

EFFECTIVENESS OF EDUCATIONAL AND THERAPEUTIC INTERVENTIONS IN ADULT DISABILITY TO DEVELOP WELL-BEING RESILIENCE CAPACITY. DATA ANALYSIS

EFFICACIA DEGLI INTERVENTI EDUCATIVI E TERAPEUTICI NELLA DISABILITÀ ADULTA AL FINE DI SVILUPPARE CAPACITÀ DI RESILIENZA E BENESSERE. ANALISI DEI DATI

Stefania Morsanuto¹

Unicusano Net University Rome
Stefania.morsanuto@unicusano.com

Luigi Picci²

Unicusano Net University Rome
Luigi.picci@unicusano.it

Francesco Peluso Cassese³

Unicusano Net University
francesco.peluso@unicusano.it

Abstract

In contemporary debates, it is widely believed that resilience is concerned with the ability to cope with stress or, more precisely, to return to some form of normal condition after a period of stress. In psychological field, it indicates the individual's ability to resist traumatic events or adverse events in order to overcome them. Resilience is a personal characteristic, although it is more commonly understood as a dynamic process of positive adaptation (Block, Erlbaum, Hillsdale, NJ, 1980; Egeland, Carlson, 1993). This research analyses the development of resilience skills through motor assistance. The experimental study carried out on 99 adult users with disabilities aims at finding a correlation between individual well-being (measured in improving social, emotional, attentional and motor skills) and individual resilience through therapeutic interventions. The data analysis has then been crossed between users present in the activities examined (sport and pet-therapy) and the characteristics of the family (proactive, problematic, or absent). This work underlines the importance of synergistic work between educators and family in order to develop positive coping strategies and resilience.

Nei dibattiti contemporanei, si ritiene che la resilienza riguardi la capacità di far fronte allo stress o, più precisamente, di tornare ad una condizione di normalità dopo un periodo di stress. In campo psicologico, indica la capacità dell'individuo di resistere a eventi traumatici o eventi avversi al fine di superarli. La resilienza è una caratteristica personale, sebbene sia più comunemente intesa come un processo dinamico di adattamento positivo (Block, Erlbaum, Hillsdale, NJ, 1980; Egeland, Carlson, 1993). Questa ricerca analizza lo sviluppo delle capacità di resilienza nella disabilità cognitiva adulta, attraverso l'attività motoria. Lo studio sperimentale condotto su 99 utenti adulti con disabilità mira a trovare una correlazione tra benessere individuale (misurato nel miglioramento delle abilità sociali, emotive, attenzionali e motorie) e resilienza individuale attraverso interventi terapeutici. L'analisi dei dati è stata quindi correlata tra gli utenti presenti nelle attività esaminate (sport e pet terapia) e le caratteristiche della famiglia (proattiva, problematica o assente). Questo lavoro sottolinea l'importanza dell'alleanza educativa fra professionisti e famiglia al fine di sviluppare strategie di coping positive e resilienza.

Keywords

Cognitive disability, Sports, family context, education, resilience

1 Author of paragraphs 4, 5, 6, 7, 8, 9
2 Author of paragraphs 1, 2, 3, 9
3 Coordinator

1. Introduction: the concept of resilience

The use of the word <resilience> has a long history full of different meanings ranging from “bouncing”, to “human ingenuity”, and to the properties of elasticity and strength in materials that include steel, yarns, and fabrics. Today, this term is in common use, but, coming from the world of the metallurgical industry, it technically refers to the ability that a metal has to withstand the external forces to which it is subjected without breaking (D’Alexander 2013). The etymological origin is also interesting: it derives from the Latin <resiliens – entis> (present participle of <resilire>) which means “bounce, jump back”. In 1998, Perrings defines resilience by stating that: “in its broadest sense, resilience is a measure of the ability to face a stress system and shocks its ability to persist in an uncertain world” (Perrings 1998). In its broadest sense, resilience is a measure of a system’s ability to withstand stress and shock; it refers, thus, to its ability to persist in an uncertain world.

In contemporary debates, it is widely believed that resilience is concerned with the ability to cope with stress or, more precisely, to return to some form of normal condition after a period of stress. In the psychological field, reporting the characteristics borrowed from the technology of materials, it indicates the individual’s ability to withstand traumatic events or adverse events in order to overcome them. Some scholars argue that resilience is a personal characteristic, although it is more commonly understood as a dynamic process of positive adaptation (Block, Erlbaum, Hillsdale, NJ, 1980; Egeland, Carlson, 1993).

This concept, in the psychological field, denotes a combination of abilities and characteristics that interact dynamically to allow an individual to recover, and function above the norm, despite significant stress or adversity (Tusaie, K., & Dyer, J. 2004). Although the researchers agree on several domains of the concept of resilience, this concept can be seen from two perspectives: as a qualitative factor or as a continuum of adaptation where experimented possible solutions feed the memory (experiential learning factor) and orientation in the success obtained (Masten 1994).

The model proposed by Olsson et al. (2015), where a scheme is proposed which concerns resilience in the ecological field and in socio-ecological systems, is of particular interest. The group of scholars proposes a structuring of this context organized, on the one hand, around two conceptual meanings on one axis, and, on the other hand, around two attributes on the other, describing the four main types of definitions that are frequently used in scientific literature. The first conceptual meaning refers to the ability of a system to cope with stress and “bounce” (BB); the second refers to the system’s ability to “resume” and “transform” (BB-T). The first attribute is descriptive, which implies that resilience is “neutral” (N), and therefore that it is neither good nor bad, opposed by a prescriptive attribute which implies that resilience is desirable and “good” (G).

In the scientific sphere, there is no real concept of resilience linked to the human being that can identify this capacity as a global one that manifests itself on the individual at a total level, but it seems to be more a characteristic present in one or more human domains. Depending on the experiences made, individuals acquire the ability to “resist” a type of stress (or a series of stresses) while in other conditions it does not seem to have the same capacity (Luthar, Doernberger, Zigler 1993). In literature there are several studies that analyse this concept with respect to a single domain.

Resilience domains change with different life stages and cannot be defined as static. Children who have scholastic achievements above the average in their own group show that they have greater resilience than others in the same group with below-average academic results. Despite later in adolescence and later in young adulthood, despite typical risk factors, resilience seems to continue to persist (Luthar, Doernberger, Zigler 1993).

Resilience has been studied in particular in relation to great stress transitions. Evolutionary transitions include school entry, detachment from parents during adolescence, and pregnancy. Transitions also occur in unexpected or externally controlled events, such as disasters, prob-

lems related to work activity, etc. These and other forms of stressful situations put individuals at risk as they can develop psychosocial or physical symptoms. Individuals who experience breakdowns from stress but then use personal forces to become stronger and function above the norm are considered resilient.

2. Focus of research

Zubin and Spring (1997) described the concept of vulnerability as a lack of resilience. In their “stress-vulnerability” model, there are three forces that act on the individual: the *environmental factor* (Ecology), the *psychological and social experiences* (Learning and Development) and the *internal biological forces* (Genetics). All the “stress-vulnerability” models hypothesize that the onset of a pathology is not ascribable to a single factor, but, rather, it derives from the continuous interactions between genes, environment, and intrapsychic processes. The meaning that everyone gives to events that ultimately determines the severity of the stress load. (Perris, 2000). A low-stress stressful event is sufficient for people with a low resilience threshold to create discomfort.

On the therapeutic level, it is important to choose integrated interventions, oriented not only to mitigate the impact of external factors to the person (strengthening coping strategies, emotional management interventions), but also to intervene on the dysfunctional basic assumptions of the Self and on the relationships with others, which the person has matured during development (starting from early relationships).

