

## SECTION: MEDICAL PSYCHOLOGY

## РОЗДІЛ: МЕДИЧНА ПСИХОЛОГІЯ

УДК 159.97:159.98

DOI: 10.26565/2410-1249-2019-12-05

## NEURODEVELOPMENTAL DISORDER

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The article is devoted to the consideration of the approach to define a neurodevelopment disorders, intellectual, neuromotor and autism spectrum disabilities, but also of that wide border area that falls within the current definition of Special Educational Needs (SEDs). The analysis is done via a comparison between neuropsychiatric and pedagogical perspectives of these disorders, focusing on two complementarity disciplines, which can enrich each other by making contact with the tensions of their respective fields, in a broader vision that can include together therapy, care and education.

**KEYWORDS:** Intellectual disabilities, Development disorders, Therapy, Autonomy, Socialisation, Education.

**1. What is intellectual disability?**

Intellectual disability is linked to ego function called "intelligence". It is a vast field of observation and investigation with many areas still obscure. Many scholars hypothesize the typical personalities existence of subjects affected by certain syndromes whose central pivot is intellectual disability and whose cause, as well as organic symptoms, are known. In reality, since personality is a complex entity, which includes the interweaving of constitutional elements with other environmental elements, to speak of "typical personality" would be a conceptual error. Every subject, without pathologies or affected by some pathology, is still an individual to himself, unrepeatable and irreplaceable, distinct in his uniqueness from any other person even when he shares some common belonging (Hales, 2015). Life context in which he grows up, his social contexts in general, the age in which he was born, the culture of origin and the educational paths prepared or not for him, play a fundamental role even if his pathology is not susceptible to healing. All these variables, in fact, contribute to make better or worse prognosis, quality of life and relational dynamics that concern him. Pedagogy central role of is to find traits of difference and specificity that make it possible to structure an individualized work plan, respectful of the history

and peculiarities of each subject. It is a question of clarifying the possible limits of highlighting person by potential in modifiable contexts.

These are some specific strengths or weaknesses related to faculties and functions of the Ego, but they should be compared with subject qualities that contradict them or in any case deviate from them. In this way it is possible to avoid deterministic visions of the damage; putting into dialogue what concerns pathology natural history of a with potentialities and elements of positive development proper to a subject or derived from his environment of life. Reasoning people in terms of types, creating stereotypes and resorting to simplification, is always very reassuring, but wrong. This applies to people without particular problems, as well as those with various forms of disability (Dovigo, 2014).

The subjects in evolutionary age with intellectual disabilities are characterized by two types of closely interrelated problems: adaptive ones and affective ones. Although the pivot around which everything revolves is fragility and intelligence malfunctioning, even personality is affected and may present a series of symptoms and problems related to different areas. For example, attention disturbances, stereotypes and perseverations may occur. Verbal language can reveal delays and compromises in both understanding and production and, if intellectual

disability is very serious, may be absent or confusing with manifestations of echolalia. Regressive, anxious and aggressive or self-destructive behaviour may also be present (Galanti M.A. e Sales B., 2012a). You must possess that fundamental ability, which consists in accepting the broken and inelaborated child's feelings of the and in giving them back to him, endowed with a sense, transformed into emotions, feelings and then into thoughts (Canevaro, 2006).

"Evolutionary intellectual disabilities" expression was introduced with the DSM - 5, published in 2013. The plural indicates that this is a large number of different syndromes, not only for severity of disability in a quantitative sense, but for greater weaknesses in certain areas of behavior than others and for strengths. "evolutionary" term, on other hand, indicates that these are pathologies are detected very early, usually in first year of age and also serves to distinguish them from those acquired in later years. This expression replaces the previous one, "Mental retardation", which in turn had replaced "Mental insufficiency" expression.

