Knowledge and Opinion on Stroke Rehabilitation and Outcome among Stroke Patients in Bayelsa State, Nigeria

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Abstract: Stroke is the third major cause of death behind cancer and heart diseases and leads to increased health burden of sensory and functional disabilities in many survivors across all parts of the world. It is a recognized fact that early rehabilitation is fundamental to the management of patients with stroke. This study is thus aimed at assessing knowledge and opinion of nurses on stroke patients' rehabilitation as well as rehabilitation outcome in Bayelsa state, Nigeria. A descriptive survey design was employed to determine the knowledge and opinion of nurses on stroke patients' rehabilitation as well as outcome with stroke patients in the state university teaching hospital. One hundred nurses who gave their consent participated in the study. The nurses respondents were made up of females 66 and 72% of them registered nurses having some form of knowledge on stroke rehabilitation. Results reveal that 75% believed that nurses have a role to play in stroke rehabilitation and 78% of the nurses also acknowledged to a great extent that rehabilitation is a key component of nursing management of stroke patients. The result further reveals that 80% of nurses do not measure or assess outcome after stroke event before discharge from the hospital. However, 98% were familiar with the use of Glasgow Coma scale and not the Barthel index scale 1%. The study also recorded that educational status was significant for knowledge of stroke rehabilitation (χ^2 = 33.035, p = 0.01) and not significant for opinion (χ^2 = 19.457, p = 0.25). However, there was significant difference between knowledge and opinion on practices by nurses (χ^2 = 87.889, p = 0.00) at p<0.05 for significance. Based on the findings, it could be concluded that majority of nurses showed positive opinion that adequate rehabilitation leads to better outcome although, more training on this issue should be intensified to reduce the incidence of disability and morbidity associated with stroke.

Key words: Rehabilitation, knowledge, opinion, nurses, stroke, outcome, Bayelsa state

INTRODUCTION

The incidence of stroke is increasing worldwide; 15 million new cases are reported yearly (Lloyd-Jones *et al.*, 2009). Stroke contributes greatly to patients mortality and also responsible for many cases of disabilities in the world. Early rehabilitation in the care of a person with stroke results in better recovery.

Despite the knowledge that acute interventions such as tissue plasminogen activator have not had large impact on stroke related disability (Pilkington, 1999). Records still show that patients' treatment was by both physical medicine and rehabilitation (Forster *et al.*, 1999). Rehabilitation thus represents a key step in the management of stroke patients (ASA, 2009). Often in stroke rehabilitation, the nurse works with the therapist about patients' treatment with a view of helping patients to apply what they learn to daily ward activities

(Clarke *et al.*, 1999). Results of the 2005 Washington Behavioral Risk Factor Surveillance Survey (BRFSS) estimate shows that without rehabilitation service, one may expect 21% of men and 23% of women to die within 1 year of their stroke and in 6 months post stroke, approximately 50% of survivors experiences paralysis, 30% cannot walk unassisted, 26% cannot complete activities of daily living on their own, 19% cannot speak without defects and 35% have depressive symptoms. About 40% of stroke patients are left with moderate functional impairments and 15-30% with severe disability. Subsequently, the demand for stroke rehabilitation services continues to increase (House *et al.*, 1989) and as such there is a growing need to optimize both the effectiveness and efficiency of these limited resources.

Effective rehabilitative interventions initiated early after stroke can enhance the recovery process and minimize functional disability (Bays, 2001). Stroke rehabilitation is a pivotal component in stroke care with

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the goal of assisting the survivors to reach their optimal level of physical, social and emotional function (Dennis *et al.*, 1998). The very nature of stroke and its multifaceted effects create the need for a thorough knowledge of stroke rehabilitation by caregivers especially the nurses (Gibbon and Little, 1995).

The knowledge and opinion based on stroke rehabilitation and outcomes among stroke patients contributes to more appropriate treatment and care options of patients with stroke. With the nurse playing a major role because they spent more time with the patients than any other member of the rehabilitation team (Newall *et al.*, 1997). They help survivors relearn how to carry out the basic activities of daily living, educate them about routine health care such as how to manage transfers from a bed and wheelchair and special need of stroke patients with diabetes (ASA, 2009).

Despite this fact nurses role in rehabilitation has been generally ill-defined (Thomas, 1993; Nolan *et al.*, 1995). A number of factors militate against nurses making a greater contribution to rehabilitation: First there is evidence to suggest that nurses do not always posses the knowledge, skills and attitudes required to increase or improve their input into rehabilitation (Wild, 1994; Gibbon and Little, 1995). Secondly, working with stroke patients is not regarded as particularly exciting as nurses hold ambivalent opinions towards rehabilitation and its outcome among stroke patients. Therefore, educational need is suggested to be a must addressed issue before nurses will feel confident to take on more active role (Waters and Luker, 1996).