The experimental study was conducted on 99 adult users with cognitive disabilities. The research hypothesis aims to find a correlation between individual well-being (measured in the improvement of social, emotional, attentional and motor skills) and individual resilience through therapeutic interventions. The analysis of the data crossed the users present in the examined activities (sport and pet therapy) with the characteristics of the family (for example proactive, null or problematic).

3. Theoretical bases

This work has attracted researchers who have brought new information with their studies that are of great interest even in different domains. Robertson, Cooper, Sarkar, & Curran (2015) have examined the impact of resilience training, identifying four broad categories of results on human resilience:

1. Mental health outcomes and subjective well-being,
2. Psychosocial outcomes,
3. Physical / biological outcomes,
4. Performance results.

The results indicated that resilience training can improve personal resilience and that represents a useful means of developing mental health and subjective well-being.

Resilience training has a number of benefits, among which improving psychosocial functioning and improving performance are included. The best definition of resilience is the one provided by Fletcher & Sarkar (2012, 2013), which states: “the role of mental processes and behaviour in promoting personal assets and protecting an individual from the potential negative effect of stressors”. Resilience represents a constellation of characteristics that protect individuals from the potential negative effect of stressors, allowing them to adapt to the circumstances they encounter. It is, therefore, a capacity that develops over time in the context of person-environment interactions that have a dynamic and non-static nature and that will therefore change in the course of life (Windle, G. 2011).

In the psychological sphere, a connection is created between resilience and mental strength perceived as an aspect – this latter – capable of making what has been learned in the field of adaptation lasting. One of the most important implications in relation to mental strength is

the fact that the development of psychological recovery capacity for a long-lasting success is a multifactorial effort. Areas related to personal qualities, facilitative environment, and challenged mind-sets must be appropriately targeted in order to improve the ability of performers to withstand pressure.

This is how new aspects regarding resilience or, as reported by Fletcher & Sarkar (2016), an etymological evolution of resilience with the introduction of “robust resilience” and “rebound resilience” arise. The former refers to its “protective” quality that manifests itself in the person who maintains his well-being and performance under pressure; the latter refers to its quality as a “bounce” that manifests itself only for the duration of temporary interruptions of a person’s well-being and performance compared to his ability to quickly return to normal functioning, when he or she is under pressure.

However, it appears to be certain that anybody can become resilient. This characteristic bears a very high significance factor with itself: as the authors say, resilience is a malleable phenomenon, and, therefore, it means that action can be taken, and, consequently, the critical evaluation of the effectiveness of interventions dedicated to the development of resilience takes on a very high importance. The initial phase of training should try to determine the way in which individuals react in pressurized situations. According to Fletcher and Sarkar (2016), the intervention should be integrated into the existing training programs (that should be both physical and psychological) of the performers, and they should offer various experiential learning opportunities. A successful training program aimed at developing resilience should be progressively adaptive over time, with evidence of developments in well-being and performance. Lastly, it must not be forgotten that if individual work has a good result there are tests with positive results also at group level (Morgan, Fletcher & Sarkar, 2013). Rather than simply aggregating the levels of psychological resilience of individuals, it seems that the resilience of a group reflects the principle enunciated by Aristotle and is therefore “greater than the sum of its parts”.

The concept of “antifragile” (Taleb 2012) identifies the ability to improve performance, due to the presence of a system stress factor or difficult conditions. This is a term borrowed from technology, in particular, from Artificial Intelligence (AI), and is used a lot in the LAN field and, in particular, with everything related to Wi-Fi distribution. In these areas, antifragility refers to systems that increase capacity, resilience, or robustness due to errors, failures, attacks, or breakdowns. The concept of antifragility is related to the stress factor that is a “jammer” that intends to interrupt the underlying communications. The difference between “antifragile” and “resilient” lays in the fact that the former benefits from the “jammer”, while the latter is linked to a concept of strength and resistance. In the cognitive field, there is an antifragile effect if the cognitive system is able to satisfy the criterion of increasing capacity as an outcome resulting from any negative condition (Lichtman, Vondal, Matthew Clancy, Charles; et 2018). All this is particularly interesting, as it can be brought back into the psychological field, since knowing the disorders can be used to increase the ability of people to develop knowledge about themselves in the field of resilience.

4. Educational model

To do so, we must rely on a model that can be easily applied to different layers (individuals, families and communities) such as the one proposed by Bonanno, Romero, Klein (2015) which consists of four basic temporal elements:

1. Basic or pre-adversity adjustments of which the responses to the warning and ultimately resilient outcomes refer;
2. The same real adverse circumstances;
3. Achieving resilient results for adversity, referring to both adverse circumstances and basic adjustment;
4. Predictors of resilient results measured before, during and after adverse events.

According to the authors, this simplification, although it fails to manage the complexity of

phenomena in all types of contexts, offers essential advantages for the advancement of theory and research. As a matter of fact, the elementary approach provides a structure ready to integrate the various meanings of psychological resilience in a single development process.

Aristotle was cited for the concept that the whole is more than the sum of the individual parts, referring to the effects that the group has on resilience. The most representative and profound group is the family. In literature, there are numerous studies that have investigated the influence of the family on their belonging members, and Bonanno, Romero, and Klein (2015) have provided picture that summarizes its most representative aspects, from the family as a functional unit, to the concept of a collective family aggregate where the psychological health of a family is built mutually and emerges from the interactions between the members.

Patterson (1988) proposed five broad dimensions of family health related to:

1. Shared commitments, values and goals;
2. Focus on challenges rather than requests;
3. View of his life experiences in the context of the present circumstances;
4. Ability to interact with others outside the family;
5. Degree to which members consider themselves part of a larger family unit.

Hanson and Boyd (1996) defined family health as “a dynamic and changing relative welfare state that includes biological, psychological, spiritual, sociological and cultural factors of family systems”.

Therefore, it is blatant that the close connection between resilience and the family environment.

Larcan e Cuzzocrea (2001) conducted a research with the aim of verifying which factors, in families with a disabled child, are the most likely to influence family functioning. 32 couples with 2 children between 8 and 10 years old were selected. In half of them one of the children was disabled. In addition to the parents, the siblings and their teachers were analyzed. The results revealed that the presence of a disabled child affects stress levels, parenting, the perception of family functioning and the sibling’s behavior in the family and at school.

5. Tools

To carry out this study, I created two dedicated research tools.

The first device was the result of the reworking of the AEPS® Registration form for child observation data. This grid for recording children observation data has been designed to be used in combination with the AEPS® test for children aged 3 to 6 by professional staff and it includes each of the following areas: fine motor skills, common motor skills, cognitive mobility, and adaptive social communication . The module is used to record the initial performance of the child on the AEPS test and the subsequent performances. Its re-elaboration which I had developed has provided for the translation (to make it accessible to all operators) and the adaptation of the items, by area, to an adult user with cognitive and psychic impairments. Its formulation leads to a value that indicates the improvement, or not, of skills, identifying which areas are the most stimulated and, eventually, those still to be strengthened. It is an analytical observation system, which requires a considerable amount of time to be compiled. For this reason, it was administered only by the reference educators of users with cognitive and psychic disabilities who carried out the motor activities. The data collection involves observation from the beginning up to the end of a structured physical activity path lasting one school year. As what concerns the AESP test, only the final results (related to the general improvement of motor, psychological, and relational abilities) will emerge.

The second tool of work was the ex novo creation of a data collection sheet on the effectiveness of motor activity both on a behavioural and motor level. The register is quick and easy to be compiled. For this reason, it was possible to administer it to a larger group of users.

6. The tools validation method

In order to validate our measurement system (survey), it was decided to use the technique suggested by the Gauge R&R tool. This technique is usually applied in the analysis of processes where there may be discrete or continuous variables: in this way it would be allowed to evaluate the reliability of a measurement system, be it a measuring instrument or an operator's evaluation.

