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FACULTY OF PSYCHOLOGY AND EDUCATIONAL STUDIES**

**APPLICATION OF OCCUPATIONAL THERAPY FOR CHILDREN WITH
CEREBRAL PALSY**

Synthesis of the doctoral thesis

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Key words: occupational therapy, occupation, recuperation, rehabilitation, cerebral paralysis, development

CHAPTER 1 THEORETICAL APPROACH

1.1.Introduction and research problematic

Occupational therapy is a large research field and therefore it is very hard to define the term in a few sentences. The following paper tries to present aspects regarding the definition of the occupational therapy, its conceptual delimitation, history, philosophic ground, theories, and pattern. Detailed is information regarding the way one can intervene through occupational therapy on the child with cerebral paralysis, problems regarding the dysfunction of the upper limbs, as well as the role that the game and the toys play in the development of the hand function.

The second part of the paper includes the research, initially describes the components of the research design, as well as the used method for structuring the case studies. The applicable frame of the occupational therapy is a very large one, and the following paper presents a study realized in the area of therapeutic intervention on the child with special needs, precisely on the child with cerebral paralysis.

The presentation of the ten chosen case studies is detailed according to the chosen structure. Each case study contains: identification data, case history, conceptualization of the case, intervention plan, therapeutically objectives, results, and follow up of the patient's evolution. Finally, the chapter: „Conclusion and discussions”, presents the conclusions of the research, new theories, boundaries of the research as well as theoretical conclusions.

The research through case studies comes to bring forward the modality of intervention in occupational therapy for the children with disabilities as well as the results, in order to demonstrate the fact that this therapy is benefic and contributes to the remedy of certain dysfunctions. This therapy helps remove the boundaries of the individual to daily participation. The occupational therapy is still a field that has not been sufficiently studied in our country, and as long as specialists turn their attention toward this area, an adequate recognition of this profession will be established.

1.2.The current state of specialized literature

„The occupational therapy is the profession that describes the promotion of health and good state of mind through occupation. The main goal is to allow the individual to participate to daily activities. It is a profession that belongs to the health department and that has as a base conception the idea that an activity with purpose can promote health and a good state of mind in every aspects of the daily life” (World Federation of Occupational Therapists, 2008).

The breaking point in occupational therapy is to make it possible for people to participate in daily activities. An occupation is „ a group of activities that have a personal meaning, that are known in a culture and that support the participation to society”. (European Network of Occupational Therapy in Higher Education, 2008)

The occupation can be categorized as: self- care, productivity, and/or spending free time. Participation in occupation promotes the identity, the health, and the good state of the people. Certain people can be restricted from participation to occupation due to certain dysfunctions in the structure or functionality of the human body, which are caused by physical and/or mental health conditions and / or caused by the restrictions of the physical, social, attitudinal, or legal environment. The occupational therapists understand and use the therapeutic potential of the participation to occupation or activities in order to enhance abilities and proficiency, allowing the realization of occupations that people choose. Alternatively or additionally, if needed the occupational therapist works to change aspects of the environment, to support participation.

„Occupational therapy (OT) is the treatment form that uses specific activities and methods to develop, improve or restore the capacity to develop activities required for an individual life, to compensate dysfunctions and to diminish physical deficiencies.” (American Occupational Therapy Association, 2008).

The main goal is the medical one (to promote health and good state of mind) and afterwards the economic- social one, following the therapeutic effect through work and activity. In this sense, the occupational therapy stimulates the self-esteem of the sick and natural development of the personality, organizes a program of moves under working conditions, detects the capacities and inclinations of the sick person, correlates medical recuperation with professional one, realizes reinsertion in the social, economical and professional life

Nowadays there are two terms that are accepted to define the same thing: occupational therapy and ergotherapy. Ergotherapy is a Greek word, that in translation means therapy through work,

otherwise said: „ the health state obtained through work”- meaning the base concept of the occupational therapy. Through time, the concepts have been modified, and the gained state of mind through work is now obtained through activity. Many countries have taken over the term „ergotherapy”, even if the language does not contain Greek influence. There is no rule, according to which the two terms have been absorbed. For example Scandinavia countries like Norway or Denmark use the term „ ergotherapy”, while Sweden has chosen the direct translation of the term „ therapy through work” -“arbetsterapi”. America and Asia use the term „ occupational therapy” while France, Austria use the term – „ergotherapy” (www.enothe.com)

„ Occupational therapy is of more types, but for handicapped persons, the most significant refer to play therapy, therapy through music, therapy through dancing and ergotherapy”. (Emil Verza; 1994)

„ Occupational therapy is a synthetic, global, specific for kinesitherapy method, that aims the social, family and professional reintegration of the handicapped persons and that requires a particularity that is commanded and maintained psychically”. (Tudor Sbenghe, 1987)

Alexandru Popescu (cit.by Dan M., 2005) shows that: „ in occupational therapy, keeping the free time busy, has the purpose to awaken the interest of the sick person for every kind of activities, on this principle we have the play therapy, art therapy, cultural therapy, kinesitherapy; and that the occupational therapy has as a ground the intrinsic signification of the remunerated work in the process of professional and social reinsertion of the sick person that participates to activities such as: weaving, manufacturing of objects, botanical activities, culture of plants and flowers...

In our country, this term has been first introduced in psychiatric hospitals or in other kind of social rehabilitation institution – penitentiary, aiming more the social and economic scale.

Together with the restructuring of the social assistance system and child protection, as well as with the appearance of non-governmental organization with a social activity field, reintegration centers through occupational therapy or ergotherapy have begun to appear, as a therapeutic method used for the social rehabilitation and reinsertion of the persons with disabilities.

For many people, the term „occupation” has not been part of the every-day vocabulary used by the occupational therapist. The definition of this term is a challenge because the word is part of the common language, with meanings that cannot be controlled by the profession. The

term „occupation” and the related concepts „ activity”, „duty”, „employment”, „work” are used in different meanings and forms in the occupational therapy. The founders of the occupational therapy have used the term „occupation” to describe an „adequate” possibility to use the time, which included work and recreational activities. (Meyer, 1922 / 1977).

This term has been constantly examined and redefined once with the maturing of the profession. The Canadian Association of Occupational Therapist defines the occupation as: „a group of daily activities and duties, which are named, organized and have value and meaning for the individual, part of a culture”. Another more recently definition of the occupation, suggested by Clark, Larson, and Wood (3003) refers to the „activities that imply all our existence and that can be named in a culture”.

The occupational therapy for children with special needs is the field that this research paper is based on. The occupational therapy services for children may include direct intervention based on the biological, physiological, psychological, or neurological changes of the child. The intervention may also include exercising new techniques, customs, abilities, or behavior in order to allow the participation to a new and relevant context. Consulting with parents or caretaker is an essential component of the intervention for this age group. Sometimes the intervention is based on compensation, adaptation or changing the context and the therapist may suggest adapting the task, using adaptive equipment or using the assistance technology. (Hanf and Pilkington, 2000). Essential for the occupational therapy for children is the prevention of disabilities, education and promoting health.

After the understanding of the disability has passed from the medical pattern, based on disease, physical incapacity and symptoms, to a social pattern, based on access and participation to activities, there is a large recognition of the fact that the participation to every-day activities is vital for the child’s development. Coster (1998) gives a personal point of view of the social participation with direct reference to the child: „ the way in which a child is capable to orchestrate his implication or participation to occupation in a certain context that is positive, personally satisfying and acceptable for adults, part of the society responsible for that..”

Children with disabilities represent a risk factor regarding the participation to daily activities, and while these grow, they will represent a risk factor regarding the participation to adult activities” (Brown and Gordon, 1987).

The neurological dysfunctions in children refer to all the disturbances that affect the neurological development of the child. This condition can occur before birth, during birth or after birth. The neurological development can affect the children's ability to participate in almost every occupation. Some of the children's occupations are: self-care, playing, learning, interaction with family or people of own age, and for the order one, living in a community or employment. Evaluation and intervention are realized in collaboration with the parents, teachers, or caretakers.

There are a series of personal factors that can influence the occupational performance in children with neurological dysfunctions. For these children, the analysis of the occupational performance requires knowledge regarding the functionality of the central nervous system, sensorial processing, and adaptation, developing of the motor activity and an appreciation of the complexity in children's development. Development is a process where the neurological maturity interacts with the environment (Gilfoyle, Graddy and Moore, 1990). This interactions between the neurological system and the environment produce feed-backs that modify both components.

Cerebral paralysis is not a specific condition; it is more a group of clinical syndromes that affect movement, muscular tonus, and coordination as a result of a lesion on an immature brain. It is not considered a disease. Cerebral paralysis is classified as a static encephalopathy and is sometimes diagnosed this way. Encephalopathy is the term used to describe a condition generated by cerebral function, and can be acute or chronic, progressive or static. Cerebral paralysis always comes with a delay in acquiring the motor development process.

The hand is a strong tool with a primal goal to explore and manipulate objects. The hand development for object manipulation has a long way. It is one of the possibilities for children to experience success and competence perception. Bruner (1973) presents competence as not only including social interaction but also craftsmanship over objects.

The first year in a child's life is a period when reaching or touching an object is perfected, and the base pattern of grasping is developed.

The hand is the brain's tool. The brain guides the hand. Exploring or manipulating objects is the result of our wish to conquer the physical world.

CHAPTER 2 RESEARCH METHODOLOGY

1. Problematic approach

Occupational therapy is an old and never the less new field in Romania. There are many that use this kind of therapy, but the question relies in the correct appliance of this therapy, according to well established principles and methods, formerly established therapeutic pattern that have been delimited after correct scientific evaluation.

The lack of practical research in the field lead to the problematic: Does the intervention through occupational therapy have notable results in children with cerebral paralysis?

In connection with the present case study, the questions raised are:

„ How does the intervention operate through occupational therapy in order to realize recuperation of certain functional deficiency in the development of children with cerebral paralysis?”

„ Why is the occupational therapy considered to be benefic?”

„ How can this type of intervention be regarded considering the scientific rigors?”

Formulation of the theory

The theory is one regarding the individual and is necessary for the generalizing of the studies results. We will use the method of analytical generalization, so that the theory can reach the role of a pattern, and afterwards we will compare the empirical results of the study.

The intervention through occupational therapy on children with cerebral paralysis will lead to the rehabilitation of certain functional deficiency in the development field (motricity, cognition and self-care).

2. Objectives of the research

General objective:

- Evaluation of the efficiency of the intervention programs through occupational therapy for the children with the diagnose – cerebral paralysis, presented through longitudinale case studies over a 2 year period, as a solution for the deficiencies that these children have in the development (cognitive, motric and self-care)

Specific objectives:

- Global evaluation of each participant to the study (psychological evaluation, evaluation of the “disabilities”, occupational therapy evaluation)
- Identifying the development age on behavioral pattern as well as the level of development for every child.
- To formulate specific intervention plans that aims the learning of the participated children of certain motor, cognitive, and self-caring customs.
- Development of the level of functionality of every child through learning certain functional behavioral customs.
- Evaluation of the efficiency of the programs for personalized intervention taking into consideration realizing or not realizing the formulated therapeutic objectives.

3. Hypothesis of the research

- Implementing methods specific to the occupational therapy helps acquiring and generalizing certain acquisitions from the development area: cognitive, motric and self-care on the child with cerebral paralysis.

4. Presenting the method

Analyzing unit

The primary unit of analysis is represented by the individual. We will collect information from ten chosen case studies. These children have an age range between 5 and 13 years (date of beginning of the intervention), and have the medical diagnose: cerebral paralysis

The case studies have been chosen according to the criteria:

- Primer medical diagnose
- Motivation and disposability of the parents to bring the children to regular therapy.

Characteristic of the research:

- The case study is used as a research strategy
- The research is based on multiple case studies
- Longitudinal research with 2 year duration, January 2009 – December 2010.

Methods of collecting the used data:

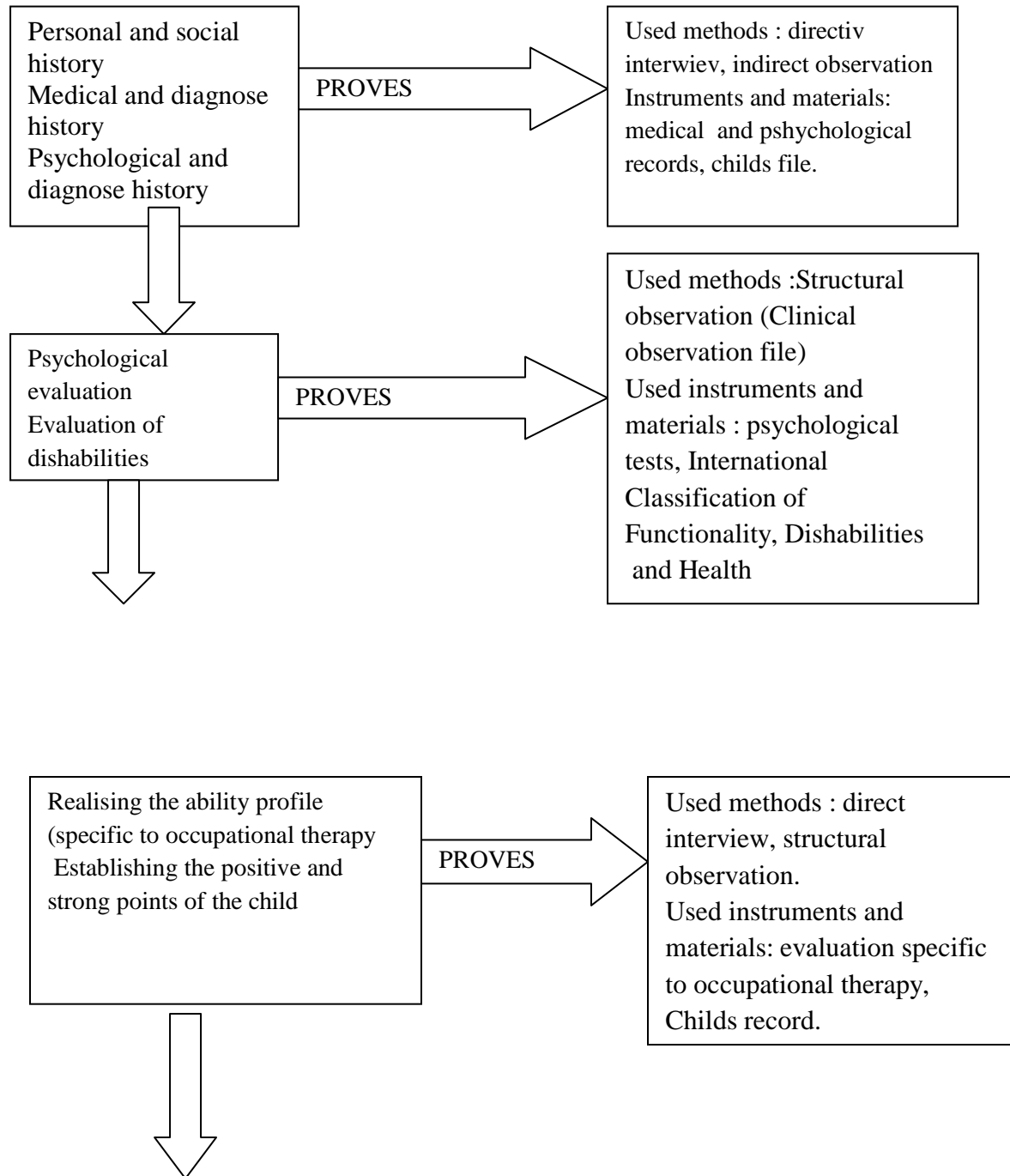
- Indirect observation (examine the personal documents of the child in order to collect information regarding : medical and psychological history, medical and psychological diagnose)
- Structural observation (used in the psychological evaluation and the specific occupational therapy, record of clinical observation – Appendix 2)
- Continual observation (observing the behavioral sequences that require therapeutic intervention on the 2 year trial period).
- Directive interview (Appendix 1) (for collecting the required data: social and personal history, profile of abilities specific for the occupational therapy, list of problems, establishing the strong and positive points of the child.)

