

Summary of the Ph. D. Thesis

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The title of the thesis: **The effects of therapy conducted according to the Castillo Morales® concept and the quality of life of the family of a child with Down syndrome as perceived by the mother.**

Key words (max. 10): Castillo Morales® concept, Down syndrome/trisomy 21, quality of life of a family of a child with Down syndrome, muscle tone, surface electromyography, orofacial complex, independence, parental competence, early intervention.

Abstract: The doctoral dissertation presents the results of the first research in Poland, the aim of which is to examine the relationship between the effects of therapy conducted according to the comprehensive concept of Castillo Morales® and the quality of life of the family of a child with Down syndrome as perceived by mothers. The inspiration to undertake them was the observation of the therapeutic process of children with genetic development disorders and their families, as well as the desire to fill the gap in scientific research on the effectiveness of the Castillo Morales® concept in its overall aspect. The doctoral dissertation consists of three parts.

The first part presents:

- clinical characteristics of children with Down's syndrome, including issues related to the specificity of the orofacial complex, development of primary functions, speech, language, and the subject of early intervention was introduced,
- terminological issues regarding the quality of life, focusing on the quality of life of a family with a child with an intellectual disability going with Down syndrome,
- the main assumptions of the neurophysiological concept of Castillo Morales®,
- types of muscle tension, structure and functioning of the examined facial muscles.

In the second part of the dissertation there is a program of own research: motives for undertaking research, research goals and tasks, methods used. The main goals of the research are to find:

C.1. Does the therapy of children with trisomy 21 aged 13–42 months according to the Castillo Morales® concept, and in what respect, affect the efficiency of the orofacial complex and the functioning of children in selected areas of everyday life?

C.2. Whether and to what extent the effectiveness of therapy conducted according to the Castillo Morales® concept in children with trisomy 21 aged 13–42 months affects the assessment of the quality of life of families in the perception of mothers in terms of: family health, financial situation, family relationship, support of other people, as part of specialized services and social assistance, the system of values, professional career and preparation for a career, leisure time and recreation, social interaction?

As part of the specified goals, research tasks were found (including the variables and their indicators) and methods selected so that, based on the data obtained, it was possible to answer the questions posed and achieve the indicated research goals.

The selection of the research group for the experimental and control groups in the first stage was carried out using the random method, and in the second stage a targeted method was used, which made it possible to make the research sample as representative as possible. Therefore, 60 children with simple trisomy 21 and their mothers from two early intervention centres in the capital city of Warsaw were included in the study.

The third part of the dissertation consists of three chapters. The first of them characterizes the home environment of the examined children, the next ones present the results of research (including interpretation, generalizations, and conclusions) regarding the relationship between the Castillo Morales® concept and the mother's feeling of the quality of life of a family with a child with Down syndrome aged 13–42 months. The results of the diagnostic diagnosis of changes in muscle tone (measured with sEMG) because of the use of the Castillo Morales® concept, along with interpretation and generalizations, are presented. Based on the study, it was found that:

- in the case of the maximum resting tension of the masseter muscle - an increase was recorded in the control group,

- in the case of medium tension as a function of the masseter muscle - an increase was recorded in the experimental group,
- in the case of the maximum and average resting tension of the buccal muscle (m. buccinator) - a decrease was recorded in the experimental group,
- in the case of maximum tension as a function of the buccal muscle (m. buccinator) - an increase was recorded in the experimental group.

The obtained data allowed to draw a conclusion that the therapy of children with trisomy 21, conducted according to the Castillo Morales® concept, affects facial muscle tension measured by surface electromyography.

The following part of the paper presents the results along with interpretation and generalizations regarding the assessment of the functioning of children with trisomy 21 aged 13–42 months in selected areas of everyday life. Based on the collected results, a significant improvement in lip closure and expression of facial muscles was found in children whose therapy was supported by the Castillo Morales® concept. In addition, mothers from the experimental group were characterized by a higher level of happiness, had a greater awareness of the correlation between posture and the function of the orofacial complex, and rated support in the field of parental competences higher. In summary, it was found that the therapy of children with trisomy 21 aged 13–42 months according to the concept of Castillo Morales® affects the mother's assessment of the functioning of children with trisomy 21 in selected areas of everyday life.