For the Gauge R&R analysis of continuous variables, statistical software must be used (as e.g. MINITAB).

Otherwise, for Gauge R&R analysis of discrete variables (good / bad, pass / not pass, compliant / non-compliant), usually of Boolean nature, we use the calculation of an index K (we will see later how to calculate it), which allows to derive measuring ranges intervals suitable for the measuring instrument. In this case we usually have two values, for example, as already indicated, "compliant" and "not compliant", even if "non-compliant" means that there might be different degrees of non-compliance (Morsanuto, Tafuri, 2017).

Our measurement system (namely, the survey) presents a discrete type structure (which is the evaluation range of a scale of values from 1 to 5), but not Boolean (which presents only 2 values). We will then adopt the R&R Gauge method for discrete variables, with the precaution that K's evaluation intervals will be slightly different. As a matter of fact, while there is a dichotomy between the conformity or non-conformity assessment, in our case I could have, for a specific question, a score of 5 given by the first operator and a score of 4 given by a second operator. In this case, the evaluations differ slightly (I could almost group them in a single score), but, in the calculation of K, they would result in a discordant evaluation. To overcome this drawback, the ranges of the K values will be re-proposed for which an evaluation of the measuring instrument is expressed (Morsanuto, Tafuri, 2017).

Entering into the detail of the method, this analysis aims to evaluate (measure) the repeatability and reproducibility of our measurement system. In particular:

- Repeatability (the intrinsic variability of the measurement system. It is the variation which occurs between successive measurements taken under the same conditions).
- Reproducibility (indicates the variation between the measurements taken by different operators, using the same instrument and procedure, when they measure the same characteristic in the same process).

For each user submitted to the survey, the questionnaire was twice administered to two operators, allowing a week to elapse between the first and second compilation. In this way, it was possible to measure repeatability, by evaluating the variation of the answers of one operator in the two following sessions, and reproducibility, by measuring the variation of the answers of the two different operators, compared to the evaluation of the same user.

The measurement scale used in the questions is ordinal, as the five possible answers for each question are attributable to a scale of values that goes from 1 to 5, where in each case 5 has a positive meaning and 1 holds a negative meaning.

Subsequently, the table of answers was organized in order to easily obtain a comparison between the operators' evaluations (first and second evaluation) and between the operators (first evaluation of each operator), with the same user and the same proposed activity.

For each individual user, I calculated the separate K for each evaluator, comparing the judgments expressed in the first measurement replica with the second. This allowed me to have a measure of the repetitiveness of our measurement system. I have then calculated the K, comparing the judgments expressed in the first replication of the various evaluators, and built a table with the matched data, exploring all possible combinations. In this way, I measured the reproducibility of the system. For the values of K, we can then define the following interval grid:

- Less than 0.70 - Unacceptable
- 0.70-0.89 - Acceptable
- Greater than or equal to 0.90 - Excellent

Summarizing the results of the method, it can overall be considered that the survey passed

the reliability test of the R&R Gauge method, positioning itself in the excellence part of the scheme: 99% repeatability and 94% reproducibility. The operators gave consistent answers over time and were in line with each other (Morsanuto, Tafuri, 2017).

7. Pattern analysis

The interview was given to the work teams composed of the reference educators and the coordinator (sample selected with method - ad hoc sampling).

To carry out this study, two dedicated investigative tools were created.

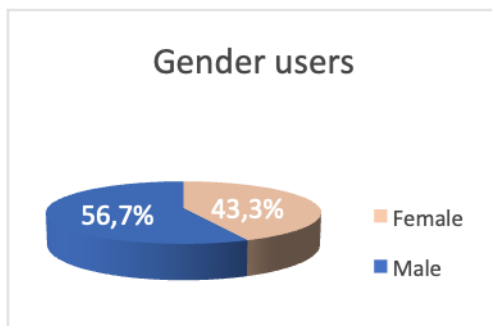
The first device was the result of the reworking of the AEPS® Registration form for child observation data. This grid for recording children observation data is designed to be used in combination with the AEPS® test for children aged 3 to 6 by professional staff and includes each of the six areas: fine motor skills, heavy motor skills, cognitive, adaptive, social communication. The module is used to record the initial performance of the child on the AEPS test and subsequent performances. Its re-elaboration has provided both its translation (to make it accessible to all operators), and the adaptation of the items, by area, to make them accessible to an adult user with cognitive and psychic disabilities. Its formulation leads to a value indicating the improvement or not of the abilities, identifying which are the most stimulated areas, and, eventually, which ones still to be strengthened. This is an analytical observation system, which requires an important compilation time. For this reason, it was administered only to the referring educators of a reference sub-group (20 users), inhomogeneous, of adult users (21-40 years old) with cognitive and psychic disabilities. The data collection includes the observation at the beginning and at the end of a structured physical activity path lasting one school year (Morsanuto, Peluso, 2018).

The second means of work was the creation from scratch of a data collection sheet on the effectiveness of motor activity, both on a behavioural and motor level. The register is quick and easy to complete. For this reason, it was possible to administer it to a larger group of users (Morsanuto, Peluso, 2018). The centres involved were nine between diurnal and residential units for a total of 150 users. Also, in this case the persons concerned have different cognitive and psychic deficits (mild, medium, and severe). The interview was given to the work teams by the user's reference educator and the coordinator.

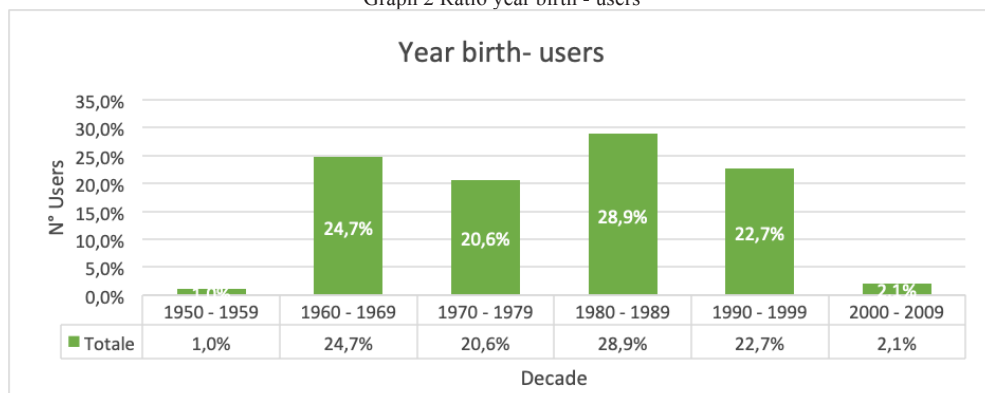
In the following graphs, the analysis of the sample that took part in the research is presented.

It is clear to notice that the gender distribution is fairly homogeneous. As a matter of fact, the graph gives the proportion of the total gender distribution of the sample. Prevalence is for the male gender, but overall the sample is well represented by both genders.

