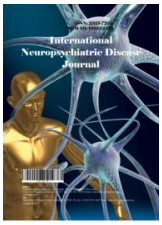

International Neuropsychiatric Disease Journal

14(3): 1-7, 2020; Article no.INDJ.60181
ISSN: 2321-7235, NLM ID: 101632319

Socio-demographic and Clinical Correlates of Community Reintegration of Stroke Survivors in Nigeria

Muhammad Usman Ali[1*], Auwal Yahaya Garba[2], Adewale Luqman Oyeyemi[1], Mamman Ali Masta[1], Fatima Kachallah Gujba[1] and Ali Alhaji Modu[1]

[1]Department of Medical Rehabilitation (Physiotherapy), College of Medical Sciences, University of Maiduguri, Maiduguri, Borno State, Nigeria.
[2]Department of Physiotherapy, University of Maiduguri Teaching Hospital, Maiduguri, Borno State, Nigeria.

Authors' contributions

This work was carried out collaboratively by the authors. Author MUA conceived and designed the study, carried out statistical analyses and drafted the manuscript. Author AYG collected and analysed data and provided material support. Author ALO designed, analysed the data and revised the manuscript. Authors MAM, FKG and AAM drafted and reviewed the manuscript for intellectual content. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/INDJ/2020/v14i330128
Editor(s):
(1) Dr. Vincenzo La Bella, University of Palermo, Italy.
Reviewers:
(1) Dr. S. Senthilkumar, Saveetha Institute of Technical Sciences, India.
(2) Logeshwari Selvaraj Vels Institute of Science, Technology & Advanced Studies, India.
Complete Peer review History: http://www.sdiarticle4.com/review-history/60181

Original Research Article

Received 12 June 2020
Accepted 18 August 2020
Published 25 September 2020

ABSTRACT

Background: Low level of community reintegration among stroke survivors is a major obstacle to rehabilitation services post discharge from acute care. Few studies have assessed the impact of community reintegration on stroke survivors in Nigeria. This study investigates community reintegration and associated factors among stroke survivors in Maiduguri, Nigeria.
Methodology: Purposive sampling technique was used to recruit 55 stroke survivors attending rehabilitation services from two public hospitals in Maiduguri. Community reintegration was assessed with the Reintegration to Normal Living Index (RNLI) questionnaire, while information on sociodemographics (e.g., age group, gender, employment status, educational status) and clinical characteristics (e.g., post stroke duration, types of stroke, side of affectation) was obtained using the data form. Logistic regression analyses with odd ratios were used to test the associations between community reintegration and sociodemographic and clinical characteristics.

**Corresponding author: E-mail: usmanali.muhammad@yahoo.com;*

Results: The mean age and post stroke duration of the participants were 44.69±13.06 years and 17.25±24.90 months respectively. The participants' community reintegration scores showed that 60%, 38.2% and 1.8% have no integration, mild to moderate reintegration and complete reintegration respectively. The results indicated that stroke survivors with a stroke duration greater than 8 months (OR=3.32, C.I=1.08-10.27) and those with haemorrhagic stroke (OR=4.67, C.I=1.05-20.66) were more likely to be reintegrated into the community than their counterparts with 6-8 months post stroke duration and ischaemic stroke, respectively. There was significant association between community reintegration and sociodemographic characteristics such as post stroke duration and type of stroke.

Conclusions: Rehabilitation strategies should focus on clinical characteristics of the stroke survivors when planning and delivering effective community reintegration interventions.

Keywords: Clinical correlates; sociodemographic factors and community reintegration.

