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Functional Outcome of Post-stroke Patients Across Age and Gender: A Cross-Sectional Study

Mohammad Khasim I. Abdulmajid, MD, MPH, FPCP

Western Mindanao State University

Zamboanga City, Philippines

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Abstract

Stroke has a major impact on mortality and morbidity in the Philippines. Functional outcomes of post-stroke patients have been a somewhat neglected area of study despite the high prevalence of stroke in our country. The disability caused by stroke could lead to a significant decline in the level of functioning and deterioration of patients' quality of life (QoL). QoL assessments are used to evaluate and assist in planning effective management of the effects of stroke among stroke survivors. It is also used to assess the efficacy of stroke rehabilitation and evaluate cost effectiveness in order to justify the costs of health care. Functional outcomes, which include degree of dependence, functional capacity, and physical status, are major determinants of quality of life. This study was done to determine the functional outcome based on the degree of dependence and physical status of post-stroke patients. Utilizing a cross-sectional descriptive design, 22 respondents seen by residents at the outpatient clinic who were at least 3 months but not more than 6 months post-stroke were interviewed. After case identification, the degree of dependence was determined using the Modified Rankin Scale (MRS). Physical status was assessed using the Stroke Impact Scale-16 (SIS-16). The mean age of respondents is 58.4 years. Fifty-nine (59%) percent were female, and 41% were male patients. The mean Modified Rankin Scale (MRS) is 3, indicating moderate disability, requiring some help but able to walk with assistance. The Stroke Impact Scale 16 score is 30.67 points, indicating a lower level of physical status. Conclusion: This study showed that among post-stroke patients seen at the West Metro Medical Center medical outpatient department, most have a moderate degree of dependence and a low level of physical status and function.

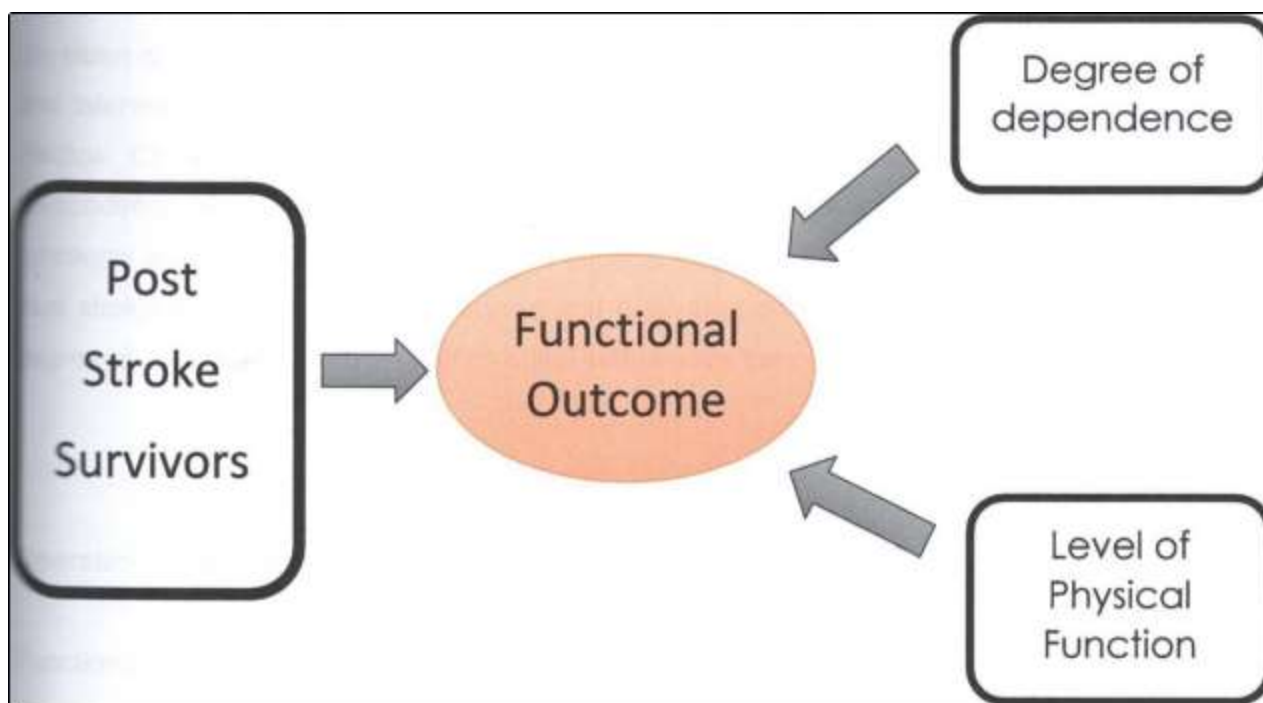
Keywords: *functional outcome, post-stroke patients, age, gender cross-sectional*

Introduction

Cerebrovascular disease is a major public health issue worldwide. Stroke, as the evident manifestation of cerebrovascular disease, is a leading cause of mortality and morbidity in the Philippines and many parts of the world. A report from the World Health Organization (WHO) in 2012 showed that stroke is the second most common cause of death in our country. It is a recognized chronic illness and a cause of long-term disability (Opara and Jaracz, 2010). Unlike other disabling conditions, the sudden onset of stroke usually leaves the survivors ill-prepared to deal with its sequelae (Mayo et al., 1999). The long-term incapacity of stroke patients could lead to a substantial decline in their level of functioning and quality of life.

