Awareness of Risk Factors and Warning Signs of Stroke in a Nigeria University

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Background: Rapid access to medical services which is an important predictor of treatment and rehabilitation outcome requires that there is an understanding of stroke risk factors and early warning signs. This study assessed awareness of stroke risk factors and warning signs among students and staff of Obafemi Awolowo University, Nigeria. *Methods:* This was a cross sectional survey involving 994 (500 students and 494 staff) respondents. Information on the awareness of stroke risk factors and warning signs was collected with the aid of a structured questionnaire. Descriptive and inferential statistics were used for data analysis. *Results:* Weakness (66.2%) was the most commonly identified warning sign of stroke with more staff (69.8%) identifying correctly than students (62.6%). Hypertension (83.4%) was the most commonly identified stroke risk factor, with more staff (91.7%) identifying correctly than students (83.2%). There were significant differences ($p < 0.05$) in the awareness of some risk factors (age, hypertension, stress and obesity), and warning signs (dizziness, numbness, weakness, headache and vision problems) between students and staff. Predictors for adequate awareness of both stroke risk factors and warning signs were younger age, smoking history and higher educational level. *Conclusions:* Majority of the respondents recognized individual important stroke risk factors and warning signs, but few recognized multiple stroke risk factors and warning signs. Awareness programs on stroke should be organized, even in communities with educated people to increase public awareness on the prevention of stroke and on the reduction of morbidity in the survivors. **Key Words:** Stroke—risk factors—warning signs—awareness—Nigeria—rehabilitation.
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Introduction

Stroke is the second most common cause of death worldwide[1] and a significant cause of long-term disability.[2] It is an important cause of morbidity and mortality in black Africans[3] and in developing countries where cardiovascular risk factors are on the increase largely because of adoption of western lifestyle.[4] In Nigeria, it is responsible for .9%-4% of total hospital admissions and .5%-45% of neurological admissions.[5] Stroke is a neurological disease that is preventable,[6] and many of the established risk factors for stroke, such as hypertension, high cholesterol, diabetes, heart disease, and smoking, can be prevented either through healthy lifestyle choices and/or by medication.[7] Stroke has symptoms that act as warning signs, and most patients with stroke seem not to recognize these warning signs.

At onset, the time of presentation to the hospital is important in the management of stroke as delays often result in poor outcome. The time from symptom recognition to the decision to seek medical care is the phase that the most improvement can be achieved.[8] A median presentation time of 3 days with a range of 1-90 days has been reported in Nigerians.[9] In combating the effects of stroke among survivors, the time from the onset of stroke symptoms to hospital arrival must be improved to provide timely and effective treatment. Among the factors that contribute to delays in seeking medical attention for stroke, a lack of public knowledge[10] and low awareness of stroke symptoms and the need for a rapid response are principal.[11] In addition, there is also denial of the disease and the hope that symptoms would resolve.[12]

Knowledge of risk factors and warning signs in the general population has been found to be relatively poor,[13] even among those who are aware that they have a risk factor for stroke.[14] Most Nigerian stroke survivors do not seek medical attention early (within 3 or 6 hours of symptom onset).[9] Late presentation to the hospital could be as a result of poor awareness of the warning signs of stroke by the general population (including victims, relatives, and friends).[4] A previous study reported poor awareness of the warning signs of stroke among Nigerians at increased risk for the disease.[4] Previous studies have reported limited knowledge of risk factors and warning signs[15-20] of stroke and related it to low level of education. Obafemi Awolowo University (OAU), an urban academic community, is a typical example of a community with people at various educational levels. It is not known if people living in this community, with their different educational levels, have adequate awareness of risk factors and warning signs of stroke. Therefore, this study aimed to assess the awareness of risk factors of stroke and recognition of early warning signs among staff and students of OAU. Predictors of awareness were also determined.

Materials and Methods

This was a cross-sectional study conducted in OAU, a government-owned tertiary institution located in the southwestern Nigeria with a population of about 26,000 students and 5000 staff.[21] Apart from being a convenience sample, OAU is the largest campus in Sub-Saharan Africa.[22] The protocol was approved by the Health Research Ethics Committee of the Institute of Public Health, OAU. Respondents were selected to represent the 13 faculties: Basic Medical Sciences, Dentistry, Clinical Sciences, Science, Pharmacy, Arts, Technology, Environmental Design and Management, Agriculture, Administration, Social Sciences, Law, and Education.

The multistage stratified sampling was adopted for this study. In the first stage, the sample population was divided into 520 students and 520 staff. In the second stage, 40 students and 40 staff were selected from each faculty by random sampling. In the third stage, the 40 staff from each faculty were randomly grouped into 2: 20 nonacademic and 20 academic staff. The questionnaire was administered to students in their respective classrooms and to staff in their various offices. Each respondent gave informed consent before filling the questionnaire that was collected immediately.

The questionnaire used in this survey was developed to assess the recognition of risk factors and early warning signs of stroke. Basic demographic information collected include sex, age, occupational status (student, staff), educational status (primary, secondary, tertiary, postgraduate), history of smoking (past smoker, current smoker), family history of heart disease, and history of previous stroke.

List of important warning signs of stroke by the American Stroke Association, American National Stroke Association, and National Institute of Neurological Disorders and Stroke was used in this study.[7] Respondents were asked to indicate if they recognized any of the 7 warning signs and any of the 11 risk factors of stroke. Inadequate level of awareness was defined as reporting 2 or less correct responses. Respondents were also asked what they would do first, if someone was having a stroke near them.

Descriptive statistics of frequency and percentage were used to summarize data. Inferential statistics of Mann–Whitney U test was used to compare the awareness between groups and Kruskal–Wallis test was used to compare awareness among groups. Odds ratio analysis was done to determine the predictors of awareness. Alpha level was set at P less than .05. All statistical procedures were performed with the Statistical Package for Social Sciences 16.0.

Results

Response rate was 98.8% for students and 98.1% for staff. Only 500 (96.6%) and 494 (95%) copies of questionnaire for students and staff, respectively, were eligible for data analysis.

Characteristics of Respondents

A total of 994 respondents (500 students and 494 staff, 559 men and 435 women) were involved in this survey. The distribution of the characteristics of respondents is shown in Table 1.

Respondents' Awareness of Risk Factors and Warning Signs of Stroke

Hypertension (87.4%) was the most commonly identified risk factor, and diet (37.8%) was the least identified.