

Non - Heretical Variables Adversely Affecting Neurodevelopmental Disorders

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Abstract: *Based on the psychometric classification system DSM (Diagnostic and Statistical Manual of Mental Disorders) of the American Psychiatric Association, the neurodevelopmental disorders that some students and/or children/individuals inherently carry are not only due to hereditary origins, but also to prenatal, perinatal and postnatal factors and causes. The purpose of the specific pain is to highlight prenatal (injuries and/or illnesses of the child and mother during pregnancy), perinatal (premature birth, anoxia, low and/or minimal birth weight of the infant, infections, hypoglycemia etc.) and postnatal (neonatal convulsions, intracranial hemorrhage, brain injury, acquired encephalopathy) complications that cause dysfunction of the brain and central nervous system, that is, effects that result in the appearance and formation of neurodevelopmental disorders. The critical - interpretative review of domestic and international literature is used as the scientific method and tool for recording the findings of the work. Consequently, it appears and demonstrates that the creation and formation of neurodevelopmental disorders in these individuals is sometimes due to organic/genetic/hereditary causes and, sometimes, to environmental deficits and problems that arise both prenatally, perinatally and postnatally.*

Keywords: neurodevelopmental disorders, causality, delay, deficits, disability

1. Introduction

In addition to the organic/inherited neurodevelopmental disorders presented by a group of children/individuals, it is found that they have others due to causes other than the predisposed ones. However, it is noted that what motivates the experts is not the symptomatology of neurodevelopmental disorders as such, but the limited functionality of the individuals/children/students who are troubled by it. The question, therefore, is to improve the functionality of these individuals. This is why it is considered an important fact, the study and search by the experts of all the causes and, in particular, those that in essence affect the manifestation of neurodevelopmental disorders in each person who falls into this special group. Especially in the context of special education and training and, especially in the structures of SMEAE (School Units for Special Education and Training), the knowledge of the causes of neurodevelopmental disorders and the accompanying problems and their effects on the behavior of students is considered of the utmost importance by teachers so so that they have the ability and knowledge to deal with them optimally and effectively, with tools, methods and means that are diverse and diverse.

In this light, it is recognized that specialized knowledge, abilities and skills are required from the teachers who serve in these structures to manage the behaviors that these students exhibit on a daily basis and that are the result of the inadequacies that they carry either intrinsically or acquired. Consequently, they must be fully informed and knowledgeable of the medical history and profile of each student regarding the type and severity of neurodevelopmental disorders in their daily teaching, psychopedagogical, psychoemotional, psychosocial and behavioral treatment. In this way, they will have the possibility to recognize and understand (educational) the extreme symptoms and behaviors that come from these disorders, in order to design and methodically prepare personalized programs and effective interventions, which through new techniques and strategies will supervise for the

correct and their correct application, as well as for their differentiation after thorough re - evaluation and control (Kauffman & Landrum, 2013).

Unfortunately, even with the most modern, henceforth medical tests, such as prenatal ultrasounds and amniocentesis during the prenatal stage, they cannot diagnose the causes of neurodevelopmental disorders. Therefore, there are indications and not proofs whether neurodevelopmental disorders are due to prenatal, perinatal and postnatal causes, as a large percentage of their causes (neurodevelopmental disorders) are unclear, because the etiological factors of the occurrence of neurodevelopmental disorders are very difficult to determine precisely (Gena, 2002). Among other things, it should be noted that secondary mental disorders, often concerning adaptation and personality, significantly affect not only their daily school life but their life in general, while often more serious conditions such as melancholy cannot be ruled out and depression. Despite this, it is recognized that partial treatment of neurodevelopmental disorders due to perinatal, prenatal and postnatal causes becomes feasible through the education of students of this group. Their deficits and delays, therefore, relate to disorders they present in areas such as speech and speaking, specific learning disorders in arithmetic, reading and spelling, disorders in thinking and memory, and also hyperactivity and aggression (Wundt, 2016).

2. Definition of the term neurodevelopmental disorders

Neurodevelopmental disorders are a set of heterogeneous symptoms/delays that some people carry from birth and, depending on the case of each person, manifest themselves in various inadequacies and deficits in all areas of their daily functioning and life. Therefore, the catalytic diagnostic role of specialists (neurodevelopmentalists, neuropsychiatrists, child psychologists, etc.) in the detection, evaluation, diagnosis and treatment of the difficulties and problems of these individuals is recognized. Where there is a

delay and/or impairment in the development of the individual's various functions at birth and, in particular, during childhood, which I mention in passing are inextricably intertwined with the maturation of the central nervous system, then we obviously refer to the term developmental disorders. Nevertheless, it is observed that the term is widely used, possibly to explain and interpret disorders that exceed the normal developmental course of humans (Hodapp, 2003).