1. BACKGROUND

Stroke is a non-traumatic, focal vascular induced injury of the central nervous system (CNS) that typically results in permanent damage leading to cerebral infarction, intracranial hemorrhage (ICH) and/or subarachnoid hemorrhage (SAH) [1]. Stroke is a major public health concern with concomitant long-term physical, emotional and relational sequalae that impact functional independence [2, 3]. Due to enhanced acute rehabilitation care and the availability of good information on stroke management, an increasing number of people with stroke are surviving the attack [4]. Majority of stroke survivors present with wide range of disability restricting their reintegration into the community, thereby potentially negating the efforts of rehabilitation programs [5, 6]. These impacts of stroke on functional independence usually managed through conventional physiotherapy approach focusing on rehabilitation of the sensorimotor functions (e.g., muscle strength, movement coordination, spasticity, balance) and performance in activities of daily living such as ambulation. However, relatively less attention is paid to community reintegration post stroke, which involves several important elements, including participation in activities at home or a home-like setting, engagement in productive activities, and establishment and enjoyment of a social network [7]. Consequently, the goal of stroke rehabilitation has shifted from mere survival of a victim to how well a survivor can be effectively reintegrated back into the community [8].

Community reintegration is defined as the opportunity an individual has to live in the community with the already present condition (after a state of ill-health like stroke and be valued for his/her uniqueness and abilities, like everyone else [9]. Community reintegration is one of the most important elements of stroke rehabilitation and likely the most underestimated area [6]. Many people with stroke have a low level of satisfaction with community reintegration after they are discharged from the hospital and return to the community [7]. The effects of some related factors (e.g, physical impairment, and mental status) on satisfaction with community reintegration have been examined in some studies [10].

Although community reintegration of stroke survivors has gained recognition in some countries, only few studies have been carried out on this subject in Nigeria. Previous studies were carried out in the South-Western and South-Eastern Nigeria assessing the community reintegration and the associated factors among stroke survivors [11, 12] reported an association of Reintegration to Normal Living Index scores to age, depression and motor function of the South-Western stroke survivors sample and it was concluded that the higher the community reintegration, the higher the motor function and the lower the depression. Similarly, Akosile et al. [12] reported a deficit in community reintegration which was either mild/moderate (52%) or severe (47.9%) for the South-Eastern community dwelling stroke survivors who are older, having diabetes as co-morbidity, using wheel chair and without employment pre- and/or post-stroke and may require keener attention. Nigeria is a multicultural/multiethnic country and what obtains in one region/zone may not be applicable to others hence the need for 'regional' studies and findings but the region of interest in the present study has no such studies and findings. Therefore, this study was aimed at determining the level of community reintegration and socio-demographic and clinical factors (age, gender, employment status, educational status, post stroke duration, type of stroke and side of hemiparesis) associated with the community

reintegration of stroke survivors in the selected hospitals in Maiduguri, Borno state .

2. METHODOLOGY

2.1 Study Design

The study utilised a 'descriptive cross-sectional survey design' to evaluate the community reintegration and associated factors among stroke survivors in two selected hospitals in Maiduguri.

2.2 Participants and Study Settings

Fifty five stroke survivors attending physiotherapy clinics of the University of Maiduguri Teaching Hospital (UMTH), and State Specialist Hospital Maiduguri, Borno State were purposively recruited to participate in this study. Stroke survivors who are aphasic, have visual impairment, stroke duration less than 6 months, first time physiotherapy patients in the clinics at the time of data collection, patient with history of any other neurological pathology, dementia, and serious musculoskeletal conditions affecting the lower limbs were excluded from the study [11,13].

2.3 Procedure

Prior to the commencement of the study, ethical clearance was sought and obtained from the Research and Ethical Committee of the University of Maiduguri Teaching Hospital, Maiduguri, Nigeria. The stroke survivors were approached to seek their consent and were requested to participate in the study after a detailed explanation of the description, nature and the procedure of the study. The permission of the Departments of physiotherapy at the selected Hospitals was also obtained. The Data form and Reintegration to Normal Living Index Questionnaire were given to the participants to complete and the researcher (Second Author) obtained the clinical characteristics from the patients' folders. The Questionnaires were completed at the study site and retrieved by the second author.

2.4 Instruments

2.4.1 Data form

A participant data form was used for collecting information about personal characteristic of stroke survivors. The form was developed by the researcher and was used to obtain information on participants, Age, Gender, Employment Status, Educational Status, Post Stoke Duration, Type of stroke, and side of hemiparesis.

