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ȘCOALA DOCTORALĂ

THE DEVELOPMENT OF PSYCHOSOCIAL RESOURCES OF STUDENTS WITH SPECIAL EDUCATIONAL REQUIREMENTS IN THE RECOVERY OF POSTURAL DISORDERS AND SPINAL DEFORMITIES

PhD THESIS ABSTRACT

Scientific Coordinator:
Univ. Professor Dr. TÜDÖS ŞTEFAN

PHD student:
BUGHIRICĂ (GEORGESCU) MAGDALENA

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ABSTRACT

Key words: vertebral static disorders, incidence, psychosocial resources, recovery, co-therapist parent.
Abbreviations: CES - Special Educational Requirements, SVD - Static Vertebral Disorders.

This thesis aims to capture a psychosocial analysis, emphasizing the incidence of this condition in the school population, the educational and socio-economic factors that can influence recovery, at the same time to find a reliable opportunity in the recovery of students with vertebral static disorders.

Motivation for choosing the theme

The main reason for choosing this theme is represented by the worrying reports about the increased incidence of vertebral static disorders at younger and younger ages and the late detection of this condition. At the same time, the reason for choosing the topic also came from my experience as a physiotherapist teacher in special education, with over 20 years of experience in the field, from the desire to research the incidence and dynamics of vertebral static disorders in this category of students, collaboration between interdisciplinary team members and parents, as well as the influence of resources in treating this condition.

The first part of the doctoral thesis, entitled *"Theoretical foundation and conceptual delimitations of the research topic"* is composed of six chapters in which information and data are highlighted regarding the conceptual aspects of the topic, the social importance of the topic, its reflection in the specialized, national literature and international, data on the etiopathogenesis of vertebral static disorders, the importance of physical exercises in the recovery of vertebral static disorders, psychosocial resources, but also information on the importance of parents in child therapy.

The main source for choosing the theme was the events of everyday life, social life. Vertebral static disorders remain one of the complicated and frequent ailments in children and adolescents, changing the external appearance, obstructing the normal growth and harmonious development of the body, reducing adaptation to physical effort.

In Romania, in recent years, on the occasion of medical examinations carried out in the school environment, vertebral static disorders are ranked third in terms of incidence among the school population. In this context, the concern caused by the increase in the incidence of this condition among the school population is also associated with difficulties in providing information regarding the correct diagnosis and implementing therapeutic interventions. Our research started from a societal problem, which wants to be stated, and maybe even solved.

Some of the theoretical conclusions

1. Specialized publications emphasize the importance of forming the correct posture reflex in children, which must concern both teachers and parents, taking into account the negative effects of the installation of spinal deformities.
2. Specialist reports from our country have shown that in the urban environment, vertebral static disorders are in third place (8.13%), in weight after refractive errors (24.29%) and obesity of non-endocrine causes (11 .27%), following medical examinations regarding the health status of preschoolers and students.
3. Disorders of vertebral statics can have a significant impact on the life of schoolchildren in terms of physical appearance (exaggerated curvatures of the spine, deformation of the chest), functionality (pain and discomfort, limitation of movements), education (can affect a schoolchild's ability to learn and to focus on specific activities, etc.), social life (difficulties in performing recreational activities, changes in well-being, etc.).
4. The recovery of these students is a complex problem, which requires an interdisciplinary approach and a long-term collaboration between the representatives of the educational, medical, family institutions and members of the local communities where various recovery programs are carried out.
5. Health is considered a fundamental resource for social and economic development. Our ability to cope with a medical problem depends on how we relate to our resources.

The second part of the doctoral thesis, entitled *"Incidence of vertebral static disorders in students with disabilities"* is structured in three chapters presenting the organizational framework of the preliminary research, the operational approach consisting in the presentation of the topics, study on the incidence of vertebral static disorders in students from within the Special Secondary School No. 3., study on the incidence of vertebral static disorders in students with different types of disabilities enrolled in special education in the City of Bucharest. We started from the premises that until now, in Romania there are no official statistics that quantify the number of children and adolescents with vertebral static disorders enrolled in special education, the prevalence or the incidence rate. Identifying the incidence of vertebral static disorders in students enrolled in special education can shape the taking of specific directions of action and therapeutic interventions.

The purpose of the preliminary research is to highlight the incidence of vertebral static disorders in students included in the special education system, aged between 6-18 years. Also, to create a database regarding the incidence of postural disorders and spinal deformities among students with special educational needs in the Municipality of Bucharest.

