



# Comparison of Community Reintegration and Selected Stroke Specific Characteristics in Nigerian Male and Female Stroke Survivors

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## SUMMARY

This study investigated the difference between community reintegration of male and female stroke survivors and the association between gender of stroke survivors and some selected stroke specific characteristics (type, side of paresis and occurrence)

Fifty-two patients (25 males and 27 females) recruited from hospitals in Nigeria took part in the study. Community reintegration (CR) was assessed three months post-admission discharge using the Reintegration to Normal Living Index (RNLI). Demographic and stroke-specific characteristics were obtained using a data form. Data were analysed using descriptive statistics, the Mann-Whitney U test and the chi-square test. Level of significance was set at  $p = 0.05$ .

The mean age of the participants was  $61.21 \pm 11.25$  years (range 31 – 86 years). There was no significant difference ( $p = 0.173$ ) between the community reintegration scores of male and female participants. There was also no significant association between gender and each of the selected stroke specific characteristics such as type of stroke ( $p = 0.279$ ); side of paresis ( $p = 0.250$ ) and occurrence of stroke ( $p = 0.670$ ).

Community reintegration scores of male and female stroke survivors are not significantly different. There is no significant association between gender and each of the selected stroke specific characteristics.

**KEYWORDS:** community reintegration, stroke, stroke survivors, participation, gender

## INTRODUCTION

Stroke is defined by the World Health Organization as a clinical syndrome consisting of rapidly developing clinical signs of focal (or global in case of coma) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin (Colledge et al, 2010). According to Chau et al (2009), it is the second leading cause of death globally and a major cause of activity limitation as well as participation restriction among survivors (Pang et al, 2007).

Community-dwelling stroke survivors are likely to experience difficulties in accomplishing daily activities and even more, may have to deal with disruptions in participation in their social roles, despite good recovery following rehabilitation (Desrosiers et al, 2003). Having a stroke, therefore, can produce devastating impact on daily

life (Chau et al, 2007). A significant proportion (39 to 65%) of community-dwelling people with stroke reported limitations in carrying out daily activities and poor reintegration into their communities (Mayo et al, 2007). Community reintegration usually marks the end of rehabilitation for most professionals in the field of stroke rehabilitation. It is an integral part of the concept of participation (WHO, 2008) and is one of the most important elements of stroke rehabilitation and probably the most underestimated (Bhugal et al, 2003). Community reintegration may be defined as the ability to return to an acceptable lifestyle, participating in both social and domestic activities after an episode of stroke. It is sometimes used interchangeably with participation in most literature.

Various studies (Chau et al, 2009; Raymond et al, 2007; Hamzat and Peters 2009; Mercer et al, 2009) have

been carried out on the participation of stroke survivors. Most of the literature on community reintegration after stroke (Pang et al, 2011; Murtezani et al, 2009; Pang and Eng, 2008; Andersson et al, 2008; Beckley, 2006; Hellstrom et al, 2003) appear to focus more on the determinants of community reintegration with little or no emphasis on the influence of gender on community reintegration and stroke-specific characteristics. This study therefore compared community reintegration between male and female Nigerian stroke survivors three months after stroke as well as the association between gender and selected stroke-specific characteristics.

## METHODOLOGY

### Participants

Fifty-two stroke survivors participated in this study. The patients were recruited from three teaching hospitals in Nigeria: the University College Hospital (UCH), Ibadan; the University of Nigeria Teaching Hospital (UNTH), Enugu and the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt. These hospitals were chosen to reflect the three geopolitical zones in the southern part of Nigeria. Only stroke survivors discharged to their community of residence were included in this study. However, stroke survivors with cognitive deficit, or further neurological conditions (such as Parkinsonism, spinal cord disease) that may influence reintegration (Pang et al, 2007) were excluded from the study.

