



THE NEURO AND PSYCHOMOTOR THERAPIST OF THE DEVELOPMENTAL AGE: NOT JUST AUTISM. NATIONAL SURVEY ON DISORDERS TREATED IN DEVELOPMENTAL AGE WITH FOCUS ON NEUROMUSCULAR DISEASES

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Abstract

This national survey aims to analyze how many and which are the main disorders treated in developmental age by the developmental neuropsychomotor therapist. The analysis arises from the need to demonstrate the multiple potentials and areas of intervention of the Neuropsychomotor Therapist of the developmental age on the Italian national territory, as his distinctive role in the treatment of all developmental age affections in the presence of any diagnosis. Therefore, a narrative review of the scientific literature was conducted and a computerized and anonymous questionnaire was administered on the role of the developmental neuropsychomotor therapist in the fields of application of the professional profile, as defined by the Ministerial Decree of 17 January 1997 n. 56.

INTRODUCTION

The Developmental Age Neuro and Psychomotor Therapist is the healthcare worker who, in possession of the qualifying qualification and in professional autonomy, carries out activities in collaboration with the multi-professional child neuropsychiatry team and in collaboration with the other disciplines of the pediatric area. of qualification, rehabilitation and prevention of developmental age disabilities¹. The theoretical framework within which the Developmental Age Neuro and Psychomotor Therapist operates is represented by the bio-psychosocial model of disability, suggested by the World Health Organization, in reference to the International Classification of Functioning of Disabilities and Health – children and adolescents version. The area of intervention of the Developmental Age Neuro and Psychomotor Therapist is, therefore, represented by developmental disabilities, understood as those situations in which, as a consequence of an illness, disorder or impairment, the subject presents global and/or specific intellectual dysfunctions, sensory dysfunctions, neuro-musculoskeletal and movement-related dysfunctions.

The Neuro and Psychomotor Therapist of the Developmental Age, in reference to diagnoses and medical prescriptions within the scope of specific skills, adapts therapeutic interventions to the peculiar characteristics of patients in developmental age, supporting the implementation of the skills necessary for the activities and participation and, more generally, to the realization of the growth project.

Rational

In the last decade, with the increase in early diagnoses of neurodevelopmental disorders and with the progress of research in the field of cognitive-behavioral techniques, the opinion has spread according to which neuro and psychomotor therapists are the specialists in the treatment of the aforementioned problems. In fact, many of the therapists in question find themselves treating neurodevelopmental disorders, intellectual disabilities and autism spectrum disorders almost exclusively. In this way, the distinctive role of the Developmental Age Neuro and Psychomotor Therapist in the treatment of all developmental age disorders in the presence of any diagnosis has been overlooked, as he is the undisputed specialist in developmental age matters.

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1 Age range 0-18 years.

Objectives

The Neuro and Psychomotor Therapist of the Developmental Age is the healthcare professional specialized in the developmental age, whose primary objective is the harmonious and balanced development of the child; therefore the following study aims to demonstrate the need to use the specialized skills of the Developmental Age Neuro and Psychomotor Therapist in the habilitation and rehabilitation field of all disorders involving the 0-18 age group with a focus on neuromuscular diseases.

MATERIALS AND METHODS

Study design

The study consists of two parts:

Administration of an anonymous questionnaire aimed at Italian Neuro and Psychomotor Therapists of Developmental Age with subsequent analysis of the data collected;

Narrative review of the scientific literature currently available on the figure of the Developmental Neuro and Psychomotor Therapist² and his skills, with particular emphasis on neuromuscular diseases, combining the key words with the Boolean operator "AND".

RESULTS

Results of the questionnaire

The survey is aimed at Italian TNPEEs recruited on a voluntary basis. The questionnaire was designed using the Google Forms application and disseminated through the use of the most commonly used social channels. The data were analyzed at the end of the collection. Participants were selected according to the following eligibility criteria:

- Being a TNPEE;
- Be regularly registered in the TNPEE professional register and/or in a special list subject to availability;
- Currently practice or have practiced the healthcare profession in question.