2.4.2 Reintegration to Normal Living Index (RNLI)

The reintegration to normal living index (RNLI) was used to assess quantitatively, the degree to which individuals who have experienced traumatic or incapacitating illness achieve reintegration in to normal social activities (e.g. recreation, movement in the community, and interaction in family or other relationships). The RNLI is an 11-item instrument with the following domains: indoor mobility, community mobility, distance mobility, self-care, daily activities (work and school), recreational activities, social activities, family roles, personal relationships, presentation of self to others, and general coping skills [11, 14]. The first 8 items in the RNLI represent 'daily functioning' and the remaining 3 items represent 'perception of self' [15]. Each item is accompanied by a 10cm visual analogue scale anchored with phrase of 0- no integration to 10- full integration [16]. The sum of the scores is normalized to 100 such that the minimum possible score is 0 and maximum is 100, indicating no or full integration respectively. Scores of 60 through 99 indicate mild to moderate restriction in self-perceived community reintegration [7]. Adequate to excellent construct validity and reliability of the RNLI has been reported [17,18]. The RNLI was self- administered by each participant depending on the participants' ability to read in English Language.

2.5 Data Analysis

The data obtained was analyzed using SPSS version 17 (Chicago, Illinois, USA). Participants' socio-demographic, clinical characteristics and reintegration scores were analysed descriptively in terms of mean and standard deviation, frequency and percentages. Logistic Regression Analysis with Odd Ratios and 95% Confidence Intervals were used to determine the association between community reintegration of stroke survivors and age groups, Gender, Educational Status, Post stroke duration, Stroke types, Side of hemiparesis and employment status. The level of statistical significance was set at alpha (α) = 0.05

3. RESULTS

3.1 Socio-demographic and Clinical Characteristics of the Participants

Fifty-five (55) stroke survivors participated in the study. The participants comprised of 31 (56.4%) male and 24 (43.6%) female patients. They had

a mean age of 44.69±13.06 (29-75 Years) and mean stroke duration of 17.25±24.90 (6-120 Months). Left hemiparesis was found among 34 (61.8%) of the participants while 81.8% (45) of them presented with ischaemic stroke. Many of the participants were unemployed (n=36, 65.5%) and had tertiary education (n=25, 45.5%). The detailed socio-demographic and clinical characteristics of the participants are presented in Table 1.

3.2 Levels of Community Reintegration among the Participants

The proportion of stroke survivors that were found to have no reintegration, mild to moderate reintegration and complete reintegration are 33 (60.0%), 21 (38.2%) and 1 (1.8%) respectively. Table 2 shows the detailed information in community reintegration among stroke survivors attending two selected hospitals in Maiduguri.

3.3 Association between Community Reintegration and Socio-demographic and Clinical Characteristics

Table 3 showed the association between community reintegration and socio-demographic and clinical characteristics of the participants. Community reintegration was significantly associated with post stroke duration and type of stroke. Stroke survivors with a stroke duration greater than 8 months (OR=3.32, C.I=1.08-10.27) and those with haemorrhagic stroke (OR=4.67, C.I=1.05-20.66) were more likely to be reintegrated into the community than their counterparts with 6-8 months post stroke duration and ischaemic stroke, respectively. There was no significant association between community reintegration and side of affectation and sociodemographic characteristics.

Table 1. Socio-demographic and clinical characteristics of the participant stroke survivors (n=55)*

Variable	f (n)	%
Age group		
< 45 years	32	58.2
45 years and above	23	41.8
Mean±SD 44.69±13.06		
Range 29-75		
Gender		
Male	31	56.4
Female	24	43.6
Side of affection		
Left	34	61.8
Right	21	38.2
Type of stroke		
Ischaemic	45	81.8
Haemorrhagic	10	18.2
Employment status		
Employed	16	29.1
Unemployed	39	70.9
Educational status		
Primary	1	1.8
Secondary	8	14.4
Tertiary	25	45.5
Qur'anic	16	29.1
None	5	9.1
Post stroke duration		
6-8 months	32	58.2
> 8 months	23	41.8
Mean±SD 17.25±24.90		
Range 6-120		

f = frequency, % = percentage

4. DISCUSSION

This study investigated the level of community reintegration and the associated clinical and sociodemographic factors among stroke survivors attending rehabilitation services at two public hospitals in Maiduguri, Nigeria. The main finding was that community reintegration was associated with post stroke duration and type of stroke among the participants.

