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Quality of life predictors after first stroke: A study with post-acute patients

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ABSTRACT

Background: There are significant differences in literature regarding QoL predictors mainly due to different clinical and cultural contexts. The present study aims to determine the predictive variables of QoL and its dimensions in Portuguese patients during the physical rehabilitation process following a first stroke.
Methods: 51 patients from two physical medicine outpatient clinics, with history of a first-ever stroke episode (ischemic or hemorrhagic) ranging from two months up to two years of evolution, were assessed. Sociodemographic and clinical variables were studied in relation to QoL and its domains.
Results: Overall QoL was predicted by the level of independence, neurological severity and both depression and anxiety. The Psychical Status domain was predicted by the neurological severity, gender, independence, cognition and time after stroke. The Variance on Communication domain was explained by the neurological severity and the laterality of the stroke. The Cognitive domain was influenced only by the level of depression. The domain of Emotions was predicted by the results on anxiety and depression. The domain of Basic Daily Activities was predicted by the level of independency and neurological status. Common Daily Activities were predicted by the neurological status.
Conclusions: A significant variance on QoL after a first stroke is predicted by the level of independence, neurological status and by both anxiety and depression. The predictive value of emotional variables in QoL after a stroke reinforces the need to provide a comprehensive model of psychological care aimed at determining each individual's difficulties and to develop alternative or compensatory expectations and behaviors.

1. Introduction

Stroke is considered one of the leading causes of death in Europe and the first cause of acquired brain lesions (Hohmann, Radziwill, Klotz & Jacobs, 2010). While the mortality rate is decreasing, the prevalence of incapacity is growing (Lin et al., 2010; Roca, Concepción-Rojas & Chávez, 2001). Approximately one third of the stroke patients die at medium term, which is also the proportion of patients who recover completely or who are left with minor deficiencies. Therefore, 30 to 40% of these patients are left with moderate to severe sequels (Birtane & Taştekin, 2010). In Portugal, stroke is accountable for major indexes of incapacity, functional dependency and for the majority of registered deaths (Martins, Ribeiro & Garrett, 2006).

Unlike other pathologies, stroke is sudden not allowing the individuals and their families to cope in advance with its outcomes (Patel, McKevitt, Lawrence, Rudd & Wolfe, 2007). The prejudice of the motor functions, limitations in daily life activities, cognitive and language dysfunctions (Dhamoon et al., 2010; Patel et al., 2007), depression and anxiety (Donnellan, Hickey, Hevey & O'Neill, 2010), are some of the consequences with direct impact on the quality of life (QoL) of these patients and their families (Carod-

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Artal & Egido, 2009; Hopman & Verner, 2003; Martins et al., 2006). Beyond this, when the risk of stroke recurrence is taken under consideration, it should be expected the onset of fear and insecurity leading to additional impact on QoL (Roca et al., 2001).

Throughout a significant period of time, the assessment of stroke consequences were focalized on the mortality, recurrence and incapacity rates (Carod-Artal, González-Gutiérrez, Egido-Herrero & Varela de Seijas, 2007), referring QoL to a secondary level or utterly ignoring it (Ali et al., 2013). However, the assessment of QoL provides a holistic vision of the patient's recovery, allowing the adoption of strategies by clinicians and caregivers in order to improve it (Hohmann et al., 2010; Patel et al., 2007). In summary, there are five areas of concern where the assessment of QoL in stroke is very helpful: (1) Detection of psychosocial problems potentially treatable; (2) Assessment of domains not covered by the neurological examination; (3) Assessment of stroke outcomes in clinical trials; (4) Efficiency assessment of clinical interventions; (5) Assessment of public health interventions (Carod-Artal & Egido, 2009).

Although predictors of QoL seem to vary according to the time after a stroke, variables like anxiety and depression (Morris, van Wijck, Joice & Donaghy, 2013), stroke severity, disability, gender, social support, and a previous stroke (Lopez-Espuela et al., 2014) have significant impact on the physical and mental domains of QoL (Lopez-Espuela et al., 2014; Rachpukdee, Howteerakul, Suwannapong & Tang-aroonsin, 2013). However, there are significant differences in literature, mainly due to the use of different instruments to assess QoL and to the different clinical and cultural contexts (Wikman, Wardle & Steptoe, 2011).