The sample of participants in the questionnaire is represented by 195 Italian developmental neuro and psychomotor therapists. The questionnaire consists of four sections and eight questions. The rationale for the study is reported in the first section; in the second section the personal data of the participants are collected, from which the following can be deduced:

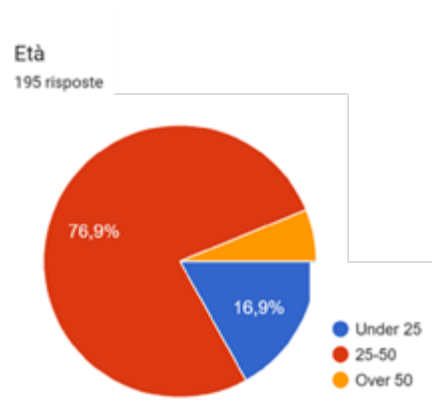


Table 1. Age of study participants.

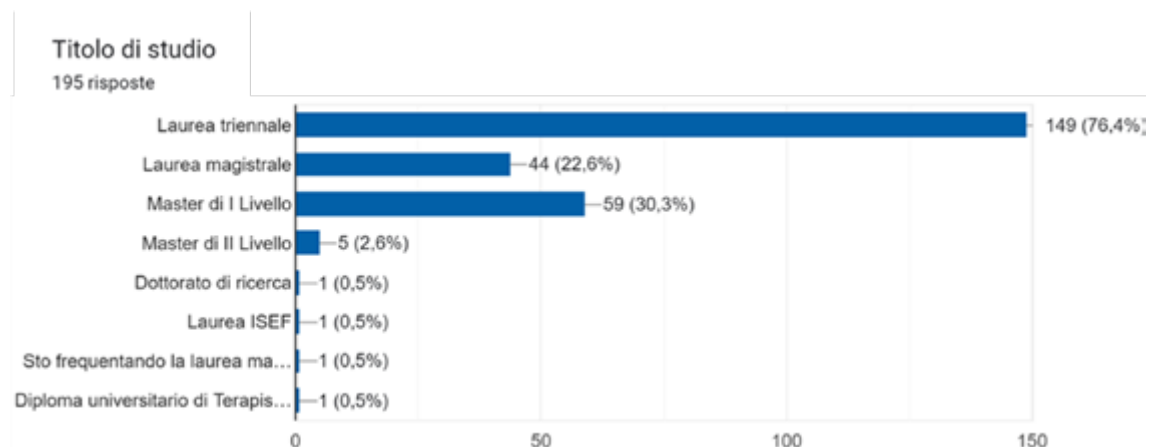


Table 2. Participants' educational qualifications.

2 Subsequently abbreviated to "TNPEE".

Iscritto/a all'albo professionale/elenco speciale della regione/provincia autonoma: 195 risposte

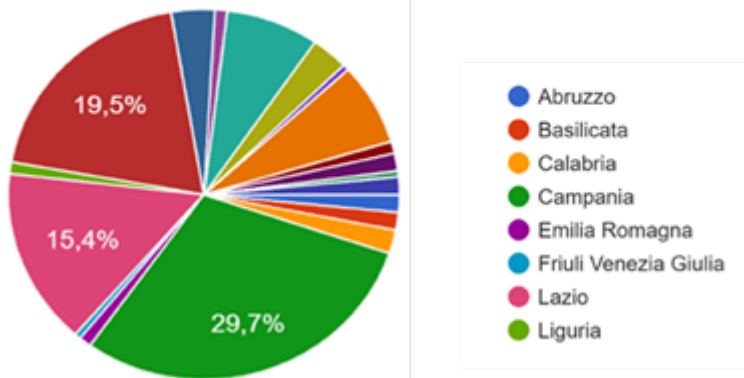


Table 3. Registration in the professional register/special list divided by region/autonomous province.

Stato occupazionale 195 risposte

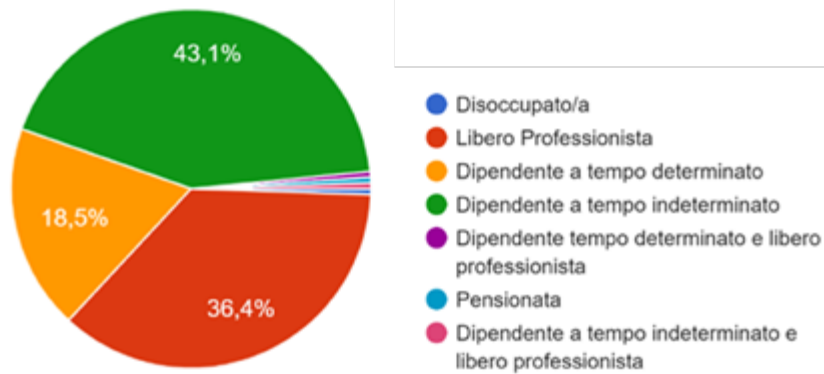


Table 4. Employment status of study participants.

