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Knowledge, Attitude and Practice toward Stroke among Adolescents and Adults in Enugu Metropolis

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ABSTRACT

Background: Globalization and westernization have a great effect on developing countries and one of these effects is lifestyle modification. With the increase of unhealthy lifestyles in citizens of these developing countries, stroke which used to be an uncommon ailment has been on the rise and is now one of the most commonly encountered neurological emergencies in Tertiary Care hospitals. This study is structured to assess the baseline knowledge, attitude, and practice regarding stroke risk factors, its symptoms, treatment, and information resources in the Enugu metropolis population.
Materials and Methods: A community-based physical questionnaire survey was conducted in the Enugu metropolis. A total of 463 participants between 18 and 65 years of age were randomly selected from the populace. All the participants filled out the 14 questions about different aspects of stroke. SPSS (version 22) was used for data analysis.
Results: less than half of the participants (48.6%) had adequate knowledge about stroke being a brain condition. 71.1% identified hypertension as the common risk factor for stroke while about 23.1% believe the cause to be either spiritual or charm. 68.7% disagreed that stroke has been inheritable or that it runs in the family, while about 65.2% believe orthodox treatment is the best treatment option for stroke. The commonest sources of information on stroke and its treatment were through health workers (28.0%) and friends (27.6%).
Conclusion: The study showed a gap in knowledge among the population of Enugu city including the health workers on stroke and the associated risk factors. This reflects the necessity for awareness intervention through public professional stroke education campaigns in Enugu. Various campaign awareness bodies on stroke should be encouraged as this will possibly promote the level of the population's knowledge about stroke and help improve a healthier lifestyle for the population.
Keywords: Community-based, Awareness, Stroke, Westernization, Hypertension

INTRODUCTION

Stroke remains a leading cause of disability and death worldwide, with developing countries experiencing a disproportionate burden due to limited healthcare access, poor awareness, and inadequate preventive strategies [1]. It occurs due to an interruption in blood supply to the brain, leading to neurological deficits that can significantly impact the quality of life [2]. In Nigeria, stroke accounts for a significant proportion of non-communicable diseases, with a rising incidence linked to lifestyle changes, hypertension, and a lack of awareness regarding risk factors [3]. Knowledge, attitude, and practice (KAP) studies on stroke are critical for understanding the gaps in public awareness and preventive behavior. This is because, despite advances in stroke prevention and treatment, many populations, including adolescents and adults, still exhibit poor knowledge, attitudes, and practices (KAP) regarding stroke risk factors, symptoms, and emergency responses, particularly in sub-Saharan Africa [4]. The adolescent period is a critical stage for developing health literacy and behavioral patterns that can influence future health outcomes. However, studies suggest that many adolescents have limited awareness of non-communicable diseases, including stroke, due to an educational focus on infectious diseases rather than chronic conditions [5]. Adolescents are also increasingly exposed to modifiable risk factors for stroke, such as sedentary lifestyles, poor dietary habits, smoking, and substance abuse, but often lack the necessary knowledge to recognize their long-term consequences [6]. Their attitude toward stroke prevention may be shaped by misinformation and inadequate health education, potentially predisposing them to a higher risk of cerebrovascular diseases later in life. Among adults, knowledge and perceptions of stroke vary based on educational background, socioeconomic status, and access to health information. Educated individuals are more likely to recognize stroke symptoms, understand risk factors, and seek timely medical intervention, whereas those with lower educational levels may lack basic awareness of stroke

warning signs and preventive measures [7]. Studies in Nigeria and other African countries have shown that a significant number of adults still believe in spiritual or supernatural causes of stroke, which often leads to reliance on traditional medicine instead of evidence-based treatment [8]. Furthermore, negative attitudes and poor practice, such as delaying hospital visits or ignoring lifestyle modifications, contribute to the high burden of stroke-related morbidity and mortality in these regions [9]. Despite improvements in healthcare services, disparities in stroke awareness persist due to socio-economic inequalities, cultural beliefs, and differences in education levels [4]. Understanding how knowledge, attitudes, and practices towards stroke vary among these demographic groups is essential for designing targeted health education programs and public health interventions aimed at reducing the burden of stroke in Enugu Metropolis and similar settings.