The term quality of life (QoL) is defined as 'an individual's perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns' (WHOQOL Group, 1996). Stroke causes a sufficient decrease in quality of life, even among those who have no post-stroke disability (Lai 2002). Health-related QoL includes physical, functional, social, and psychological well-being (Testa and Simonson, 1996; Fallowfield, 2009). The increase in the number of people surviving stroke has advanced the emphasis of stroke management from "adding years to life" to "adding life to years" (Van den Bos and Triemstra, 1999). Functional outcome is related to the stroke survivor's physical status and degree of dependence. This has been somewhat ignored as an area of study, despite the high prevalence of stroke in our country. There is limited local data describing the functional outcome of post-stroke survivors.

Conceptual Framework



Scope and Delimitation of the Study

The descriptive study did not include out-patient post-stroke survivors seen by private physicians at their respective clinics. All of the respondents were residents' managed cases seen and interviewed by the researcher at the medical residents' outpatient clinic at West Metro Medical Center during the study period. There was also no attempt made to include responding more than 6 months post-stroke. Other variables that could have affected functional outcomes, such as psychosocial aspects and forms of rehabilitation care received by post-stroke patients, were not

measured and described during the conduct of the study. Only the degree of dependence and the level of physical status were included and measured.

Review of Related Literature

Post-stroke survivors' quality of life functional outcome can be assessed with either generic or condition-specific outcome measures. Generic instruments are designed to evaluate quality of life (QoL) in all population sub-groups, whereas condition-specific instruments are designed to assess the QoL of only one specific group, for example, stroke survivors (Davis and Water 2010). Numerous studies have shown that Nigerian stroke survivors experienced a fairly moderate quality of life and physical dependence (Enato et al., 2011; Akosile et al., 2013) because their QoL was not too severely affected by stroke events (Akosile et al., 2013). It was found, however, that stroke survivors in Nigeria have a lower quality of life than their apparently healthy adult counterparts (Fatoye et al., 2007; Akinpelu and Gbiri, 2009; Owolabi, 2011). The areas of quality of life most severely affected by stroke are the "social" and "family" roles (Akosile et al., 2013), physical functioning (Owolabi, 2011; Akosile et al., 2013), "work" (Akinpelu et al., 2012), "feeling" (Enato et al., 2011), and "emotion" domains (Hamza et al., 2014). This implies that the physical, social, and emotional domains of quality of life are all affected.

In a cross-sectional descriptive study entitled "Quality of Life Among Stroke Survivors Evaluated 1 Year After Stroke: Experience of a Stroke Unit" by Carod-Artal et al. done in 2000 to identify variables that could predict the degree of dependence among stroke survivors, functional status and depression were identified as significant predictors of quality of life. In another cross-sectional study by King (1996) among post-stroke survivors in one of the rehabilitation institutes in Chicago, USA, it was concluded that the identification of depression, social support, and functional status as predictors of quality of life suggests the need to assist stroke survivors in coping and in maintaining and strengthening their support systems.

In a study by Duncan et al. in 2003, it was concluded that the Stroke Impact Scale 16 is a tool that has an excellent collection of items suitable for assessing a wide range of physical function limitations in patients with stroke at 1 to 3 months post-stroke. Since the SIS 16 has a less pronounced ceiling effect, it can differentiate lower levels of disability as compared to the Barthel Index.

In a scientific report by Banks and Marrota in 2007 entitled "Outcomes validity and reliability of the Modified Rankin Scale: Implications for stroke clinical trials: A Literature Review and Synthesis," it was found out that multiple types of evidence attest to the validity and reliability of the MRS. The reported data of this study support the view that the MRS is a valuable instrument for assessing the impact of stroke among survivors.

Research Objective

To determine the functional outcome of post stroke patients according to age and gender.

Methodology

This study utilized a cross-sectional descriptive design. This was conducted in one of the medical centers in Zamboanga City, Philippines, which is a 110-bed secondary training hospital. Data was gathered through a face-to-face interview between the researcher and the respondents, which took place in a small outpatient clinic managed by medical residents. This study involved 22 participants who were patients aged 18 years and older and were seen at the West Metro Medical Center medical outpatient department. They have been documented with a history of stroke by CT scan for at least 3 months, but not more than 6 months prior to the study, utilizing purposive sampling.

