

The Evaluation of a Program of Democritus University of Thrace in Greece, Regarding the Restoration of the Quality of Life of People Who have Suffered a Stroke



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SUMMARY: This paper studies the effect of a program of the Demokriteio University of Thrace, in improving the living conditions of individuals who have experienced a stroke in their lives. The majority of people who experience such an episode are called to manage a new way of life, with many new difficulties daily. This program was designed and implemented to support these individuals. The aim of this research is to capture the ways in which lives of these people were affected, to identify the changes they observed by themselves, to investigate the attitudes they adopted towards the action in question and, to a large extent, to evaluate the program through the participants' own experiences. The work was based on the principles of applying qualitative research and content analysis. Interviews were conducted with ten participants, with open-ended questions in a semi-structured organizational framework, as provided in the literature. The results yielded a wealth of important information that profiles the actual operation of the program. Positive elements and changes in lives of individuals are highlighted as well as their suggestions for improving or changing some organizational issues. In conclusion, it is established that the offer of the action in question is multidimensional and particularly important, with a wide variety of elements that compose it and also define it. The conclusions of the research can be used in the planning of new corresponding actions or can be a trigger for conducting other research.

KEYWORDS: rehabilitation, strokes, quality of life

INTRODUCTION

The effect of a stroke on people's daily life can be an important factor in shaping their quality of life. The degree of impact on this can vary significantly depending on the severity of the episode, the effectiveness of treatment and rehabilitation, the support they receive and their individual living circumstances. The possible elements vary, so that can affect the daily life of people with stroke. The effects of a stroke on mobility, the ability to perform daily activities and independence can be of decisive importance for the person (Marzolini, 2018). Physical therapy and rehabilitation can improve these aspects of their lives (Jette et al., 2005, Grimley et al., 2020). In the psycho-social dimension of their daily life, strokes can affect the functioning of individuals, causing depression, frustration, anxiety, reduced sense of achievement, and other difficulties (Mayo et al, 1999). Psychosocial support can help them deal with these problems. In addition to social relations, the effect is decisive (Karahan et al., 2015). Support from family and friends, as well as reintegration into society, can have a significant impact on their lives. Social support and the opportunity to participate in social activities can improve their daily life (Fujitani et al, 1999). It is important to emphasize that each case is unique and the needs of the person with stroke are different. Quality of life can be improved with appropriate care, psychosocial support, and the individual's personal determination and resilience (Corbetta et al., 2015).

In this light, the "NEUROBIOSTROKE" program was designed and implemented for the rehabilitation of people who experienced a stroke, by the Faculty of Physical Education and the Faculty of Medicine, of the Democritus University of Thrace, which attempted to contribute to the treatment of the difficulties of persons. Of special interest is the study of the way in which this program affected the lives of these people in a wider context. In all aspects of people's daily lives, this specific action intervened in a systematic way to remove the dysfunctions that arose after the stroke. This work investigates the way in which the personality of the participants improved, examines possible difficulties that were presented during its implementation and attempts to carry out a qualitative evaluation of this overall intervention.

Rehabilitation programs for people after a stroke

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Stroke rehabilitation programs are designed to improve physical function, mobility, strength, and overall quality of life for people with these problems. These interventions can be tailored according to the type and severity of problems (Mayo et al., 1999; Grimley et al., 2020). It is important to have a multidisciplinary approach, i.e., collaboration with health experts, physical education teachers, physical therapists, occupational therapists and other specialized professionals, to develop an appropriate rehabilitation program that acts effectively. Some of the main components of rehabilitation programs for problems include the following: Assessment: The first fundamental process is the assessment of difficulties by a qualified health professional. This will determine the type and degree of problems and help to understand the needs (Hayward et al., 2021). Designing a rehabilitation program: Based on the assessment, health professionals will design a rehabilitation program that will include exercises, physical therapy, the use of machines or equipment, and other therapeutic methods (Silva et al., 2015). Exercise therapy: Therapy includes exercises to develop mobility, strength and flexibility, as well as rehabilitation techniques with specialized exercises (Kravaritis, 2009). Counseling: Counseling sessions can help address the psychological and social aspects of recovery (Jette et al, 2005). Education: Education about the disease and upcoming rehabilitation approaches in addition to the above, rehabilitation programs for people who have experienced a stroke may include other elements, depending on the needs of each individual (Gattellari et al., 2011).

