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Assessment of Stroke Awareness Among Public Servants in a Study Population in Nigeria

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ABSTRACT

This study aimed at assessing the degree of awareness of stroke among the public servants in Benin City, Edo State. Specific objectives included assessment of knowledge of the definition; signs and symptoms; risk factors; prevention and treatment of stroke. A cross-sectional study involving public servants using a self-administered questionnaire. The respondents were randomly selected from the Edo state civil service. The questionnairewas subdivided into Sociodemographic and questions of multiple choices to identify the definition of stroke, signs and symptoms and the risk factors of stroke. Data analysis was done using the SPSS Software version 16 for frequencies, percentages, Chi square and logistic regression. A level of significance of 0.05 was applied. Ethical considerations were observed. This study reported a 96.2% response rate, 53.8% were citizens of Edo State, and only 17% were older than 47 years. Male respondents accounted for 53% of the sample. More than 56% had educational qualification higher than secondary school. Less than 1% experienced a previous stroke, and a relatively high proportion (84.1%) knew someone who suffered from stroke. The most recognized symptoms were speech problems and weakness/numbness of the arms/legs. About 35.5% knew that the brain is the organ involved in stroke while 89.9% acknowledged the fact that high blood pressure is the major risk factor of stroke. No independent variable had true effect on knowledge. We concluded from the study that there are serious gaps in knowledge regarding stroke; an educational program on stroke in this State will be beneficial.

Keywords: Stroke, awareness, symptoms, risk factors, public servants.

Introduction

Stroke is also referred to as cardiovascular accident. It is the 5th leading cause of death in the United State with about 800,000 incidents each year.[1]

According to the World Health Organization (WHO), stroke is defined as rapidly developing clinical signs of focal (or global) disturbance of cerebral function lasting for more than 24 hours or leading to death with no apparent cause rather than vascular origin.[2] Stroke occurs when blood flow which supplies glucose and oxygen to the brain cells is interrupted (transient Ischemic stroke) or cut off (Ischemic stroke)[3] or when there is blood leaking into the brain (hemorrhagic stroke). A stroke is generally regarded as a medical emergency which may lead to permanent neurological damage or death. Risk factors for stroke include old age, high blood pressure, previous stroke or transient ischemic attack (TIA), diabetes, high cholesterol, tobacco smoking and atrial fibrillation. High blood pressure is unarguably the most important modifiable risk factor for stroke.[4,5]

In Nigeria, the incidence and prevalence of stroke have not been established however reports from a community-based study in Lagos gave the age-adjusted incidence rate as 54.08 per 100,000 per year[6]while the stroke registry in Ibadan, Oyo state, gave an annual incidence of stroke in Nigeria as 26 per 100,000 populations. More recent reports have suggested an increasing incidence. But because these were hospital-based studies, their certainty and accuracy cannot be relied on. In Nigeria, cerebral ischemic accounted for 64%, intra-cranial hemorrhage 19% and sub-arachnoid hemorrhage for 6% of all strokes.[7]Awareness of stroke, its risk factors, symptoms, prevention treatment is important in handling this medical emergency. In recognition of the strong correlation between awareness and occurrence of a disease, various studies around the world have tried to assess the degree of awareness to this debilitating disease. It has been estimated that about 80% of stroke cases are caused by cerebral infarction, 10% by intra-cerebral hemorrhage and 10% by sub-arachnoid haemorrhage.[8,9]Regrettably, the awareness of the public about the incidence of stroke is significantly low especially in developing countries owing to persistent superstitious beliefs. There is paucity of knowledge as regards the prevention, manifestation and management of stroke in the nations

It is however believed by health experts that an adequate knowledge of the risk factors/ causes of stroke will play a pivotal role in reducing the overall incidence of stroke; this is because suitable preventive measures/restrictions. The main objective of this study was to assess awareness of stroke among public servants in Benin City, Edo state, Nigeria.

The specific objectives were to; assess public understanding on pathogenesis, clinical signs /symptoms and long-term consequences of stroke.

Materials and Methods

Study Design

A prospective study design was adopted in this research. The key variables that were assessed were: Demographic data and knowledge of signs/symptoms, pathogenesis (causes/risk factors of stroke) and long-term effects of stroke. Both written and verbal assessments were conducted.

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Setting
The study was conducted across all government owned establishments housing civil servants in government parastatals in Benin City, Edo State, Nigeria. Establishments included in this study are the Secretariat building, Local Government Council headquarters, Public schools, State agencies, Library complex etc.
Edo state is located in the South-South geopolitical area of Nigeria, West Africa. It is inhabited by a mixed array of Nigerians across all ethnic groups, but the major ethnic groups are Bini and Esan. It was created on August 27, 1991. Edo State has an estimated population of about 3,218,332 people, the State capital is Benin City and there are18 Local Government Areas.

Study Population
In this study, respondents were drawn from all public establishments in Benin City, Edo state. Civil servants who consented to participate in the study were recruited irrespective of their educational qualifications. From the estimated number of Edo State government employed public servants in active service at the time of this study, a sample size of 223 was obtained using Cochrane equation. Therefore 300 questionnaires were distributed for data collection.

