

# Resilience in Individuals who Suffered from Stroke: Integrative Literature Review

REVIEW

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## Abstract

**Introduction:** Stroke represents a serious public health problem, causing several disabilities. During the process of rehabilitation, family members and health professionals should encourage behaviors that promote resilience.

**Objectives:** The aim is to analyze the main data about stroke and resilience available in national and international literature, and to verify if this component is being assessed/worked during the post-stroke process of rehabilitation of the individuals.

**Method:** Portal of Journals of CAPES, BVS, SciELO and BDEF were used as databases, and the descriptors were 'stroke' and 'psychological resilience', in Portuguese and English. 42 articles were identified, from 2003 until 2015. After inclusion and exclusion criteria, a sample of 7 studies was obtained.

**Results:** There was some difficulty in integrating the data, since articles about resilience with the aforementioned individuals are scarce. Most of the studies addressed other Psychology themes, which are also considered indispensable for the success of rehabilitation.

**Conclusion:** The necessity for more studies regarding the topic resilience in individuals with stroke effects was noticed.

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## Keywords

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## Introduction

Stroke is a neurological syndrome of sudden onset, characterized by an alteration in the blood flow of the brain. It represents the second most common cause of death related to the cardiovascular system worldwide, just behind the ischemic cardiac diseases [1].

In Brazil, among the main causes of mortality related to the circulatory system, cerebrovascular diseases, in which stroke is included, come in second place, with a total of 99,959 deaths in 2013, taking into consideration the delay and limitations regarding the notification of these deaths in all instances of the government [2].

Stroke mortality rates in Brazil have been continuously decreasing for both genders and for all ages[3], but the disease still represents a risk to the health of the entire population, specially to the aging one, compromising their quality of life and healthy aging process.

Stroke is a serious public health issue and it is considered the main cause of various disabilities, such as diffuse pain, loss of mobility and cognitive changes, e.g. memory loss and emotional lability. Post-stroke individuals need rehabilitation treatment, in which multiple professionals intervene to reestablish the functions that were lost, aiming at a future reinsertion of the individuals in their family and social circles, with possible improvement of their quality of life [1].

Regarding the rehabilitation of individuals who suffered from stroke, it is indispensable to emphasize also the psychological dimension of the human being and not only focus on the physical aspects, making it necessary for relatives and health professionals who act in the rehabilitation process to always provide emotional support, encouraging behaviors that promote the individual's resilience [4].

Resilience is studied in the Positive Psychology field and became an object of research in the health field just recently, about 30 years ago. The studies started to be carried out especially with children

and teenagers, in order to understand how some situations (for example, alcoholic parents, poverty and parental psychopathologies) influence their lives in the future. When it comes to overcoming adversities, individuals need personal and social factors, such as good health and self-esteem, which are considered as individual protection factors [5].

In Physics, resilience is translated as a synonym of resistance, i.e. the capacity that an object has of returning to its natural format after a trauma. From a literature review study concerning this topic in gerontology, it was verified that the concept of resilience is multidimensional and complex, involving interactions between the individual and his/her environment, with the presence of protection and risk factors, which result in a mode of resilience of life that provides the individual with welfare [5]. In another study [6], resilience was considered a construct due to the variety and complexity of its concepts, which describe the human being's capacity of successfully overcoming a given adversity that compromises his/her welfare and/or mental health.

Edward [7] proposed several concepts of resilience and brought the issue to the Nursing field. However, it was noticed that this concept lacks definition. He, therefore, elaborated a conceptual model of resilience for individuals and listed important interventions for Nursing practice, bearing in mind that the nurse is a professional who acts in various dimensions of the human being. From this model, it is possible to perceive the complexity of this word, as it has different concepts according to the field (psychological, biological, spiritual, emotional and social fields).

In order to better understand resilience, it is necessary to take into consideration essential aspects, such as: characteristics of each individual, of his/her social environment and family basis; the adversity to be overcome at that specific moment; the adaptive capacity; and cognitive and emotional aspects of the human being. Nevertheless, resilience is not only seen as a way of surmounting, but as a mea-

sure that promotes mental and emotional health, reducing stress, anger and anxiety levels [8]. Edward [7] identified that the following are associated with resilience: optimism, active lifestyle of confrontation, ability to obtain social support, higher levels of intelligence and education, broad interests and articulation capacity.

Once resilience is dynamic and learnt in the course of life, it influences directly the health-disease process and the individuals' quality of life, particularly of those who suffer from chronic diseases, imposing the necessity of reflections about ways of caring on health professionals, especially the ones from the Nursing field [9].