Significantly, the study shows that majority of stroke survivors suffer neurological dysfunction and physical disability of varying degrees which requires rehabilitation (ASA, 2009) also in Nigeria the management of stroke is sub-optimal as there are significant deficiencies in the provision of diagnostic, treatment, rehabilitation and support services (Ogun *et al.*, 2005). However while in the hospitals the nurses take care of patients needs ranging from arrangements of patients room, positioning of patients in bed, moving of the patients in bed, walking the patient, range of exercise and helping in activities of daily living.

Until date, not many studies have been reported in literatures on knowledge and opinion on stroke rehabilitation and outcome among stroke patients in Bayelsa state, Nigeria. A positive outcome for stroke patients following rehabilitation is largely dependent on the knowledge as well as opinion base of stroke patients rehabilitation. This study is expected to fill the existing gap.

Objective of the study: Thus, in the light of this literature, a study to elicit nurses' knowledge and opinion on stroke rehabilitation and outcome among stroke patients was conducted. The aim of this study included finding the nurses' knowledge about skills relating to stroke rehabilitation and opinions on outcome of the patients after rehabilitation. The specific aims were as follows:

- To determine the level of knowledge of nurses on stroke rehabilitation and outcome
- To determine the opinion of nurses on stroke rehabilitation and outcome
- To determine the effect/relationship of educational level of the nurses on their knowledge and opinion on rehabilitation and outcome

Thus, the following questions were sought to be answered:

- What is the level of knowledge of nurses on stroke rehabilitation and outcome?
- What is the opinion of the nurses on stroke rehabilitation and outcome?
- What is the effect/ relationship of educational level of nurses on their knowledge and opinion on stroke rehabilitation?

MATERIALS AND METHODS

This study is of descriptive survey design in nature, aimed at determining nurses' knowledge and opinion on stroke rehabilitation and outcome in Bayelsa state, Nigeria.

This research was conducted from a population drawn from 82 registered nurses and 18 student nurses posted to the different participating hospitals for their clinical experiences from the various wards of the university teaching hospital and the federal medical Centre within Bayelsa state, Nigeria.

All nurses available in their different wards at the time of the study were administered questionnaires to enable the collection of data as there where no special stroke units in these hospitals as the practice of health management board is to continuously rotate nurses to different wards during postings. These two tertiary hospitals serves as the main centres for training of medical, nursing, pharmacy and laboratory science students of the state own university. Patients from all different parts of Bayelsa state and different areas of the Niger delta region seek treatment for non-medical and medical conditions including stroke and heart diseases in these hospitals.

Convenient sampling technique was used to select samples of respondent nurses based on the fact that the respondent nurses were selected by their availability and the inclusion criteria that they were practicing or student nurses in these hospitals. Thus, the population samples were 100 nurses in all with 82 permanent members of nursing staff participating during the 3 months duration of the study (March-May, 2010). Survey instrument which was developed by the researchers was based on Hamrin, work was used to gather data on knowledge and opinion on stroke rehabilitation and outcome among stroke patients.

The survey instrument was a structured questionnaire made up of 3 sections: the demographics, questions which addressed knowledge of nurses on stroke rehabilitation and lastly, questions dealing on opinions of stroke rehabilitation and outcome.

Ethical approval was sought from the institutional research committee and unit managers verbally and in writing with the aim of getting their approval and consent. The nurses were informed about the study and they gave their informed consent for participation. The instrument was pilot tested in the general hospital in the university community for construct and content validity and reliability before it's finally use and administration. Data collection was by face to face administration of questionnaires to permanent staff nurses and student nurses available for clinical experience and on duty in different wards as of the time of the study served and all completed questionnaires were immediately collected in the presence of one of the researchers to ensure completeness. Data analysis was done by manually coding and tallying into statistical analysis program, SPSS and running the results. Descriptive and inferential statistics where calculated for demographics, knowledge and opinion of rehabilitation and outcomes and relationship by means of Chi-square.

RESULTS AND DISCUSSION

Distribution of demographic characteristics of the nurses: A total of 100 nurses participated in the study from the selected hospitals of which 82 were permanent staff nurses and 18 were student nurses category on posting at the time of the study.