Graph 1 Gender users



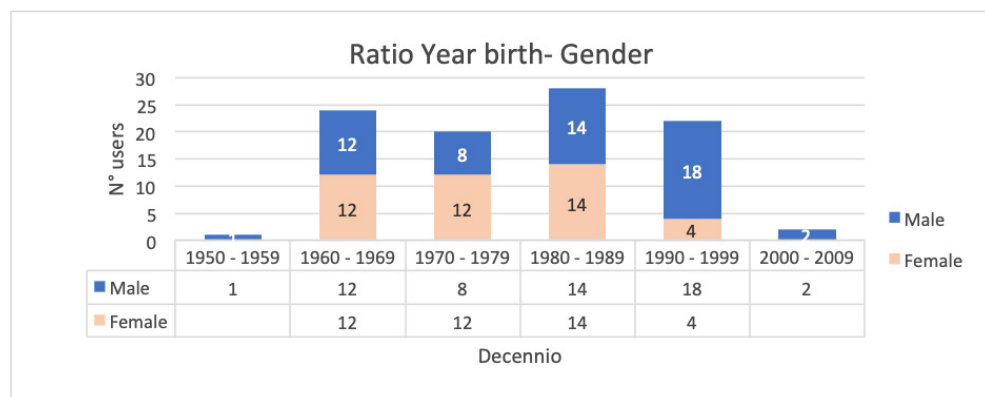
Graph 2 Ratio year birth - users



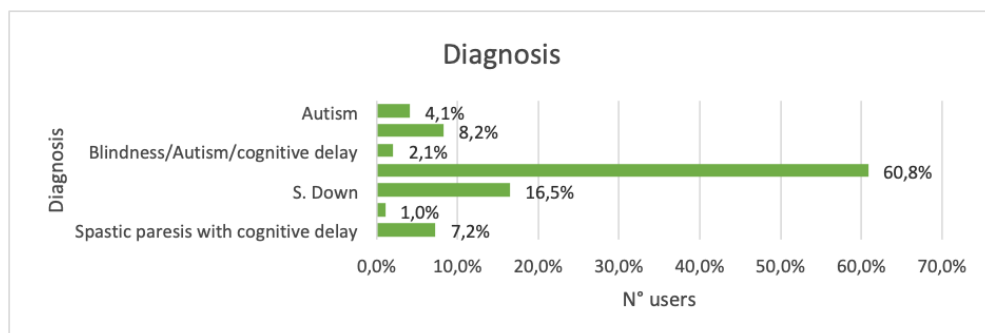
The graph shows the age distribution of the various users, grouped by reference decades. This graph gives an idea of the age groups present in the institutes. It can be seen that the decades from 1960 to 1999 are best represented and cover quite the whole sample.

The next graph shows the relationship between the years of birth (grouped in decades) and the gender of the users. Apart from an imbalance in the 1990-1999 decade for the benefit of the male gender, it can be inferred that the other three decades are best distributed between the male and female gender.

Graph 3 Ratio year birth - gender

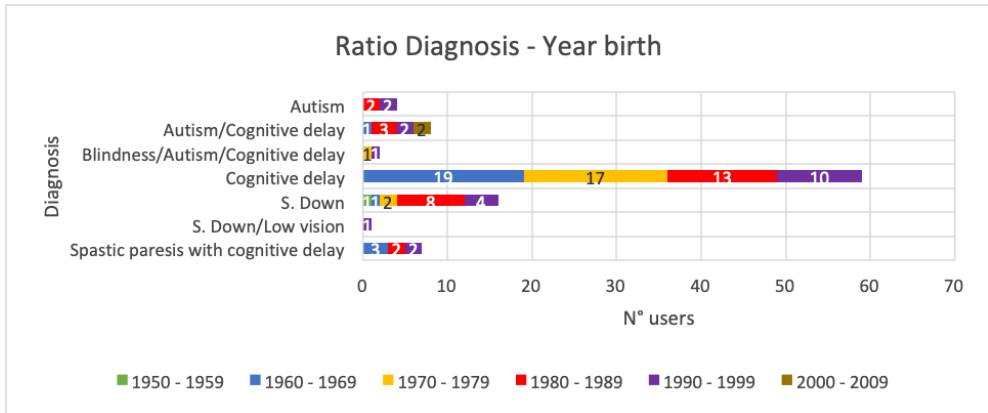


Graph 4 Diagnosis distribution



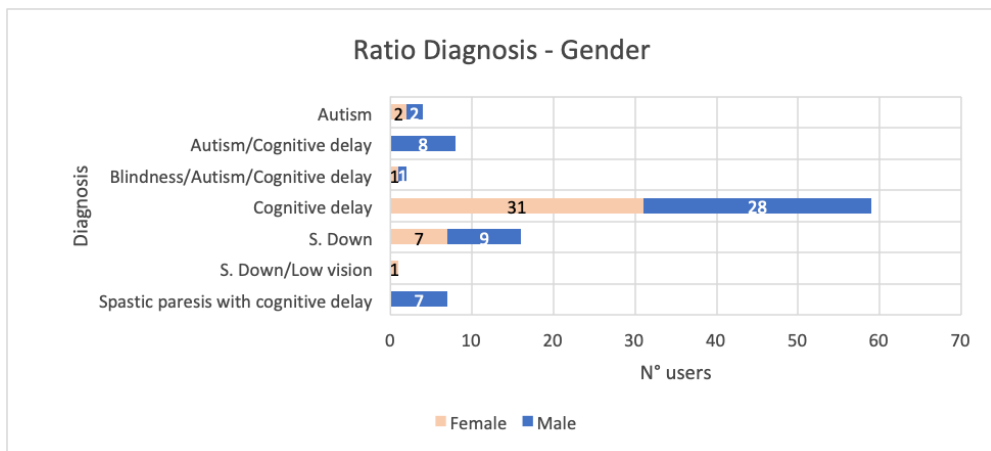
The graph above shows the distribution of the sample users in relation to the diagnosis. Intellectual and relational disability is by far the most represented (60.8%), followed by Down users (16.5%).

Graph 5 Ratio between diagnosis and year birth



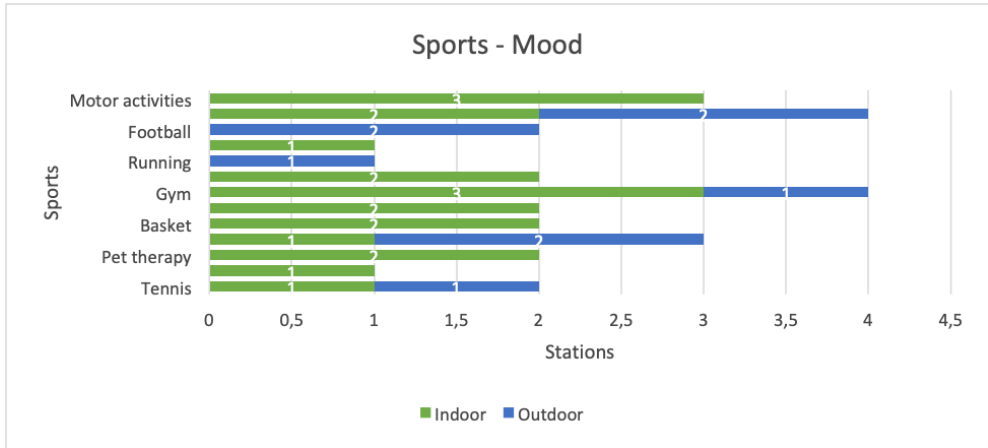
Graph number 5 shows the relationship between the diagnosis and the age of the users. As a matter of fact, for each type of diagnosis, the number of users grouped by decade of birth is indicated. It is blatant that there is a homogeneous distribution between disability and age of users.