Other key points reported in the literature include: An important part of rehabilitation is setting specific goals and carefully monitoring progress and performance (Corbetta et al., 2015). In some cases, diet and participation in appropriate physical activity can help restore and strengthen muscles and joints (Grimley et al., 2020). Support from family and community: Support from people in the immediate or wider environment and the community can play a decisive role in recovery and improving the quality of life (Fotiadou, 2004; Hatzi, 2020; Gordiou, 2021).

It is especially important to work with health professionals to develop a customized rehabilitation program that reflects needs and individualized living conditions. It has been proven over time that cooperation with specialized professionals can help to recover physical and psychosocial function and improve the quality of life (Kimberley et al, 2010).

The NEUROBIOSTROKE research project of the School of Physical Education and Sports of Democritus University of Thrace in 2022-2023,

Is aimed at chronic stroke sufferers who are in the rehabilitation phase.

14 people, patients in the chronic phase after a Vascular Stroke, participated in the NEUROBIOSTROKE experimental treatment program. The patients were all ambulatory, with mild to moderate motor difficulties such as hemiplegia. They had all been hospitalized in Nursing Institutions in Greece and were in the maintenance phase. All were receiving medication and lifelong exercise had been recommended by their attending physicians.

Their participation in the program was ensured following their own choice and request after they were informed either by involved partners of the program through personal acquaintances or by third parties who knew about the implementation of the program in question.

NEUROBIOSTROKE participants were subjected to initial measurements of biomechanical characteristics in the Biomechanics laboratory of the Faculty of Physical Education and Sports of Democritus University of Thrace. Interim measurements were repeated in the middle of the program and final measurements were taken after the end of the intervention, in July 2023.

The intervention program was conducted in a specially designed, easily accessible space in the center of the city. The exercise that was applied and whose effectiveness was investigated in the rehabilitation of chronic stroke sufferers was based on the Pilates method and was of high intensity 5.7 based on the 10-point Borg scale. Therefore, the exercise area was specially designed, with Pilates exercise equipment, specifically a Reformer bed with Tower, Pilates Ladder Barrel, Pilates Arm Chair, Pilates Wuda Chair, Pilates Boxing, Pilates Ring, Bosu, balance discs, small and large balls, Soft Weight Balls, Wrist and ankle weights, Bands and Loops, and exercise mats.

The exercise programs were of high intensity, specially designed by specialized scientists, who applied them themselves. Each trainee followed a personalized exercise program of up to 1 hour, with a frequency of 2 times a week, in the morning hours. In the exercise area, two trainees were present at the same time and they performed their program with the guidance and accompaniment of two coaches - therapists, each one.

Polar (heart rate monitor) throughout the training, were measured, recorded and stored in a relevant application, on the mobile phone of the coaches-therapists.

After the completion of each exercise, the 20-point Borg scale was completed, with which the trainee expressed his subjective position/perception of the difficulty level of the exercise he had just performed on a scale of 1 to 20 difficulty units, from Very Mild to Very Intense. At the end of each session, the practitioner reported their subjective position/perception of the intensity level of the session as a whole, based on the 10-point Borg scale.

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QUALITATIVE RESEARCH

Qualitative research is a research method used in many fields, such as education, psychology, sociology, anthropology, psychiatry, law and others, in order to understand and explain the phenomena and experiences of people from a personal, social and cultural perspective (Krippendorff, 2018). In contrast to quantitative research methods, which focus on numerical data and statistical analysis, qualitative research focuses on developing understanding and interpretation of human behavior and social processes (Miles et al., 2020).