Respondent nurses (Table 1) consisted of 66 (66%) females and 34 (34%) males. The largest number of nurses present position 72 (72%) belong to registered nurses position (permanent staff) and followed by student nurses 18 (18%) and the lowest numbers are the matron/ward sisters. The data also showed that by professional

Table 1: Distributions of the demographic characteristics of respondent nurses (N = 100)

Variables	Frequency (N)	Percentage
Sex		
Male	34	34.0
Female	66	66.0
Present position		
Registered nurse	72	72.0
Matron/Ward sister	10	10.0
Student nurse	18	18.0
Professional training		
Registered nurse	40	40.0
B.N.Sc nurse	17	17.0
Post basic education	19	19.0
Other education	06	06.0
Student/enrolled nurse	18	18.0
Duration in service		
<1 year	04	04.0
2-4 years	17	17.0
5-7 years	24	24.0
11 and above	01	01.0

training 40 (40%) were registered nurses, 17 (17%) have had baccalaureate degree and training, 19 (19%) post basic education and professional training with only 6% having had other types of professional training whereas 18% were still in training as student/enrolled nurse. The duration in service of the respondent nurses showed that the largest number 71 (71%) have made 2-4 years in service and the larger number 24 (24%) of the nurses having made 5-7 years in service whereas 4% of the sample have had <1 year in service and 1% have being in service for 11 years and above.

One possible reason for the high number of female nurses is the belief or views that nursing profession is mainly for females. And for the fact that most respondents' present position were of the registered nurses position can be interpreted to mean that most nurses hardly proceed for basic level of education after initial attainment of registered nursing qualification. Furthermore, the number of years for duration in service could be explained based on the fact that Bayelsa state is only ayoung state of 12-13 years and therefore, of the permanent nurses were few and have only recently obtained their registered nursing qualification while the more experienced nurses are contract staff from other parts of Nigeria that have only recently been employed in the state service.

Responses on knowledge and opinion on stroke rehabilitation and outcomes: Nurses responses (Table 2) showed that over half 52% reported that they have a good knowledge to a certain extent while less than half 45% noted that they have knowledge on stroke rehabilitation to a small extent with 1% stating not at all, for knowledge, respectively.

A greater number of respondents (84%) reported that their work place was their main source of knowledge on stroke rehabilitation to a very small extent while 10%

Table 2: Responses on knowledge and opinion of stroke rehabilitation and outcome among stroke patients

Statements	Responses (N = 100 nurses)				
	Not at all (%)	To very small extent (%)	To a certain extent (%)	To a great extent (%)	To a very great extent (%)
I have a good knowledge of stroke and rehabilitation outcome	1	45	52	1	1
My knowledge of stroke rehabilitation is mainly obtained at the place of work	5	84	10	1	0
I have a formal training/education on stroke rehabilitation	98	2	0	0	0
Rehabilitation is the key of nursing management of a stroke patient	1	2	8	78	11
Stroke rehabilitation takes place in my institution	9	88	3	0	0
Motor and sensory loss are common forms of disability that needs rehabilitation	0	1	1	11	87
Rehabilitation is solely a job of the physiotherapist that nurses are not involved	44	14	19	21	2
Nurses have a role to play in stroke rehabilitation	0	2	1	75	22
Nurses need more educational training on the area of rehabilitation for better care	0	0	0	2	98
Early rehabilitation is fundamental to improve patients outcome after stroke	2	1	3	94	0
Do you have knowledge of measures uses for outcome in stroke patients rehabilitation	2	77	17	0	3

Table 3: Practice of stroke rehabilitation among nurses in Niger Delta University Teaching Hospital (NDUTH) and Federal Medical Center (FMC) stroke patient

Statements (%)	Responses (N = 100 nurses)				
	Not at all	To very small extent	To a certain extent	To a great extent	To a very great extent
Nurses do not measure outcomes in stroke patients before discharge	80	06	5	9	0
Nurses employ special measures in rehabilitation of stroke patients	07	79	08	03	02
The special measures employed is dependent on type of stroke	50	47	0	02	01

reported to a certain extent and 5% not at all. Result also shows that 98% of the respondents reported not having any formal training/education on stroke rehabilitation with 2% to a very small extent. On rehabilitation being key to management of stroke care 78% responded to a great extent 11% responded to a greater extent; 1% responding not at all and 2% to a very small extent. Furthermore 88% reported that stroke rehabilitation takes place in the university teaching hospital and Federal medical center while 3% responded it occurs to a certain extent and 9% responded not at all for these health institutions.

Majority (87%) were aware that motor and sensory loss are common forms of disability that needs rehabilitation therapy to a very great extent and 11% to a great extent, respectively. Whereas 0% responded not at all and 1% each responded to a very small extent and to a certain extent, respectively. A greater majority (98%) responded that nurses need more educational training on area of rehabilitation for better care with 75% majority of nurses of the opinion nurses have a role to play in stroke rehabilitation and another 22% responding to a very a great extent.