In the opinion of the neurologopedist, in children whose therapy was conducted according to the Castillo Morales® concept, it was found, among others, improvement in the closure of the lip gap at rest, less frequency of parafunctions in the form of teeth grinding and tongue/lip sucking. A significantly greater number of children also showed independence, an improvement in selected aspects of primary activities during the function of drinking and eating was noticed.

There is a mutual dependence and coherence between the individual results obtained from the conducted research procedure, which gives an overall picture of the impact of therapy conducted according to the overall concept of Castillo Morales® on the development of the child and his family, whose quality of life has improved in various respects (significance,

opportunities, initiative, achievements, stability, satisfaction) in selected areas of life. The chapter ends with a summary of the research results.

In the fourth part, due to the considerable number of examined variables, only statistically significant results are summarized. They are presented in a tabular form, which allows you to understand the effects of therapy clearly and transparently for children with Down syndrome aged 13–42 months, conducted according to the Castillo Morales® concept.

In the next – fifth part, a discussion on the obtained results was undertaken. First, in the context of theory, the results of research on the impact of therapy conducted according to the Castillo Morales® concept on the efficiency of the orofacial apparatus and functioning in selected areas of everyday life of children with trisomy 21 aged 13–42 months were discussed:

- sEMG test results in the context of theory,
- results of the study assessing the functioning of children with trisomy 21 in selected areas of everyday life in the mother's assessment in the context of theory,
- results of the evaluation of the function of the orofacial complex made by a neurologist in the context of theory.

Then, in the fifth part, there was a discussion on the results obtained from the study on the quality of life of families with a child with trisomy 21 in the mother's perception. It consists of four chapters, successively addressing the research questions posed. At the end of each part, the research hypotheses were confirmed:

H.1 There are differences in the assessment of the efficiency of the orofacial complex and functioning in selected areas of everyday life of children with trisomy 21 aged 13–42 months after the implementation of Castillo Morales® therapy.

H1.1 After the implementation of Castillo Morales' therapy,® there are differences in facial muscle tone measured by surface electromyography in children with trisomy 21 aged 13–42 months.

H.1 Therapy of children with trisomy 21 aged 13–42 months according to the concept of Castillo Morales® affects the efficiency of the orofacial complex and the functioning of children in selected areas of everyday life.

H1.1 Therapy of children with trisomy 21 aged 13–42 months according to the concept of Castillo Morales affects facial muscle tension measured by surface electromyography.

H1.2 Therapy of children with trisomy 21 aged 13–42 months according to the concept of Castillo Morales affects the functioning of children with trisomy 21 in selected areas of everyday life in the mother's opinion.

H1.3 Therapy of children with trisomy 21 aged 13–42 months according to the concept of Castillo Morales® affects the function of the orofacial complex in the opinion of a speech therapist.

H.2 The effectiveness of therapy conducted according to the Castillo Morales® concept in children with trisomy 21 aged 13–42 months affects the assessment of the quality of life of families in the perception of mothers in terms of: family health, financial situation, family relationship, support of other people, support within specialist services and social assistance, system of values, professional career and preparation for a career, free time and recreation, social interactions.

In the sixth part of the dissertation, the benefits of the practical implications of the research were considered – the possibilities of using therapy according to the Castillo Morales® concept in the Polish system of early intervention.

Limitations of the conducted research and guidelines for future researchers can be found in the seventh part of the dissertation. They refer to the size of the study group, the need to use standardized tools, and to conduct longitudinal research in interdisciplinary teams.

The dissertation ends with conclusions on the need to take a deeper look at the neurophysiological concept of Castillo Morales® in its entirety, and not only to analyse its fragment. Expanding knowledge on the relationship between the effects of therapy conducted according to the Castillo Morales® concept and the quality of life of the family of a child with Down syndrome aged 13–42 months in the perception of the mother contributes to the development of theory in the field of research on therapeutic factors affecting the quality of life of the family with the child with trisomy 21 and conditions significant in the therapeutic process of this disease entity. Comprehensive therapy conducted according to the Castillo Morales® concept shapes positive social attitudes towards children with disabilities, contributing to the creation of parental support mechanisms and influencing the quality of life of the whole family.