The third session concerns basic university training and investigates how many and what are the pathologies and/or disorders covered by the university study plan for Developmental Neuro and

Psychomotor Therapists. Furthermore, the same section also lists the pathologies and/or disorders covered by the training in internship.(Tab. 5)

Quale/i delle seguenti patologie e/o disturbi sono stati oggetto del tuo piano di studi universitario?

195 risposte

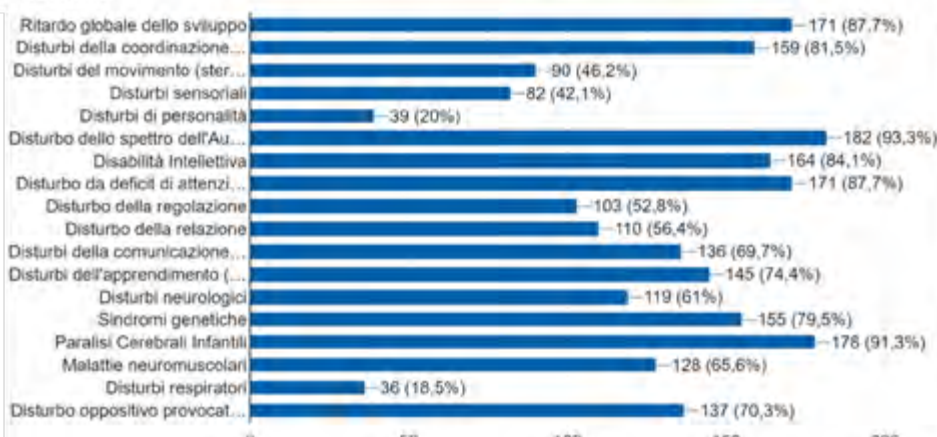


Table 5. University study plan.

In the fourth and final section, the data resulting from the previous section are compared with the past work experience - if it is the first work assign-

ment, reference was made to the university training internship activity to answer - and current one, which is what is mainly object of the study. (Tab. 6)

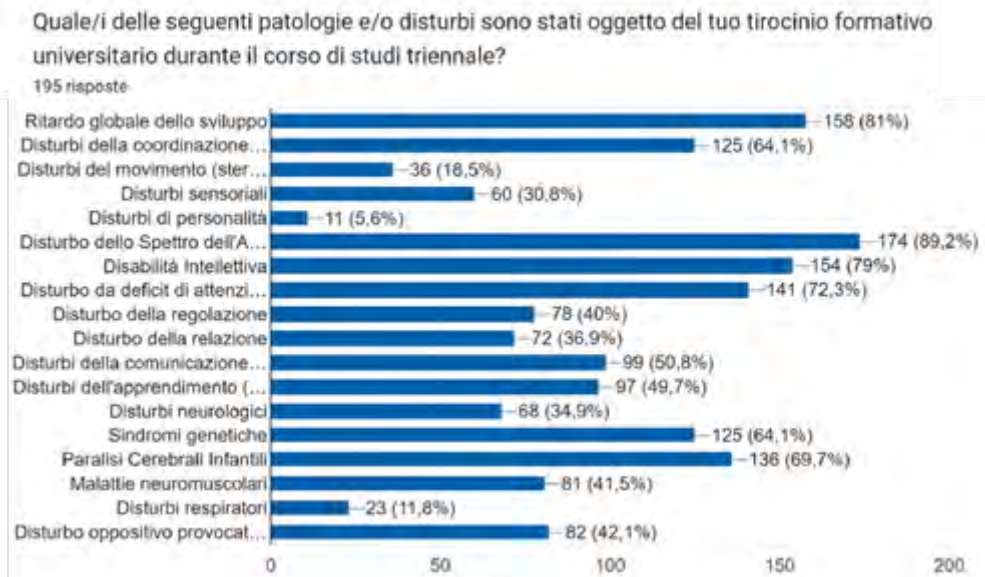


Table 6. University training internship.