Nurses responses from Table 2 on early rehabilitation is fundamental to improve patients outcome after stroke shows that 94% responded to a great extent, 3% to a certain extent, 2% not at all with 1% representing to a very small extent and 0% to a very great extent. And responses to the question do you have knowledge of measures used for outcome in stroke rehabilitation shows that 77% responded to a very small extent, 17% to a certain extent, 2% responded not at all and 3% to a very great extent.

Table 4: Familiar assessment measures/tools used during stroke rehabilitation (N =100)

Measures/tools	Frequency (N)	Percentage
Barthel index	1	1
Functional motor index	0	0
Functional independence measure	0	0
Glasgow Coma scale	98	98
Depression scale	1	1

Practice of stroke rehabilitation among nurses in Niger Delta University Teaching Hospital (NDUTH) and Federal Medical Center (FMC): In Table 3 more than three quarters (80%) of the respondent nurses stated that nurses do not measure outcomes in stroke patients before discharge 5% reported to a certain extent 6% to a very small extent and 9% to a greater extent and nobody (0%) reported to a very great extent. These values suggest the poor nature of continuity of care and the reasons for increase disability among stroke survivors and as well as burden of stress placed on the care givers after discharge from hospital to home. Over three-quarter, 79% reported that nurses employed special measures in rehabilitation of stroke patients to a very small extent. The 8, 3 and 2%, respectively reported that they employedoutcome measures in stroke rehabilitation or management to a certain extent, to a great extent and to a very great extent. The 7% of the remaining respondents stated that nurses do not any special employ measures at all. Half of the respondents, 50% reported that never at all the special measures employed dependent on the type of stroke, 47% is of the view the special measures employed is to a very small extent, 2% and 1% stated the employed special measures depended on type of stroke to a great extent and a very great extent, respectively and 0% indicated to a certain extent (Table 4).

Table 5: Test of relationships of knowledge and opinion of rehabilitation after stroke

Questions/statements	χ^2	df	p-value
Professional training and knowledge of stroke rehabilitation	33.035	16	0.007
Professional training and opinion of nurses' involvement in stroke rehabilitation	19.457	16	0.246
Knowledge of stroke rehabilitation and opinion on rehabilitation as a key to stroke management	21.718	16	0.153
Knowledge and practice of stroke rehabilitation	23.700	8	0.030
Knowledge on stroke rehabilitation and opinion of their practices by nurses	87.889	16	0.000
Knowledge on stroke rehabilitation and opinion on early rehabilitation as fundamental to improvement of outcome after stroke	33.985	12	0.001
Knowledge on stroke rehabilitation and practice of assessing stroke outcome before discharge	37.295	16	0.002

Test of relationships of knowledge and opinion of rehabilitation after stroke: Test of relationships of knowledge and opinion of rehabilitation after stroke was carried out to find differences. Statistical analysis in Table 5 shows that there is significance (p = 0.007 and χ^2 = 33.035) for professional training of nurses and knowledge on stroke rehabilitation. There was no statistical significance (p = 0.246 and χ^2 = 19.4570) for professional training of nurses and opinion of nurses involvement on rehabilitation. There was a significance (p = 0.00 and χ^2 = 87.889) for knowledge on stroke rehabilitation and opinion of nurses to practice. There is also, a significance (p = 0.001 and χ^2 = 33.985) between knowledge on stroke rehabilitation and opinion on early rehabilitation as a fundamental to improvement of outcome after stroke. Furthermore results reveals a significance (p = 0.002 and χ^2 = 37.295) between knowledge on stroke rehabilitation and practice of assessing stroke outcome. The detection of significance shows a need for training in stroke rehabilitation and the relevance or need for nurses' education on stroke patients' care in rehabilitation services. However, the result reveals that knowledge of stroke rehabilitation and opinion of rehabilitation as a key to stroke management was not significance (p = 0.153 and χ^2 = 21.718).

Respondents to this study included 34 male nurses and 66 female nurses who consented to participate in the study. Present Position of the respondent nurses that participated indicated 72 were registered general nurse, 10 matrons or ward sister and 18 were student nurse on training. Respondents by type of professional training were mostly registered nurses 40 in number and 17 were of BNSc or baccalaureates degree. While 18 had post basic education and another 18 were still students. By respondents duration in service, 71 had 2-4 years, 24 of the participants had 5-7 years duration in service. The lowest duration in service was for 11 and above years with only 1 respondent and for <1 year only 4 respondents. One possible reason for the high number of female nurses is the view that nursing profession is mainly for females or female focused. The present position

held of most nurses was registered nurses (40) and may be explained by the fact that nurses hardly proceed to post-basic education after qualification as a registered nurse. The duration in service among respondents was between 2-4 years this is typical of a growing work force that requires encouragement because of shortage of man power and the need for nurses. Bayelsa state is among the youngest states in Nigeria and most of the nurses are immigrants from the neighboring states on contracts employment.