### Instruments

The Reintegration to Normal Living Index (RNLI) was used to assess community reintegration of participants (Wood-Dauphine and Williams, 1987). This is an 11-item scale that covers areas such as participation in recreational and social activities, movement within the community; and how comfortable the individual is in his or her role in the family and with other relationships. The RNLI is made up of 11 declarative statements with response recorded on a 4-point categorical scale (1 – 4) to yield total values ranging from 11 to 44, with higher scores indicating better perception of reintegration (Pang et al, 2007). The RNLI has an internal consistency (alphas for patient sample) of 0.90 (Wood et al, 1998); inter-rater  $r$  of 0.69 (Trombly et al, 1998) and test-retest for community dwelling elderly  $r$  of 0.83 (Steiner et al, 1996). This instrument can be researcher administered or patient administered (Wilson et al, 2005).

### Study Design

A longitudinal design was used as the research design. Sample of convenience was used to recruit participants while stroke survivors with any other known neurological disorder and/or cognitive impairment were excluded from the study. Also, stroke survivors who were discharged back to homes (eg nursing, geriatric or rehabilitation centres) other than their communities were excluded from this study.

Ethical approval for the study was obtained from the ethical committees of the University of Ibadan and University College Hospital, Ibadan, Nigeria. The procedure for the study was explained to the patients before obtaining their informed consent. Demographic variables and stroke-specific variables such as the type of stroke, side of paresis and the number of stroke occurrence were obtained from patients' case notes at the point of discharge from the hospital into their communities. Three months after the participants had been discharged into their communities, their levels of community reintegration were assessed using the Reintegration to Normal Living Index.

### Data Analyses

The data obtained were analysed using the Statistical Package for the Social Sciences (SPSS) Version 15.1 as follows:

- i. Descriptive statistics of mean, standard deviation, and percentages were used to summarize the demographic variables.
- ii. The Mann-Whitney U test was used to compare community reintegration scores between male and female stroke survivors.
- iii. Chi-square was used to test the association between gender (male and female) and each of the stroke-specific characteristics after generating a 2x2 contingency table for each.

Alpha level was set at  $p = 0.05$ .

## RESULTS

### Demographic Characteristics of Patients

A total of 55 stroke patients were initially recruited but only 52 of them completed the study. The participants comprised 25 (48.1%) male and 27 (51.9%) female patients. They were within the age range of 31 – 86 years, with a mean of  $61.21 \pm 11.25$  years. The mean duration of hospital stay and duration of physiotherapy treatment before hospital

discharge were  $5.31 \pm 3.71$  weeks and  $3.06 \pm 1.78$  weeks respectively. Also, the mean systolic and diastolic blood pressure of the patients three months after stroke was  $129.23 \pm 10.43$ mmHg and  $83.04 \pm 9.48$ mmHg respectively. The majority (34.6%) of the patients were civil servants while the highest number 18 (34.62%) were in the 50 - 59 years age group. Most of the participants had ischaemic stroke (73.1%), had the right side affected (55.8%), and had first incidence stroke (88.5%). Also, most of the patients were in the group that stayed 3 to 5 weeks in the hospital ward (57.7%) and the majority (90.4%) received physiotherapy treatment for less than six weeks before discharge as shown in table 1.

**Table 1.** Demographic and stroke-specific characteristics of participants (N = 52)

Variable	Category	Frequency distribution	
		n	%
<b>Gender</b>	Male	25	48.1
	Female	27	51.9
<b>Occupation</b>	Farmer	5	9.6
	Trader	11	21.2
	Businessman/woman	10	19.2
	Retiree	8	15.4
	Civil Servant	18	34.6
<b>Age (years)</b>	30 – 39	3	5.8
	40 – 49	2	3.9
	50 – 59	18	34.6
	60 – 69	16	30.8
	70 – 79	10	19.2
	80 – 89	3	5.8
<b>Type of stroke</b>	Ischaemic	38	73.1
	Haemorrhagic	14	26.9
<b>Side of paresis</b>	Left	29	55.8
	Right	23	44.2
<b>Occurrence of stroke</b>	Once	46	88.5
	Twice	6	11.5

Key: n = numerical size , % = Percentage of total

**Difference between the Community Reintegration Scores of Male and Female Participants**

There was no significant difference ( $p = 0.173$ ) between the community reintegration scores for male and female stroke survivors in this study (table 2). However, the mean rank of community reintegration for male participants ( $r = 29.46$ ) was greater than the mean rank for female participants ( $r = 23.76$ ).