Currently, Autism Spectrum Disorder seems to be the most treated, but Global Developmental Delay, Motor Coordination Disorders, Intellectual Disabi-

lity and Attention Deficit/Hyperactivity Disorder, as well as Genetic Syndromes, appear to be equally frequent.(Tab.7)

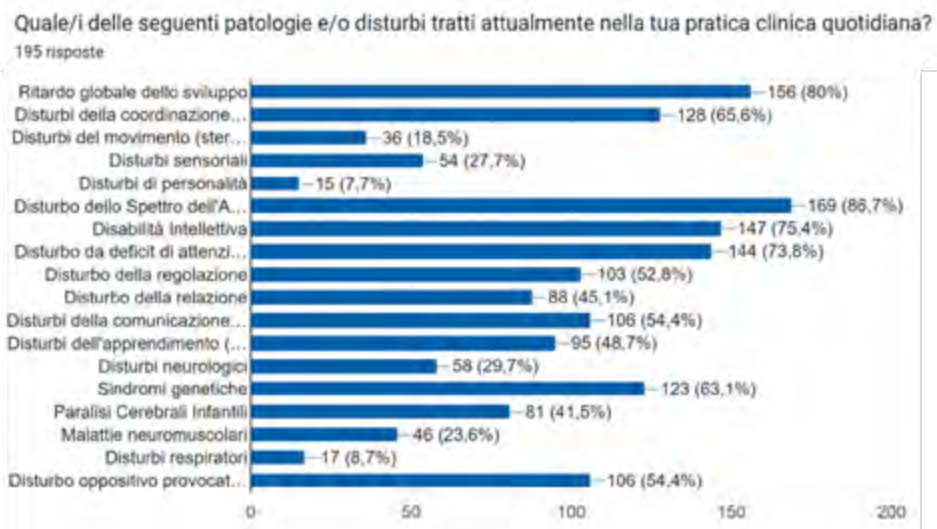


Table 7. Pathologies and/or disorders treated by TNPEEs in daily clinical practice.

Results of the narrative review of the scientific literature

A narrative review of the scientific literature relating to the figure of the Neuropsychomotor Therapist of the developmental age and his multiple skills was carried out with a focus on the neuromuscular diseases which are - from the questionnaire presented above - treated by approximately 23% of the therapists of the developmental age in Italy. In this regard, the search engines Google Scholar, Google Books, PubMed, Science Direct and Research Gate were used to combine the keywords

with the Boolean operator "AND". The results of the bibliographic search were selected based on free text accessibility filters and publications in the last 5 years. In addition to the scientific search engines mentioned, the main open access journals accessible on the web dedicated to the profession of developmental neuropsychomotor therapist and neuromuscular diseases were consulted, as well as the most salient reference texts on the same topics. *The Neuropsychomotor Therapist of the developmental age: specific skills deriving from the Ministerial Decree of 17 January 1997, n.56, Official Gazette of 14 March 1997, n.61 with the Regula-*

tion concerning the identification of the figure and the related professional profile.

The Developmental Age Neuro and Psychomotor Therapist is the healthcare worker who, in possession of the qualifying university diploma, carries out, in collaboration with the multi-professional child neuropsychiatry team and in collaboration with other disciplines in the pediatric area, the interventions of prevention, therapy and rehabilitation of childhood neuropsychiatric diseases, in the areas of neuropsychomotor skills, neuropsychology and developmental psychopathology.

The Neuro and Psychomotor Therapist of Developmental Age, in reference to diagnoses and medical prescriptions, within the scope of specific skills:

1. Adapts therapeutic interventions to the peculiar characteristics of patients in developmental age with multifaceted clinical pictures that change over time in relation to emerging functions;
2. Identify and develop within the multi-professional team the prevention, therapy and rehabilitation program aimed at overcoming the health needs of children with developmental disabilities;
3. Implements therapeutic and rehabilitative interventions in perceptual-motor, neurocognitive disorders and in symbolization and interaction disorders of the child from birth;
4. Implements procedures aimed at the inclusion of individuals with disabilities and neuropsychomotor and cognitive handicaps; collaborates within the multi-professional team with school operators for the implementation of prevention, functional diagnosis and the dynamic functional profile of the individualized educational plan;
5. Carries out therapeutic activities for neuropsychomotor, psychomotor and neuropsychological disabilities in developmental age using specific techniques for the age group and individual stages of development;
6. Implements procedures for evaluating the inter-relationship between affective functions, cognitive functions and motor functions for each individual neurological, neuropsychological and psychopathological disorder of developmental age;
7. Identifies the need and creates the diagnostic and therapeutic balance between somatic representation and bodily experience and between general functional potential and object relationship;
8. Develops and implements the therapeutic program that uses neuromotor schemes and projects as mental acts and as cognitive and meta-cognitive tools. It also uses body dynamics as an integration of mental functions and interpersonal relationships;
9. Verifies the adoption of prostheses and aids with respect to neuropsychological compensation and psychopathological risk;
10. Participates in functional rehabilitation in all acute and chronic childhood pathologies;

Documents the correspondence of the rehabilita-

tion methodology implemented according to the objectives of functional recovery and the characteristics of the pathologies that change in relation to development.