Instruments / Used materials:

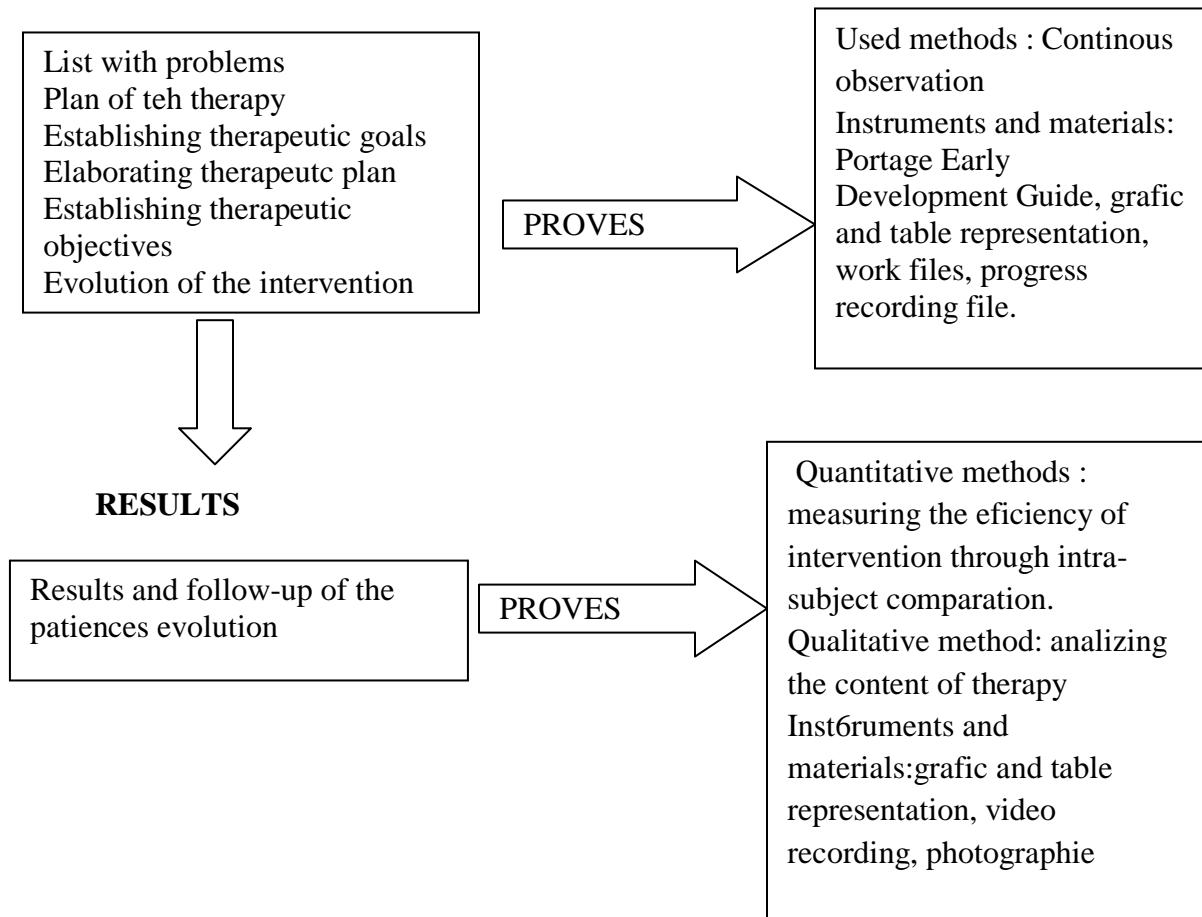
- Medical record (medical letters, discharge papers from the hospital, medical investigation)
- Psychological documents (psychological evaluation)
- Instruments used in the psychological evaluation : Progressive Matrix Raven Colored and Standard, Denver Development Scale
- Instruments used in the specific evaluation of occupational therapy: Barthel Index (Appendix 3), Evaluation of daily activities (Appendix 4), Articular balance sheet of upper limbs (Appendix 6), Analyzing sheet of hand abilities (Appendix 7), Initial evaluating file – occupational therapy (appendix 8).
- Materials used for formulating the „ diagnose”, disabilities: International Classification of Functionality, Health, and Disabilities.
- Materials used for identifying the development level and to guide the formulating the therapeutic objectives: Portage Early Development Guide
- Materials used in the therapeutic intervention: work files (Appendix 9- 38), toys (Appendix 39), personal objects, objects from the environment, progress recording file (Appendix 40)

5. Research design - The used formula for structuring the cases

For each of the ten chosen case studies, the structure is based on following formula:



INTERVENTION PLAN – AN APPROACH FROM AN OCCUPATIONAL THERAPY PERSPECTIVE



The used procedure:

Case history: has in its composition the collecting of information from more sources and is composed by: social and personal history, medical history and diagnose and psychological history and diagnose. These date help to get familiar with the case and represent a breaking point for structuring the therapy

In order to gather all these information sources and methods such as have been used: indirect observation, directive interview, medical and psychological records presented by the caretakers.

In order to present a personal and social history there has been used a directive interview for the caretakers (appendix 1) , with open questions, where the parents have the possibilities to present their knowledge about the child's disabilities as well as the way the child has developed through out the years. During the interview, key- questions have been used:

- Did you have problems during pregnancy or birth?
- When and how did you notice that something is wrong with your child?
- When was he diagnosed from a medical point of view?
- What did you do for your child's recovery?
- What is your struggle about the child?
- Do you think that therapeutic intervention is benefic for your child?

Medical history is formulated as well as from the information's gathered from the parents, as also from the medical records presented by request of the therapist. The child with cerebral paralysis is generally very often admitted to the hospital, due to the rehabilitation regimen performed annually or biannually as also from the medical evaluation. Discharge papers represent valuable sources where one can extract medical information.

Medical diagnose is of the doctors competence and is already in the medical records of the child. The research paper considers cases of cerebral paralysis no matter of what type.

Psychological history and diagnose is realized from similar information sources, for example files of psychological examination from the parents. The psychological diagnose is already formulated in the psychological files from the caretakers.

Psychological evaluation is based on filling out a clinical observation file (appendix 2), with reference such as: general description, general state, child's behavior during examination : attitude towards the examination situation, attitude towards itself, working method, reaction to test item, reaction to failure, reaction to praise, language, visual and motor skills, comparing the verbal tasks with the non-verbal. In the psychological evaluation, for establishing the intellectual level, there have been used: Raven Progressive Matrix, Color and Standard. Due to the fact that the Raven Matrix is applicable from the age of 5 years and 6 months, for the cases with an younger chronological age the Denver Evaluation Scale has been used, resulting an evaluation of the development field.

The psychological evaluation presents in content a qualitative description of the psychical process resulted after the direct observation during different tasks.

In order to realize the evaluation of the disabilities the International Classification of Functionality, Disabilities, and Health has been used. This complex classification represents a

guide in reference to establishing occupational therapeutic priorities, making possible to identify the problems that the individual has and its connection to the disability.

2. Conceptualization of the case – an approach from the perspective of the occupational therapy is a precursory step of the intervention specific in the occupational therapy. It starts with the evaluation of the occupational field. This evaluation is a complex one and the used methods are directive interview and structural observation.

Evaluation in the occupational therapy is a planned process with the purpose of obtaining an exact image over the functional level of the individual. The general objective of every evaluation is the gathering of all the necessary information in order to help the individual in achieving a maximal level of functionality of his capacities.

The used approach in the evaluation as well as in the intervention is the one called approach from bottom to the top. It starts with establishing the discrepancies regarding the performance on the highest level, meaning the social role. Afterwards it centers on the necessary tasks for sustaining the social role with value for the individual (level of activities / limitation in activities from the International Classification of Functionality, Disabilities and Health) and after that the interest is transferred to generic abilities that sustain activities and performance within the social role (level of structure and corporal function from the International Classification of Functionality, Disabilities and Health)

The reasoning of this approach is that, though the disability cannot always be cured, the activities and social participation can be improved by realizing, and adapting the tasks and actions associated to these activities and roles.

The evaluated occupational fields are: daily activities, playing and leisure, education. After that, in a pyramidal manner the performance abilities are evaluated together with the factor of the individual.

For an evaluation specific to occupational therapy we used: Barthel Index – a test with the most important daily activities: feeding, bath, corporal care, dressing, toilette, transfer, mobility. For each item one can reach a scoring that reflects the independence grade of the child for every activity. By adding up the scores we can have a success percentage that reflect the independence grade of the child regarding daily activities (Appendix 3)

Due to the fact that the Barthel Index is not sufficient to gain a complete image over the way the child realizes or not daily activities, we used the instrument called Evaluation Chart of

daily activities (Appendix 4) that details a range of daily activities, and gives the possibility to grade the level of independence for each activity. After finalizing the evaluation of daily activities, a series of problematic activities can be identified, that where structured in a table and offered to the parents in order to identify themselves their order of importance. The importance that the parents give to a certain activity in favor of another is very important for establishing the therapeutic priorities (Appendix 5).

For evaluating the game, the free time activities, and the education we used the structured interview with the caretakers and the direct observation.

After effecting these global evaluations we continued with evaluating the performance abilities and the factor of the individual. Therefore we realized the evaluation of harsh motricity as well as the articular balance of the upper limbs (Appendix 6).

Regarding these performance abilities, the upper limb, especially the hand, is an important part of the evaluation. The analyzing file of the hand ability is used. (Appendix 7)

The part regarding the profile of ability specific to the occupational therapy is in fact a stage where the received information after the evaluation is concentrated in this particular profile in order to have a large perspective over the case (Appendix 8). This profile also permits the assessment of the positive aspects and strong points of the child.

Every case also has another type of evaluation, based on the Portage Early Development guide. This evaluation permits the assessment of therapeutically objectives. The Portage method was initially elaborated for home education purposes, but considering its efficiency, it became applicable on children with special needs. Portage is applicable on children with age between 0 and 6 and has 6 development areas: stimulation of the baby, socializing, self-care, cognitive, motor and speech. The behavior manifested in one or more of the development areas are necessary abilities, based on which the child can execute a new ability in another development area. This way, the development is an accumulating one, what a child can learn today is based on the abilities that he already has. The evaluation based on the Portage file is initially used to establish the level of development, and after that, every 6 months to see its evolution. After every evaluation, other therapeutic objectives are established (acquisitions proposed for a child on a 6 months period). The objectives are established in the development areas: self-care, cognitive and motor, and are considered to be important for the intervention through occupational therapy. The evaluation made on every 6 months takes into consideration all the development areas, because

the children, part of the study, undergo other therapies as well, and therefore can show certain progress in the area of speech or socialization as well.

3. Intervention plan – an approach from the perspective of the occupational therapy is actually the conceptualization of the therapy that will be applied. This is based on establishing a therapeutic program from different areas of the occupational therapy that takes into consideration the educational level of the child, characteristics of the deficiency, present status, cultural background and its motivation to change. The intervention plans is organized in a manner that helps the child to acquire a habit adequate to his individual capacities and relevant to his present and future way of life, to elimin or reduce the behavior thar creates obstacles in the way of learning or ar socially unacceptable and minimize the failure and the problems resulted from his disabilities. The action of the therapist is based on the idea that: practical and volunteer activities of the child determine the development of the personality, what at the end, leads to his better adaptation to the environment. In order to realize this general purpose, the intervention plan is elaborated, with the goal to form or increase the child's performances. The process of occupational therapy aims to resolve the problems specific to the individual in order to help him realize an optimal adaptation to his life style. After finishing the evaluation, the therapist has an exact image of the occupational profile of the child.

The problem list is identified after analyzing the ability profile specific to the occupational therapy and the information obtained after the evaluation.

Establishing the therapeutically goals and objectives is strongly related to the problem list. It is important to arrange the identified problems based on the maximal priorities of the child. These priorities are identified together with the parent or even with the child if the situation allows.

In establishing the therapeutically objectives we must take into consideration:

- Needs and wishes of the subject
- Knowledge about the value system of the subject
- Existent information's about a certain disease or deficiency, and the consequences on physically or psychically level.
- Knowledge about occupational therapy and medical methods
- Information available regarding the environment the child will be prepared for from an educational, professional or associative point of view

- Purposes and general frame of the recuperation program, multidisciplinary, where the person will be integrated.

Therapeutically objectives where formulated with the help of the Portage Early Development guide, on a 6 months period (middle term objectives), each objective is distributed into target behavior (sub objectives or short term objectives), and these are formulated on an 1 month period, in concrete terms, quantifiable and measurable. The objectives have been established on 3 development areas: self-care, cognitive and motor. These where formulated in measurable and observable verbal terms. The formulated objectives must answer 4 questions: who? (Child), what is it doing? (The observable behavior that we wish the child to have), under what condition? (The type of help we want to give the child), with what success rate? (because we learn the child a new custom, a single manifestation of the custom is not enough, therefore it must be repeated).

When the child learns a new ability, it is necessary to give him various types and scales of help. This help is described in the condition of the behavioral objective and it is used to establish progress in analyzing the task. The types of help are made of 3 categories: physical help, verbal help, visual help.

The physical help represents any type of help that implies the sustenance, support, or guidance of the child from the parent. This is used to learn the motor abilities.

The verbal help implies telling the child words that help him fulfill the task.

The task analysis is dividing the middle term objectives into smaller sequence objectives, target behavior or target objectives. These distributions of the middle term objective actually represent short term objectives. The task analysis is performed by choosing different types of help that are needed for the child and arranging them according to the increasing difficulties. Once the therapeutically purposes and objectives are established, we can decide what the instruments and techniques of intervention can be used, meaning, elaborating a therapeutical plan. This plan contains a synthesis of the activities used to achieve a performance level where the customs and capacities of the child can function. Planning and conducting the therapy follows a clearly formulated circuit in the occupational therapy. The obstacles during the therapy are recorded in the therapeutical files and are taken into consideration if the objectives are reconsidered.

Selecting and adapting the required equipment implies a substantial imagination effort of the therapist, in order to project means and devices adapted to the child's needs.

Every deficient child has certain special requirements that have to be established with priority before adapting or constructing certain equipment for it. The changes in a using instrument during the therapy can be temporary or permanent according to the progress the child has realized.

4. Results and follow up of the case evolution represent the final stage of the therapeutic intervention. These can be concluded only after a continuous evaluation of the occupational therapy program in order to measure the efficiency of the utilized procedures. The intermediary evaluation is used during the appliance of the therapeutic plan and is based on measuring the results after achieving the projected intermediary objectives. This type of intermediary evaluation was used in the current research paper, the reaching of objectives being evaluated on every 6 months as well as the evolution of the child based on the Portage early development guide.

The final evaluation refers to the analysis of the results of the therapeutical process on a whole. This way the success or failure of the realized therapy is brought forward with the purpose of supporting the child's needs through occupational therapy.

The results are finally reported to the objectives of the research and the evolution will be closely followed over the period of two years established from the beginning of therapy.

The recuperation process through occupational therapy on persons with disabilities is a continuous process, which has to continuously be repeated in different ways according to the specific needs of the individual, in different moments of his life. Only after a clinical resuming of the process, the therapist can contributed effectively to the assignment of a development level of the person with disabilities, as close to normal as possible.

6. Data analysis

We will use the quantitative method of the data analysis: comparing the advance in the development ages – intra- subject comparison.

Qualitative method of analysis: analyzing the content of the therapeutic intervention

Instruments and materials: graphic and table representation, video recording, photography.