**Table 2.** Comparison between community reintegration of male and female participants using the Mann-Whitney U test (N = 52)

	U	P	Z	Mean Rank	
				Male	Female
CR	263.500	0.173	- 1.362	29.46	23.76

**Association between Gender and Each of Type, Side and Occurrence of Stroke**

There was no significant association between gender and type of stroke ( $p = 0.279$ ). However, contingency table shows that more male participants had ischaemic stroke than female participants while more female than male participants had haemorrhagic stroke as shown in table 3

Also, there was no significant association between gender and side of stroke ( $p = 0.250$ ). The contingency table shows that more male than female patients had left side affected while more female than male patients had right side affected as shown in table 3.

There was no significant association between gender and the number of stroke occurrence ( $p = 0.670$ ). The contingency table shows that equal number of male and female patients had stroke occurring once. However, more females than males had stroke occurring twice as shown in table 3.

**Table 3.** Association between gender and each of type, side and occurrence of stroke (N = 52)

Variables	Categories	Gender		P
		Male	Female	
Type	Ischaemic	20(38.5%)	18(34.6%)	0.279
	Haemorrhagic	5(9.6%)	9(17.3%)	
Side	Left	16(30.8%)	13(25.0%)	0.25
	Right	9(17.3%)	14(26.9%)	
Occurrence	Once	23(44.2%)	23(44.2%)	0.67
	Twice	2(3.9%)	4(7.7%)	

**DISCUSSION**

A total of 52 stroke patients discharged from acute hospital care in Nigeria took part in this study. An almost equal number of male and female patients participated with mean blood pressure that could be considered normal for their mean age (Ganong, 2001). However, more of the patients had stroke occurring once than twice in a ratio of about 8:1 respectively.

There was no significant difference in level of community reintegration between male and female stroke survivors, although male stroke survivors had higher values for community reintegration than their female counterparts. This may be taken as an indication that both gender can benefit substantially from post-acute stroke rehabilitation, especially in the area of community reintegration. However, there appears to be conflicting findings on gender differences in stroke outcomes. Some studies have reported (Di Carlo et al, 2003; Niewada et al, 2005; Gargano and Reeves, 2007) that women have less favourable outcomes after stroke, such as physical impairment and difficulties in accomplishing activities of daily living, and that women are more likely to be disabled at three months follow-up. On the contrary, other studies (Kapral et al, 2005; Paolucci et al, 2006; Perna et al, 2014) have reported no difference in post acute-stroke rehabilitation outcomes between male and female patients. The majority of the studies (Di Carlo et al, 2003; Niewada et al, 2005; Gargano and Reeves, 2007) with evidence for gender differences did not control for the influence of age. Researchers have found that female stroke patients are significantly older than their male counterparts (Lofmark and Hammarkstrom, 2007; Rothwell et al, 2005); this may have implications for functional recovery. It is therefore possible that age rather than gender may have been responsible for the observed differences. Also, differences in study design may be responsible for the observed discrepancy in these studies. For example, Pang et al (2007) found no significant correlation between male and female community reintegration scores measured by the Reintegration to Normal Living Index (RNLI) as was done in this study. However, Chau et al (2009) found a direct effect of female gender on participation restriction assessed using the London Handicap Scale (LHS). Finally, cultural differences cannot be ruled out as participation after stroke can be influenced by cultural beliefs and practices (Chau et al, 2009 and Lo et al, 2010).

There was no significant association between gender (male/female) and each of the stroke specific characteristics such as type of stroke (ischaemic/haemorrhagic), side of paresis (left/right) and occurrence (once/twice). This implies that being a male or a female does not necessarily determine the type of stroke, the side of the body that would be affected by stroke as well as the re-occurrence of stroke. Most studies on stroke seem not to have studied these relationships as mentioned earlier. However, a study by Petrea et al (2009) on gender differences in stroke

incidence and post-stroke disability found no significant difference between women and men with regard to stroke subtypes.

## CONCLUSION

Gender is not an important factor that can influence the community reintegration of stroke survivors. Also, it has no significant association with some stroke specific characteristics such as type of stroke, side of paresis and occurrence of stroke.

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