The main characteristics of qualitative research include the following (Silverman, 2016):

Emphasis on interpretation and understanding: In qualitative research, researchers seek to gain a deep understanding of participants' experiences, beliefs, and opinions by analyzing a variety of their data. **Flexibility in data collection:** Researchers use various methods of data collection, such as interviews, observations, text analysis and often combine these methods. **Understanding the context:** Researchers usually emphasize understanding the context in which the phenomena they study fit into, including cultural, social, and historical settings. **Cultivating fundamental understanding:** Experts strive to develop a deeper and more comprehensive understanding framework for interpreting their data.

It can be used to discover new ideas, identify problems, explore complex processes and deepen the understanding of human behavior (Elo & Kyngäs, 2008; Creswell et al., 2017). Moreover, qualitative research typically focuses on examining the diversity and complexity of human experience. This means that researchers can examine various viewpoints, actors, and situations that influence human behavior and highlight the differences and similarities between them. It usually does not rely on large samples like quantitative methods but tries to examine in detail a few cases or incidents. This enables a deep understanding of the conditions and environments that influence people's behavior and experiences. Finally, qualitative research usually requires personal engagement and interaction with participants, as researchers usually conduct interviews or close-up observations. This allows for a deeper and richer understanding of the experiences and views of the people being studied. It is a valuable way to explore and understand the complexity of human behavior and social phenomena (Patton, 2014; Miles et al., 2020). Qualitative research and content analysis are two closely related methods used in the research field to understand, retrospectively identify and extract semantic information from data.

Content analysis is a technique used to systematically identify, record, and evaluate content in texts, images, sounds, and other communication media. In content analysis, data are converted into categories or themes and then analyzed to discover patterns, trends, or contextual information (Braun & Clarke, 2006; Patton, 2014). By combining these two methods, qualitative content analysis can be conducted comprehensively, where the qualitative approach is used to identify and define content categories and content analysis is used for in-depth analysis of the subject area. Content analysis can be used for many purposes, such as assessing response to a rehabilitation program, monitoring social media to detect trends and sentiments, analyzing the content of social science research, and many other applications.

It is often used in many different areas, including **Market Research:** Companies use content analysis to examine customer feedback on social media and gauge response to products and services. **Journalism and Media:** Content analysis is used to control news coverage, identify trends in journalism, and understand public opinion. **Health Research:** In medical and psychiatric research, content analysis is used to identify patient preferences, evaluate medical reports, and analyze patient feedback to improve the quality of health care. **Education:** In education, content analysis can be used to evaluate educational materials, monitor student response to different teaching approaches, and improve the curriculum. **Social Sciences:** In social research, content analysis is used to examine social dialogues, detect social problems, and evaluate opinions and experimentation (Neuendorf, 2017; Denzin & Lincoln, 2017).

The combined use of qualitative research and content analysis can provide in-depth understandings and reveal valuable insights into human experiences, reactions and patterns of behavior in various fields. It can be carried out in various ways, depending on the objectives of the research and the type of content analyzed. Some of the ways of content analysis include: (Miles & Huberman, 1994; Corbin, 2008; Grbich, 2013; Yin, 2017; Creswell & Poth, 2017)

1. **Coding and Categorization:** In automatic categorization, content is classified into various categories or topics using codes. This allows quantitative evaluation of the data.
2. **Frequency Analysis:** This method evaluates how many times a word or topic occurs in the content and how these frequencies relate to the overall context.
3. **Theme Analysis:** In this analysis, the dominant themes or patterns that appear in the content are identified. It usually requires the use of advanced algorithms and tools for analysis.
4. **Sentiment Analysis:** Using natural language processing techniques, emotional expressions in content can be detected, such as positive, negative or neutral sentiments.

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5. Discriminative Analysis: In this method, content is analyzed based on its syntactic and semantic content, breaking it down into smaller component parts such as words and phrases.

The combined use of qualitative research and content analysis can provide rich results, as qualitative research can provide insights and rich content that can then be analyzed quantitatively Hesse - Biber & Johnson (2015). This synergy can lead to deeper and more comprehensive interpretations of data and research findings (Saldana, 2015).