7. Presentation of the results

The results will be presented as a conclusion in each case as well as presented in a separate chapter where they will be reported to the objectives and theory of the research.

CHAPTER 3 GENUINE STUDY

3.1. Case study number 1

- **Identification data :**

First and last name: C. A.

Date of birth: 1.03.1995

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

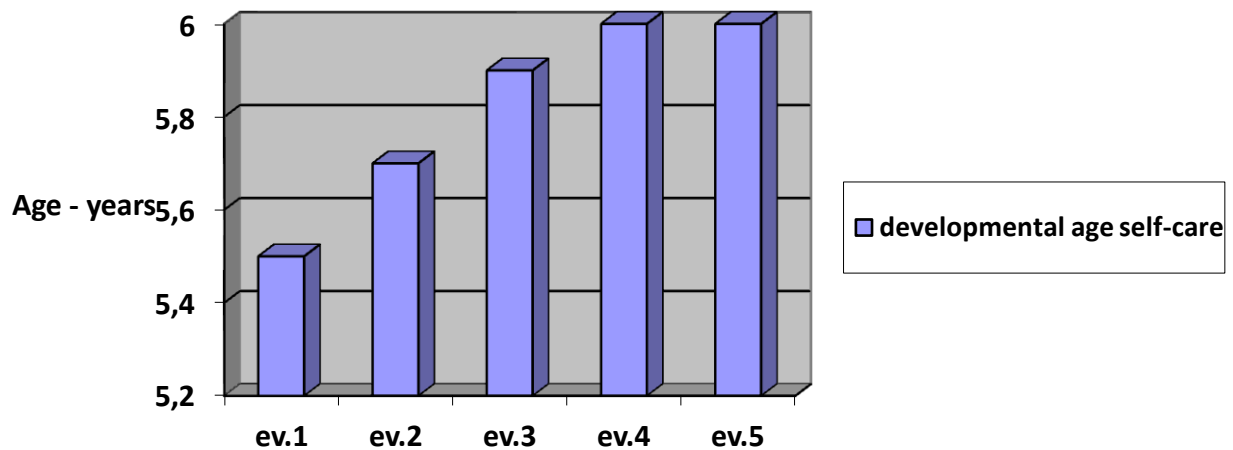


Figura 3.1.1. Evolution of self-care after therapeutical intervention

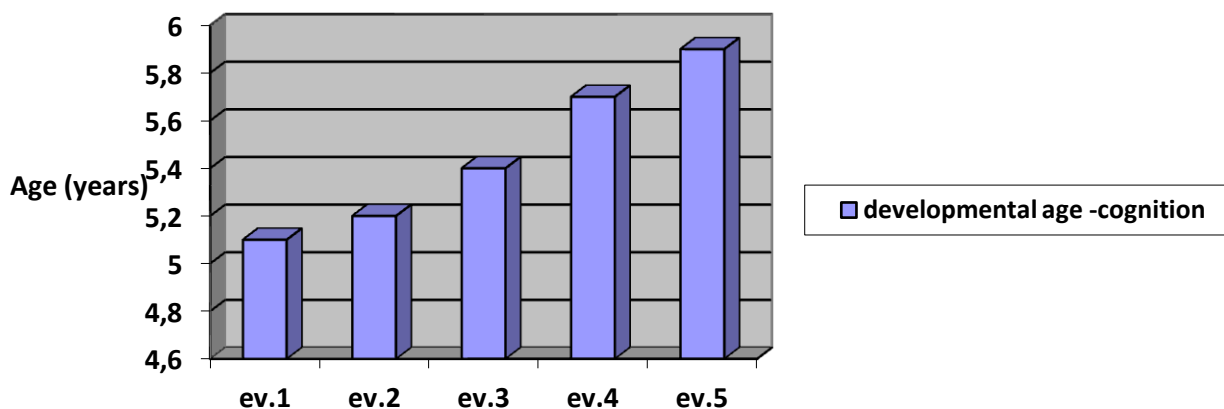


Figure 3.1.2. Evolution of cognition after therapeutical intervention

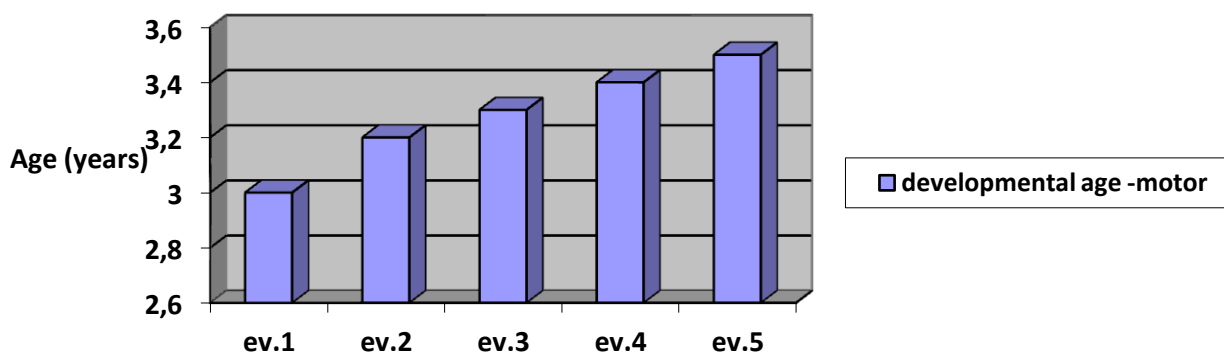


Figure 3.1.3. Evolution of motor activity after therapeutical intervention

At the beginning of therapy the chronological age of C.A. was 13 years and 6 months and the development age was 5 years and 1 month. During the therapy, the evolution of the development age is very slowly and the progress is registered very slowly as well. If at the beginning of the therapy the difference between the chronological age and the development age was 8 years and 5 months, at the end of the therapy it enlarges, reaching 10 years and 1 month.

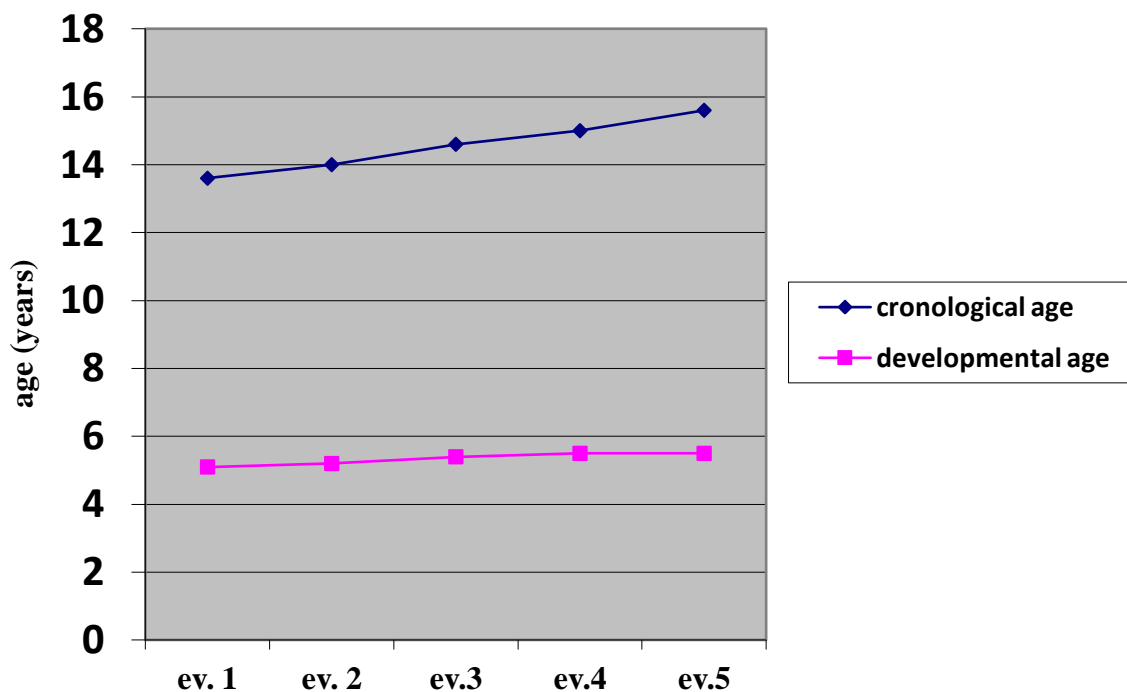


Figure 3.1.4. Evolution of the chronological age in comparison with the development age over 2 years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, C.A. has started from a self-care age of 5 years and 6 months and at the end of the therapy it registered a development age of 6 years. The cognition behavior, at the beginning of the therapy the development age was 5 years and 1 month and at the end it reached 5 years and 9 months.

The motor development registered the lowest score even from the first evaluation: 2 years and 11 months. The disabilities in the area of motor skills influence the global development and interfere in every functional activity. Still, an evolution is registered at the end; the motor development age is 3 years and 5 months.

3.2. Case study number 2

- **Identification data:**

First and last name: F. A.

Date of birth: 10.12.2002

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

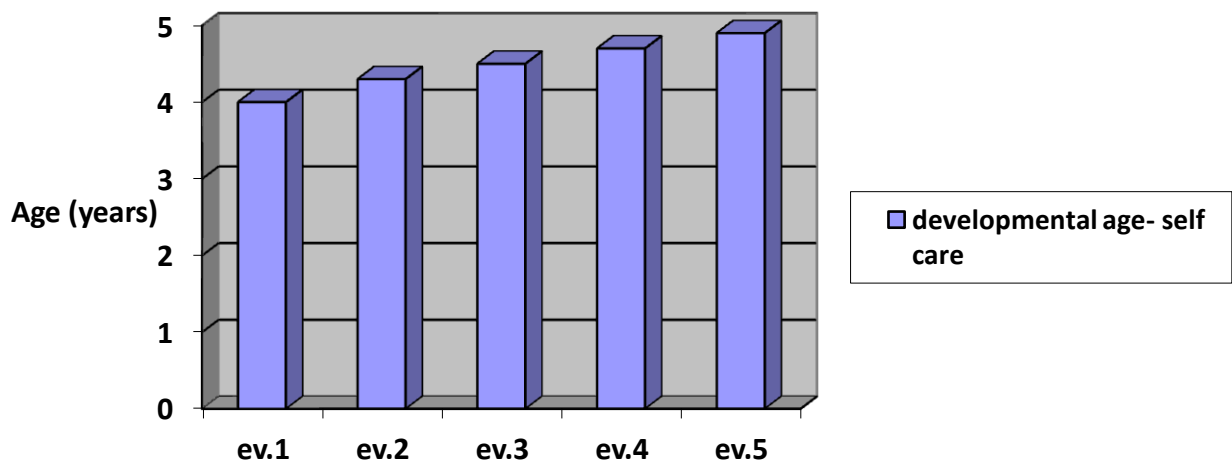


Figure 3.2.1. Evolution of self-care after therapeutical intervention

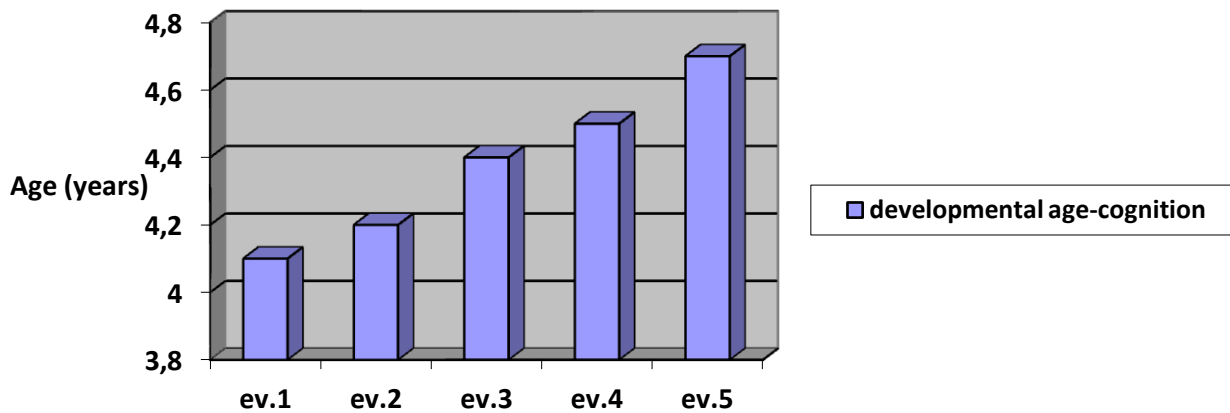


Figure 3.2.2. Evolution of cognition after therapeutical intervention

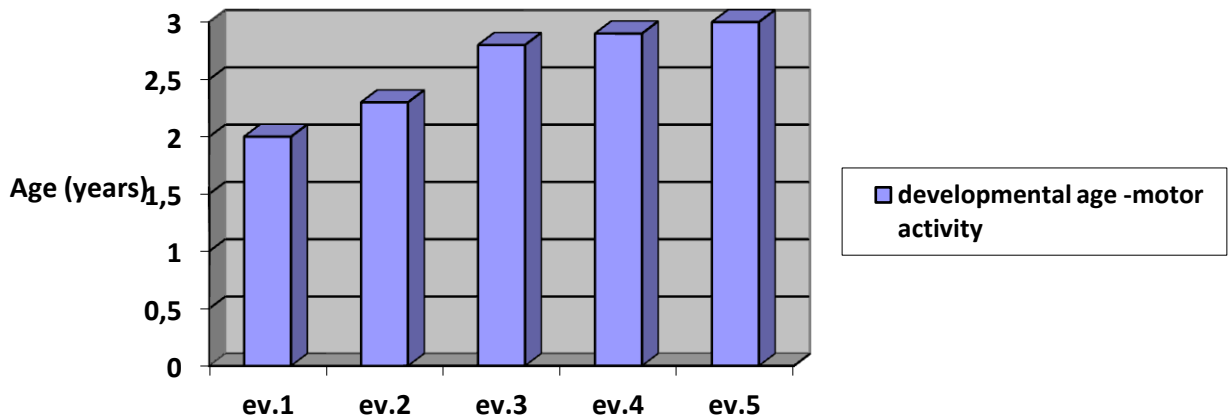


Figure 3.2.3. Evolution of motor activity after therapeutical intervention

At the beginning of the therapy, the chronological age of F.A. was 6 years and 1 month and the development age was 3 years and 8 months.

During therapy, the development age is evolving and progress is registered. If at the beginning of the therapy the difference between the chronological and the development age was 2 years and 3 months, at the end of the therapy it reaches 3 years and 3 months because the acquisitions in a child with disabilities is performed much slowly.

This data does not imply a failure in the therapy, because all the formulated objectives have been reached. The graphic shows a good evolution especially because the discrepancy between the development and the chronological age is not enlarging a lot in these two years.