Regarding neurodevelopmental disorders, it is considered that their origin is neurological in nature and that they cause undue damage to the development of the brain, that is, to the central nervous system, with the result that memory, emotion and the ability to perceive and learn are affected in multiple and diverse ways persons. When created during infancy and childhood, they can take the form of: a) traumatic brain damage, such as cerebral palsy, b) motor disorders such as coordination in general, c) genetic disorders that include a class of syndromes such as autism, Down's syndrome, mental retardation and the co - morbidity of the aforementioned etc., d) ADHD, whose two main characteristics, which are intense mobility and spontaneity, are based on neurological causes (Angelopoulou - Sakandami, 2004). According to the Diagnostic and Statistical Manual of Mental Disorders DSM (Diagnostic and Statistical Manual of Mental Disorders), which is the basic manual for the classification of mental disorders of the American Psychiatric Association (American Psychiatric Association), neurodevelopmental disorders (Remington et al., 2016) and, in general, developmental disorders belong to the psychiatric conditions that result in severe impairment as well as deficiency, deficits, and impairments in many important areas of individuals (American Psychiatric Association, 1994).

Regarding the Statistical Guide for the Classification of Diseases and Related Health Problems, the ICD - 10 which is essentially an international classification list of causes of death, in which all pathological entities and the entire spectrum of pathological issues and conditions are systematically recorded, most are classified neurodevelopmental disorders, such as congenital anomalies, chromosomal abnormalities, malformations and central nervous system diseases (World Health Organization, 1993). In addition to the genetic/hereditary factors that contribute the most to the creation of neurodevelopmental disorders, it can be distinguished that the environmental factors that include the prenatal, perinatal and postnatal conditions of upbringing and development of the person/child, such as smoking, the psychopathology of the mother during pregnancy and after the birth of the child, excessive alcohol consumption and the way the child is raised can equally contribute to the formation of neurodevelopmental disorders (Wehmeier, et al., 2010).

Consequently, neurodevelopmental disorders refer to a heterogeneous and complex student population, where very large differences are observed in terms of the degree and accompanying difficulties, which are evident sometimes at birth and sometimes during the period of development of the individuals who fall into the category of this group (Heward, 2011). In more detail, it appears that prenatally the causes of

neurodevelopmental disorders in individuals/students are due to chromosomal abnormalities, congenital abnormalities of the Central Nervous System (Dandy - Walker syndrome, congenital hydrocephalus, midlobular agenesis, etc.) and congenital infections (cytomegalovirus, syphilis, toxoplasmosis, herpes, rubella, etc.). According to scientific calculations, however, it is proven that 75% of the neurodevelopmental disorders carried by individuals of this particular group are due to damage to the Central Nervous System during intrauterine (prenatal) life. Alcohol consumption, drug use, thyroid diseases and viral infections in early pregnancy are included as intrauterine factors (Abel et al., 2003). As far as perinatal causes are concerned, suffocation and anoxemia of the brain during childbirth are the main causes of neurodevelopmental disorders. Postnatally, terminally and, especially during the period 0 - 3 years, it is found that individuals who fall into the category of neurodevelopmental disorders, show encephalitis, meningitis, craniocerebral injuries and nuclear jaundice (Bell et al., 2002).

3. Characteristics of individuals with neurodevelopmental disorders

Most people who fall into the predisposed categories stand out because they lack communication skills and social adaptability, they also have limited possibilities in the field of interests, while on the other hand they are distinguished by their one - dimensional overlapping behaviors. Extreme, unpredictable and unusual behaviors, in any case, are included in the range of above - references in relation to salient features (Starr et al., 2014). Among other things, they stand out for their idiosyncratic obsession with fixed stereotypical interests and daily activities, as well as for the complete absence of interpersonal relationships in their lives, for their uniquely unusual way of thinking and performing their actions, for the inability to perceive interests, needs and priorities of others, even significantly their own people and, finally, for the ignorance of risk that characterizes most of their actions (Ke & Im, 2013).

In the context of the above logic, it is possible that the superimposed behavior and stereotypic manifestation of the actions and deeds of the individuals of this particular group are related to other coexisting psychiatric disorders at the same time as theirs. However, it must be pointed out and emphasized that individuals with both congenital and acquired neurodevelopmental disorders stand out because they have a unique combination of characteristics, which manifest from person to person with other symptoms and with different degrees and severity (Galanis, 2015). Consequently, it is established that the characteristics of individuals with neurodevelopmental disorders are identical in most of them, while they are the result of genetic/organic factors and environmental causes. The occurrence and existence of neurodevelopmental disorders in individuals, however, cannot be assumed to be due to either genetic or environmental factors alone, as there are hundreds of genes that are variously and diversely associated with the various disorders (Durisko et al., 2016). The characteristics of people belonging to the category of neurodevelopmental disorders, therefore, can evolve and improve for the better during their life, since they constitute a combination of

dependency of the effects of the family environment, social experience, education provided and their neurological maturation (Happe & Ronald, 2008; Yenkyan et al., 2017).