Specifically, stroke survivors with a stroke duration greater than 8 months were about three times more likely to be reintegrated into the community than those with stroke duration less than 8 months. This was similar to the finding reported by Obembe et al. [11]. However, Akosile et al. [12] reported no significant association between community reintegration and post stroke duration, due to the fact that participants recruited in their study have lesser stroke duration which is below 6 months while this present study and that of Obembe et al. [11] recruited participants of six months and above.

The present study did not find associations between community reintegration and several sociodemographic characteristics. This finding is consistent with that of Pang et al. [7] that reported no significant association between age and community reintegration. However contrary to this study Akosile et al. [12] reported a significant correlation between community reintegration and age, and also Obembe et al. [11] reported that age was a significant negative predictor of community reintegration. The study of Obembe et al [11] indicated that older participants had lower level of satisfaction with community reintegration.

Table 2. Community reintegration among stroke survivors attending two selected hospital in Maiduguri

Variables	f	%
No reintegration	33	60.0
Mild to moderate reintegration	21	38.2
Complete reintegration	1	1.8

f = frequency, % = percentage

Table 3. Logistic regression for factors associated with community reintegration

Characteristics	Odd Ration (95% C.I)	p-Value
Age group		
< 45 years	1.00	
> 45 years	0.94 (0.31-2.81)	0.911
Gender		
Female	1.00	
Male	1.20 (0.40-3.59)	0.739
Employment status		
Unemployed	1.00	
Employed	1.24 (0.38-4.05)	0.716
Post stroke duration		
6-8 months	1.00	
> 8 months	3.32 (1.08-10.27)	0.037
Side of affectation		
Right	1.00	
Left	0.83 (0.27-2.49)	0.734
Type of stroke		
Ischaemic	1.00	
Haemorrhagic	4.67 (1.05-20.66)	0.042
Educational status		
Qur'anic	1.00	
< Tertiary	1.00	
Tertiary	0.58 (0.15-2.17)	0.699

p > 0.05

The evidence from previous studies that female gender is a predictor of participation restriction [7, 11, 19,20] was not supported in the present study. On the contrary we found male stroke survivors to be more likely to be reintegrated into the community than their female counterparts, although this was not statistically significant. Our finding was similar to that reported by Obembe et al. [11] which found no significant association between gender and community reintegration.

5. LIMITATIONS

The present study has some limitations that should be acknowledged. Firstly, it used a convenience sampling technique that would limit the generalization of findings beyond the study population. Second, although the validity and reliability of the RNLI questionnaire has been reported as excellent in previous studies, the psychometric properties of this tool are unknown among our studied population. However, the present study presented important empirical information that could be used to guide evidence-based community reintegration among stroke survivors in an understudied region of Northeastern Nigeria.

6. IMPLICATIONS

Stroke rehabilitation is a complex field that covers a wide continuum of care from the acute phase of stroke to community reintegration. However community reintegration, being an important aspect of stoke rehabilitation, has received relatively less attention from clinicians and researchers as revealed from this study (poor community reintegration of 60% among stroke survivors) . Our study indicates an urgent need for incorporation of the community reintegration in the rehabilitation intervention among stroke survivors through awareness, training and education of the clinicians and researchers.

7. CONCLUSIONS AND RECOMMENDATIONS

Post stroke duration and type of stroke were important factors that could influence community reintegration among stroke survivors in Maiduguri, Nigeria. Rehabilitation strategies should focus on clinical characteristics of the stroke survivors when planning and delivering effective community reintegration interventions.

Effort needs to be stratigise to encourage and design further researches involving a large sample size from different hospitals to evaluate the level and correlates of community reintegration among stroke survivors in other to maximise and optimise the stroke rehabilitation goals.

CONSENT

Participants who indicated willingness for participation provided a written informed consent.

ETHICAL APPROVAL

It is not applicable.