Some of the conclusions of Part II

1. The assessment of students at the beginning of the school year reveals an increased incidence of vertebral static disorders in students. 1,354 students with conditions, included in the physical therapy program, 77% (n=1,043) have postural disorders and spinal deformities, the incidence increasing from the 2019-2020 school year to the 2020-2021 school year for all categories of students.
2. The incidence of postural disorders and spinal deformities is different in students with disabilities depending on the type and degree of disability on the one hand, and on the level of schooling on the other hand.
3. For students with mental and hearing disabilities, the most common postural disorders and spinal deformities is lordosis, for students with visual disabilities it is kyphosis.
4. The number of male students with postural disorders and spinal deformities is higher than the number of female students. The male gender represents 56.66% (n=591), compared to the female gender which has a percentage of 43.34% (n=452).
5. The situation described following the research dictates the need to organize and implement preventive measures in pre-university education institutions, with the involvement of all decision-making factors, including public authorities, as well as public health specialists.

The third part of the doctoral thesis, entitled *"Optimization solutions for the recovery of vertebral static disorders in students"* is structured in five chapters.

The specific issue of therapeutic interventions addressed to students with postural disorders and spinal deformities is complex. Since we want to obtain the best possible results in the recovery of students with postural disorders and spinal deformities, taking into account the influence that psychosocial factors play in the recovery of this condition and the fact that kinetic therapy is a classic manner, already established in the treatment of postural disorders and spinal deformities, we carried out the research of based on two directions: a sociological investigation (using the semi-structured interview and the questionnaire) and an experimental study in which to apply the physiotherapy program through a partnership with the parent.

The sociological study allowed us to know the situation regarding communication and collaboration between all interested parties (representatives of educational institutions, medical, family and members of local communities where various recovery programs are carried out), which are appropriate solutions for the recovery of students with vertebral static disorders, as well as identifying the parents' involvement in the child's therapeutic act.

Through the experimental study, we followed the verification of the effectiveness of the exercises included in an original program, but also the comparison between the results obtained in the control group, where the physiotherapy program was carried out in the traditional way, only in the school office (according to the class schedule, 1 session/week) and in the experimental group, by applying the physiotherapy program in therapist-parent collaboration, both in the school office and at the students' homes (1 session/week according to the class schedule and 2 sessions/week in the family environment).

The general objective of the therapeutic intervention, applied both in the school office and in therapist-parent collaboration (both in the school office and at the students' homes), was to create a physical therapy program, with minimal didactic means that would contribute to improving the psycho-motor functional deficit, favoring the increase in the chances of recovery of students with postural disorders and spinal deformities.

Specific objectives:

- carrying out initial and final evaluations regarding the following indices: anthropometric measurements (height, body weight, abdominal circumference), BMI, joint mobility (finger-ground test, Schöber test, Eurofit battery test), pain intensity and well-being of the included subjects in study;
- application of the recovery program aimed at the following aspects: muscle rebalancing, recovery of the position of the spine and pelvis, reduction of pain (if any), formation of a reflex of correct body attitude in static and dynamic activities, improvement of joint mobility, improvement of the state of well, responding to the child's emotional needs and improving parent-child collaboration;
- increasing the number of hours per week by supporting the therapeutic activity at the child's home.

The basic research hypotheses were:

1. The application of a physical therapy program in therapist-parent collaboration, both in the school office and at the students' homes, determines the improvement of the psycho-motor functional deficit, favoring the increase in the chances of recovery of students with TSV.
2. The application of a physical therapy program in therapist-parent collaboration, both in the school office and at the students' homes, determines the improvement of their well-being.

The purpose of the experimental research resides in the desire to establish whether the effects obtained through the therapeutic program applied and supported in a therapist-parent partnership is more effective than the one applied without parental support in the school office. We believe that this aspect would highlight the effectiveness of the therapeutic intervention based on a

partnership in improving the symptoms and well-being of the subjects taken in the study by limiting the negative impact of pain and incorrect posture at the spine level.

At the same time, we wanted to make a personal contribution regarding the application of the physiotherapy program in the case of the most frequent TSV encountered in the school population, namely lumbar hyperlordosis by compiling a practical guide addressed to parents - *"Practical guide for parents - physiotherapy at home"* and the involvement parents to support and continue the child's therapy at home, thus becoming co-therapists.