Research part

PURPOSE

The purpose of this research is to highlight the views of the participants in the said program with a view to an internal evaluation). Furthermore, an attempt was made to capture those qualitative characteristics that determine the individuals' own assessment of the difficulties they faced. Also, the individualized way in which they received the entire project was investigated at the same time as their suggestions for improving respective actions were highlighted.

METHODOLOGY

This particular research was investigated according to the principles of qualitative research and in particular content analysis. Ten interviews were conducted with people who participated in the program, interviews were conducted, with open-ended questions and in a semi-structured interview organization framework. This means that people were free to express their opinions without the risk of limiting their expression and without being directed to closed-type answers. After all, the general framework of qualitative research focuses on the creation of theoretical, unique material that reflects reality and gives meaning to the individual perception of things. Although generalization to the general population is not emphasized, the findings that emerge offer opportunities for meaningful understanding of the subject. In this way, the information in question can be utilized by specialized scientists in order to assess the general course of implementation of the specific action. An open coding of the fields that emerged from the participants' responses was first performed and then an in-depth analysis of their content was attempted.

The subjects participated in the rehabilitation program of the Faculty of Physical Education and Sports of Democritus University of Thrace, were five men and five women, who had experienced a stroke which had a powerful effect on their functionality.

Analysis of results

From the results emerged a variety of thematic areas which largely determine the quality of the outcome of the action. Among other things, they focused on personalized ways of perceiving the services offered by the whole project. At the same time, they highlighted important management issues of the general framework in which they evolved during the implementation of the program

Emotional drain - *"I often felt like my mind was going blank"*

Participating in the program did not only help individuals improve their biological functionality. Participants expressed the opinion that they could feel an escape from the problems caused by their condition. This fact, however, ultimately had a positive effect on their physical functionality. Characteristically, one mentioned, *"When I came here, I forgot many of the problems that led me to a dead end, at the same time I felt that my hope was growing, that things can get better "* (interview 3; male). Or similarly, another says: *"It was emptying my mind, I was waiting for it somehow to experience something different,... it was a light in the daily blackness "* (interview 9; male). This feeling may largely be due on the one hand to the expectations they themselves had from the beginning, but also on the other hand to how they experienced each of their visits to the program. Through their participation in the action, they were given the opportunity to discharge themselves from the negative emotions which in the second year led them to inactivity and disappointment. In this way, this vicious circle could be dealt with and lead individuals to a positive attitude toward the difficulties they had to manage.

Sense of achievement and increased self-esteem - *"I did it, I could achieve a lot"*

The achievement of the program's goals was based on the participation of individuals not only in the part that concerns their physical functionality but basically in their overall functionality as entities that are included as equal parts of our current society. On a second level, this fact is inextricably linked to the removal of any voluntary or involuntary social exclusions that individuals were asked to manage. A key element in this was the image of the individuals, who were clearly greatly injured after the stroke. Furthermore, the disappointment about the possibilities they have to achieve things from now on and to have an "adequate" quality of life is directly related to how they see themselves. It is characteristically mentioned by someone *"...at first I didn't expect that I could do much. Later I felt like I was getting it, I change every time and I can do much better. It was incredible how it changed the way I saw myself..."* (interview 5th; woman), also another person mentions *" I felt that I was worth it, I was achieving something important for me, not only was I better physically, but also psychologically I felt that I could achieve a lot "* (interview 8th, woman). In this way, the attitude of the individuals themselves towards their lives changed substantially, albeit with small steps. This could have been due to many factors. Even the fact that they wanted to participate in this program shows that people seemed willing to mobilize. Also, the fact that they took part in the action every time, worked to some extent in a positive way for the individuals to

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believe in their powers. Additionally, the feedback they received from program professionals greatly shaped how individuals themselves perceived their lives. For example, motivation, or hearing words like "well done, very nice" greatly influenced the individuals' own positive sense of what they can achieve. This can mean a lot about the appropriate ways that need to be adopted by the specialists of these programs.