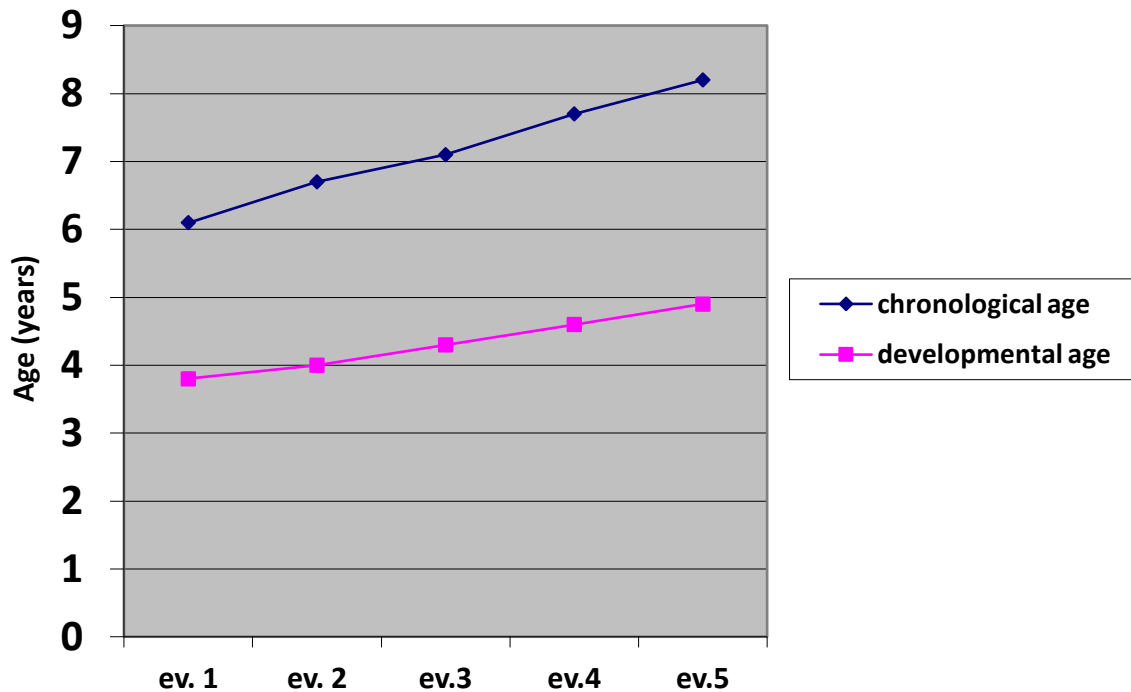


Figure 3.2.4. Evolution of the chronological age in comparison with the developmental age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, F.A. has started from a self-care age of 4 years and at the end of the therapy it registered a development age of 4 years and 9 months. The cognition behavior, at the beginning of the therapy the development age was 4 years and 1 month and at the end it reached 4 years and 7 months.

The motor development registered the lowest score even from the first evaluation: 2 years. The disabilities in the area of motor skills influence the global development and interfere

in every functional activity. Still, an evolution is registered at the end; the motor development age is 2 years and 11 months.

3.3. Case study number 3

- **Identification data:**

First and last name: N. O.

Date of birth: January 8th 2001

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

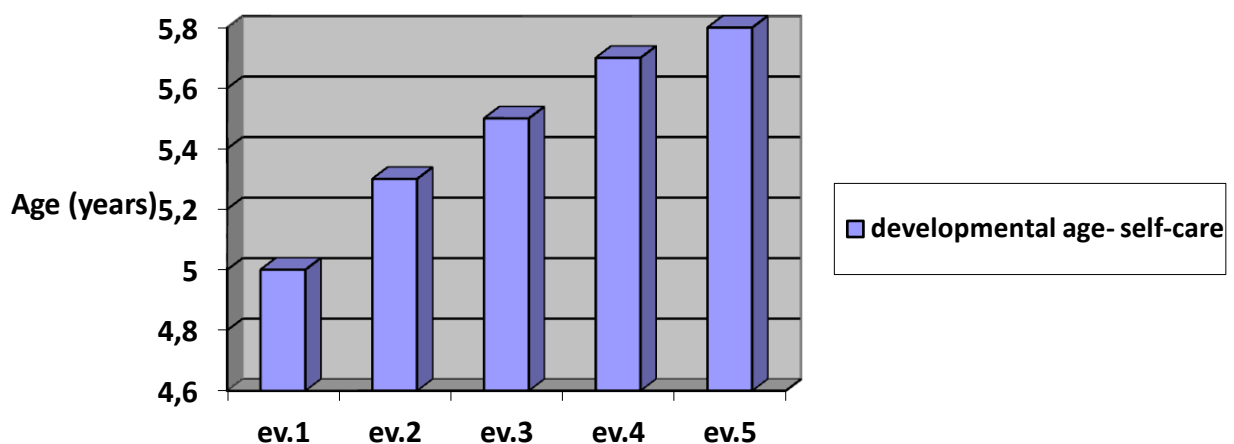


Figure 3.3.1. Evolution of self-care after therapeutical intervention

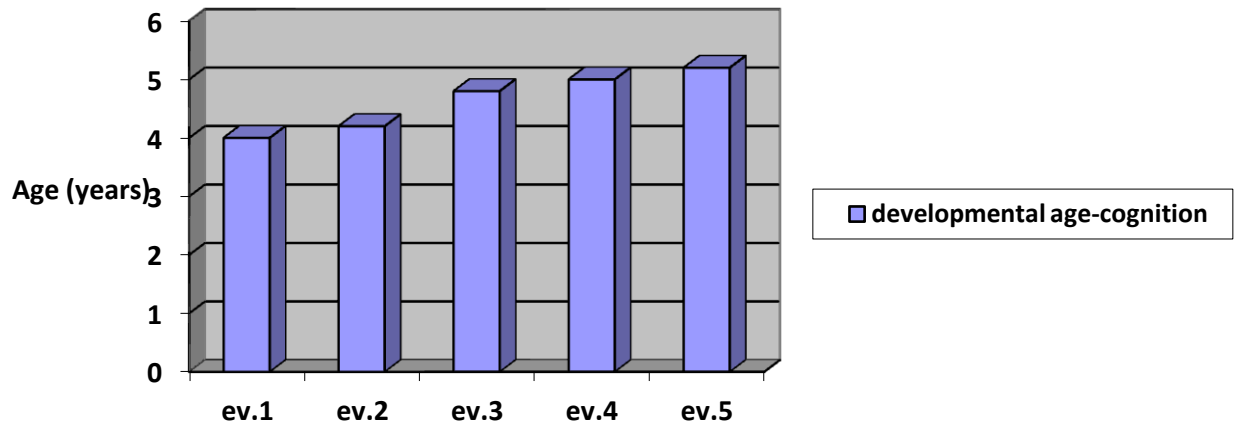


Figure 3.3.2. Evolution of cognition after therapeutical intervention

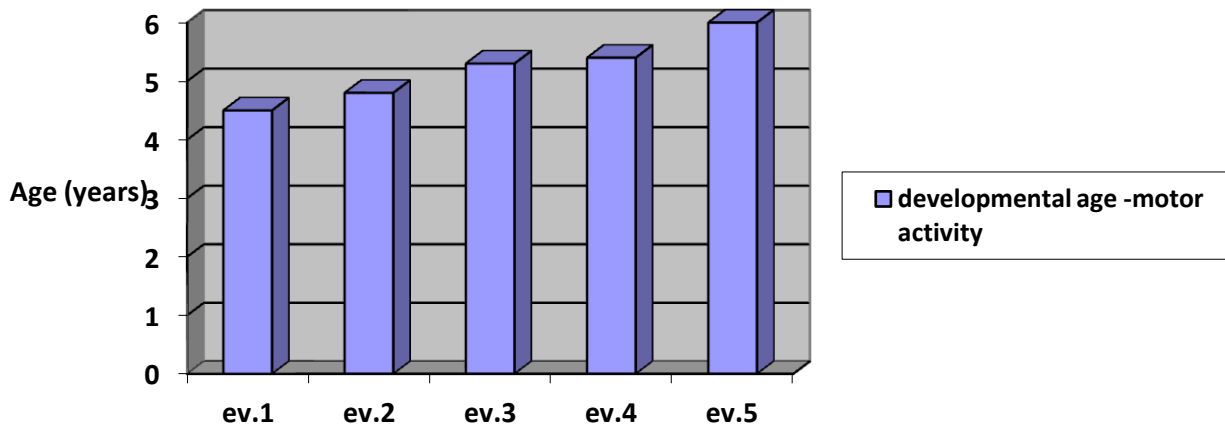


Figure 3.3.3. Evolution of motor activity after therapeutical intervention

During therapy the evolution of the development age is considered to be good. If at the beginning of the therapy the difference between the chronological and the development age was 3 years and 7 months, at the end of the therapy it increases reaching 4 years and 1 month. This difference is larger because the acquisitions on a child with special needs are performed slowly and therefore the rehabilitation of the delay in development cannot be performed immediately.

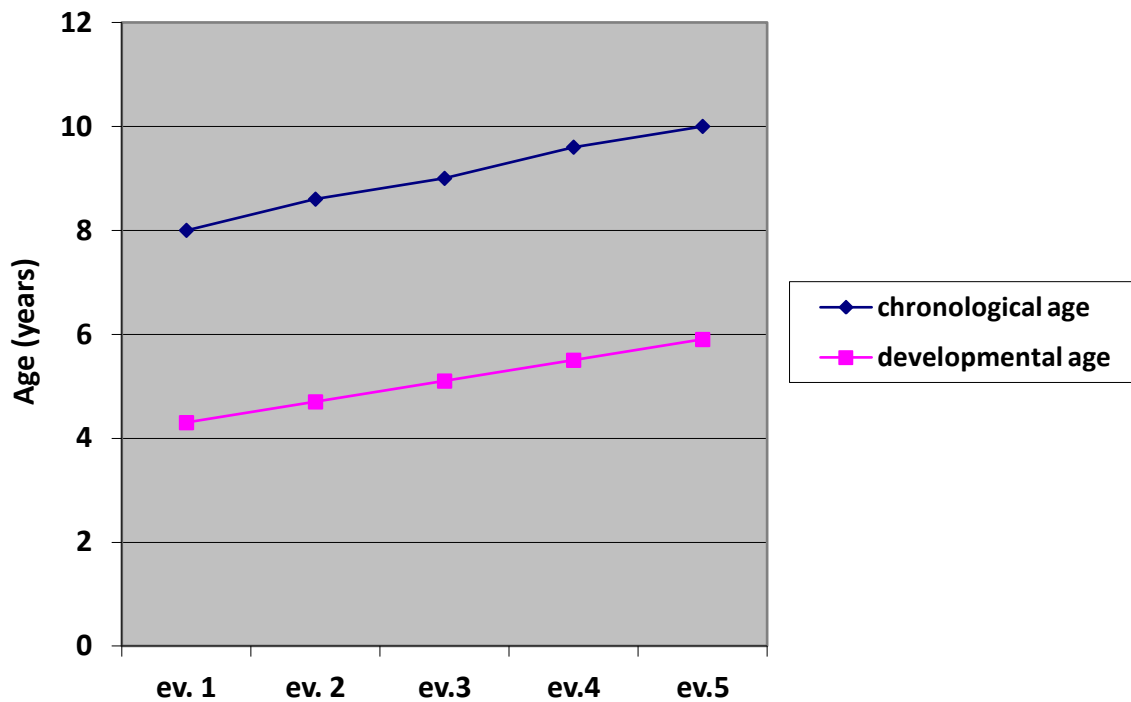


Figure 3.3.4. Evolution of the chronological age in comparison with the development age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, N.O. has started from a self-care age of 5 years and at the end of the therapy it registered a development age of 5 years and 7 months. The cognition behavior, at the beginning of the therapy the development age was 4 years and at the end it reached 5 years and 2 months.

The motor development registered at the beginning the age of 4 years and 5 months and reached at the end the age of 6 years.

3.4. Case study number 4

- **Identification data:**

First and last name: T. N.

Date of birth: 16.01.1997

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

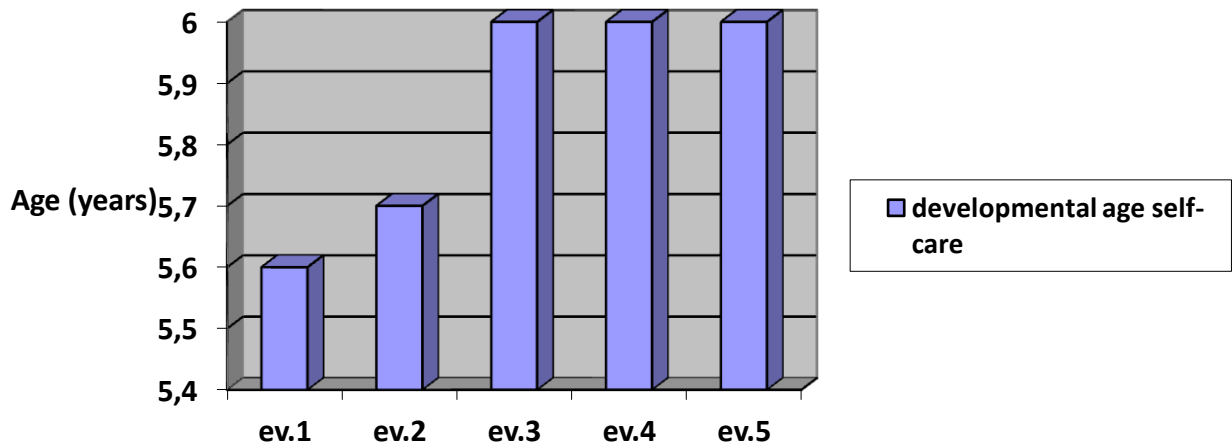


Figure 3.4.1. Evolution of self-care after therapeutical intervention

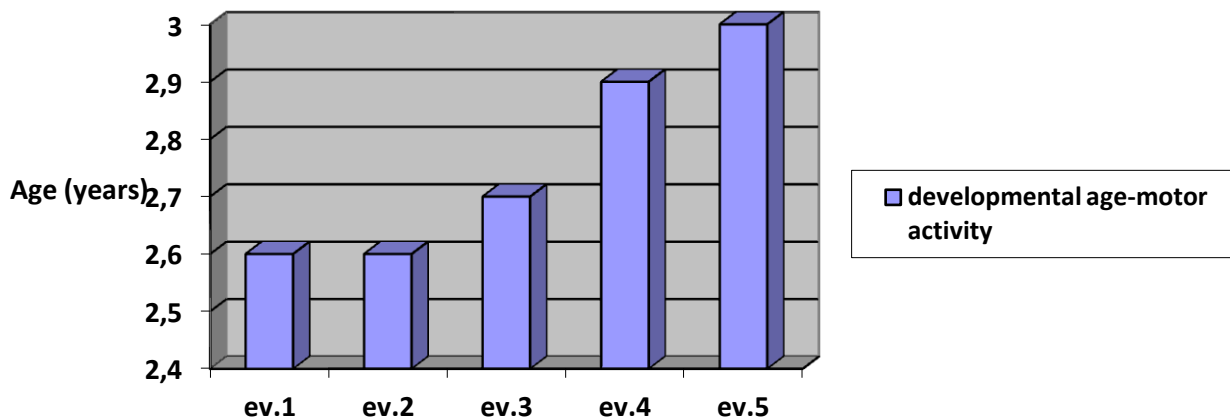


Figure 3.4.2. Evolution of motor activity after therapeutical intervention

T.N. is a special case because the problems in the muscular tonus affects the performances in every aspect of the daily life and makes the participation to a lot of activities impossible even if they are possible from a cognitive point of view. In this case, the development age was not taken into consideration because the evaluation where performed only in case of two behavioral pattern (self-care and motor) from the Portage Guide

The therapeutic intervention is oriented especially on acquiring customs from the area of self-care and motor skills. The cognitive stimulation was not considered to be a therapeutical priority because T.N. does not have serious problems in this area. Once the formulated objectives have been reached the progress in the respective behavioral area was registered.

Regarding the self-care, T.N. started from a development age of 5 years and 6 months and at the end of the therapy it registered a development age of 6 years.

The motor development has registered the lowest values even from the first evaluation: 2 years and 6 months. The disabilities in the area of motor skills influence the global development and interfere in every functional activity. Still, an evolution is registered at the end; the motor development age is 2 years and 11 months.

3.5. Case study number 5

- **Identification data:**

First and last name: M. D.