ACKNOWLEDGEMENT

Authors will like to appreciate the stroke survivors who volunteer for participation in this study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Cheung RTF, A systemic approach to the definition of stroke. Austin Journal of Cerebrovascular Disease and Stroke. 2014;1(5):1024.
2. Lynn MJ, Marc IC, Harriet HS, Barney JS, Vicki S. Comparison of warfarin and aspirin for symptomatic arterial stenosis. New England Journal of Medicine. 2005;352(13):1305-1316.
3. National Institution of Neurological Disorders and Stroke (NINDS). Stroke Hope Through Research. National Institution of Health. 2014
4. Bays CL. Quality of life of stroke survivors: a research synthesis. Journal of Neurological Science Nursing. 2014;33:310-316.
5. Lee M, Ovbiagele B, Hong KS, Wu YL, Lee JE, Rao NM, Feng W, Saver JL. Effect of blood pressure Lowering in Early Ischaemic Stroke. Stroke. 2004;39:1044-52.
6. Bhogal SK, Teasell RW, Foley NC, Jutai J, Speechley MR Community reintegration after stroke.Topics of Stroke Rehabilitation. 2003;10:107-29.

7. Pang MYC, Eng JJ, Miller WC. Determination of satisfaction with community reintegration in older adults with chronic stroke: role of balance self-efficacy. Physical Therapy. 2007;87:282-91.
8. Pan A, Sun Q, Okereke OI, Rexrode KM, Hu FB. Depression and risk of stroke morbidity and mortality: a meta-analysis and systemic review. Journal of the American Medical Association. 2011;306:1241-9.
9. Salze MS: Columbia, Introduction. Columbia, MD. United States Psychiatric Rehabilitation Association; Psychiatric Rehabilitation Practice: A Certified Psychiatric Rehabilitation Practisioner: Preparation and Skills Workbook; 2006.
10. Carter BS, Buckley DRN, Ferraro R, Rordorf G, Ogilvy CS. Factors associated with reintegration to normal living after subarachnoid hemorrhage. Neurosurgery. 2000;46:1326-34.
11. Obembe A, Mapayi B, Johnson O, Agunbiade T, Emechete A. Community reintegration in stroke survivors: Relationship with motor function and depression. Hong Kong Physiotherapy Journal. 2013;31:69-74.
12. Akosile C, Nworah C, Okeye E, Adegoke B, Umunnah J, Fabunmi A. community reintegration and related factors. Journal of African Health science. 2016;16:3.
13. Holden KF, Sink KM, Yaffe K. Pharmacological treatment of neuropsychiatric symptoms of dementia: a review of the evidence. Journal of the American Medical Association. 2005;295(5):596-608.
14. Maleka MED. The development of an outcome measure to assess community reintegration after stroke for patient living in poor socioeconomic urban and rural areas of south africa. A thesis submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in Fulfillment of the Requirement for the Degree of Doctor of Philosophy. 2010.
15. Daneski K, Coshall C, Tilling K, Wolfe CDA. Reliability and validity of a postal version of the reintegration to normal living index modified for use with stroke patient. Clinical Rehabilitation; 2003;17:835-839.
16. May LA, Warren S. Measuring Quality of Life of Persons with Spinal Cord: external and structural validity. 2002;40(7):341-50. DOI: 10.1038/sj.sc.3101311
17. Steiner A, Raube k, Stuck AE, Aronow HU, Draper D, Rubenstein LZ, Beck JC. Measuring psychosocial aspects of well-being in older community residents: performance of four short scales. The Gerontologist, 1996;36(1),54-62.
18. Wood-Daughinee SI, Opzoomer A. Assessment of function: The Reintegration to Normal Living Index. Archives of Physical medicine and Rehabilitation. 1988;69:583-9.
19. Tooth LR, Mckenna KT, Smith M, O'Rourke PK. Realibilty of scores between stroke patients and significant others on the Reintegration to Normal Living (RNL) index. Disability and Rehabilitation. 2003;25(9),433-440.
20. Obembe A, Johnson O, Fasuyi T. Community reintegration in stroke survivors in Osun, Southwestern Nigeria. African Journal of Neurological Sciences. 2010;29:428.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle4.com/review-history/60181