with environmental conditions. There is a thesis about the correlation between the "poor" environment in which the child is raised and the development of intellectual disabilities. It speaks of the important role of support and appropriate stimulation from an early age and of the cultural disability resulting from the lack of such support [7].

In deeper disabilities, a specific cause can be identified much more often and more often the disability is related to organic brain damage or genetic factors (8-15% of deeper disabilities are caused by monogenic mutations, 30-35% by chromosome aberrations). The correlation between parental disability and environmental impact is rather random [1, 7].

Psychomotor characteristics of people with intellectual disability

It is worth remembering that people with ID are characterized, as well as people without disabilities, by their diverse and individual development, and their different rates of development determine other limitations in their functioning. Typically, moderate and severe intellectual disabilities are described together as "more profound", so this will be described below [1].

In the sphere of intellectual development, people with ID may have problems with concentration, attention, memory, and have limited ability to think abstractly, draw conclusions and causal relationships. On the other hand, emotions are felt in almost the same way as in non-disabled people (also higher emotions such as love, compassion), only different ways of understanding their states may appear. In the sphere of communication, people with NI use verbal speech to a slight degree, although it can be delayed and disturbed. They speak in an understandable way, but have difficulty with complex sentences, their vocabulary may be impoverished. They most often use nouns and verbs, less often adjectives. In social functioning, they achieve considerable autonomy and need only a little help with more complicated activities, such as financial management [1, 7].

People with profound intellectual disabilities usually remain at the preoperative cognitive stage - they do not achieve the ability to think abstractly and logically. They have problems with focusing on longer time and memory. The ability to write and read is often a learned ability, so if not practiced after education, it may expire over time. Thinking is concrete and pictorial, and there are difficulties in solving problems or creating definitions, concepts (and understanding them). Emotions are developed in the same way as those of people with a mild degree of disability. Sometimes the so called pseudo-resistance (resulting from reduced muscle tension, inability to quickly move from a state of stillness to activity) may appear in them. The influence of emotions on readiness to act was also observed (emotions perceived as negative make it difficult and positive ones facilitate it). The sphere of communication is limited, especially in verbal speech. The equivalent of sentences prevail in the speech, usually accompanied by non-verbal messages, which facilitate communication. There is also a phenomenon of camouflage, i.e. hiding one's true thoughts or emotions and replacing them with behaviors such as avoiding sight and turning away, changing voice tone, stereotypical movements. This is due to the fact that these people often cannot express everything they want to communicate in words. They show very different adaptations in social life. Most can cope with everyday activities, but social roles and interactions with the outside world are already more diverse and often depend on upbringing [1, 7].

People with profound disabilities usually require constant care, have difficulties in performing simple self-service activities and are usually unable to concentrate. They show great attachment to their caregivers and also experience emotions. They communicate mainly in a non-verbal way - with gestures and inarticulate sounds. Understanding of speech can also be limited [1].

Conclusions:

As presented above, intellectual disability is a broad concept. The etiology of intellectual disability is very diverse. It is important to have an individual approach to people struggling with ID, which takes into account their individual psychomotor problems and allows to adjust the appropriate holistic therapy.

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