Date of birth: 4.11.2001

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

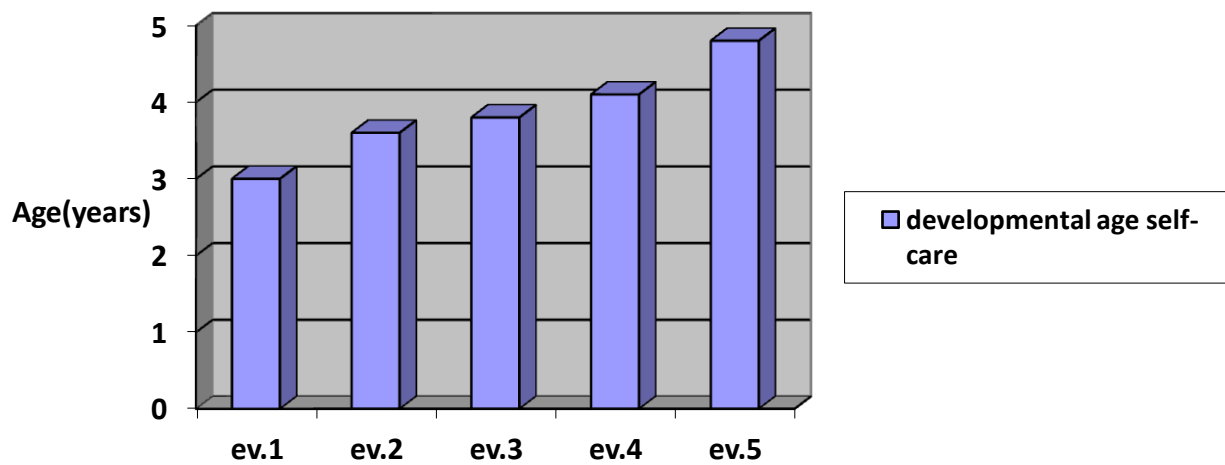


Figure 3.5.1. Evolution of self-care after therapeutical intervention

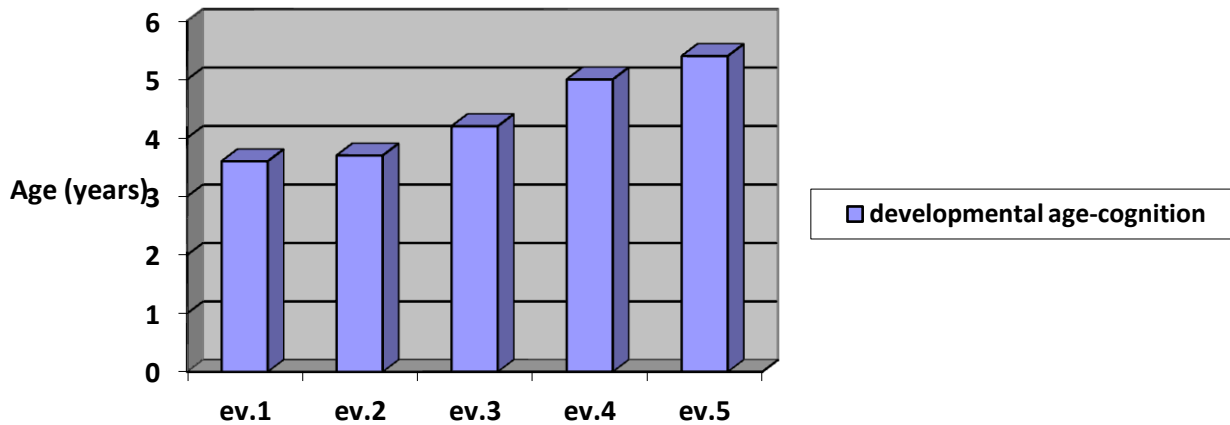


Figure 3.5.2. Evolution of cognition after therapeutical intervention

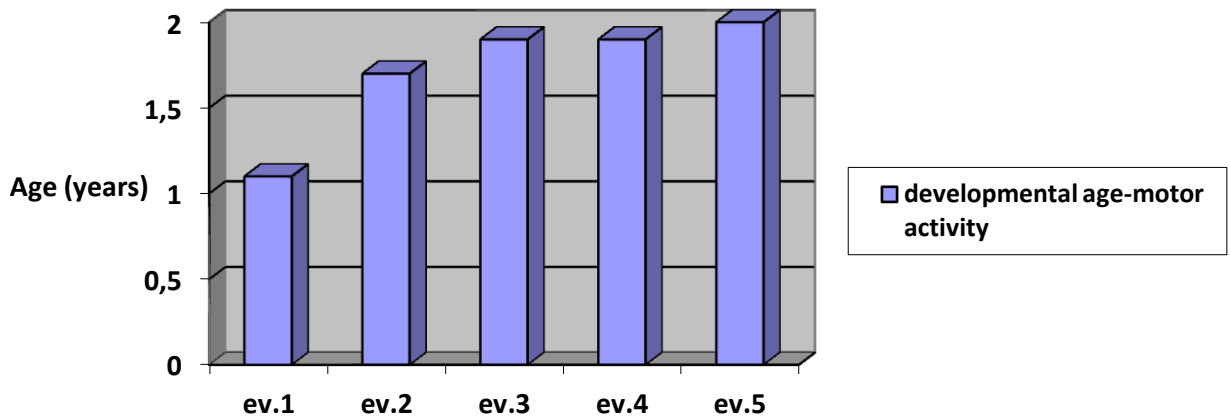


Figure 3.5.3. Evolution of motor activity after therapeutical intervention

At the beginning of the therapy, the chronological age of M.D. was 7 years and 2 months and the development age was 3 years and 3 months. There was a big discrepancy between the two. During therapy the evolution of the development age is performed in a much better rhythm but the initial discrepancy between the development and the chronological age was already to big. If at the beginning of the therapy, the difference between the chronological and the development age was 3 years and 3 months, at the end it reaches 4 years and 3 months.

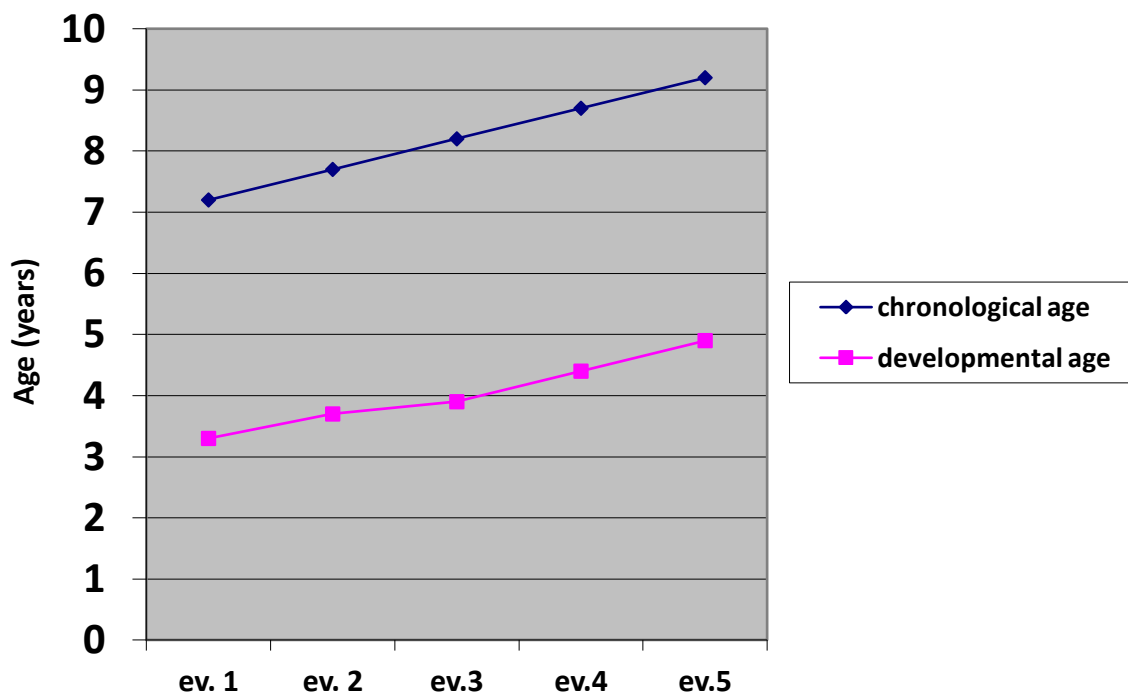


Figure 3.5.4. Evolution of the chronological age in comparison with the development age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, M.D. has started from a self-care age of 3 years and at the end of the therapy it registered a development age of 4 years and 8 months. The cognition behavior, at the beginning of the therapy the development age was 3 years and 6 months and at the end it reached 5 years and 4 months.

The motor development registered the lowest score even from the first evaluation: 1 year and 1 month. The disabilities in the area of motor skills influence the global development and interfere in every functional activity. Still, an evolution is registered at the end, the motor development age is 2 years especially due to the progress in the fine motor skills.

3.6. Case study number 6

- **Identification data:**

First and last name: R. S.

Date of birth: January 3rd 2002

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

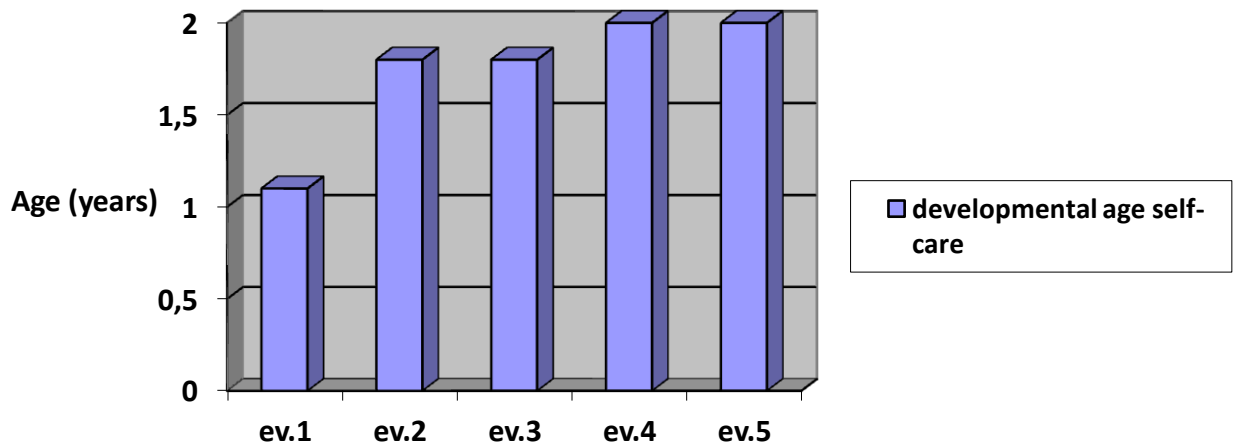


Figure 3.6.1. Evolution of self-care after therapeutical intervention

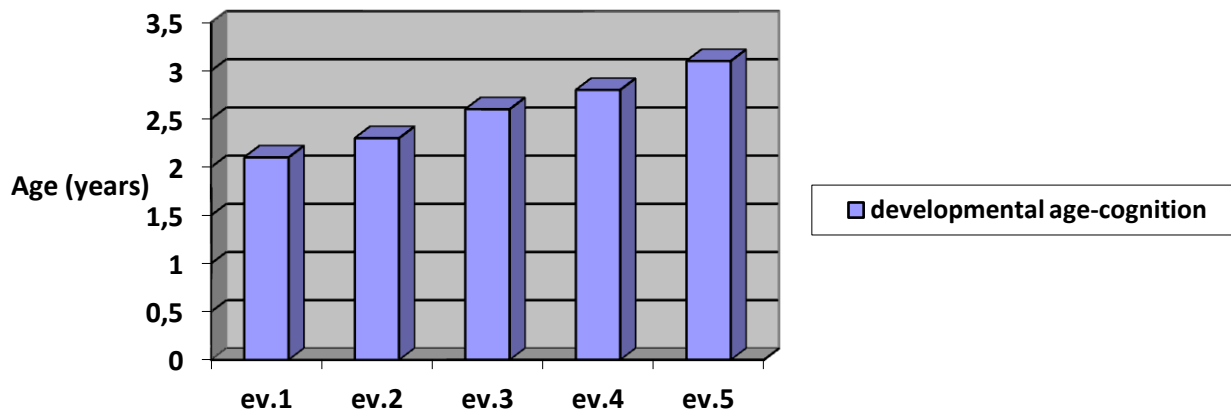


Figure 3.6.2. Evolution of cognition after therapeutical intervention

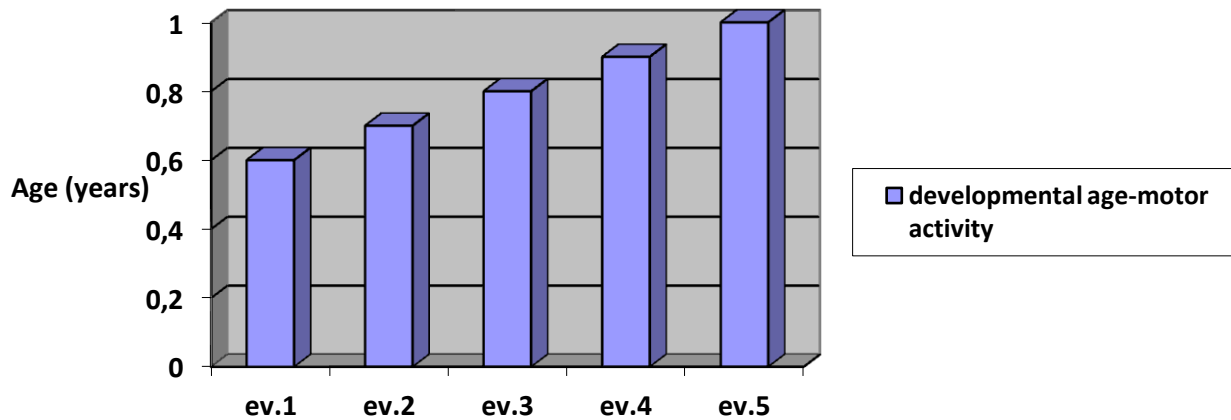


Figure 3.6.3. Evolution of motor activity after therapeutical intervention

At the beginning of the therapy, the chronological age of R.S. was 7 years and the development age was 1 year and 5 months. There is a big discrepancy between the two. During the therapy the evolution of the development age was very slowly, because the registered progress is performed very slowly. If at the beginning of the therapy, the difference between the chronological and the development age was 5 years and 5 months, at the end of the therapy this enlarges and reaches 6 years and 7 months. In this case the severe mental deficiency has a big impact upon the speed in which the acquisitions are being performed.