Some of the findings of the basic research:

1. Parents play a crucial role in the recovery of their children and must be adequately supported, fulfill the role of partners (co-therapists) in the therapeutic process. Unfortunately, many parents do not realize the importance of involvement in their child's recovery, and few have the perseverance to complete a recovery program, which can take years.
2. In the current social context, in order to have good results in the recovery of the child with postural disorders and spinal deformities, the therapeutic action at the family level must become spontaneous-conscious, from random-permanent, during the recovery.
3. Although the parent is not qualified for the physiotherapy activity, through cooperation, information and training he has the privilege of becoming a co-therapist, working with his own child, in parallel with the therapy carried out in the office of the school or medical unit.
4. Taking into account the fact that postural disorders and spinal deformities requires a long recovery time, addressing, informing and involving the family is essential in solving the medical problem. To this end:
   - 15 families with children with postural disorders and spinal deformities were evaluated;
   - 15 children with cooperating parents were selected;
   - parents were approached, informed and trained so that they are involved in the therapeutic process;
   - 15 parents became informed and directly involved co-therapists in the therapeutic act;
   - intervened with a collaborative and continuous therapeutic program;
5. The physical therapy program cannot be effective if the child does not practice the skills acquired in the school office in the family as well. Thus, we recommend involving the family, actively, in the therapeutic program, to point out the aspects of either stagnation of spinal deviations or improvement.

In conclusion, at the end of the therapeutic intervention the subjects of the experimental group who benefited from the therapeutic program, 3 times/week (applied and supported in a therapist-parent partnership) obtained an improvement in well-being, a lower pain level, an index lower body mass and better joint mobility.

It is clear that the involvement of the parent in the therapeutic process determines the improvement of the psycho-motor functional deficit, favoring the increase in the chances of recovery of students with postural disorders and spinal deformities.

Final conclusions

In the end, we can conclude that there are some strong points from which we can start in order to develop and put into practice some policies to increase collaboration between all interested factors (parents, physiotherapists, school principals, doctors, psychopedagogues, NGOs, etc.) to develop and implement physical therapy programs for children with postural disorders and spinal deformities. Good relationship with other categories of people, preference for the same communication channels, trust in the role of physical therapy for solving postural disorders and spinal deformities are positive aspects on the basis of which programs and projects dedicated to children can be built.

Elements of originality

1. Research is important by stimulating society's interest in the recovery of children and adolescents with postural disorders and spinal deformities.
2. The research is represented by a study aimed at the centralization of data from the special education system, which can lead to management decisions regarding the number of hours per class in the Framework Plan, as well as drawing specific directions of action and therapeutic interventions.
3. The research includes an evaluation of the perception of the interdisciplinary team and parents on the online physical therapy activity during the suspension of classes, in the context of the pandemic - COVID-19.
4. Parents' awareness of the beneficial role in solving the medico-social problems of their own children and the need to be involved with the therapist, thus becoming co-therapists. Making a personal contribution to help parents who wanted to get involved in the child's therapy, thus becoming co-therapists *"Practical guide for parents - Physiotherapy at home"*

The purpose of the guide was to provide physical therapy suggestions and recommendations to involved parents (thus becoming co-therapists) that can contribute to increasing the chances of recovery of children with TSV after the school program. In conclusion, the research allowed highlighting the following important aspects:

- increased incidence of TSV in the school population;
- the fact that the hours allocated to the discipline in the Framework Plan are insufficient for the recovery of students with TSV;
- the cost of therapies, which cannot be ignored;
- the need for specialists in the field;
- the need for family involvement to favor increasing the chances of recovery of students with TSV.

Dissemination of results

The scientific research carried out during the 3 years of doctoral studies was valued by participating in scientific events, conferences and congresses:

14 Published scientific works:

1. **Bughirică -Georgescu, M**., Ionescu, C.R., (2022), *Current records on different impairments of children and adolescents enrolled in the special education system,* Ovidius University Annals, Series Physical Education and Sport /SCIENCE, MOVEMENT AND HEALTH, Vol. XXII, ISSUE 1, 2022, Constanța, Romania, 22-28.

2**. Bughirică-Georgescu, M**, Tüdős, Ş. (2021), *Online Kinesiotherapy in the context of the Covid-19 pandemic,* Discobolul – Physical Education, Sport and Kinetotherapy Journal, Volume 60, Supplementary Issue - 2021, 613-623, https://doi.org/10.35189/dpeskj.2021.60.s8.

3. **Bughirică-Georgescu, M**., Danciu, R. C. (2021), *Study on the incidence of spine deviations in hearing deficiency students.* In: Science of Physical Culture, 2021, nr. 37(1), 175-181. ISSN 1857-4114.10.52449/1857-4114.2021.37-1.13. https://doi.org/10.52449/1857-4114.2021.37-1.13.

4. **Bughirică-Georgescu, M**. (2021), The Incidence of Vertebral Static Disorders at Children Aged 11-14 Years. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, *11*(4Sup1), 30-45. https://doi.org/10.18662/brain/11.4Sup1/154.