Inclusion criteria
Bonafide members of the Edo state civil service of all levels and status who are adults of not less than 20 years of age and who volunteered to participate in the study by accepting to diligently fill the questionnaires were recruited for the study.

Exclusion Criteria
These include severe mental illness, visual or hearing disability that may interfere with answering the questions. In addition, Civil servants who exhibited unwillingness and lackadaisical attitudes were not included. Also, impatient ones who hurriedly filled the questionnaire were excluded during the analysis. In addition, all incompletely filled or seriously mutilated questionnaires were automatically excluded. Finally, civil servants working in the hospitals who by virtue of their education and experience are expected to have a good knowledge of the subject matter were also excluded. Public servants who were on any type of leave were not accessible for this study.

Instrument for data collection
The study was carried out using a semi-structured validated questionnaire composed of 2 sections; section A for demographic data and section B contained the questions for assessing the respondent's knowledge of Stroke, making a total of 21 questions close ended questions with 3 possible answers; 'yes' 'no' 'don't know'. A total of 300 questionnaires were distributed to respondents who were thoroughly briefed about the project and on how to fill the questionnaire.

Analysis
The questionnaires were individually scored based on standard answers to each of the questions and these scores served as a measure of the level of awareness to stroke among the population in focus.
Subsequently, the data from each of the questionnaires i.e. the variables with their corresponding responses were entered into the Microsoft excel. The resulting excel sheet was thoroughly cross-checked to ensure accuracy before being analyzed.
The analysis was carried out using the Statistical Package for Social Sciences SPSS Version 16 for descriptive analysis and inferential statistical analysis. The lowest possible score was zero and the highest possible score was 16. Descriptive statistics on sample characteristics and responses were computed including means, standard deviation and percentage frequency. Chi square test of reliability was used to explore the internal consistency of the instruments possible associations with socio-demographic variables.
Descriptive analysis was done including frequencies and Chi square. The awareness about stroke definition, signs and symptoms and causes was analyzed in accordance to gender, age, educational level and ethnicity.
For determination of the independent risk factors of poor knowledge, we used logistic regression and backward deletion to get the best model, a 0.05 level of significance was used. Data was entered and analyzed using the SPSS software version 16.

Ethical considerations
Approval to carry out this research was obtained from the State Government Authorities and informed consent was obtained from every public servant recruited for the research.

Results and Discussion

In this study on stroke awareness, the questionnaire achieved a high response rate from the target population. Many of the respondents were interested in the study with the hope of probably obtaining a better knowledge of stroke at the end of the research.
Worthy of mention is the fact that majority of the respondents affirmed that they have heard about stroke prior to the study. A total of 252 questionnaires were retrieved. However, 14 of these were either seriously mutilated or incompletely filled and hence discarded. Thus only 238 questionnaires were eventually used for the analysis giving a response rate of 79.3%. Sociodemographic characteristics of respondents are illustrated in Table 1, 53.8% hail from Benin. Majority of the respondents (46.2%) were aged between 30-39 years and more than 55% had post-secondary school education.
Only 1% reported to have experienced a stroke, and a relatively high percent (84.1%) knew someone who had suffered a stroke. Awareness of the organ involved in stroke, its signs and symptoms are described in Table 2. About 35.5% of the respondents identified the brain as the organ involved in stroke. This result indicates that less than an average percentage of the population knew that the brain is the organ responsible for stroke and going by the pathophysiology of stroke, the major organ implicated in this condition is the brain. Majority of the respondents mentioned the heart and other peripheral organs/tissues. This position might be due to the strong association between blood supply and the heart, hence the conception that any accident involving blood supply is caused by the heart
Sudden weakness/numbness of the arms/legs was the most identified symptom of stroke (71.4%). As many as 49.2% of the respondents were ignorant of the presence of double vision in stroke. The most commonly recognized risk factors of stroke were Hypertension (89.9%), aging (80%), previous stroke (56.6%) and too much alcohol (44.1%). Loss of ability to speak (62%), loss of ability to walk (52.6%) and one-sided paralysis (50%) were the most recognized consequences of stroke.
We determined the proportion of people who identified 1 – 11 signs and symptoms and found that 3.2% identified none, 12.7% identified only one correct sign or symptom, 27.7% identified two correct signs or symptoms, 31.6% (the highest) identified three correct signs or symptoms, 10.6% identified 4 correct signs or symptoms, 7.8% identified 5 correct signs or symptoms and only 2.4% identified all the 11 correct signs or symptoms.
Although over 84% of the population claimed to have seen a stroke patient before, majority of them do not think diabetes, smoking and alcohol can predispose an individual to stroke but hold strongly to the fact that high blood pressure could be a major risk factor for stroke.
However, out of the eleven warning signs of stroke indicated in the study only five seemed to be obvious to the population as majority of the respondents claimed that signs like sudden onset of headache, weakness/numbness of the arm, weakness/numbness of the leg, problem with speech, arm/leg pain were the major warning signs of a stroke. This could have been due to the fact that most cases of stroke especially in this part of the world usually presents with the above-mentioned symptoms. However, symptoms like sudden onset of dizziness, fainting, chest pain, loss of vision, breathlessness and double vision were not known by the respondents. Though these signs are common, their relationship with other disease states like cardiac arrhythmias, asthma, eye defects, etc. limit their specificity to stroke.
Suffice it to say that a proper control of blood pressure can serve as a plausible modality to preventing stroke. Another study carried out in Nigeria by Komolafe et al (2015) reported that hypertension and obesity were the leading risk factors for stroke.[10]
Even though diabetes is equally associated with this condition, a significantly low percentage of the population could affirm this, whereas a greater majority of the population had no such knowledge. Scientifically speaking however, diabetes is directly linked to stroke especially in the western regions of the world.[11]

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Table 1: Sociodemographic characteristics of respondents.