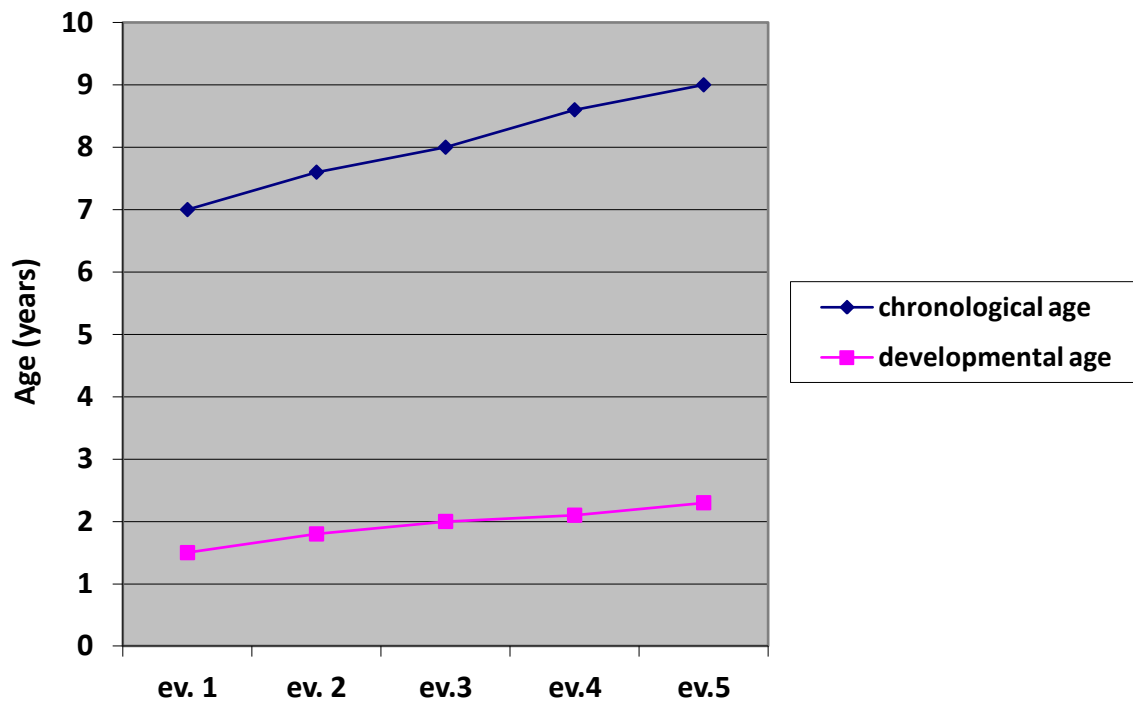


Figure 3.6.4. Evolution of the chronological age in comparison with the development age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, R.S. has started from a self-care age of 1 year and 1 month and at the end of the therapy it registered a development age of 2 years. The cognition behavior, at the beginning of the therapy the development age was 2 years and 1 month and at the end it reached 3 years and 1 month.

The motor development registered the lowest score even from the first evaluation: 6 months. The disabilities in the area of motor skills influence the global development and interfere in every functional activity. Still, an evolution is registered at the end; the motor development age is 11 months due to the acquisitions made in the area of fine motor skills.

3.7. Case study number 7

- **Identification data :**

First and last name: C. P.

Date of birth: December 6th 2000

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

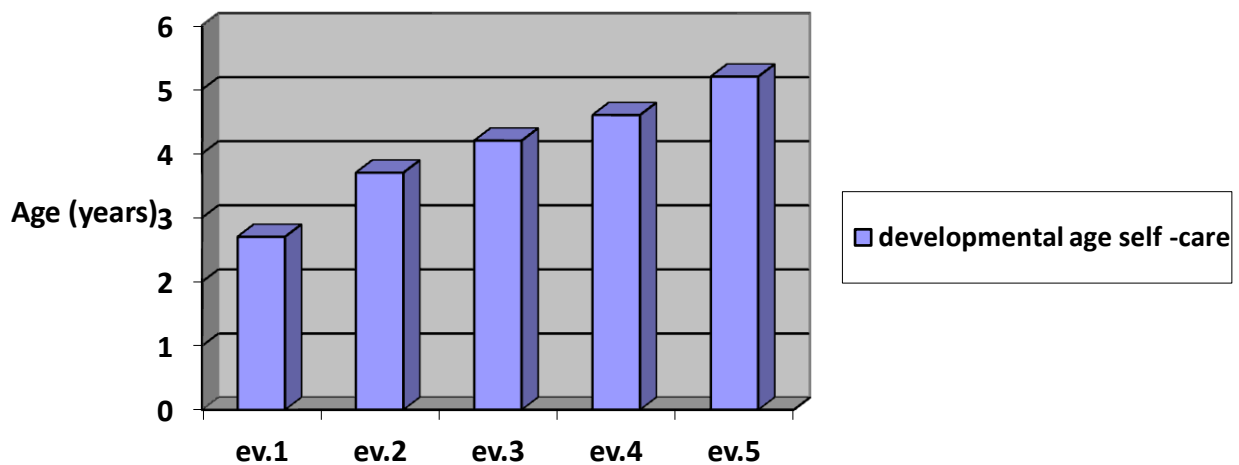


Figure 3.7.1. Evolution of self-care after therapeutical intervention

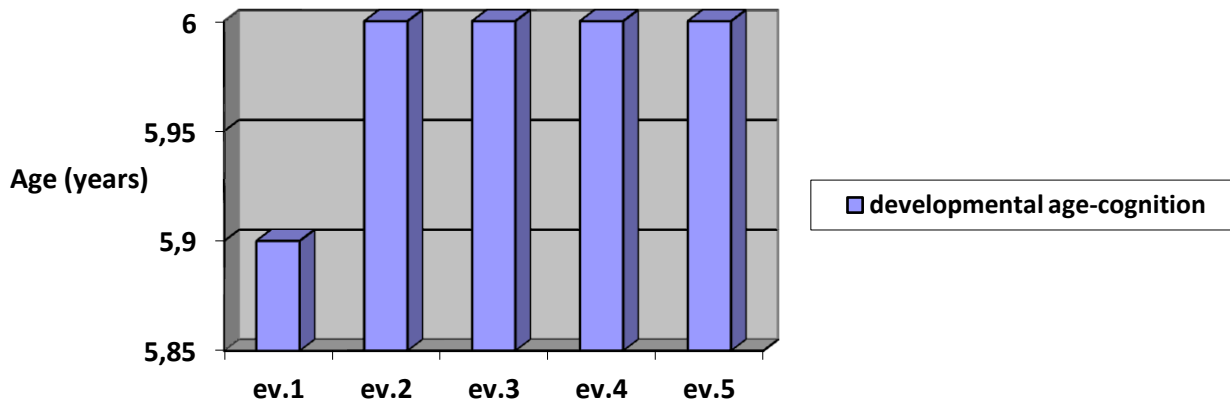


Figure 3.7.2. Evolution of cognition after therapeutical intervention

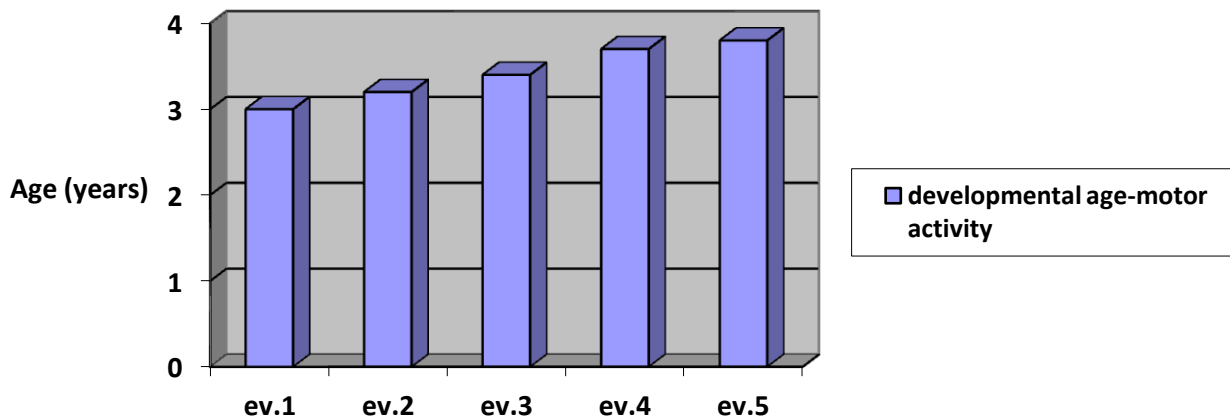


Figure 3.7.3. Evolution of motor activity after therapeutical intervention

At the beginning of the therapy, the chronological age of C.P. was 8 years and 1 month and the development age was 4 years and 8 months. During the therapy the evolution of the development age was very slowly, because the registered progress is performed very slowly. If at the beginning of the therapy, the difference between the chronological and the development age was 3 years and 3 months, at the end of the therapy this reaches 4 years and 7 months. This data does not imply a failure in the therapy, because all the formulated objectives have been reached.

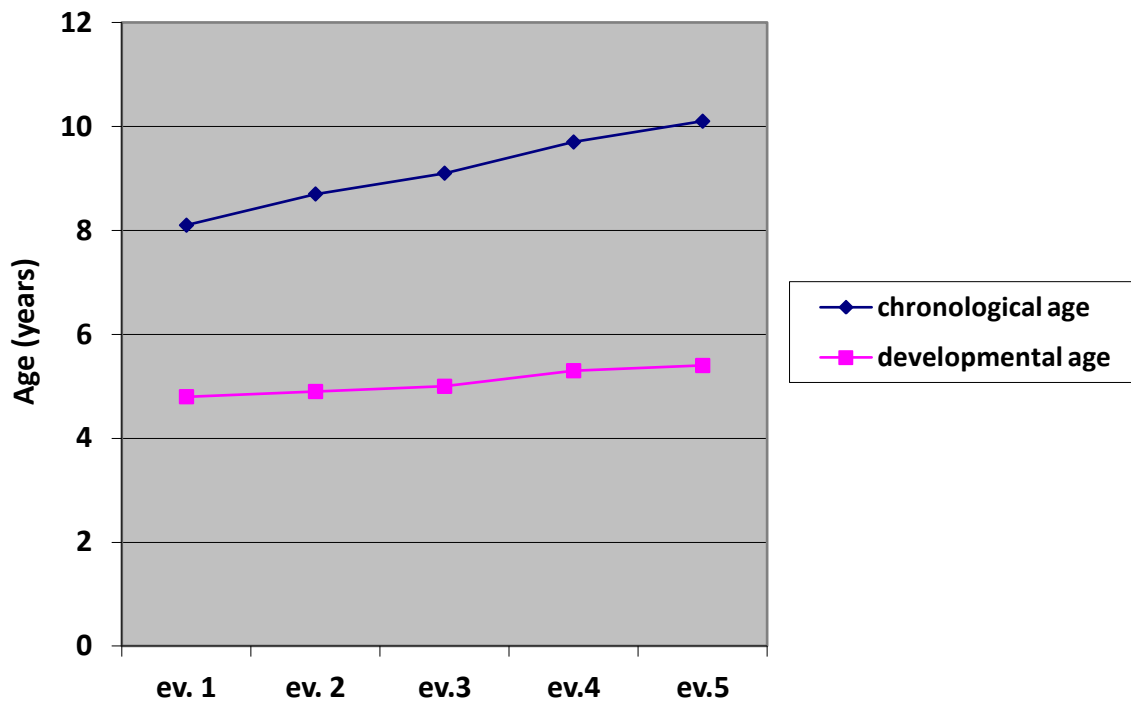


Figure 3.7.4. Evolution of the chronological age in comparison with the development age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, C.P. has started from a self-care age of 2 years and 7 months and at the end of the therapy it registered a development age of 5 years and 2 months. The cognition behavior, at the beginning of the therapy the development age was 5 years and 9 month and at the end it reached 6 years.

The motor development registered the lowest score even from the first evaluation: 3 years. The disabilities in the area of motor skills influence the global development and interfere in every functional activity. Still, an evolution is registered at the end; the motor development age is 3 years and 8 months.

3.8. Case study number 8

- **Identification data:**

First and last name: A. D.

Date of birth: December 18th 2004

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

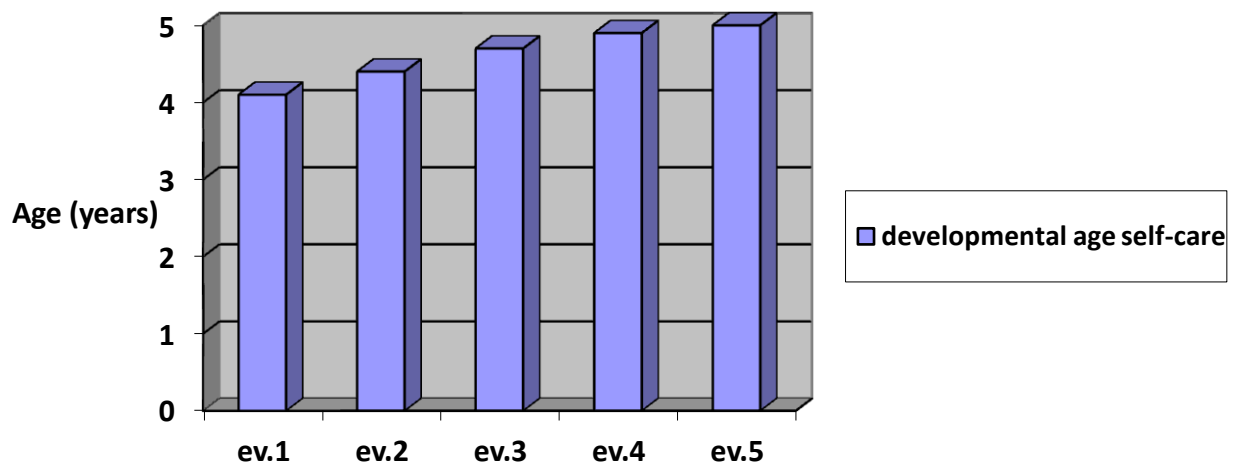


Figura 3.7.1. Evolution of self-care after therapeutical intervention

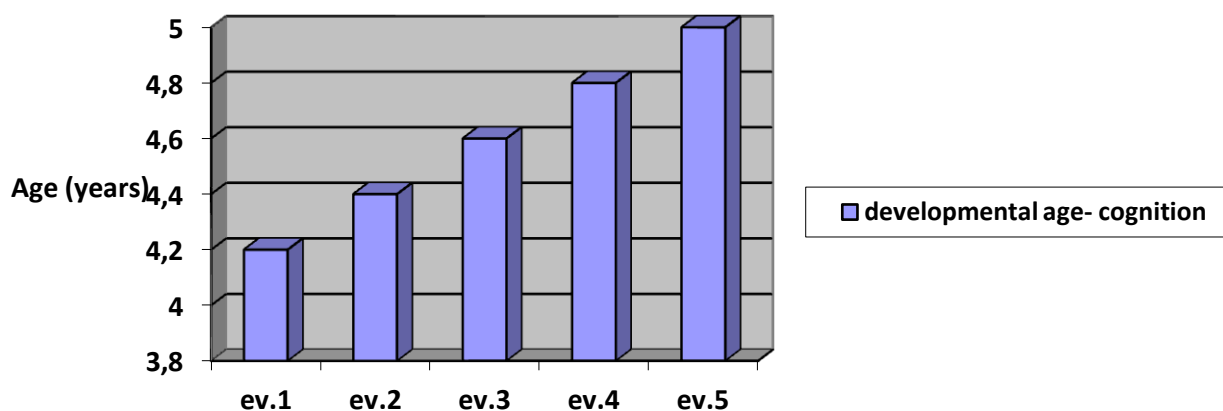


Figure 3.7.2 . Evolution of cognition after therapeutical intervention

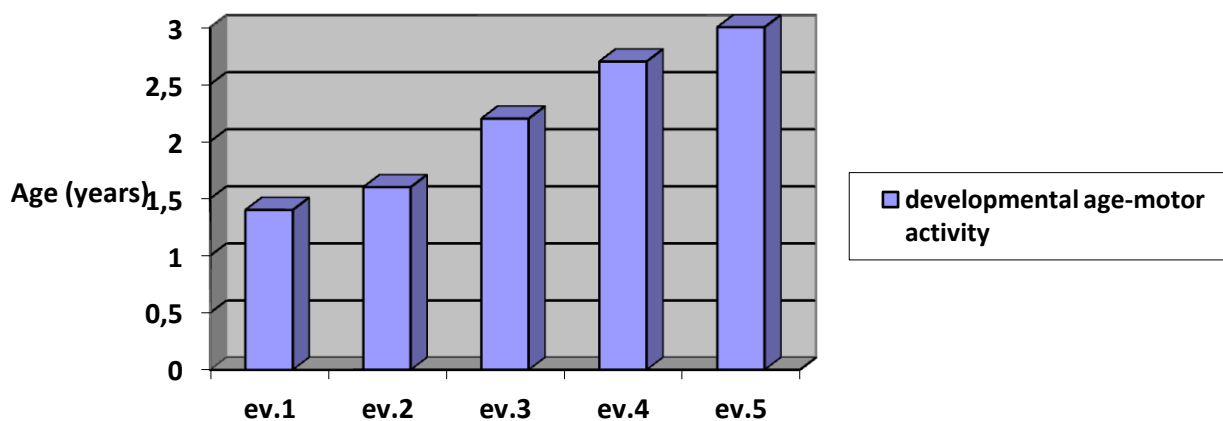


Figure 3.7.3. Evolution of motor activity after therapeutical intervention

At the beginning of the therapy, the chronological age of A.D. was 6 years and 1 month and the development age was 3 years and 8 months. There is a big discrepancy between the two. During the therapy the evolution of the development age was very slowly but with clear progress, because the registered progress is performed very slowly. If at the beginning of the therapy, the difference between the chronological and the development age was 2 years and 3 months, at the end of the therapy this enlarges and reaches 3 years and 3 months. In this case the

evolution is considered to be good and A.D. presents a good prognostic for the following development.