5. **Bughirică, M.,** *Tüdős,* Ş. (2021), *Current approaches to spinal deficiencies from a preventive and therapeutic perspective*, Ovidius University Annals, Series Physical Education and Sport /SCIENCE, MOVEMENT AND HEALTH, Vol. XXI, ISSUE 1, 2021, Constanța, Romania, 15-20.

6. **Bughirică-Georgescu, M.**, Oltean, A M. (2021), *Theories regarding the appearance of vertebratic static disordes-A multifactorial approach*, Ovidius University Annals, Series Physical Education and Sport /SCIENCE, MOVEMENT AND HEALTH,Vol. XXI, ISSUE 2, 2021, Constanța, Romania, 101-107.

7. Oltean, A.M., **Bughircă-Georgescu M.** (2021), *Study on the efficiency of craniosacral therapy in patients with cervical pain*, Ovidius University Annals, Series Physical Education and Sport /SCIENCE, MOVEMENT AND HEALTH, Vol. XXI, ISSUE 2 Supplement, 2021,September 2021, 21 (2): 403 – 409.

8 Oltean, A.M., Stoica, M., **Bughirică-Georgescu M**. (2021), *Efficacy of craniosacral therapy in reducing stress levels in patients with neck pain*, New Trends of Fundamental Research in Sport Science From Research to Performance, Conference Proceedings Book, Editura Universitaria, Craiova, pag. 318-322. ISBN 978-606-14-1791-9.

9 **Bughirică -Georgescu, M**. (2020). Application of kinetoprophylaxis by parents at the children with scoliosis in special education, University Arena,

JOURNAL OF PHYSICAL EDUCATION, SPORT AND HEALTH vol. 5, issue 3, 2020 numărul 5/ 2020, 60-65, https://university-arena.unibuc.ro/archive/
And other publications

9 Scientific papers presented at congresses and conferences:

1. **International Siirt Conference On Scientific Research Siirt University, November 5-7, 2021:** Bughirică -Georgescu, M., Ionescu, C.R., *Current records on different impairments of children and adolescents enrolled in the special education system.*

2. **First International Conference for PHD Students and PHD Graduates in Sport Science -New Trends of Fundamental Research in Sport Science From research to performance- Craiova, October 29-31, 2021:** Bughirică-Georgescu, M.Tüdős, S., Oltean, A. M, *Online kinetotherapy-Between desire and reality,*

3.**International Congress of Physical Education, Sports and Kinetotherapy, 11th Edition, Bucharest, June 10-11, 2021:** Bughirică-Georgescu. M., (2021). *Comparative study on pain in children with scoliosi after the application of kinetic tratament*.

4. **International Scientific Conference Education, Sport and Health, 14th Edition, Bucharest, May 14, 2021:** Bughirică-Georgescu, M., Oltean A.M, (2021), Aspects of the health of students from pre - university educationl institutions in Romania - Acquired deformities of the spine.
Oltean A.M, Bughirică-Georgescu, M., (2021), The efficiency of the CranioSacral therapy in spinal disorders

5. **International Scientific Conference Education, Sport and Health, 13th Edition, Bucharest, May 8, 2020:** Bughirică-Georgescu, M. (2020), Application of kinetoprophylaxis by parents at the children with scoliosis in special education.

6.**International Congress of Physical Education, Sports and Kinetotherapy, 10th Edition, Bucharest, June 11-13, 2020:** Bughirică-Georgescu. M., (2020), The Incidence of Vertebral Static Disorders at Children Aged 11-14 Years.

7.**International Scientific Conference- Sport. Olympism. Health, 5th Edition Republic of Moldova, *Chișinău*, September 10-12, 2020:** Bughirică-Georgescu, M. (2020),. *Considerations regarding the application of kinetoprophylaxis means in combating and treating vertebral static disorders in school children*
And other participations

Teaching activity in UNEFS during doctoral studies

1. Supporting Pedagogical Practice classes for UNEFS students. Year III - Faculty of Physiotherapy, in the academic year in the academic year 2020-2021, 2021-2022.
2. Supporting the practical classes "Internship in spa resorts" for students from UNEFS. Year III-Faculty of Physiotherapy, in the academic year 2020-2021.

RECOGNITION

The research undertaken in the doctoral thesis, **THE DEVELOPMENT OF PSYCHOSOCIAL RESOURCES OF STUDENTS WITH SPECIAL EDUCATIONAL REQUIREMENTS IN THE RECOVERY OF POSTURAL DISORDERS AND SPINAL DEFORMITIES** was elaborated under the aegis of the National University of Physical Education and Sport, in Bucharest, during the university studies, within the Doctoral School.