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	125	52.5
Female	113	47.5
Age (years)		
20- 29	65	27.3
30- 39	110	46.2
40- 49	40	16.8
50- 59	13	5.5
> 60	10	4.2
Level of Education		
Secondary	26	10.9
Tertiary	192	80.7
Postgraduate	20	8.3
Marital status		
Single	110	46.2
Married	125	52.5
Separated	3	1.3

Furthermore, with respect to the risk factors that may predispose an individual to stroke, about 90% of the total population associated hypertension with stroke as a major risk factor. Studies have shown that
hypertension have been responsible for more than two-thirds of stroke cases in Africa and about 81.1% of cases in a heath facility in Nigeria.[12]

Pearson's Chi Square test of association between gender; educational level and awareness of stoke were not statistically significant, (Table 3) but there was a significant difference in the cases of age >47 years and awareness regarding the brain as the organ involved in stroke and the signs and symptoms of stroke ($p< 0.05$). The logistic regression analysis did not indicate any significant relationship between the degree of awareness and gender, age or educational level.

Concerning habits like alcoholism and smoking, less than an average proportion of the population understood the relationship between these habits and the occurrence of stroke. According to the result, only about 37% of the population affirmed the aforementioned risk factors. The poor knowledge concerning the role of alcohol and cigarette in stroke exhibited is possibly the reason for the upsurge in substance abuse especially among the youths and also the early manifestation of stroke among individuals. In spite of the significant variation in the knowledge of the pathophysiology and manifestation of stroke, the results clearly records that not less than 84% of the people have had encounters with stroke patients prior to this study. This finding is in contrast with studies carried out in developed countries such as Brazil.[13]

Stroke Association Nigeria was formed in 2012 to fill a void as a national non-profit health care organization focusing 100 percent of its resources and attention on stroke. According to this association, Stroke is a serious health issue worldwide. Stroke has a greater disability impact than any other medical condition. It is a medical emergency and sadly the knowledge and awareness of stroke is poor in Nigeria. Every year an estimated 200,000 of Nigerians would have a stroke and the outcome varies. Studies have proved that prevention of stroke is greatly increased by improving the knowledge, perception of risk factors in adults.[14,15] Therefore, intervention studies are required from these alarming findings of this study to improve the knowledge of stroke to this high-risk group.

Table 2: Awareness regarding brain as the organ involved in stroke, symptoms, risk factors, and consequences of stroke.

Variables	Frequency (n)	Percentage (%)
Organ involved in stroke		
The brain is the organ involved in stroke	85	35.5
Symptoms of stroke		
Sudden loss of speech	162	68.1
Sudden weakness/numbness of the arms	152	63.9
Sudden weakness/numbness of the legs	170	78.4
Sudden onset of loss of vision	71	29.8
Sudden onset of double vision	73	30.7
Sudden onset of breathlessness	97	40.8
Sudden onset of headache	129	54.2
Sudden onset of chest pain	94	39.5
Sudden onset of dizziness	107	45.0
Sudden onset of fainting	98	41.2
Risk factors of stroke		
Hypertension	214	89.9
Smoking cigarette	89	37.4
Diabetes	99	41.6
Excessive alcohol intake	105	44.1
Family history of stroke	106	45.6
Ageing	157	65.8
Hypercholesterolemia	82	35.5
Obesity	96	40.2
Stress	107	44.8
Consequences of stroke		
Loss of ability to speech	162	68.1
Loss of ability to walk	170	74.1
One sided paralysis	214	89.9
Loss of vision	71	29.8
Loss of hearing ability	77	32.4
Relearning necessity	73	30.8

Table 3: Association of degree of awareness and gender of respondents.

	Value	Df	P - value
Pearsons Chi Square	22.046	16	142
Likehood ratio	22.887	16	117
No. of valid cases	238		

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Conclusion

This study has reported that the study population has a low awareness about stroke, gaps in awareness of the definition, signs and symptoms, risk factors, prevention and treatment of stroke greatly exist which may result in late arrival of patients with stroke at specialized facilities thus delaying treatment and complicating issues. Educational program at the community level involving Public health and Community Pharmacists through the mass media, schools, universities and governmental agencies are needed in order to improve stroke awareness among the Edo state population.

Conflict of interest

The authors declare no conflict of interest.

Authors' Declaration

The authors hereby declare that the work presented in this article is original and that any liability for claims relating to the content of this article will be borne by them.

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