In short, it can be argued that the characteristic features of individuals who fall into the spectrum of neurodevelopmental disorders depend both on biological factors that primarily include the age criteria of the mother and father, as well as on prenatal factors (diabetes, maternal infections), perinatal (hypoxia, obstetric events) and postnatal (toxic exposures, vaccinations, poor nutrition) factors. In addition, it is demonstrated that variables such as the socioeconomic status of the family, the mother's psychological health and the educational level of the couple, may function either positively or negatively regarding the improvement and/or not of the characteristics of individuals presenting with neurodevelopmental disorders (Ravizza, et al., 2013). The main characteristics of the students in this group, however, are the reduced possibility of self-care, clothing, nutrition, movement and orientation, the particularly unique behaviors, the low and disturbed ability to communicate, the increased morbidity and systematic use of health services and their reduced ability to learn in all areas. In this spirit and logic, the need for significant help, guidance and supervision of all their ventures in their daily lives emerges (White - Koning & Badawi, 2010).

The diagnosis of neurodevelopmental disorders in the students of this group is rarely possible during the preschool period, although some signs of difficulties in their development in general are faintly visible. In this case, recognition of their disorders begins to become visible upon entering primary school (Wilmschurst, 2011). Based on the aforementioned, they present severe neurological problems, often have reduced hearing and vision, have graded speech and/or speech disorders and in some cases their physical and motor condition is in a lower condition than usual standards (Huang & Castillo, 2008). In particular, it is found that they present significant problems in gross and fine motor skills, have a poor vocabulary, show a weakness in auditory discrimination, that the grammatical - syntactic structure is missing from their written speech, that their speech is telegraphic and that significant weaknesses can be distinguished in their articulation (Lazaratou & Anagnostopoulos, 2000). With reference to the psychosocial sector, it is determined that they have a degree of responsibility, partially adapt to the demands of the home, school and neighborhood, cooperate, respect the rights and property of others as much as possible and protect themselves from common risks both at home and at school (Shevell et al., 2003). In the behavioral field, among others, they present interpersonal dysfunctions and inadequacies, which make it difficult for them to adapt to school and have a catalytic effect on their inclusion in social life. This entails, fights during breaks at school, mild harassment that can turn into serious forms of aggression over time, negativity and physical violence, which most often manifests itself in the form of theft and vandalism. Obviously, it is even more obvious that the problematic/deviant/psychopathological behaviors of the students of this group develop into long-term established pathologies if they are not treated in time (Scriva et al., 2015).

4. Conclusions – Suggestions

In terms of how neurodevelopmental disorders present and manifest their symptoms, they appear to be common to most people, although they differ and vary in severity. In addition, they are recognized to be characterized by a range of deficits and impairments in areas such as communication, stereotyped behaviors and interests, social interaction and language abnormalities. All the aforementioned deficits and inadequacies may negatively affect the relationships with the rest of the school community and the social environment, thus making it extremely difficult for them to fully integrate into the activities of the social scientist. In contrast to individuals who show typical development for their age, they are considered to have difficulty forming mutual friendships, lack social interaction at all, and are not distinguished by their performance in team play. In particular, the lack of communication skills of the students of this group proves to be one of the main obstacles, on the one hand, to their participation in the daily activities of the school, and on the other hand, to the essential understanding of the feelings and behaviors of other people. In other words, it is understood that neurodevelopmental disorders that are due to both biological and environmental factors and causes act as brakes on the mental, spiritual, physical and intellectual development of these individuals/students.

More generally and regardless of the causes of neurodevelopmental disorders in these individuals/students, the existence of an organized educational and therapeutic group framework is required, where synchronized efforts will be made by all specialists, in the direction of reducing and/or limiting the functional, their cognitive, behavioral, psycho-emotional, psycho-social and communicative pathogenesis and deficiencies. Equally important is the role of teachers regarding their contribution to the adaptation of these students to school activities as well as to their equal inclusion in society. Therefore, continuous training and specialization, especially of special education and training teachers in subjects and issues related to the teaching methodology and learning techniques of these individuals, as well as in the fields of school counseling and psychology, is deemed extremely necessary and imperative. Among other things, the family must be informed and guided by the experts in matters concerning their daily dealings and cooperate with the teachers for their best and optimal psychoeducation on a daily basis and logically.

In particular, the organization of pilot programs for teachers who serve particularly in special structures and contexts, where they will be retrained in the detection, recognition and informal evaluation of neurodevelopmental disorders, is considered of utmost need and priority. In addition, they will practice in designing and using the appropriate tools to assess the behavior of these students and in learning techniques for their systematic observation. In this way, these programs and always in collaboration with specialist professionals (developmentalists, child psychiatrists, psychologists, social workers, physical therapists, occupational therapists, etc.) must extend to the design and creation of individualized intervention programs, with a holistic outcome reduction of the deficits and inadequacies

that the individuals of this special group have acquired and, particularly during the first years of their lives.

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