

Relationship between Functional Abilities Confidence Level and Performance of Motor Function after Stroke *

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SUMMARY

This study investigated the relationship between motor function and functional abilities confidence level among community-dwelling stroke survivors.

Fifty patients (mean age 54.84 ± 10.68 years) who suffered first incidence hemispheric cerebrovascular accident and were undergoing physiotherapy on outpatient basis at the University College Hospital, Ibadan, a tertiary health institution in Nigeria, took part in the study. The mean onset of stroke was 15 months (60.30 ± 39.80 weeks).

Assessment of motor function and functional abilities confidence level were carried out once with the Modified Motor Assessment Scale (MMAS) and Functional Ability Confidence Scale (FCAS) respectively. The Spearman Rank Order Correlation Coefficient was used to analyse the relationship between motor function and functional abilities confidence level at 0.05 alpha.

The result of the analysis showed that there was a significantly positive correlation between the motor function and functional abilities confidence level ($r_{ho} = 0.57$; $p = 0.05$).

The outcome of this study revealed a linear and statistically significant relationship between motor function and functional ability confidence. It is probable that clinical assessment of confidence levels of stroke survivors could provide an insight into factors that affect recovery, other than the

pathological sequelae of stroke, and subsequently, the necessary interventions.

Key words: functional abilities confidence level, motor function, stroke

INTRODUCTION

Stroke is one of the most common causes of chronic neurological disability in adults the world over.^{1,2,3} The impact of stroke on an individual can be assessed in terms of body function, activity and participation.⁴ Although body functions such as motor, sensory, cognitive, and speech functions are impaired by a stroke, motor function is the most frequently occurring and disabling clinical feature.^{5,6} Assessment of motor function recovery shows the performance of the plegic side and this relates more specifically to actual recovery from the paralysis resulting from a stroke which is not due to compensatory strategies commonly employed by stroke victims.^{7, 8}

Self-confidence refers to an individual's belief in his or her capabilities for performing specific actions or meeting specific situational demands.⁹ It is often the reason for different levels of performance in people with equivalent skills or abilities.⁹ It has been observed in the clinic that some post-stroke patients perform at levels lower than the expected based on their known physical abilities; and this may be related to their self confidence. Personal levels of confidence

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could therefore influence the functional outcome of stroke.¹⁰ Robinson-Smith,¹¹ in a study of stroke survivors, reported the positive influence of confidence in self-care on quality of life. It therefore follows that the existence of functional abilities confidence level may influence motor function and affect quality of life of stroke survivors. There is however insufficient data on the extent to which motor function in stroke survivors influences level of confidence in functional ability. This study therefore sought to investigate the relationship, if any, between motor function and functional abilities confidence level in stroke survivors.

METHODS

Fifty patients who had suffered first incidence hemispheric cerebrovascular accident and were undergoing physiotherapy on outpatient basis at the University College Hospital, Ibadan, a tertiary health institution in Nigeria took part in this study. They had suffered the stroke for a mean duration of 15 months (60.30 ± 39.80 weeks). Eligibility criteria included ability to comprehend and respond to enquiry on their health condition without perceptual and/or communication disorders that could invalidate self-reports.

All the patients were able to give informed consent prior to participation after the procedure had been explained to them. The study was approved by the Joint Institutional Review Committee of the University of Ibadan/University College Hospital, Ibadan, Nigeria.

Procedure

Sociodemographic information was obtained from the patients while clinical information on type of stroke, time of stroke onset and side of affectation were obtained from the patients' clinical records and through physical examination, as appropriate. Assessment of motor function and functional abilities confidence level were carried out once using the Modified Motor Assessment Scale (MMAS) and Functional Abilities Confidence Scale (FCAS) respectively.

The MMAS is a brief, easily-administered scale composed of 8 items that are assigned a score from 0

to 6 (0 = not possible, 6 = most difficult) pertaining to upper extremity motor recovery, balance and function. The maximum point obtainable on the items is 48. The items are: (i) supine to side lying; (ii) supine to sitting over the side of the bed; (iii) balanced sitting; (iv) sitting to standing; (v) walking; (vi) upper arm function; (vii) hand movement; and (viii) advanced hand activities. The MMAS has an average test-retest correlation of 0.83. It is a descriptive assessment of motor recovery for patients with stroke.⁷

The Functional Abilities Confidence Scale (FACS) was designed to measure the degree of self-efficacy or confidence a patient exhibits with various movements or postures. It is a standardized measure originally developed by therapists for patients with acute low-back pain.¹² It is a 15-item scale with the total score ranging from 0-100, summing across the items and dividing by the number of items answered.¹²

The FACS has good psychometric properties, including test-retest reliability, internal consistency, responsiveness to change, discriminant abilities, and convergent validity. The FACS takes only 10 minutes to complete and is easy to score. Two different assessors carried out each of the FACS and MMAS assessment for all the participants to avoid bias.