In this context, the present study aims to determine the predictive variables of QoL and its dimensions in Portuguese patients during the physical rehabilitation process following a first stroke.

2. Methods

2.1. Participants

The sample was collected at the Physical Medicine outpatient clinic of two Portuguese hospitals.

Fifty one patients with a history of stroke and the following characteristics were included in the study: Stroke episode (ischemic or hemorrhagic) ranging from two months up to two years of evolution; mental status and language sufficiently preserved to answer the questions. Patients with more than one stroke, with clinical history of neuropsychiatric pathology or other health condition that could interfere with QoL were excluded.

The time frame after stroke (2 months- 2 years) was adopted due to the characteristics of the clinical services in which the assessment took place.

The average age of the participants was 65.53 years (SD = 13.6), with an average of 5.02 years of education (SD = 3.95) and with a mean time after stroke of 10.65 months (SD = 7.99). Additional characteristics of the sample are presented in Table 1.

Table 1
Characteristics of the sample.

	n	%
Gender		
Male	31	60.8
Female	20	39.2
Marital State		
Married	37	72.5
Single	6	11.8
Widow	6	11. 8
Divorced	2	3.9
Current Professional Status		
Inactive	5	9.8
Active	46	90.2
Profession		
White Collar	16	31.4
Blue Collar	35	68.6
Type of stroke		
Ischemic	37	72.5
Hemorrhagic	13	25.5
Laterality of Stroke		
Right	21	41.18
Left	30	58. 82
Localization		
Cortical	18	35. 3
Subcortical	21	41.2
Corticosubcortical	10	19.6

2.2. Neuropsychological and functional assessment

2.2.1. Assessment scale of quality of life in stroke (ECVI-38)

The ECVI-38 is a 38 item scale covering eight domains: Physical Status (PS); Communication (CO); Cognition (CG); Emotions (EM); Feelings (FE); Basic Daily Activities (BDA); Common Daily Activities (CDA); Social and Familiar Functioning (SFF).

The scale is filled in by the interviewer in accordance to the answers of the patient or the caregiver. The answers are given according to a Lickert scale of five points, where: "5" represents the worst possible scenario and "1" the absence of the problem.

For the domains PS, CO, CG, BDA, CDA and SFF the examiner asks this question: "Usually, how do you feel about . . . ?"; and gives the following possible answers: 5–*Very Bad*, 4–*Bad*, 3–*Normal*, 2–*Well*, 1–*Very Well*. For the FE domain the examiner asks another question: "*How often do you feel that . . .* ?"; and gives these answer options: 5–*Never*; 4–*A few times*; 3–*Sometimes*; 2–*Most of the time*; 1–*Always*. The score for each domain is calculated according to the formula below:

$$\text{Score} = \left(\frac{mean - 1}{5 - 1}\right) \times 100$$

According to this formula the score for each domain ranges from 0 to 100. The total score of the scale is the mean score of each domain. In this sense, the higher the score the worse the QoL (Fernández-Concepción, Ramírez-Pérez, Alvarez & Buergo-Zuázabar, 2008; Fernández-Concepción et al., 2004; Fernández-Concepción, Verdecia-Fraga, Álvarez-González, Román-Pastoriza & Ramírez-Pérez, 2005). This scale has excellent psychometric properties, such as: acceptability, construct and criteria validity (Silva, Sousa, Rezende, Teixeira & Peixoto, 2011).

2.2.2. Barthel's index

The Barthel's Index (BI) has been widely used in the context of stroke with the purpose of quantifying and tracking the patient's level of (in)dependence in daily activities (Araújo, Ribeiro, Oliveira & Pinto, 2007; Mahoney, 1965). This index assesses the patient's level of independence on ten basic daily activities. The obtained results range from 0 (maximum dependence) to 100 (total independence).

2.2.3. Lawton's instrumental daily activities scale (LS)

This is a generic measure that assesses the level of independence and the ability to perform tasks necessary for an independent living within the community, such as using the telephone, shopping, preparing meals, housekeeping, doing laundry, using public transport, preparing medication and managing money (Araújo et al., 2007; Lawton & Brody, 1970). A