According to FERNANDES *et al.* [10] and Edward [7], more studies about resilience in specific groups are necessary so that nurses and other health professionals have enough support to readily perform in the promotion of health, aiming at strengthening the qualities of each person, putting aside the negativity derived from diseases and other adverse events.

As observed, resilience is intimately related to the rehabilitation of individuals who had stroke and, as it is an essential component to succeed in the process of rehabilitation, the following question was raised: how are published studies concerning resilience in individuals who suffered from stroke profiled?

Based on the above exposed panorama, this study is aimed at: analyzing the main data about stroke and resilience available in national and international literature; and at verifying if this component is being assessed/worked during the post-stroke process of rehabilitation of the individuals.

## Method

This study consists of an integrative literature review and it was carried out in October/2015, using the Portal of Journals of the Coordination for Improvement of Higher Level Personnel (CAPES), the Health Virtual Library (BVS), the Scientific Electronic Library Online (SciELO) and the Nursing Database (BDENF),

concerning the resilience theme in individuals who had stroke.

Integrative review is a type of study which analyzes primary sources of a given topic, with intent to integrate and to synthesize the knowledge necessary to consolidate Nursing as an evidence-based scientific profession [11].

In order to select the sample, the following inclusion criteria were used: free of charge on-line papers, published as scientific articles, in all years and languages, due to the deficit of studies on this topic for post-stroke individuals after a quick search was done on the Internet. The exclusion criteria were: thesis, dissertations and other types of materials and studies that addressed divergent topics from the main objective of this article and did not involve post-stroke patients.

In the expanded research at the Portal of Journals of CAPES, after using the controlled descriptors in English "Stroke" and "Psychological resilience", both combined by the Boolean operator "AND", it was possible to find 19 results. At BVS, through advanced search, the aforementioned descriptors were used, retrieving a total of 22 articles. Some of them were also available at the portal of CAPES. When using the same controlled descriptors in Portuguese ("Acidente Vascular Cerebral" and "Resiliência Psicológica") at BVS, no result was found. However, at the portal of CAPES, only 1 study was identified, which was excluded from the analysis for being a literature review about resilience in the elderly, serving as a secondary source of data. Still, this paper was used to provide a theoretical basis about the theme.

No results were found when the same descriptors were used at SciELO and BDENF databases, neither in Portuguese nor in English. Thus, it is noticeable the non-existence of studies addressing this topic in individuals who suffered from stroke in Brazil. Overall, 42 articles were identified, of which 40 were in English language, 1 in German and 1 in Brazilian Portuguese.

**Table 1.** Excluded articles and respective motive for exclusion, 2016.

| Quantity of excluded articles | Motive for elimination     |
|-------------------------------|----------------------------|
| 21                            | Broached a divergent topic |
| 5                             | Full text not available    |
| 6                             | Duplicated articles        |
| 1                             | Thesis                     |
| 2                             | Literature reviews         |

The 42 articles were published from 2003 until 2015. After analyzing their titles and abstracts, 34 studies were eliminated due to the criteria exposed in **Table 1**.

Another literature review paper was excluded after analyzing the texts in their entirety, totalling a sample of 7 articles. Regarding the motive "full text not available", a new search was done along with a librarian from the authors' institution of origin in order to verify the possibility of obtaining the articles. Nevertheless, it was not possible, as some of the unavailable articles were published in journals to which CAPES was not a subscriber back then.

Some articles were eliminated due to more than one reason, for instance: not being related to the theme and also being already identified (duplicity criteria). As for this motive, the same article could be found in both BVS and Portal of CAPES, once BVS is indexed in the latter. However, the German article could only be found in BVS.

After analyzing the full texts of the international articles (English language), they were categorized according to their main objective, as follows: Category A – Psychological dimension in individuals who suffered from stroke: the 4 articles that composed this category addressed other topics of Positive Psychology that were not the resilience itself, such as depression, post-traumatic growth, positive emotion and hope; Category B – Resilience in individuals who suffered from stroke: the 3 articles in this category dealt with the generic concept of resilience, its assessment and cognitive resilience.