DATA ANALYSIS

Data was summarized using the descriptive statistics of mean, standard deviation and percentage. Spearman Rank Order Correlation was used to analyse the relationship between motor function and functional abilities confidence level and level of significance was set at 0.05.

RESULTS

Fifty stroke survivors comprising 14 (28%) men and 36 (72% women), with a mean age of 54.84 ± 10.68 years participated in the study. Other socio-demographic and clinical information is presented in table 1. The mean motor function was 44.64 ± 9.54 and the functional abilities confidence level was (54.20 ± 15.48). Spearman's Rank Order Correlation showed a significantly positive correlation between the 2 parameters ($\rho = 0.57$; $p = 0.05$).

Table 1. Clinical and sociodemographic characteristics of the study population

	n	%
Gender		
Male	14	28
Female	36	72
Marital status		
Married	49	98
Single	1	2
Type of stroke		
Ischaemic	8	16
Haemorrhage	41	82
Side of affectation		
Right hemiplegia	8	16
Left hemiplegia	42	84

DISCUSSION

In clinical practice, assessment of motor function after stroke is regarded as very important.¹³ The same cannot be said of measurement of functional ability confidence. This could be due to the fact that the majority of stroke guidelines and available stroke outcomes tend to limit important outcomes to mortality, impairment, activities of daily living, and recently, participation and quality of life. However, measuring the functional abilities confidence level of patients can assist physiotherapists in understanding why some people may not perform functional activities at levels commensurate with their motor abilities.

The outcome of the study showed a significantly positive correlation between motor function and functional ability confidence in stroke survivors. This implies that improved motor function in these stroke survivors was accompanied by confidence in their functional ability. While it is probable that a person's self-confidence may not necessarily be related to his or her skills or physical abilities, it has been argued that the most powerful strategy for enhancing a person's self-confidence is mastery or actual performance accomplishments,⁹ which in the case of stroke survivors is based primarily on motor ability. It also follows that in spite of being a subjective and self-reported measure, functional ability confidence

could be considered a valuable construct to be assessed post stroke since it correlated positively with objectively assessed motor function.¹⁴ This is because the measures of motor function and functional capacity confidence level utilized in this study assess similar aspects of functions. However, it should be noted that these two constructs are not interchangeable. Therefore, provision of strategies to improve self-confidence might be required for stroke survivors who, in spite of improved motor function, have low levels of confidence in carrying out functional activities.

In addition to the association between functional abilities confidence level and motor function, self confidence in functional ability could also influence the outcome of motor function assessment since individual motivation and confidence have been reported to affect physical test performance.¹² The performance of stroke survivors in a physical test such as motor assessment could also be an indication of the level of confidence in their ability to carry out the movements. In other words, the linear relationship between FACS and MMAS implies that motor function status will influence confidence in functional ability, just as confidence in functional ability will affect performance in the physical test that assesses motor function.

The relationship between motor function and functional ability confidence status in stroke survivors could be time dependent. In a study by Hellstrom et al.,¹⁴ the correlation between confidence in task performance and motor function decreased with increasing time after stroke, with a weak correlation reported between the two constructs at 10 months after stroke. This finding contrasts with the observation in the present study, where a strong correlation was observed. The difference between the findings in the two studies could be explained by the difference in time since onset of stroke. While Hellstrom et al.¹⁴ reported correlation at 10 months, the time of onset since stroke in this study was 15 months (60.30 ± 39.80 weeks) and all the patients who took part in this study were community-dwelling patients.

CONCLUSION

The outcome of this study revealed a linear significant relationship between motor function and functional abilities confidence level. Clinical assessment of the confidence level of stroke survivors could provide an insight into factors that affect recovery other than the pathological sequelae of stroke, and subsequently, the necessary interventions. Further studies on the relationship between motor function and functional abilities confidence level over a specific period of time after stroke and the relationship of functional ability confidence with constructs such as activity, participation and quality of life of stroke survivors would be beneficial.

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