Intellectual disabilities are currently proposed as a set of disorders that include, both those problems strictly related to intellectual functioning, and those adaptive to conceptual or social dimension (APA, 1992). Reference is made to IQ, which measures a person's intellectual capacity in relation to his peers, obtained by evaluating and measuring the quantitative aspects of formal intelligence on a statistically based threshold at a level lower than 70/75 per 100, and to the subject's adaptive capacity which manifests itself in various areas (reasoning, problem solving, school performance, ability to learn from life experiences, judgement), in relation to the standard levels of age and taking into account the socio-cultural environment. This parameter is evaluated through clinical observation and not only through standardised tests.

WISC-IV, is an intelligence test used since 2005 which takes into account intelligence evolution studies, its complex multiformity and its being related to personality and environment. It is based on four indexes that are set of multiple skills: verbal comprehension, perceptual reasoning, working memory and processing speed. Abilities that determine intensity degree and subject quality of environment adaptations. WISC-IV test allows greater attention to intelligence characteristics that

have been neglected until now, such as fluidity of thought, processing speed and working memory. It is a more sensitive revision in considering overall functioning of subject cognitive dimension, neuropsychological components of his possible difficulties and his possible learning disorders, also allowing to program a more individualized educational plan (Wechsler, 2012).

Intellectual disabilities are similar to those enucleated in previous manual: DSM-IV. Four levels are distinguished: mild, moderate, severe and extreme. Mild intellectual disability sees compromised abstract thinking, communication and language, which are more hindered by standard of age concrete with respect, while the way of being is characterized by suggestion and tendency to be manipulated. These subjects can reach a certain degree of autonomy and support may be necessary especially in daily management of house or money. In middle grade there is a very slow and limited development of learning, generally linked to elementary or basic levels. If there is a relational capacity, there is a need for support in decisions and in daily life management. Severe degree compromises the understanding of written language and spoken understanding language is limited. Verbal production is limited to single words or minimum sentences and support needed in daily activities is very significant.

Deep degree of intellectual disability involves difficulties in using objects in a functional way, very limited understanding and use mainly of non-verbal forms of communication of a non-symbolic character. There is a very high level of dependence on others to manage oneself and one's life.

One does not get out of intellectual disability condition determined by a necessarily organic cause, but one can improve the quality of one's own life and that of the people around one's home, while performance and skills in every area of experience can be increased by establishing a sort of threshold beyond which it's not possible to proceed. It is important to make subjects aware of the differences in results in terms of speed and learning fatigue compared to their peers, therefore, it is useful to be able to establish a dialogue with subject not denying difficulties in a paternalistic or inauthentic way, but focusing attention on improving possibility their performance and quality of life, without setting themselves as an unattainable goal and abstract models of normality (Galanti, Sales, 2012b). Every

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knowledge is always in dialogue with other knowledge and with environment and contexts in which it originates. Knowledge is not given by the summation or accumulation of knowledge in mind, but by ability to connect them by analysing harmonies and divergences of points of view with peers, who assume a central role in the comparison and identification of the subject with disabilities, while respecting the phases of its evolutionary development (Morin, 1990). It is fundamental to create affective bonds of respect with people around disabled person, in order to make possible, as much as possible, understanding of the world and its functioning. A subject with intellectual disability, in fact, is very fragile from the point of view of identity and for this reason suggestible both in positive and in negative.

It's fundamental to start from ourselves knowledge to be able to decentralize and put ourselves from the point of view of others learning to listen and know empathically, therefore, helping the subject with disabilities to know through the many and varied activities, such as music, sport, leisure activities, making sure to process the emotions (even negative) that may arise because of the difficulties on subject part, and giving them meaning, turning them into creative resources or stimuli to improve, realizing their limits and accepting them (Mortari, 2017). We have to get away from the idea that formal intelligence is the noblest and highest of all and, consequently, that which should be encouraged, even in case of disability. Instead, it is necessary to consider the possibility of stimulating some learning, rather than others, starting from the interests of the subject. Metacognitive skills must be created to allow the evolving intelligence to unfold to its full potential. Specific strategies must be used to solve the task, selecting the most suitable ones in relation to objectives that supervise it, to distinguish different mental and cognitive experiences, to understand the modes of activation of thought and encouragement and to regulate gratifications and frustrations. In disabilities subject metacognitive competences are reduced and at the same time important because they are necessary substratum to nourish and increase intelligence. In children without particular learning difficulties this substratum develops almost spontaneously through play and without particular solicitations from adults. People with intellectual disabilities, however, have a mental rigidity, a