## Results

Based on the 7 selected articles (**Table 2**), it was possible to reflect upon the psychological dimen-

**Table 2.** Articles selected for this study from the aforesaid databases, 2016

| Title/Journal/Country   | Motive for inclusion  | Database                            |
|---|---|-------------------------------------|
| Trajectories of psychological distress after stroke/Annals Of Family Medicine/Australia   | Broached psychological dimension of individuals who had stroke.                       | CAPES: Web of Science               |
| "Still there is beauty": one man's resilient adaptation to stroke/Scandinavian Journal of Occupational Therapy/USA  | Broached post-stroke resilience.  | CAPES: MEDLINE                      |
| Posttraumatic Growth and Spirituality After Brain Injury/Brain Impairment/England   | Broached psychological insights of brain damaged patients.                            | CAPES: Web of Science               |
| Social Ties and Cognitive Recovery after Stroke: Does Social Integration Promote Cognitive Resilience?/Neuroepidemiology/USA  | Broached social bonds and cognitive function in individuals who suffered from stroke. | BVS: MEDLINE                        |
| Positive Emotion following a Stroke/Journal of rehabilitation medicine: official journal of the UEMS European Board of Physical and Rehabilitation Medicine/USA           | Broached individual's post-stroke emotional state.                                    | BVS: MEDLINE                        |
| A Study on the Effect of Self Bedside Exercise Program on Resilience and Activities of Daily Living for Patients with Hemiplegia/Journal of Exercise Rehabilitation/Korea | Related resilience to the recuperation of the Activities of Daily Living.             | CAPES: National Library of Medicine |
| Hope predicts positive functional role outcomes in acute rehabilitation populations/Rehabilitation Psychology/USA   | Examined psychological variables and functional capacity during rehabilitation.       | CAPES: Web of Science               |

sion, specifically on the resilience in individuals who had stroke.

The articles were published from 2008 to 2015, which demonstrates an updated literature on the topic (**Figure 1**).

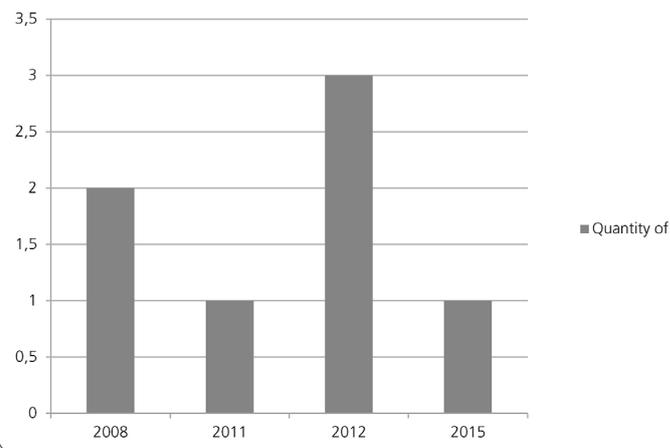
In regard to category A, one of the articles reported the presentation and psychology's recent rediscover of an ancient view of philosophy and religion. It affirms that undergo suffering can be beneficial, a situation better known as posttraumatic growth. The most common benefits of this situation are: greater appreciation of life; improvement of quality of relations with those undergoing the same situation, or who were there to help; unexpected discover of personal strength; and "spirituality" [12].

The relationship between posttraumatic growth and psychological understanding of human spirituality was explored and it has been argued that growth is a kind of spirituality which is of particular theoretical and practical interest to the professional health care, once they can support the resilience in these individuals [12]. In that case, posttraumatic growth is noticed as a conductor of resilient actions, a protection factor that, despite of being also from the psychological dimension, helps the individual with his/her new condition.

Still in this category, a study performed with 23 individuals from the community which suffered from stroke [13] verified that 22% of the participants demonstrated a resilient behavior, with great readiness in the post-stroke event. Such fact was justified by the wide range of life experiences that the individuals acquired before stroke, such as wars, alcoholic parents and poverty, leading them to a feeling of dominance over their lives.

During the acute stage, the individuals concentrated on their recovery and did not undermine themselves for being in a hospital environment; on the contrary, they were joyful for being alive or for going to an acute care facility whenever they needed, in order to improve their health. They had as

**Figure 1:** Publication years of the articles, 2016.



a feature the facility for making decision concerning their lives, unlike the less resilient people, who wait for external factors (relatives, doctors, destiny...) to act in their lives. One of the participants of the study said: "I think I am very fortunate, you know... So, I'm going to sit down and smell the roses, for lack of a better word." (Male, 84 years old, interviewed 3 months after the event).

On the other hand, the same percentage (22%) of participants reported having difficulties after the stroke and depressive symptoms, e.g. one of them reported undergoing several difficulties before the event, but had not became resilient on that occasion. 13% of the participants presented depression several months after stroke, which is related to other situations such as comorbidities, difficulties with rehabilitation, and not only the sudden event itself. 43% of them, in the course of time, adapted themselves to the event and showed an increase of their self-efficacy, which is evidenced by the decreased fear of having another stroke.