The finding from this study indicates that majority of nurses (97%) have knowledge of stroke to some extent. This result is supported by the research work of Hamrin (2006) that demonstrated adequate knowledge of nurses on stroke rehabilitation favors positive attitude towards stroke patients and improve outcome. This is also in conformity with the view of Norlan which suggest that some rehabilitation knowledge is required for all nurses no matter their various wards. In this study, most nurses obtained their knowledge of stroke rehabilitation from their place of research. This finding is however, dissimilar to Hamrin (2006) results that suggest adequate knowledge of nurses on stroke rehabilitation favors positive attitude towards stroke patients and improve outcome.

The result of this study reveals that rehabilitation is key in the nursing management of stroke patients. This finding is in agreement with the study of Jose Vega which shows that through proper nursing management during rehabilitation, stroke survivors can maximize their chance of recovery and in most cases regain a substantial portion of the functions they lost as a result of the stroke. This study also have similarity with the report of National Institute of Neurological Disorder and Stroke (NINDS, 2008) which suggest that stroke rehabilitation is usually successful when nurses work closely with other members of the rehabilitation team.

An important finding of this study is the fact that majority of the nurses (80%) do not measure outcome in stroke patients during stroke rehabilitation. This is in contrast with the study by Flynn *et al.* (1999) which

shows that assessment tools are beneficial in measuring outcome of stroke rehabilitation. Also a major revelation among the nurses in this study was that they were only familiar with one type of scale; the Glasgow Coma scale. That is the nurses repeatedly use coma scale for evaluation of patients' consciousness in the event of stroke in the acute phase. This is in agreement with the study of Siegler *et al.* (1994) who documented GCS as being used to measure loss of consciousness within 72 h of acute stroke and contrary to the view of Nolan and Nolan (1997) that reported GCS as not beneficial in assessment of outcome in stroke. Despite, a good documentation of the effectiveness of other scales such as FIM, Barthel index, FMI, depression scale and others in measuring the outcome in stroke patients (Hyndman *et al.*, 2008; Nolan and Nolan, 1997). These scales or assessment tools in the management of stroke patients' care are hardly employed. There could several reasons for this contrast; one reason could be traced to inadequate health care delivery system in Nigeria and the place of assessments for stroke patients' problems. It could also be drawn from the fact that in these institutions there are no special units for stroke patients' rehabilitation. Stroke patients are not adequately assessed in rehabilitation before their discharge and therefore, assessment of outcome remains vague. This is congruous with the study by Ogun which shows that management of stroke is suboptimal.

The result of this study shows that educational status was significant on knowledge of stroke rehabilitation while nurses' involvement in stroke rehabilitation was not significant (Table 5). This finding is not surprising as majority of nurses have had no formal training in stroke care. Furthermore, this study found that there was relationship between knowledge on stroke rehabilitation and practices by nurses and also for knowledge of early rehabilitation as a fundamental improvement of outcome.

Implication for nursing practice: Due to the increasing incidence of stroke world wide, a good knowledge of stroke and its rehabilitation is therefore, important for adequate management of stroke patients in order to curb positive disabilities associated with stroke. A study of this nature will help to increase the awareness of stroke and its rehabilitation among nurses. Thus, it will help educate the nurses on adequate rehabilitation of stroke patients and proper assessment of outcome during rehabilitation so as to assist stroke survivors reach their optimal level of physical, social and emotional function.

CONCLUSION

This study reveals that the management of stroke in hospital is suboptimal in this part of Nigeria as there are significant deficiencies in rehabilitation and support services for stroke patients compared to the advanced world with more sophisticated gargets or equipment. Also nurses held a positive opinion and good knowledge that early stroke rehabilitation is fundamental to improvement of outcome after stroke but could not apply this in practice due to lack of training or education on rehabilitation measures and inadequate hospital facility such as special organized stroke management in a stroke unit as practiced in the developed countries with results.

RECOMMENDATIONS

The following recommendations are made:

* The government should intensify their budget on health matters which should be able to create stroke rehabilitation units in all states and federal hospitals
* All health professionals involved in the management and rehabilitation of stroke patients should have a formal education in the area of stroke rehabilitation
* Nurses presently working in the medical wards should be encourage to attend trainings and workshops design for managements of stroke patients

ACKNOWLEDGEMENTS

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