tendency to repeat known strategies and an inability or reduced ability to transfer knowledge and skills from one area of experience to another. A well-established path of observation and planning in field of intellectual disability must also consider the stimulus of attention and memory, because there are many possible interferences, all more significant, more fragile the subject is due to stress, fatigue or emotional tension. Attention tends, physiologically, even in normal individuals, to decline progressively with the continuation of an activity. Countermeasures must therefore be put in place (Galanti, Sales, 2012c).

## **2. *Motor development disorders***

Infant motor functions of are already "tested" inside uterus, giving child the opportunity to gradually experiment with adaptation to new extrauterine environment. Today, newborn study uses General Movements (GM) method, developed by Prechtl. Movements are global, complex, variable and fluid; in order to properly observe environment must be properly heated, properly lit, rather silent and without external interference; it is also necessary to have specific training to be able to use the method appropriately. In normal newborn, until first months of postnatal life, GMs have variable duration and seem to cross the different contiguous body segments as in successive waves, with variable sequences; they are characterized by continuous variations in direction, force, amplitude and speed, with a characteristic pattern in "crescendo-decrescendo" (crescendo-decendo). These elements give newborn movement healthy quality of complexity, variability, elegance and fluidity, which are lost in newborn bearer of neurological damage (Einspieler, 2005). Infant motor skills can be considered as uterine fetal continuation motor skills in a new environment, dominated by gravity and emptiness, therefore, newborn's study of the spontaneous motor skills and the observation of how infant reacts to gravity sensation and emptiness, allow physician to assess the integrity or otherwise of central nervous system structures and to formulate a prognosis with respect to functions. Risk signs have a direct relationship with perceptual disorder, that is, with newborn difficulty to cope with environmental disturbances, consisting of temperature, light, noise. All these signs must be evaluated not only on the basis of their presence or not, but also in relation to their modifiability in time and space.

Newborn baby shows a sort of sketch of personality, that is, a series of individual behaviour patterns related to what we call temperament. Some children in developmental stages seem to anticipate the prescribed times, others seem to follow to letter an ideal development, still others tend to take it rather comfortable. The factors that condition a development different from norm, may be, presence of conditions of prematurity (birth before the end) or dismaturity (low birth weight), the so-called ligament hyperliness (joint structures appear more articular than normal), poor stimulation by family environment and, finally, reduced interest of child environment (Cioni, 2018). Another cause can be a brain lesion that involves fundamental nodes loss of concerning the functional subsystems, with the impossibility of a complete recovery of damaged functional system. The severity of the manifestations of motor function disorders in child depends on underlying neurological damage extent, which in turn is related to presence of more or less extensive lesions of brain tissue. Early intervention may, at least in part, change distant outcome of brain damage (Cioni G. et al., 2011). When the disorder is mild, these are conditions of genetic origin, or due to events of a vascular or infectious nature, in which brain systems allow the correct execution of movement are altered. The main movement disorders of this type are motor clutter, dyspraxia and tic; apart from so-called psychomotor instability, which manifests itself with a motor difficulty, is actually a sign of problems related to other areas of development. Treatment depends on underlying condition that supports the symptom. Serious forms of movement disorder in children, however, are characteristic of certain conditions of neurological damage, among which the most frequent are infantile cerebral palsy, neuromuscular diseases, including muscular dystrophies and spinal muscular atrophies, neuro-metabolic diseases and severe malformative syndromes. These forms can be traced back to two categories, which make it possible to distinguish, on the basis of the potential clinical evolution, the forms that determine a permanent disability, but not progressive, from forms in which the trend of picture leads to progressive loss of motor acquisitions, in a period of months or years. Children with altered motor patterns have an individual expression of postural functions and

movement that the child is able to develop from their residual capacities, so understanding this concept has direct consequences on how to set up the rehabilitation (Camerini, De Panfilis, 2003).