Rehabilitation for these patients was related to independence, self-efficacy and participation. Thus, it is noticeable that, although resilience was neither the focus nor was assessed in that study, it was cited in the article as an auxiliary component in the post-stroke process, facilitating the treatment of individuals who demonstrated it as a behavior.

In another study carried out with patients from a rehabilitation center, in which 28 participants had suffered stroke, the results concluded that the level of hope reported by the individuals during the first days of acute rehabilitation predict the level of functional ability and greater social integration after 3 months of being discharged from the center. So, individuals who had higher levels of hope during their stay in rehabilitation with inpatient care reported higher functional competences and higher levels of participation and recovery [14].

For individuals who had stroke, factors such as schooling and functional status significantly predicted greater positive emotion months after the event. Patients without paresis reported the highest average of positive emotion, and the ones with bi-

lateral involvement presented the lowest average [15]. It is noticed, therefore, that these individual's functionality influenced directly the positive emotion they had after the event.

Regarding category B, GLYMOUR *et al.* [16] discussed social support as a promoter of resistance/cognitive resilience, which is measured by means of an instrument that has two dimensions (emotional support and instrumental support). People with higher level of emotional support had higher levels of cognitive recuperation.

It is assumed that these high levels of social support enhance not only the cognitive recovery of individuals, but also the entire (biopsychosocial) recuperation, once social support is classified as a protection factor of psychological resilience. Social

**Table 3.** Information on the articles according to their category, 2016.

| Category | Authors   | Objective of the study   | Type of study/no. of participants   | Instruments used   |
|----------|---|--|-------------------------------------|--|
| A        | White JH, Magin P, Attia J, Sturm J, Carter G, Pollack M.     | To analyze the mood and psychological morbidity of patients after stroke.  | Qualitative/ 23                     | Not applicable   |
| A        | Mcgrath JC.   | To analyze empirical studies about posttraumatic growth.   | Qualitative                         | Not applicable   |
| A        | Ostir GV, Berges I, Ottenbacher M, Graham JE, Ottenbacher KJ. | To investigate positive emotion of adults with stroke at discharge from inpatient medical care and 3 months post discharge.  | Quantitative/ 856                   | Inpatient database   |
| A        | Kortte KB, Stevenson JE, Hosey MM, Castillo R, Wegener ST.    | To analyze the impact of positive effect and hope on functional results of individuals in rehabilitation process.  | Qualitative/ 174                    | Not applicable   |
| B        | Glymour MM, Weuve J, Fay ME, Glass T, Berkman LF.             | To analyze the cognition of patients who suffered from stroke 6 months after the event.  | Quantitative/ 272                   | Barrera's Inventory of Socially Supportive Behaviors + Mini-Mental State Examination (MMSE). |
| B        | Price P, Kinghorn J, Patrick R, Cardell B.                    | To develop the comprehension of post-stroke resilience, its role in the support and continuity of identity, and the ways occupational therapists can promote resilience.   | Qualitative/ 1 elderly (case study) | Not applicable   |
| B        | Lee YC, Yi ES, Choi WH, Lee BM, Cho SB, Kim JY.               | To provide patients who had stroke sequelae with basic data on motor rehabilitation and to evaluate the relation between psychological resilience and functional recovery. | Quantitative/ 12                    | Korean version of the ConnorDavidson ResilienceScale (CD-RISC)                               |

bonds were identified as protectors of cognition as well, as the values of the Mini-Mental State Examination (MMSE) in the study were higher in individuals with bonds, which avoid eventual damages after the event. Consequently, isolated individuals, with no social support, may have their recuperation/rehabilitation process compromised due to the lack of cognitive resilience.

In a case study with a 70 year-old elderly (20 years after the stroke), characteristics of resilience were identified throughout his adaptive process based on positive social support, access to spirituality, having a locus of intern control on the basis of previous successes, commitment to succeed, guided action approach and positive personal objectives for the future [17].

Resilience, through rehabilitation of patients with stroke sequelae such as chronic hemiplegia, is an important factor that can restore physical functions and improve quality of life [18]. In this study, an internationally recognized resilience scale was used, called CD-RISC, and the authors noticed that the level of resilience proportionally increased as individuals kept performing functional exercises, hence obtaining an improvement in their daily living activities. In this case, the relation between the improvement in functional capacity and resilience is perceptible, both reciprocally interacting.

**Table 3** below summarizes some aspects of the analyzed articles.

## Discussion

Stroke produces sequelae in most of the cases and provokes life changes with which some people deal better than others. If healthcare professionals understand the resilience aspects and stimulate individuals through therapies, they will be able to promote resilience, the patients' adaptation and recreation of their identity [17].