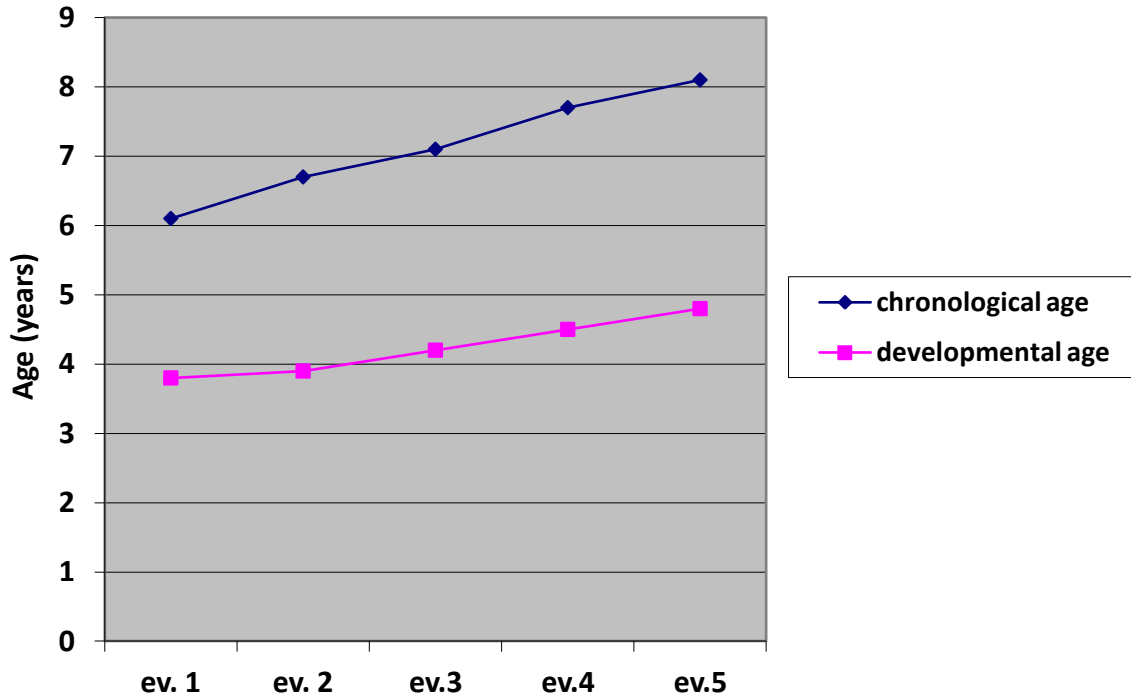


Figure 3.7.4. Evolution of the chronological age in comparison with the development age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, A.D. has started from a self-care age of 4 years and 2 months and at the end of the therapy it registered a development age of 5 years. The cognition behavior, at the beginning of the therapy the development age was 5 years and 9 month and at the end it reached 6 years.

The motor development registered the lowest score even from the first evaluation: 1 year and 4 months. The disabilities in the area of motor skills influence the global development and interfere in every functional activity. Still, an evolution is registered at the end, the motor

development age is 3 years. Still, an evolution is registered at the end, the motor development age is 11 months due to the acquisitions made in the area of fine motor skills.

3.9. Case study number 9

- **Identification data:**

First and last name: N. S.

Date of birth: 24.06.2003

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

Results

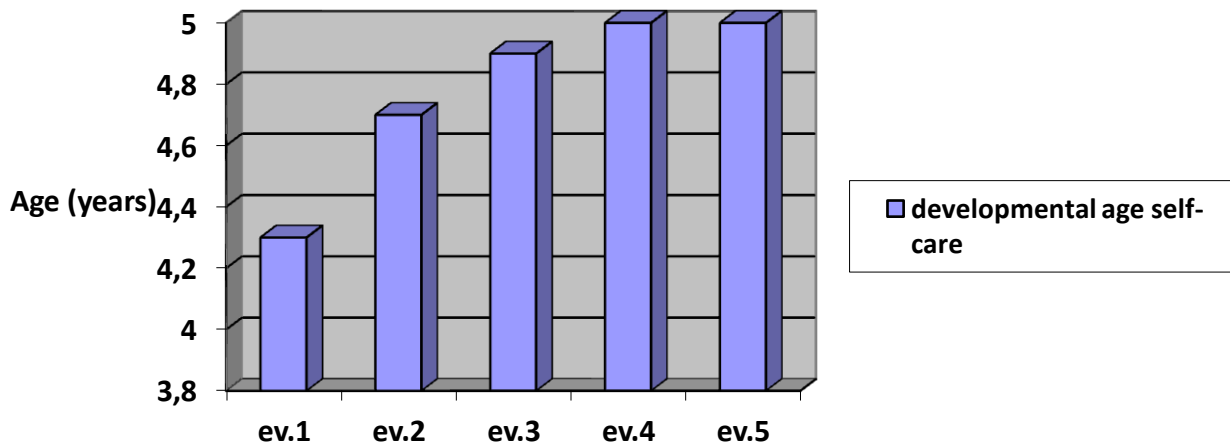


Figure 3.9.1. Evolution of self-care after therapeutical intervention

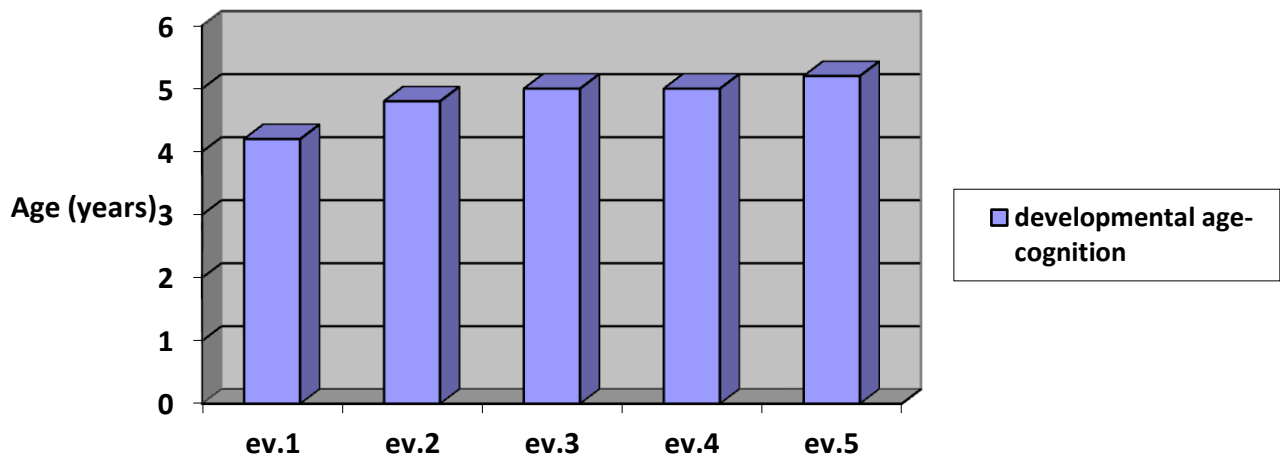


Figure 3.9.2. Evolution of cognition after therapeutical intervention

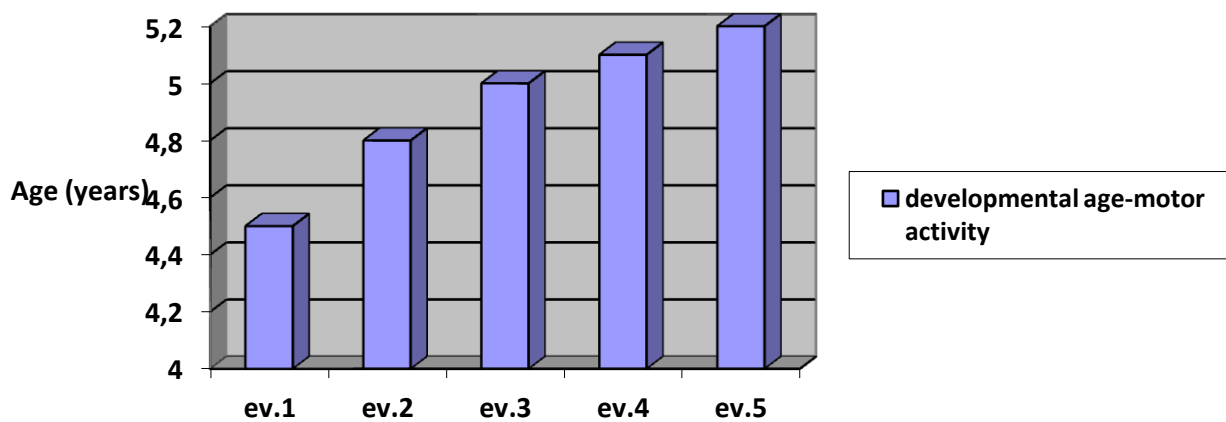


Figure 3.9.3. Evolution of motor activity after therapeutical intervention

At the beginning of the therapy, the chronological age of N.S. was 5 years and 6 months and the development age was 4 years and 5 months. There is a small discrepancy between the two. During the therapy the evolution of the development age was very slowly and therefore makes the delay in development to increase. If at the beginning of the therapy, the difference between the chronological and the development age was 1 year and 1 month, at the end of the therapy this enlarges and reaches 2 years and 3 months. All the formulated objectives have been reached but that fact that the acquisition was performed very slowly increased the period.

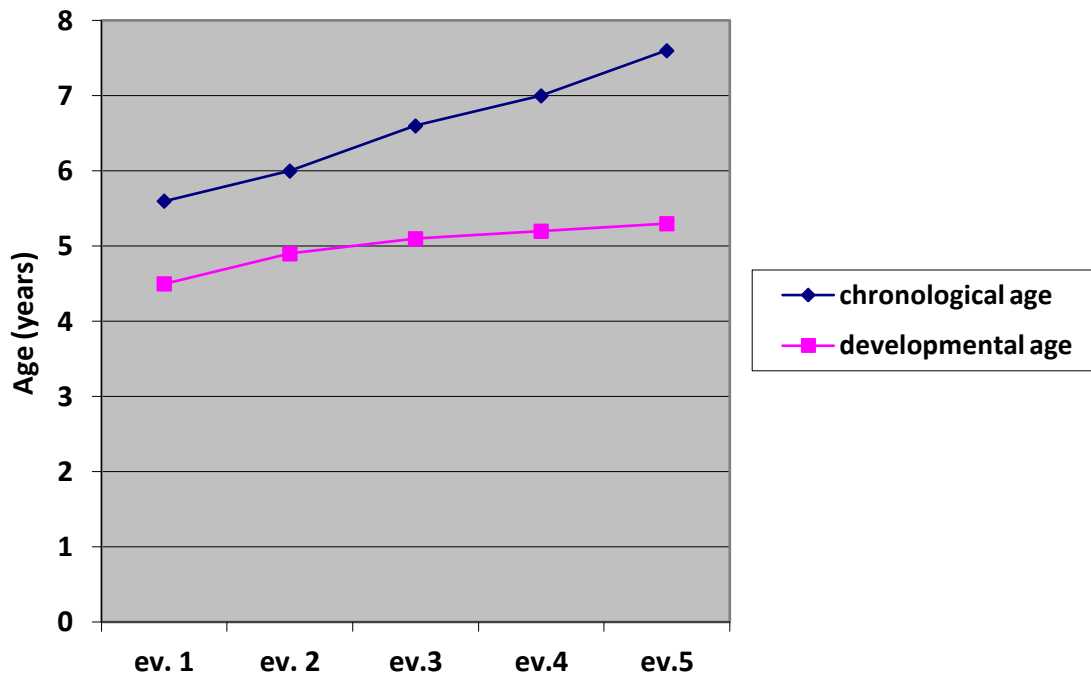


Figure 3.9.4. Evolution of the chronological age in comparison with the development age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, N.S. has started from a self-care age of 4 years and 2 months and at the end of the therapy it registered a development age of 5 years and 2 months.

Regarding the motor development, the development age at the beginning of the therapy was 4 years and 5 months and at the end reached 5 years and 2 months.

3.10. Case study number 10

- **Identification data:**

First and last name: A. A.

Date of birth: 13.06.2003

Date of the beginning of therapy: January 2009

Beneficiary ambulatory recuperation services in – Placement Centre for Children with Disabilities „Speranta”- Sibiu