Focus on neuromuscular diseases and neuropsychomotor management

Neuromuscular diseases include a series of clinical pictures characterized by a posture and movement disorder linked to pathologies of the motor unit (spinal motor neuron - axon - muscle fibres). The lesion can be localized at different levels characterizing different clinical pictures depending on the location of the lesion itself; essentially the result is clinical pictures linked to the involvement of:

- **Spinal motor neuron**, such as Spinal Muscular Atrophies;
- **Nerve fiber**, such as motor neuropathies;
- **Muscle fibre**, such as myasthenias and Muscular Dystrophies;

The result is a very heterogeneous group of conditions, both in terms of the anatomical-pathological picture and the etiopathogenesis and prognosis. However, they share some fundamental clinical elements, such as muscle tone disorders, muscle trophism disorders, muscle strength disorders, deep reflex disorders, intrinsic muscle movements, sensitivity disorders.

Among the neuromuscular diseases with onset in developmental age, those most frequently treated by TNPEE are Spinal Muscular Atrophy (SMA) and Duchenne Muscular Dystrophy (DMD). General management objectives of the above patients are:

- *Cardio-respiratory objectives*: from an early age, it is important to promote and maintain cardiac capacity and good thoraco-pulmonary growth and, therefore, compensate for the weakness of the respiratory muscles to compensate for the inevitable deficits in ventilatory mechanics (preserve a functional cough, prevent bronchial obstructions, infections and atelectasis).
- *Functional objectives*: although not valid for all neuromuscular diseases, it seems that the principle to be recommended in their re-education is to maintain global muscular activity (functional purpose), early and resistant (aerobic way), without ever reaching muscle exhaustion. These objectives also include the safety of transfers, the choice and training in the correct use of personal mobility aids.
- *Orthopedic objectives*: limit spinal deviations, hypo-extensibility/muscle contractures and capsulo-ligament retractions/joint stiffness. Stretching is fundamental, which must be done daily for at least 30 minutes. In this regard, it is useful to provide the patient and family with information - even written and personalized - on how to carry out home stretching.
- *Life quality*: to maintain the best quality of life for as long as possible, management must be early, personalized, evolutionary and adaptive (anticipate worsening).
- *Support for the family*: it is essential both from

the point of view of acceptance by children, compliance with treatment and continuity of care, and from a psychological point of view for support and assistance.

In relation to the functional state at the time of the neurological and motor evaluation, the level of severity of the clinical case will be established through the motor scales that evaluate the strength and range of joint movement, as well as all the motor function tests most used in clinical practice and in scientific research for neuromuscular diseases³. The rehabilitation treatment and therapeutic program must be individualized and adapted to specific case needs and re-evaluated at follow-up approximately every 3-6 months, with more frequent checks in clinically unstable patients.

CONCLUSIONS

Helping a child in difficulty means implementing a series of therapeutic measures that try to respond to the multiple needs that usually arise. Generally speaking, it is possible to divide interventions into pharmacological, rehabilitative and psychotherapeutic. The Neuropsychomotor Therapist of the developmental age is placed in the area of reha

ilitative interventions in the multiple areas and according to his specific skills identified by the Professional Profile, as already described in the introduction of this article. Based on the results obtained from the narrative review of the scientific literature and from the questionnaire administered to therapists on a national scale, currently the developmental neuropsychomotor therapist in Italy mainly deals - in order of highest percentage resulting from the questionnaire - with: Spectrum Disorder of Autism, Global Developmental Delay, Intellectual Disability, Attention Deficit/Hyperactivity Disorder and Genetic Syndromes. However, the fundamental work that the developmental neuropsychomotor therapist also carries out in the treatment of other pediatric and adolescent conditions, such as neuromuscular diseases and/or other neurological disorders, should not be overlooked or underestimated, as his key role in connecting doctors and family turns out to be particularly useful and characterizing in the developmental age.

Other information

Financing

This study was conducted without the use of economic funding sources.

3 These include Motor Function Measurement (MFM), 10 meters walk/run test and 6 Minute Walking Test.

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