Taking up authenticity concept of each individual and therefore of person singularity, the pursuit of an aesthetic and functional "normality" of movement can be an exhausting and unproductive process, both for image that child creates of himself, but also for the meaning he attributes to motor experience. Precisely for this reason, rehabilitation project must necessarily be individualized. Intervention plan must be thought out, programmed and constantly submitted to the rehabilitator's critical scrutiny, in order to avoid rigid application and repetitive schemes, which are not in tune with the subject's path of change. Therapeutic objectives must be based on the margins of modifiability of each function in relation to the resources possessed by child, his motivation and his ability to learn. Working group must be composed of specialized personnel, who must operate in an inter-professional way and in synergy with family and social structures, have the collection of information on clinical evolution of each patient for the case's periodic interdisciplinary discussion. Finally, working group must ensure a unified and comprehensive management of the rehabilitation intervention and be part of an integrated network of child rehabilitation services, organically linked at national level for a systematic organization of knowledge on epidemiology, on protocols for diagnosis and treatment of injury, on the most effective rehabilitation procedures and on identification of the most sensitive criteria for assessing and verifying the results. Working group must also be able to psychologically support family and allow facilities for problem management. Ultimate aim is not to restore mobility to child, but to accompany him, together with his family, towards best possible quality of life, because it is necessary to consider the physical, mental, emotional, communicative and relational globality in respect of his needs and that takes into account his desires. The achievement of a true ability must include constant variations in relation to tasks and contexts, able to facilitate procedures acquisition and rules in the child, rather than being aimed at the execution of individual motor performances.

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Schools and other children's communities are an integral part of child's world and should be involved inside care process and sharing of goals (Galanti, 2012d).

### 3. *Autistic Spectrum Disorders*

Until the end of the 1970s, condition of autism in childhood was called infantile schizophrenia. Since 1980, with third edition of the American manual of psychiatry publication, the name becomes that of child autism, in turn placed within the broader category of Pervasive Developmental Disorders, within which four subgroups are distinguished: autism disorder, disintegrative childhood disorder, Rett's syndrome and Asperger's syndrome (APA, 1952). Following the process of discussion and redefinition of diagnostic criteria, in 2013 DSM-5 is published, which opens with a new chapter dedicated to neurodevelopmental disorders, including autism spectrum disorder. To diagnose autistic spectrum disorder it is necessary to detect a persistent deficit in communication and social interaction, associated with the presence of restricted and repetitive behaviors, interests or activities.

In most cases, this disorder is related to a genetic abnormality, due to a spontaneous DNA's part mutation, or transmitted by inheritance; in other cases, this disorder is a consequence of a congenital lesion of one or more structures of central nervous system in development, for actions of vascular causes, infectious or toxic. Genetic abnormalities or congenital lesions determine an alteration in the processes of development of central nervous system, which affects both the malfunctioning of individual functional brain systems (eg. the linguistic system), both in the lack of integration between several systems (eg. the integration of the visual system and the auditory system). The extent of the damage of each functional system affected and degree of functional disconnection between multiple systems, translate into a greater or lesser severity of clinical symptoms. Finally, there are some atypical pictures that are found in children deprived of affective relational needs at an early age, in particular in social conditions of strong marginality or in cases of early institutionalized children in contexts where they are precluded from even minimal social contacts. These subjects present isolated or combined symptoms referring to autistic spectrum.

In early deprived subjects, the intervention and social exposure determine in a short time a dramatic reduction, up to disappearance of autistic symptoms. Unlike what happens in autistic spectrum disorders, in which an organic causal component is hypothesized.

Subject context environmental is not the cause of behavioural symptoms except for rare forms of environmental deprivation, but it contributes in varying degrees to their expressiveness, together with the process of individual growth and any therapeutic-rehabilitative interventions.