Research Instruments and Methods

In order to meet the research objectives, the following instruments and methods were utilized:

The Rankin Scale (MRS) checklist was utilized to determine the degree of dependence of the respondents. The questionnaire was self-administered, with the researcher on hand for clarification. The MRS is commonly used to assess disability after a stroke. The MRS attempts to measure functional independence, incorporating the World Health Organization (WHO) components of body function, activity, and participation. It also assesses disability in patients who have suffered a stroke. A score of 0 is no disability, 5 is disability requiring constant care for all needs, and 6 is death. The MRS has been used in clinical research for over 30 years and is a common standard for assessing functional outcomes in patients with stroke. The mean MRS of the respondents was obtained.

The respondents' physical status was determined by a face-to-face interview using the Stroke Impact Scale-16 (SIS-16). SIS-16 is a short instrument to assess physical function in patients at approximately 3 months poststroke using items from the composite physical domain, which includes mobility, activities of daily living, strength, and hand functions. It is a 16-item questionnaire. The respondents answered with the number (not difficult at all = 5 or could not do at all = 1) for an individual question.

A Likert scale was used to analyze the data, which was transferred to a scale with a total score ranging from 0 to 100, with 0 being the worst possible score and 100 being the best possible score. As such, the floor effect is defined as a score of 0, indicating that the patients are unable to

perform all physical functioning, and the ceiling effect is a score of 100, indicating patients are able to perform all physical activities.

RESULTS and DISCUSSION

Demographic data from this descriptive study revealed that the mean age of respondents is 58.4 years old. Fifty-nine (59%) percent were female, and 41% were male patients. Sixty-eight percent comprises the 51–60 age bracket. (Table 1)

Table 1. Age Distribution among Respondents

	Frequency(n)	Percent (%)
41-50	2	9.1
51-60	15	68.2
61-70	4	18.2
71-80	1	4.5
Total	22	100.0

Table 2. Gender Distribution among Respondents

	Frequency (n)	Percent (%)
Male	9	40.9
Female	13	59.1
Total	22	100.0

With regards to the duration of stroke among the 22 respondents, 14 (64%) were 3 months post - stroke, 6 (27%) were 4 months post-stroke, and 2 (9%) were 5 months post-stroke.

Table 3. Distribution of Duration From Stroke among Respondents

	Frequency (n)	Percent (%)
3 months post stroke	14	63.6
4 months post stroke	6	27.3
5 months post stroke	2	9.1
Total	22	100.0

Ten out of 22 patients (45.4%) have MRS 3, 5 respondents have MRS 4 (22.7%), 2 respondents each have MRS 0, 2, and 5, and 1 patient has MRS 1. The mean MRS is 2.95, indicating moderate disability—requiring some help but able to walk without assistance.

Table 4. Modified Rankin Scale of Respondents

MRS	Frequency (n)	Percent (%)
0	2	9.1
1	1	4.5
2	2	9.1
3	10	45.4
4	5	22.7
5	2	9.1
Total	22	100.0

The Stroke Impact Scale (SIS) 16 score is 30.67 points, indicating a lower level of physical status and function. Studies utilizing the SIS-16 set a cutoff of at least 75 points for having good physical status and function. This cross-sectional study of post-stroke survivors showed that respondents were predominantly middle-aged (58.4 years). This is similar to the age population that has been described in one study on the quality of life among poststroke survivors by Abubakar et al. (2012), but a decade below the average age of stroke in other populations. (Langton, 2005; Nicholis-Larsen et al., 2005).

The level of dependence (mean MRS of 2.95) across all respondents is in agreement with the findings of a study done in a stroke unit in Nigeria by Abubakar et al., which found that most patients have a slight to moderate disability. The low level of physical status of respondents in this study based on the Stroke Impact Scale 16 (SIS 16) is consistent with the result of a study assessing the determinants of quality of life done by Badaru in 2014. Thus, post-stroke functional outcomes are relatively based on the degree of dependence and their overall physical status. Functional outcome, on the other hand, is a core aspect of one's quality of life. Although studies have shown that degree of dependence and physical status are predictors of aftermath among poststroke survivors, there are many variables in one individual poststroke survivor that can contribute to a general functional outcome.

Conclusion and Recommendations

The reported data from this study showed that among post-stroke survivors seen as outpatients by the research at the West Metro Medical Center, most have a moderate degree of dependence and

a low level of physical status and function. It is recommended that further studies be done on a larger group of patients for this population, especially in the field of functional outcome and quality of life, to include its psychosocial determinants. A multi-center study comparing the functional outcomes of stroke survivors seen at a private hospital and a government center is also suggested. A prospective study could also be done to determine if recovery continues beyond 6 months post-stroke, as observed in the general population. Imaging correlation (CT scan and MRI) findings and functional outcomes may also be recommended. Factors that are essential for recovery, like depression, financial status, and the ability to follow up with their physicians, can also be taken up as variables in measuring functional outcomes in future studies. Local studies are very limited, especially in the field of functional outcome as a significant aspect of quality of life.

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