Struggle for the future - "...now, from now on what will happen to us? !!!."

A perennial issue related to the implementation of corresponding programs, such as the one referred to in this paper, concerns the systematicity and organization of intervention actions. Unfortunately, it is common to create piecemeal actions, which at some point are suddenly interrupted. This results in the creation of many problems. The absence of a stable, organized continuity in the intervention programs determines a condition of uncertainty but also a condition of reduced effectiveness. In this light, a participant states: "... well so far. Now what happens from here on out? Will someone take care of us or just medicine and everything we do from now on by ourselves?" (interview 7, male) or also another: "Everything was fantastic, perfect, but now? Is it going? That's it; When will we see light again?" (interview 2, male). This attitude, among others, highlights a very important element. The feeling of uncertainty and insecurity that is created inhibits participation in future actions. The absence of a sense of organized, systematic and comprehensive support through a program from an academic institution can act as a significant barrier. In the long run, it may act as an additional difficulty which will lead people to not participate with the same interest in corresponding actions. This element does not reduce the effectiveness of the action offering, instead, it is based on the principle that what was created was very essential. In light of this, its continuation in the future is necessary. More operation and longer duration of the program "...in more months we would achieve more things..."

The majority of the participants in the said program expressed the opinion that it is necessary for the respective programs to last longer. Although they reported that they were satisfied, if the duration was longer, they could drastically improve their lives. In particular, one mentioned "... I'm not saying it was good, but a little... Normally it should have been there for many months and years... we don't finish our problems so quickly... we haven't even started well - well we're already done..." (interview 10, male). In this context, the overall narrative shows that a greater action, more systematic and more generally organized intervention by the state could bring about many more improvements. The expectations of the participants were high as well as their intentions to repeat something similar. This means that it should not be overlooked, instead it should be used and act as a springboard for more similar actions. In any case, it would also be beneficial to utilize the knowledge of the current program as feedback, in order to improve the work provided.

CONCLUSIONS – DISCUSSION

From the analysis of the results of this research, a wealth of information emerges that can be utilized by specialized professionals and contribute substantially to corresponding actions, both in the planning phase and in the implementation phase.

In this particular work, the general narrative is related to an attempt to capture what was actually offered in the program in question by looking for qualitative answers that reflect reality. The participants utilized the benefits of the said program and expressed the improvement of their lives on the one hand in the area of their mobility and physical functioning, on the other hand in other areas such as their socialization, their self-image, their emotional and psychological functioning. The above areas are directly related to their quality of life in all aspects of everyday life.

Rehabilitation programs for stroke patients need to be designed to help regain function and improve the quality of life of stroke survivors. It is important that they are designed to be personalized, taking into account the needs and capabilities of each person. Also, continuous assessment and monitoring of their progress is important for the success of rehabilitation.

Strokes can cause serious effects on a person's physical and cognitive functioning (Mayo et al, 1999). Rehabilitation after a stroke requires a complex and multifaceted approach to help individuals regain their potential and improve their quality of life (Hatzi, 2016; Afsar et al., 2020). The specific program of the Democritus University of Thrace was seen to have taken these elements into serious consideration and to a great extent achieved the scientific as well as substantial support of the participants. This is not to say that there is no room for improvement in many areas. For example, feedback and evaluation at shorter intervals could help to adjust the goals of the actions. In addition, a longer duration of the program could bring about greater improvements. To lead people to adopt another way of life and in conclusion to actively deal with any dysfunctions they had. The implementation of corresponding programs provides more than support to the motor functionality of individuals. It signifies in a distinctly unique way the general improvement of the life of the participants. In other words, they are not just a remedial action, but an opportunity for the scientists involved to provide meaningful and effective help. At the same time, the opportunity arises as well as the challenge of cooperation and coordination of a multitude of different specialties which basically have a common goal, the improvement of the quality of life of those served.

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