Graph 6 Ratio diagnosis - gender



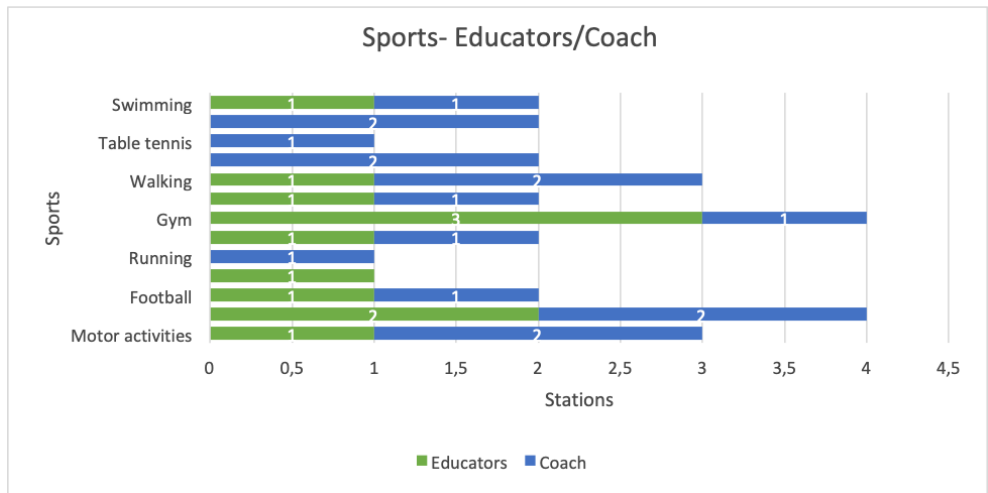
This graph shows how the gender of the sample is distributed for each type of diagnosis. Autism / Intellectual and relational disability, Down / Low-vision and Spastic paresis with cognitive delay are mono-genre, but with a low number of users. The other diagnoses are instead quite equally distributed by gender.

Graph 7 Ratio sports - mood



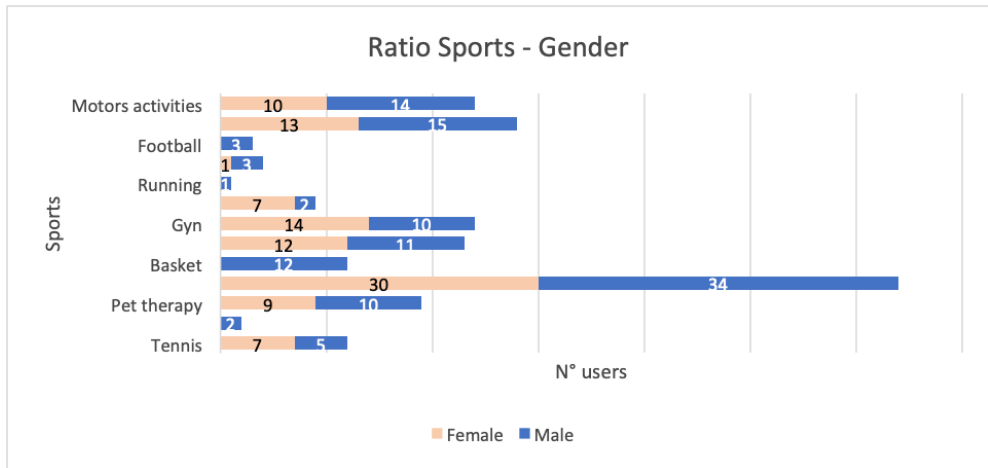
The graph above shows where the proposed activities are carried out; it gives a subdivision between indoor and outdoor activities, measuring the number of centres that carry it out in one way rather than in another.

Graph 8 Ratio Sport - Educator or coach



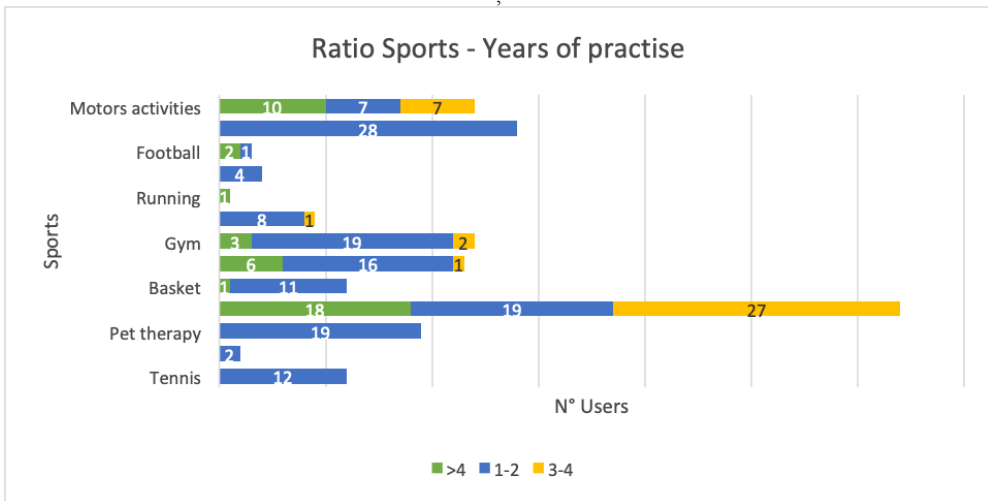
Graph number 8, instead, shows the persons who support the users during the proposed activities, giving a breakdown between activities with support from the same operators (who already work with users on a daily basis) or from external instructors, measuring the number of institutes that carry out the activity in one way rather than another. Naturally ideal situations should occur with internal operators who have psychological/educational competences and motor education skills or, more rarely, with external instructors who have skills in physical education and psychological / educational skills. However, there may be cases in which internal operators do not have any kind of motor competence or external instructors do not have psychological / educational skills with the users who are in front of them. In this last case, a synergy must be created between operators and instructors so that they both make their skills available to the user, without invading the relative fields of expertise.

Graph 9 Ratio sport - gender



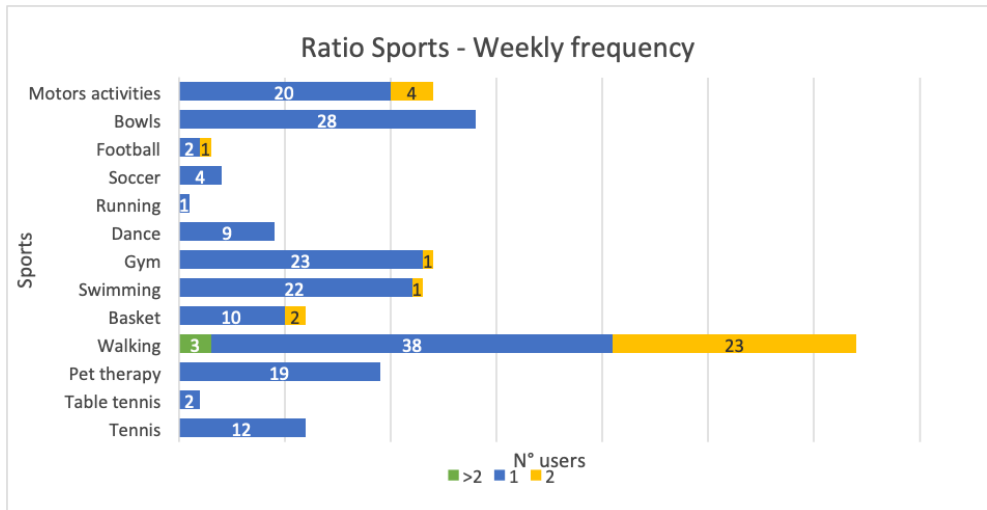
Graph number 9 shows the relationship between the various motor activities proposed and the number of users divided by gender. Apart from basketball, soccer, table tennis, and running (the last three, however, practiced by a small number of male users), the other proposals are equally practiced by both genders.