The clinical manifestations already occur in child's life first months, but it is still not possible to distinguish autistic picture from some forms of intellectual disability or delay in development, or serious speech disorder. Condition natural history of the condition seems to show in typical subjects a life span trend, that is, autistic disorder nucleus and some of behavioural manifestations tend to persist, even if at times in a more attenuated form, throughout subject existence (Vannucchi, 2014). In fact, in adulthood, people with autism can acquire varying degrees of autonomy, but most of them continue to show significant difficulties in communication, social reciprocity and ability to adapt flexibly to change (Mistura, 2006).

According to DSM-5, diagnosis requires four criteria to be met:

- Presence of persistent deficits in social communication and social interaction in different contexts and must be manifested in all three of the following areas: in social-emotional reciprocity, in non-verbal communication, in development and maintenance of appropriate relationships;
- a restricted and repetitive set of behaviours, interests or activities that manifests itself in at least two of following areas: language, movements or use of stereotyped or repetitive objects, excessive adherence to routines, hyper or hypo-reactivity to sensory stimuli or unusual interests in sensory aspects of environment;
- symptoms must already be present in early childhood;
- set of symptoms must be such as to represent a significant limit to child's daily functioning.

It is necessary to have experience and use considerable caution when administering any intellectual test to an autistic subject, because bizarre behaviour and response times, conditioned by relational attitude of the moment, can mislead



operator in interpreting the result of the tests too rigidly, leading him not to be objective regarding actual level of cognitive skills. It will also be important to define language skills, to define objectives of individual therapeutic project. Possible specific medical conditions of various kinds and exposure to environmental factors in individual's history must also be considered. Autism diagnosis can also be combined with other neurodevelopmental, mental or behavioural disorders (dyspraxia, anxiety disorders, depression...) (APA, 2013).

Autism spectrum disorders evaluation is essentially clinical and cannot be separated from a careful observation of child and his behaviour. Diagnostic tools are used to confirm diagnosis and to differentiate levels of severity with respect to specific areas. These include

-ADOS (Autism Diagnostic Observation Schedule): is a semi-structured scale based on direct observation of play divided into four modules for children aged 2 and over (Lord, Rutter, Goode et al., 1989); -ADI-R (Autism Diagnostic Interview-Revised) is an interview for parents that explores autistic symptoms in the context of social interaction, communication and repetitive behaviour (Lord et al., 1994).

In child evaluation, it is also appropriate to investigate the level of intellectual development and it is essential, by the specialist doctor, to carry out a neurological examination and an examination of molecular genetics. Experts recommend early diagnosis so as to change the course of symptoms by taking care of the child and his family from the first or second year of life. The earlier an appropriate intervention is initiated, greater the possibility that the symptom intensity will decrease over time (Vicari, 2012).

Diagnostic evaluation Professionals must be constantly updated through regular participation in training events. They have an important role in that, diagnosis communication, i.e. return to parents, must not be limited to the description of child's difficulties, but must above all leverage the strengths and potential for development, in a dynamic and evolutionary perspective, leaving a door open to the possibilities of transformation. Evaluation has the purpose of enucleating and defining main functional areas (sensory, language, attention, motor skills, intentionality, etc.) with respect to the contended life of the child and

involves a definition of intervention areas (outpatient, home, school, leisure ...).

After this phase, therapeutic intervention of operators' team will be able to define, for each intervention, priority areas and for each area, objectives, type and methods of intervention. Accompanying team has the task of knowing the family context and verify that it is suitable for child's needs of, also provides some advice to improve physical space and quality of interactions.

The organization of physical and social context, tailored to the person with autism spectrum disorder, occupies a primary role. In fact, it is necessary not only to provide visual support, but also to arrange and adapt environment in relation to personal space that is needed, paying attention to the brightness, colors of the walls, type of furniture and it is also appropriate to be able to anticipate and predict difficulties of child. In therapeutic project, then, will enter a network of care expanded with direct interventions to the child (rehabilitative and psycho educational) and interventions that act on context. However, we can say that there is no intervention that is good for all children with autism, nor an intervention that is good for all ages, nor an intervention that responds alone to complex needs of child and his family, we only know that the intervention program, with parents collaboration, must aim at generalization of learning, as treatment has a lifelong perspective. From kindergarten onwards, in classes attended by an autistic child, the presence of a support teacher is normally ensured and same need recalls the presence of the educator in contexts of extracurricular life. It is necessary to have teachers and educators adequately trained, to implement interventions of a certain educational value focussed on the child and its class context. Element priority is a systematic structuring of school day, through programming different activities, in a precise sequential scan and with the provision of a limited duration for each activity. It is necessary to divide tasks into simpler sequences so that child can complete them, always with teacher support, who must respect child response time. Sudden changes should be avoided and, if necessary, the child should be warned and prepared. And, consequently, its teachers must be prepared and not only the support teacher in a planning that also includes preparation, participation of other children in class. Peer group role and function when