In category A, one of the studies [13] states that, in individuals who had stroke, several psychological

morbidities emerge, for instance depression, which compromises rehabilitation and quality of life and it is considered the most common and most studied psychological sequela in the mentioned patients. Such study contributed also to reflect the post-stroke coping process, bearing in mind that a depressive individual will go through harder situations without any resilience, which will lead him to a greater decline of his rehabilitation and quality of life.

In another study [12], the individual's confrontation after brain injury is studied from the perspective of posttraumatic growth, another concept that addresses the confrontation/overcoming in the face of adversities. According to the author, the elaboration of more studies is necessary in order to outline the complete human needs of brain damaged people and their caregivers.

Even though these studies are essential to improve our comprehension of the need for a psychological intervention in the rehabilitation context of inpatient care, it is equally important to examine the role of thoughts and adaptive behaviors, how instrumental they can be in determining positive results during the rehabilitation and recovery process. Hope can also be beneficial as it minimizes the perception of the magnitude of adversities which individuals undergo, i.e. hope and other psychological dimensions can provide individuals with a sense of possibility of overcoming barriers found by people with significant limitations [14].

OSTIR *et al.* [15] noticed that patients can experiment positive emotion in the first months after their stroke event and that the level of positive emotion does not change significantly for different ages, genders or ethnics, and that this emotion is a dynamic process.

In this category, it was evident some detachment from resilience, although one of the articles mentioned it as a fundamental behavior during the process of rehabilitation. However, a relation between the psychological dimensions was observed, all referring

to the adaptation process in the face of the new hardship that is, in this case, stroke.

In category B, GLYMOUR *et al.* [16] have not addressed the concept of resilience as the capacity of overcoming hardships, but as a synonym of cognitive resistance. The authors also stated that occupational therapists usually interact with disabled people and have the opportunity of promoting adaptation when they identify and foment their clients' resilient features through various intervention approaches [16]. More research should be carried out to study resilience through interventions which promote the engagement with the work in the health field [17].

LEE *et al.* [18] reinforced the relevance of resilience during the rehabilitating process of individuals who suffered from stroke, especially of the ones with sequelae. Functional rehabilitation is essential for them, but psychological dimension, focused on resilience, emerges as an alternative support which strengthens the process, and it should be explored and studied, given its importance for these patients' quality of life. In this category, resilience was clearly identified, but only one paper dealt with its assessment.

Resilience also works as a confrontation measure, serving to promote health and to improve the quality of life of patients with chronic conditions. The healthcare team, especially nurses, should base their actions on interventions that promote resilient behaviors [7].

## Conclusion

Despite the fact that all the articles address resilience indirectly, once it has as general definition the individual's adaptation before adversity situations (in this case, stroke), it was noticed that there is an interrelation between the components of psychological dimension and spirituality, all of them synergistically acting, aiming at the strengthening of the patient in the face of the event.

Overall, two categories emerged with the purpose of classifying the articles into components of

psychological dimension, which are indispensable to the overcoming process of the individual after a stroke, and into resilience itself. In category A (4 articles), resilience was a characteristic of the individuals after stroke, but was not the main objective of the studies. In category B, it was classified as cognitive resilience, in opposition to the definition of resilience presented at the introduction of this article.

The objectives of this research were achieved, as there are no Brazilian studies integrating stroke and resilience at the same time and, as for international literature, the data is scarce, with only one out of 7 articles addressing resilience itself in people who suffered from stroke and assessing it through a well-known and validated instrument (Connor-Davidson Resilience Scale).

One of the limitations of this study was the large quantity of excluded articles, as they were not fully available (12%) or did not address the main theme (50%), limiting the data analysis. Thus, even though the sample was small, it was enough to achieve the primary objectives of this research. Another limitation was the difference between the articles to be analyzed; it was necessary to divide them into two categories, once resilience itself was not the main study objective of some papers.

Resilience presented several concepts depending on the author and field of study, and in some papers, it was used as a synonym of cognitive resilience. That said, it is evident the necessity of carrying out a theoretical study about its conceptual analysis, which is considered an indispensable method to consolidate this concept in the Nursing field as scientific profession whose knowledge is constantly being updated and expanded.

It is also essential to carry out studies, research and evaluations regarding resilience in individuals who suffered from stroke, due to the limitation of this subject; to its relevance for the recovery/rehabilitation of these individuals as biopsychosocial human beings who are in constant transformation in their environment; and to the fact that resilience

is considered as a primordial factor in this process, given that it acts in the confrontation of other similar conditions and in the improvement of the individuals' quality of life and welfare.

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