Graph 10 Ratio sport - practise's years



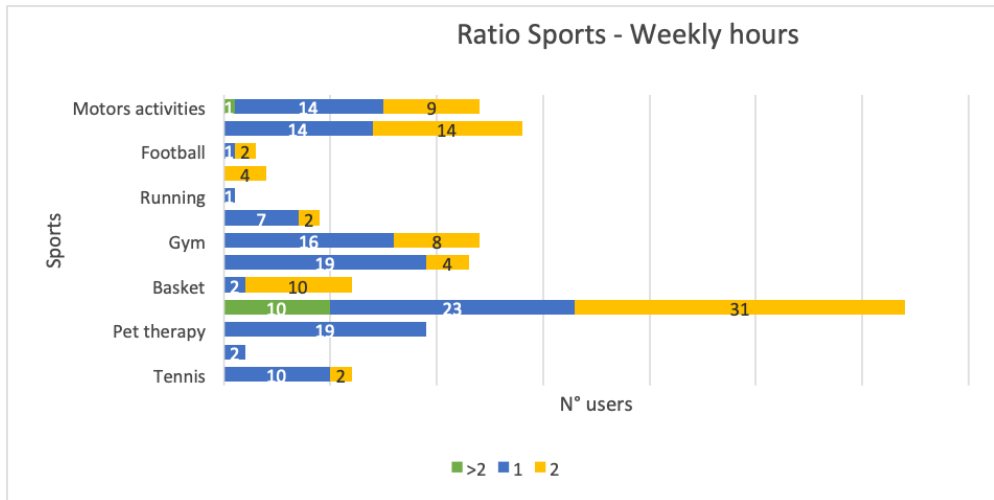
Graph 10 shows the relationship between activity and duration in years, that is, it indicates how many years the activity is proposed by the various centres (counting the number of users who practice it).

Graph 11 Ratio sport - weekly frequency



Graph 11 proposes the same reasoning as the previous graph, instead of the duration in years, the frequency is indicated (how often each activity is done per week). Therefore, the number of users divided by frequency bands will be indicated within each single activity bar. The activities are mostly offered only once a week.

Graph 12 Ratio sport - weekly hours



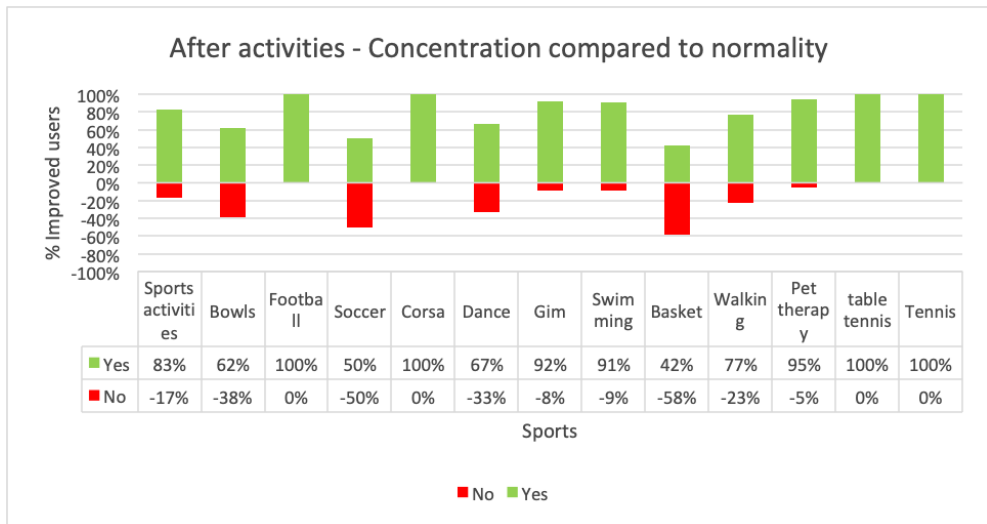
The same reasoning applied with the previous graphs, but in this case the weekly Frequency has been replaced with the number of weekly hours in which the activity is carried out. One or two hours of weekly activity is the largest offer.

8. Analysis of specific results

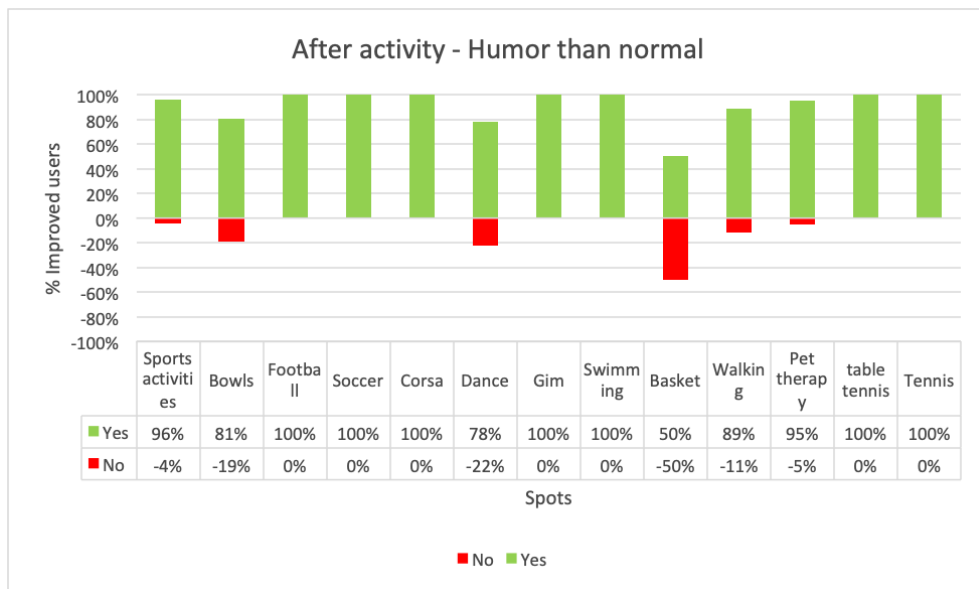
- A dichotomous or binary variable is a special case of nominal variable, and more precisely it is a nominal variable with only two modes. They are characterized by the presence or absence of a property.
- The method used to construct an index sum of several indicators was to bring each of these to the largest scale, checking that this does not cause the overestimation of one over the other. In the specific case:
 - **Values related to improvement in social, psychological, cognitive and motor areas**
 - Values corresponding to “absent” and “poor” are grouped in the NO (NO means no improvement or not perceptible improvement);
 - Values relating to “good”, “fair” and “significant” are traced back to the YES (YES means presence of improvement).
- **Values related to the type of family**
- Values corresponding to “absent”, “pathological”, “indifferent” are grouped in the NO (NO means a negative attitude of the family or caregivers);
- Values related to “active” and “proactive” are grouped in the YES (YES means the ability to react to events in a conscious, responsible and useful way).

The questions in the questionnaire did not include an objective measurement of values before and after the activity, but it included instead an assessment of the range of improvement. The graphs therefore show the percentage of users who have improved (in green) compared to those who did not show improvements (in red). Already at a glance, we can see how, for the characters chosen as a summary, we have strong improvements, ranging from a minimum of 75% to a maximum of 94%.