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it acts as a factor of change is of enormous educational therapeutic importance (SINPIA, 2018).

Particular attention from an institutional and social point of view needs to be developed at the end of schooling period, schooled subjects have to face new contexts and realities often without support and support. Peers relationship could be reduced and school co-educational role as organizational support and, consequently, experiences of socialization could be lost. Peers socialization experiences are one of the fundamental objectives for the conquest of autonomy and self-determination because, children with autism can receive stimuli to know, understand and open themselves to the world, they can understand that they can put themselves on same level as others, or as far as they can, gaining confidence in themselves and accepting their own limits, so as not to give up or deprive themselves of the experiences that all children make in various stages of life. It is important to encourage them to work and collaborate with children of the same age playing, organizing moments of recreation or projects, so as to give birth in children not affected by these diseases the respect and solidarity that each individual deserves, as a person. Socialisation is the basis of inclusion and consequently can defeat discrimination and distrust towards those who have limits, making us reflect on the limits of each one, even of the so-called "normal" subjects who must not be an obstacle, but a stimulus to overcome them, each as he can and in his own way.

Autistic condition inclusion is even more difficult to transfer to adult world contexts, these subjects have the right and duty to participate in social life, so have a job and be able to use various services, but often, are marginalized because it is difficult to manage their unpredictability. It is, first of all, duty of the institutions to provide work environments with adequate tutoring programs and specific predispositions of workplace, so that people with disabilities can feel fulfilled as adults, despite their limitations. Same task belongs to the communities in which these people live, who have the direct responsibility of living together, of living together in dignity both towards the person with autism and towards the community itself.

Where a full adaptation of the person with autism is not practicable, it is possible to adapt the environment to the person, with a view to favouring

as an objective the maximum autonomy, even if partial.

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#### РОЗЛАД РОЗВИТКУ НЕРВОВОЇ СИСТЕМИ

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Стаття присвячена розгляду підходу до визначення розладів розвитку нервової системи, порушень розумового, нейромоторного й аутистичного спектру, а також тієї широкої прикордонної області, яка підпадає під поточне визначення особливих освітніх потреб. Аналіз проведено шляхом порівняння нейропсихіатричних і педагогічних аспектів зазначених розладів, і шляхом фокусування на цих двох взаємодоповнюючих дисциплінах, які можуть збагатити одна одну, взаємодіючи на границі предметів вивчення, що в більш широкому баченні, може об'єднувати терапію, догляд і освіту.

**КЛЮЧОВІ СЛОВА:** порушення розумового розвитку, порушення розвитку, терапія, автономія, соціалізація, освіта.

#### РАССТРОЙСТВО РАЗВИТИЯ НЕРВНОЙ СИСТЕМЫ

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Статья посвящена рассмотрению подхода к определению расстройств развития нервной системы, нарушений умственного, нейромоторного и аутистического спектра, а также той широкой пограничной области, которая подпадает под текущее определение особых образовательных потребностей. Анализ проведен путем сравнения нейропсихиатрических и педагогических аспектов указанных расстройств, и путем фокусировки на этих двух взаимодополняемых дисциплинах, которые могут обогатить друг друга, взаимодействуя на границе предметов изучения, что в более широком видении, может объединять терапию, уход и образование.

**КЛЮЧЕВЫЕ СЛОВА:** нарушения умственного развития, расстройства развития, терапия, автономия, социализация, образование.