- **Results**

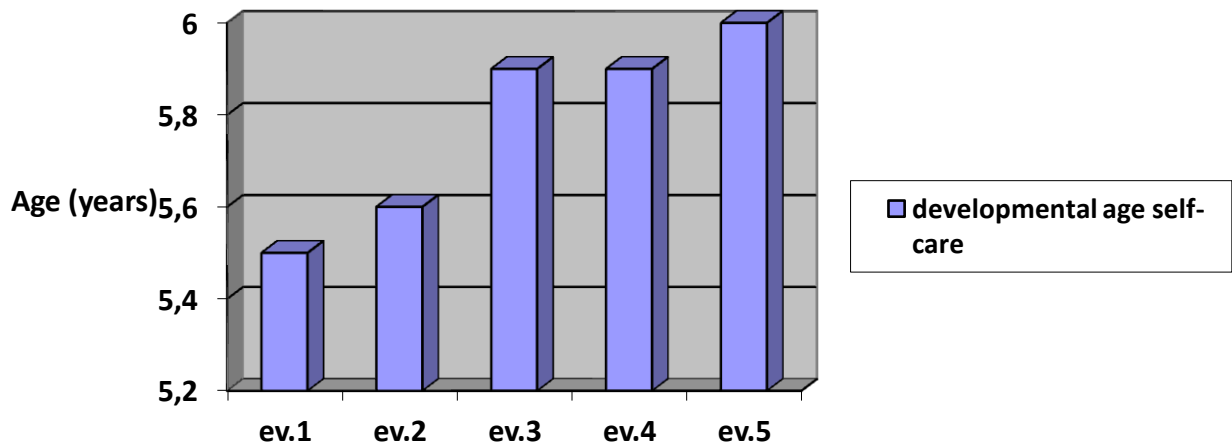


Figure 3.10.1. Evolution of self-care after therapeutical intervention

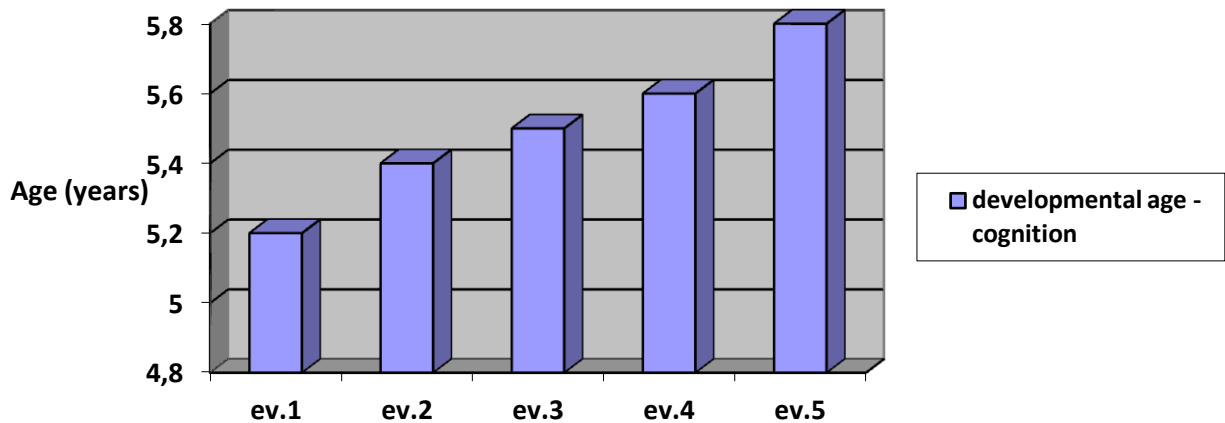


Figure 3.10.2 Evolution of cognition after therapeutical intervention

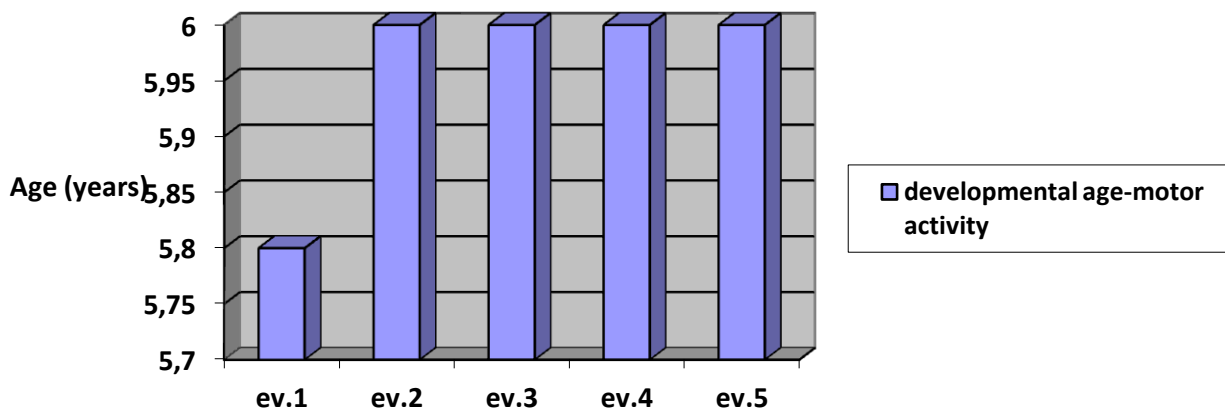


Figure 3.10.3. Evolution of motor activity after therapeutical intervention

At the beginning of the therapy, the chronological age of A.A. was 5 years and 6 months and the development age was 4 years and 8 months. The delay in development was not very big and was actually due to the delay in speech. During the therapy the evolution of the development age was very slowly and therefore at the end of the therapy the delay in development is much more noticeable.

If at the beginning of the therapy, the difference between the chronological and the development age of 10 months, at the end of the therapy this enlarges and reaches 2 years and 3 months. Although the formulated objectives have been reached, the development was performed slowly.

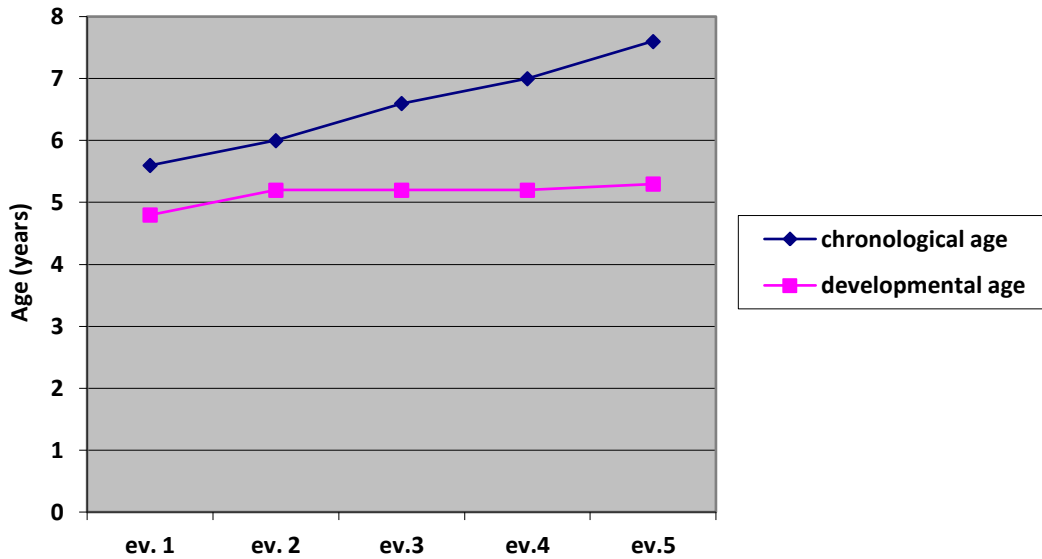


Figure 3.10.4. Evolution of the chronological age in comparison with the development age over two years period

The therapeutic intervention is oriented especially on acquiring customs in the behavioral area: cognition, self-care, and motor skills. Once the formulated objectives are reached, the progress in the corresponding behavioral area is registered.

Regarding the self-care aspect, A.A. has started from a self-care age of 5 years and 5 months and at the end of the therapy it registered a development age of 6 years.

Regarding the cognitive aspect, at the beginning the development age was 5 years and 2 months and at the end it reached 5 years and 8 months.

Regarding the motor development, the development age at the beginning of the therapy was 5 years and 8 months and at the end reached 6 years.

CHAPTER 4 CONCLUSIONS AND DISCUSSIONS

4.1. Discussions of the results

The theory that emerged from the ten case studies mentioned that the intervention through occupational therapy on children with cerebral paralysis leads to the rehabilitation of certain functional remains in the development fields.

What have we promote/ obtained from these children through occupational therapy?

First, through the formulated therapeutical objectives, we have allowed or facilitated the children the participation to daily activities.

By formulating these therapeutical objectives, we actually offered the children activities with a goal that contributed to the maintenance of a wellness state in every aspect of the daily life.

Reaching the formulated therapeutical objectives helped acquire certain new behavioral pattern that increased the development age. This growth indicated the recuperation of certain functional remains in the development area. Any kind of advance in the development age is reflected in the level of functionality of the child.

The following table of contents shows the changes of the development age for each subject of the research. These changes happen after fulfilling the therapeutic objectives for every case in particular.

Table 4.1.

Modified developmental age

Name	Developmental age – January 2009	Developmental age – December 2010
N. S.	4,5 years	5,3 years
A. A.	5 years	5,3 years
A. D.	3,8 years	4,8 years
C. P.	4,8 years	5,4 years
R. S.	2,3 years	3,6 years
D. M.	3,3 years	4,9 years
N. O.	4,3 years	5,9 years
F. A.	3,8 years	4,9 years

C. A.	5,1 years	5,5 years
T. N.	8,8 years	10,3 years

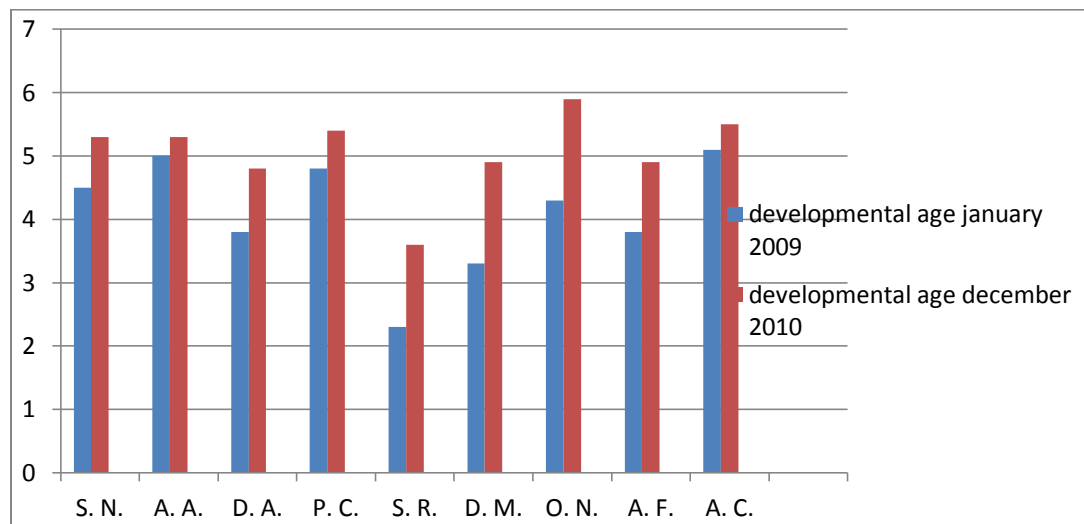


Figure 4.1. Comparison chart – Development age at the beginning and end of the intervention

One can say that the differences are small for the two years period when the therapeutically intervention has been performed, but the progress on a child with disabilities, especially with the diagnostic- cerebral paralysis, is very slow, and an unfamiliar person can barely notice them.

The advance regarding the development on acquisition is performed very slowly and disproportionate in comparison with the chronological advance.

We cannot take all the credit regarding the changes in the development age because the presented cases have a multidisciplinary approach; each child has received other rehabilitation therapy (speech therapy, special education, kinesitherapy, balneo- and physiotherapy, sensorial stimulation).

The cerebral paralysis implies in most of the cases an unequal development of the behavioral aria (based on the affected area). Therefore there are children with a severe motor condition, but that have an intellectual development close to normal, and there are children with a minor motor condition but with an intellectual development close to normal, or children with a minor motor condition, but with speech trouble and psychical disorders. The causes vary, and there is why we have used the case study method. Each case is unique and the intervention is different. The

occupational therapy is based on the individual and not the diagnostic. There were 10 children with the same pathology, but the formulated therapeutical objectives were different, different was also the adaptation to the environment that not everybody needed, the condition was different and therefore the results were also different.

The motivation for this study comes from the desire to scientifically present certain observations from the practical experience and accordingly bring a contribution by realizing good practice pattern.

The level of functionality for every child in particular, was developed during the therapeutic intervention process and helped increase the self-esteem of the child. An observation in relation to the self-esteem of these children is reference to a certain pattern: the parents usually overprotect the child and finally do things for the child and not with the child. This wrongfully approach leads to a lower independence level as well as a lower self –esteem.

The objectives in the area of self-care showed that these children are capable to acquire behavior about the independent feeding, using the knife, realizing simple domestic tasks.

I consider that the occupational therapy is a suitable intervention for this pathology because it takes into consideration motor problems as well as psychical. In comparison with kinesitherapy that forgets the psychological aspect, and is mostly based on physical rehabilitation or special psycho pedagogy, and seems to not take into consideration the anatomical and functional problems of the upper limb, where as the occupational therapy is the one that takes all these aspects into consideration. It is very important for the occupational therapy to start at early stages of the chronological age. . As soon as the recuperation therapy starts, as rapidly the development can progress.

4.2. Value, limits and perspectives of the investigation

- **Value of research**

The research, part of the research paper is an action-research. It has a methodological value due to the conception structure of the case studies. These are based on therapeutic-rehabilitation-compensatory and personalized projects.

The research has an obvious practical- and applicable character regarding the recuperation of the child with cerebral paralysis by applying the occupational therapy.

The occupational therapy has not only a psychological value. It contributes to the psychosomatic recuperation of the child. The child that gets tired very quickly by repeating the same movement can manage to make the movement by playing and not get so tired. The occupational therapist must be able to prolong the action of the kinesiologist, to observe the development of variable and efficient activities.

The occupational therapy is based on earning the child's autonomy, his abilities to self-care under every aspects and assuring a large autonomy.

The occupational therapy aims to progressively and rationally prepare the child for daily activities with a high degree of independence, to educate the child and the family as well as to know how to handle a child with disabilities and how to contribute to his education.

In regard of the normal activities, that child must be offered the freedom of gesture, movement, and reaching of objects in order to develop the psychomotricity. The child has the need to see, feel, and handle various objects.

In every activities of the occupational therapy, using games is first important. The game has a big contribution in developing all senses, affection, intelligence, psychomotricity, sensibility; the games prepare the child for social relations and puts him in contact with art, under the condition that the chosen games must be in concordance with his possibilities to perform them, according to his disability, and to have an educational character.

In the case of children with motor deficiency all this habits in relation to activities about feeding, dressing, and daily life, including the games, are possible through renouncing to wheelchairs, crutches, or orthopedic devices. The contact with the exterior world is another important step in the therapy of the child with disabilities. The contact with nature, with plants and animals help him grow and develop and determine a particular affective and psychomotor progress.

In conclusion, when projecting the activities of occupational therapy on children with disabilities one must take into consideration the type and profoundness of the deficiency as well as the necessity to prepare the children for labor accessible to the deficiency category they are part of.

- **Research boundaries**

The boundaries of the research are the limits implied by the chosen case study as a research method. The obtained results have no statistical value and therefore cannot be generalized.

It is recommended to extend the research, by choosing a pattern that can be significant from a statistical point of view.

Information for the evaluation occurs from the child's observation in other content (at home, at school, at the playground) and not only in the clinical environment.

Another limitation occurs from the generalization of the acquired behavioral pattern, this generalization is realized through extending to other context or persons. Therefore, if the child learns in therapy to make a puzzle, this behavior must be generalized by repeating the activity at home, in day-care, together with friends, teacher or parents. Although recommendations were made to the parents, it was difficult to see if this generalization really took place. A new behavior can be generalized only if it is repeated on a longer period and in different context.

Another limitation occurs from the age of the subjects, because the speciality literature mentions the efficiency of certain programs with early intervention. As soon as the intervention starts, as many the acquired acquisitions are. Also, the time for the intervention (2 sessions of 40 minutes each) per week is not sufficient; still the reasons depend on time and costs.

- **Research perspectives**

Interesting observations that can represent research hypothesis for future studies, concern the relation between motor development and degree of implication in realizing activities. As severe the motor condition is, the hardest it is for the subject to be part of activities. Conditions in the muscular tonus that can be of spastic or hypotonic nature influence the posture and abnormal position weightings or makes the implication in activities impossible.

Also a condition in the muscle of the upper limb and pathological position of the hand, characteristic for neurological disease affects the realization of activities with a purpose. One example is the presented case study – T.N. that has a good intellectual development, with a minor condition in the speech area (spastic dysarthria) but with a spastic motor condition on the whole body. Even if intellectually, T.N. is capable to conduct many activities, the motor command is very difficult to realize.

The occupational therapy in a child includes any kind of games or any attracting activity that can contribute to the forming or physical and psychical improvement

The factors that must be taken into consideration when choosing the activities of occupational therapy are: age, sex, deficiency, level and localization of the lesion, purpose,

effects of the occupational therapy upon functionality, subjects interest and aptitude for this type of therapy (A. Popescu, 1993).

In a more restrictive sense, the purpose of occupational therapy regarding the child is to help him adapt to the environment, to create an atmosphere that help develop functional capacities, in the sense of having a controlled activity, in the limits imposed by his deficiency.

The activity program must be chosen in a way in which it can offer the child personal satisfaction and at the same time, allow him to progressively return to a certain level of independence. In the case of an immobilized child, the therapist will try games that can adapt to the child's posture, his limited movement possibilities, games that avoid getting tired or limiting the play time.

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