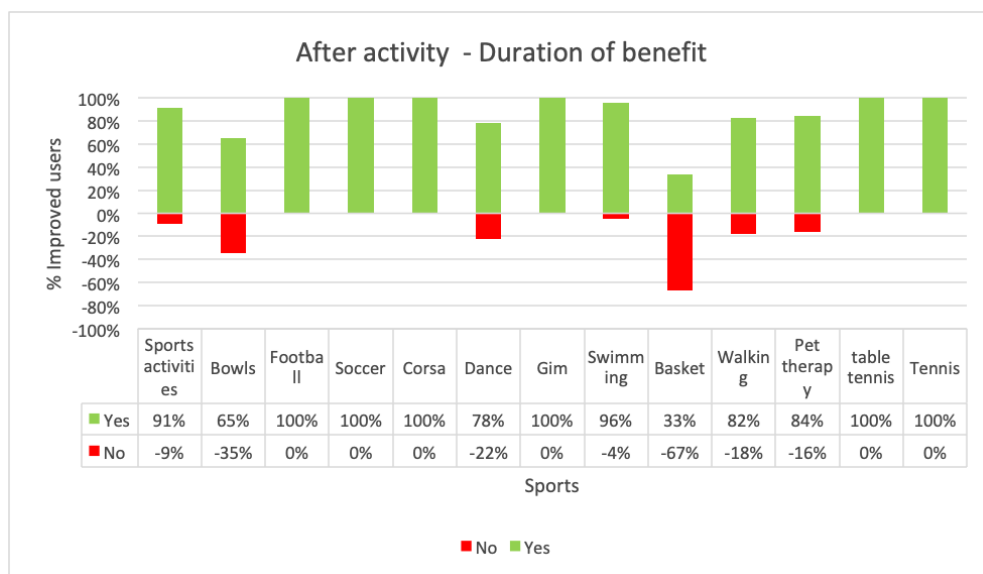
Graph 13 After activity concentration compared to normality



Graph 14 After Activity – mood than normality



Graph 15 After activity duration of benefits



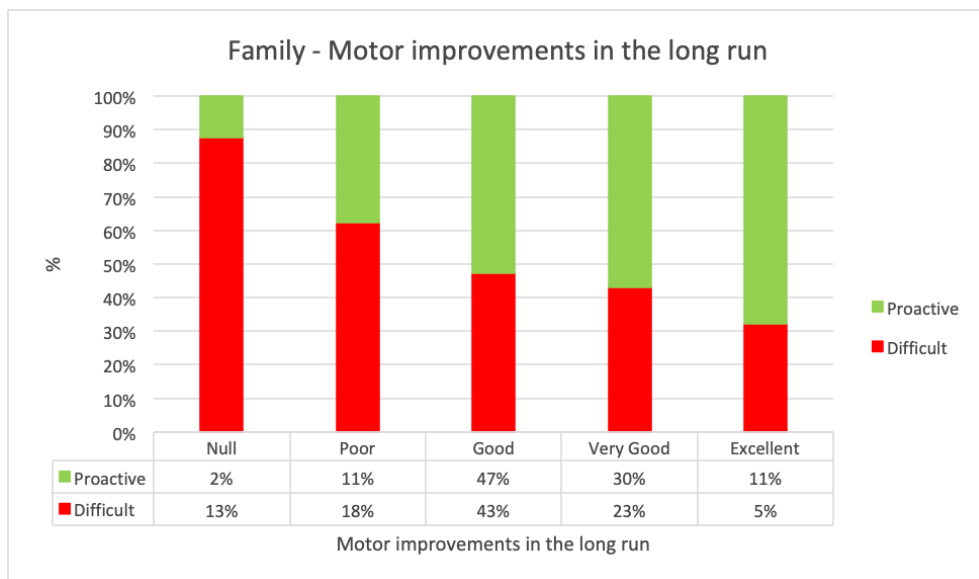
Going into detail, we can summarize that:

- In the long run, motor skills improved in 96% of the sample of users;
- 88% of users have an improvement in mood compared to normal after completing the activity;
- 83% of the sample in the long run presents improvements compared to normality both in mental abilities and in relational functions;

- In general, 75% of the sample benefits from the activity and the latter lasts longer over time;
- 76% of the sample has an improvement in concentration ability.

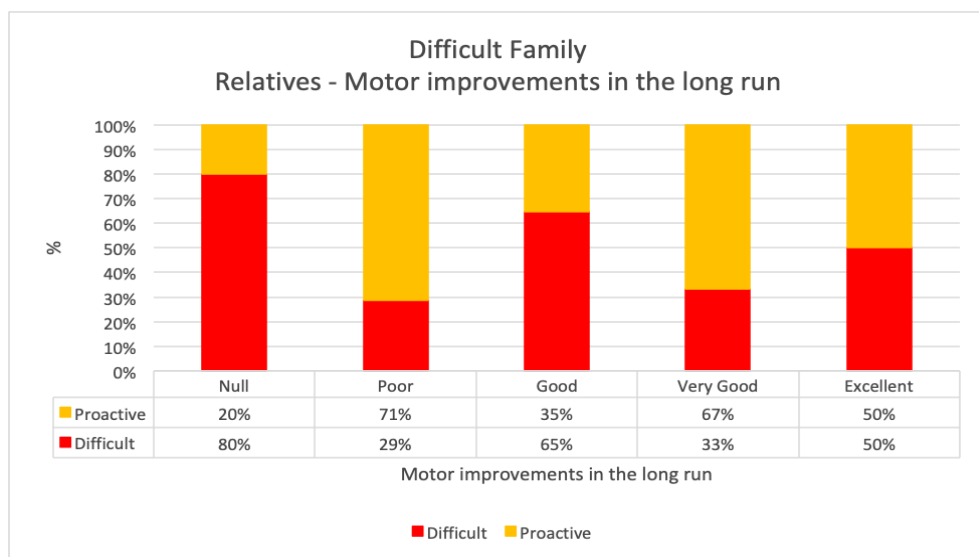
The following graphs, instead, analyse the correlation between the type of family (absent, pathological, indifferent, active and proactive) and improvements in the various areas in the long term.

Graph 16 Ratio type of family and improvements in the long run

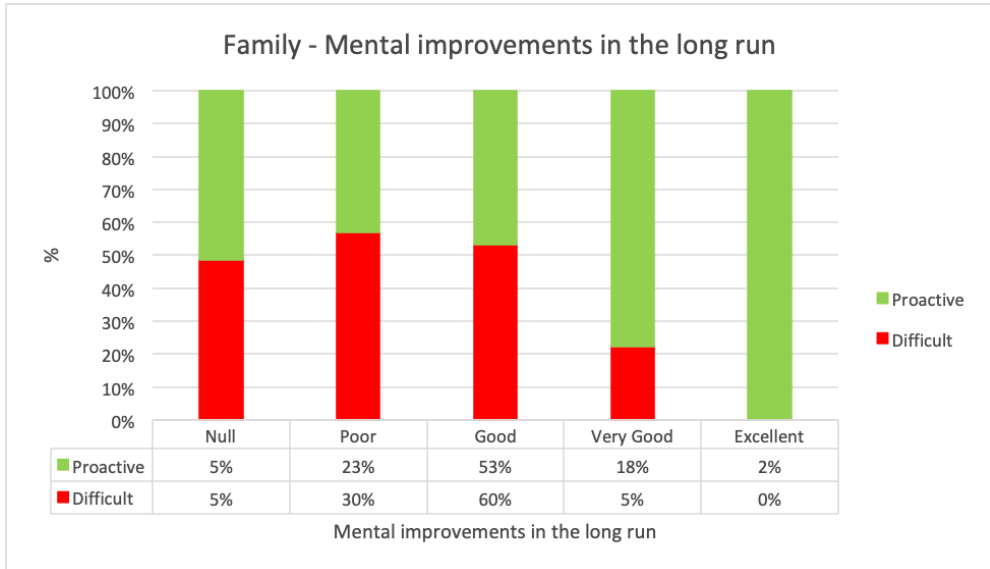


As we can see, in cognitive disabled people, the more proactive the family is, the more motor skills are developed and preserved.

Graph 17 Ratio between difficult family - relatives and motor improvements in the long run

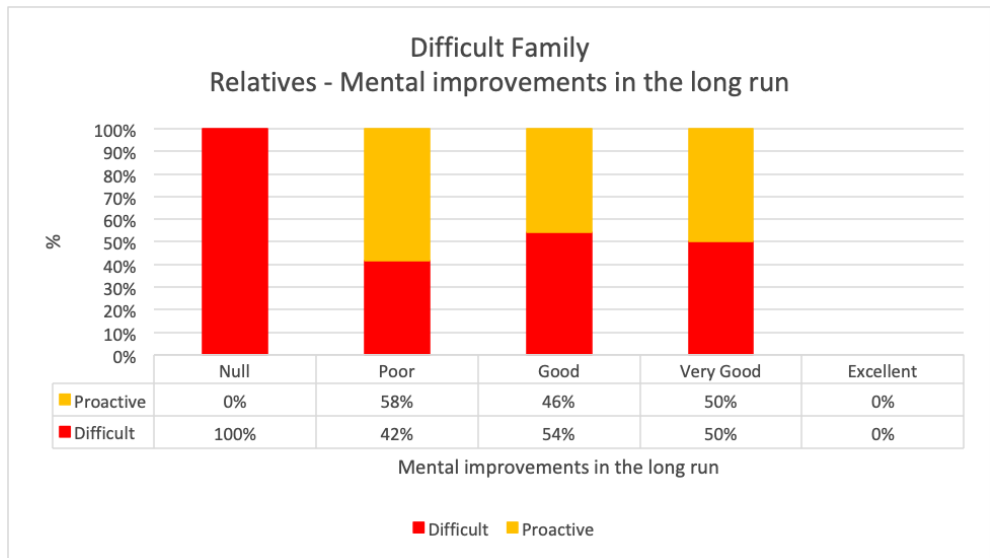


Graph 18 Ratio between family and mental improvements in the long run



As clearly shown in the graph, the family that applies proactively in maintaining active the skills of the disabled person achieves remarkable results in the long term. It should be emphasized that this work is in collaboration with educational agencies.

Graph 19 Ratio between difficult family - relatives and mental improvements



9. Conclusions

Resilience is a quality that can be trained and can be defined as a plastic factor. Its plasticity is the result of the experiences lived by the individual.

There is an holistic approach to the individual as resilience develops into single domains

that could correlate with each other. Bearing in mind that the sports field was one of the major fields of learning, we can deduce that motor activity is certainly a way of developing resilient skills both at individual and group level.

In literature, there are many researches related to the relationship between physical disability, resilience, and sport. A research, in collaboration between Juntendo University, Kansas State University, and Michigan State University, (Machida, Irwin, Feltz, 2013), has examined the resilience process of participants in sports with acquired spinal cord injuries. They assessed the role of sport participation in the resilience process. The research took place through semi-structured phenomenological interviews with 12 male quadriplegic rugby players in wheelchairs. This study examined the psychological resilience experienced by the participants using the Richardson and colleagues' resilience model (Richardson, 2002; Richardson et al., 1990) as a guiding framework. Consistent with the resilience model, the results confirm that resilience, even among people with physical disabilities, is a multifactorial process.

It's so difficult to find research like this – related to cognitive disability. The administration of a specific test, the comprehension of real emotional states, the development of coping strategies are the main difficulties encountered in this research. The Gestalt principle is verified at the group level: “the whole is more than the sum of the single elements”. This is scientifically relevant also in cognitive disability.

The reported data seem to support this thesis as we note that in proactive families users have long-term motor improvements strictly related to psychological improvements, as opposed to families with negative attitudes that show poor improvements in the long run.

In conclusion, we can argue that subjects with cognitive disabilities demonstrate an increase in psychological resilience closely correlated with the presence of a proactive family and long-term motor activity. It's of fundamental importance that the family and educational agencies work together to maintain and develop skills in a bio-psycho-social perspective. It is so important, that the intervention objectives are personalized and shared (Morsanuto, Peluso, 2018).

The detailed analysis of these individual components is left to the evolution of research.

References

- Alexander D., (2013), Resilience and disaster risk reduction: An etymological journey, *Nat. Hazards Earth Syst. Sci.* 13, 2707–2716;
- Block J. H., Block J., (1980), *Minnesota Symposium on Child Psychology*”; W. A. Collins, Ed. Erlbaum, Hillsdale, NJ, vol. 13, pp. 39–101;
- Bonanno G., Romero S., Klein, S., (2015), *The Temporal Elements of Psychological Resilience: An Integrative Framework for the Study of Individuals, Families, and Communities*, *Psychological Inquiry*, Vol. 26 Issue 2, p139-169;
- Egeland B., Carlson E., Sroufe L. A., (1993), Resilience as process, *Dev. Psychopathol.* 5, 517–528;
- Fletcher D., Sarkar M., (2012), A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise*, 13, 669–678;
- Fletcher D., Sarkar M., (2016), Mental fortitude training: An evidence-based approach to developing psychological resilience for sustained success, *Journal of Sport Psychology in Action*, 7(3), 135-157;
- Hanson S. M. T., Boyd, S. T., (1996), *Family nursing: An overview*. In S. M. T. Hanson & S. T. Boyd (Eds.), *Family health care nursing: Theory, practice, and research*”; Philadelphia; pp. 5-40;
- Lichtman M., Vondal M.T., Clancy, T. C., Reed, J. H., (2018), Antifragile communications, *IEEE SYSTEMS JOURNAL* Volume: 12 Issue: 1 Pages: 659-670;
- Luthar S., Doernberger, C., Zigler E., (1993), Resilience is not a unidimensional construct: insights from a prospective study of inner-city adolescents, *Dev Psychopathol.* 4:287–299;

- Machida M., Irwin B., Feltz D., (2013), Resilience in Competitive Athletes With Spinal Cord Injury: The Role of Sport Participation, *Sage Journal*
- Masten A., (1994), Resilience in individual development: successful adaptation despite risk and adversity, Wang MC, Gordon EW, eds. *Educational Resilience in Inner City America: Challenge and Prospects*. Hillsdale, NJ: Erlbaum;
- Morgan P.B.C., Fletcher D., Sarkar M., (2013), Defining and characterizing team resilience in elite sport, *Psychology of Sport and Exercise*, 14, 549–559;
- Morsanuto S., Peluso Cassese F., (2018), Il Tennis e la Disabilità Cognitiva e Psicica: programmazione, osservazione e ricerca sperimentale sull'interazione dell'attività nello sviluppo degli obiettivi psicofisici *Giornale Italiano di Educazione alla Salute, Sport e Didattica Inclusiva* V. 2, N. 3;
- Morsanuto S., Tafuri D., (2017), Lo Sport... per l'Inclusione Ricerca sperimentale ed Analisi dei dati sull'influenza dell'attività sportiva nella disabilità cognitiva e psichica *Giornale Italiano di Educazione alla Salute, Sport e Didattica Inclusiva* V. 1, N. 4;
- Olsson L., Jerneck, A., Thoren H., Persson, J., O'Byrne, D., (2015), Why resilience is unappealing to social science: Theoretical and empirical investigations of the scientific use of resilience, *Science Advances* Vol 1, No 4, 11 pages;
- Patterson, J. M., (1988), Families experiencing stress: I. The family adjustment and adaptation response model: II. Applying the FAAR model to health-related issues for intervention and research, *Family Systems Medicine*, 6, 202–237;
- Perrings, C., (1998), Introduction: Resilience and sustainable development, *Environ. Dev. Econ.* 3, 221–222;
- Robertson I., Cooper C.L., Sarkar M., Curran T., (2015), Resilience training in the workplace from 2003–2014: A systematic review, *Journal of Occupational and Organizational Psychology*, 88, 533–562;
- Taleb, N. N., (2012), *Antifragile: Things That Gain From Disorder*, New York, NY: Random House LLC;
- Tusaie K., Dyer J., (2004), Resilience: A historical review of the construct, *Holistic Nursing Practice*, 18,3–88;
- Windle G., (2012), What is resilience? A review and concept analysis, *Reviews in Clinical Gerontology*, 21, 152–169;
- Zubin J., Spring B., (1977). Vulnerability: A new view of schizophrenia. *Journal of Abnormal Psychology*;