MATERIAL AND METHODS

Study Area

This study was carried out amongst the residents of Enugu metropolis who met the inclusion and exclusion criteria. Enugu is the capital city of Enugu State. Enugu State is one of the 36 states in Nigeria created in 1991 in the south eastern. Enugu State is located at 6030 North of the Equator and 7030 East of the Latitude. It is bordered to the north by the States of Benue and Kogi, Ebonyi state to the east and southeast, Abia state to the south, and Anambra state to the west and is home to about 4,396,098 people according to 2019 projection by the Nigerian National Bureau of Statistics from the 2006 national population and housing census recorded figures by the Nigerian National Population Commission. Several public places and service industries within Enugu metropolis such as universities, tertiary hospitals, and various work firms were included in this study.

Study Design

This is a cross-sectional descriptive survey study on the Assessment of the Knowledge, attitudes and practice towards stroke among adolescents and adults of Enugu metropolis, Enugu State.

Study Population

This study was conducted among adolescents and adults of Enugu metropolis, Enugu State.

Sample size and sampling technique

The study has a sample size of 463 subjects' including adolescents and adult males and females who are residents of Enugu metropolis. Random sampling technique were used to select the participants between 1st of February to 2nd of March, 2022. The subjects were verbally informed about the purpose and aims of this study along with the advantages of this study to the community before signing a consent form. The questionnaire was then administered physically and was also considered as the participant's consent. Collected data was kept secure, confidential and used only for research purposes under the supervision of the principal investigator.

Study tool

A self-administered questionnaire was used for evaluating the knowledge, attitude and practice of participants towards stroke.

Inclusion criteria

a) Must be resident in Enugu metropolis.
b) Must consent to participate in the study.
c) Must be within the age range of 11 to 80 years.

Exclusion criteria

a) Non-residents Enugu metropolis.
b) Those who did not consent to participate in the study.
c) Those that did not fall within the age range of 11 to 80 years.

Limitations of study

a) Convincing subjects to participate in the study was hard as a good number of people did not consent.
b) Majority of the participants needed assistance with filling of the survey.
c) Most adolescents refused to partake in the study as they feel they are too young to know anything about stroke.

Statistical analysis

Using the statistical program SPSS version 22, accurate descriptive, and comparative statistical analyses were measured. Chi-squared tests were used to determine the relationships between components of the survey and knowledge of stroke among Enugu population, using logistic regression analyses. P-values from Wald statistics were used to evaluate the significance of predictor variables. Two-tailed probability value of less than 0.05 was considered statistically significant.

RESULTS

Socio-Demographic of respondents

Table 1: Socio-Demographic of respondents

VARIABLES	Frequency (n = 463)	Percent (% = 100)
Age Range		
11 – 20	13	2.8
21 – 30	125	27.0
31 – 40	128	27.6
41 – 50	120	25.9
51 – 60	57	12.3
61 – 70	15	3.2

71 – 80	5	1.1
Sex		
Male	232	50.1
Female	231	49.9
Marital Status		
Single	156	33.7
Married	303	65.4
Widow/Widower	4	0.9
Christianity	439	94.8
Muslim	29	6.3
Traditional Religion	0	0.0
Tribe		
Igbo	434	93.7
Hausa	15	3.2
Yoruba	14	3.0
Educational Background		
Informal Education	29	6.3
Formal Education	64	13.8
Primary Education	20	4.3
Secondary Educational	57	12.3
Tertiary Education	203	43.8
Postgraduate Degree	90	19.4
Occupation		
Skilled	418	90.3
Unskilled	45	9.7
Profession		
Professional	233	50.3
Clerical workers	43	9.3
Service and sales workers	101	21.8
Agricultural, forestry and fishery occupations	6	1.3
Craft and related trades workers	9	1.9
Plant and machine operators and assemblers	10	2.2
Elementary occupations	11	2.4
Armed forces occupations	2	0.4
Students	38	8.2
Managers	2	0.4

Retired	8	1.7

Table 1 shows the socio-demographics of participants. Most of the participants (27.6%) aged from 31 – 40 years, (27.0%) were 21 – 30 years, (25.9%) were 41 – 50 years, (12.3%) were 51 – 60 years, (3.2%) were 61 – 70 years, (2.8%) were 11 – 20 years and (1.1%) were 71 – 80 years. About 50.1% of the participants were male and 49.9% were female. Most of the participants (65.4%) were married, (33.7%) were single and (0.9%) were widow/widower. Majority of the participants (43.8%) had tertiary education, (19.4%) had postgraduate degree, (12.3%) had secondary education, (13.8%) had formal education, (4.3%) had primary education and (6.3%) had no formal education. Most of the participants (90.3%) were skilled and (9.7%) were unskilled.

Knowledge, attitude and practice towards stroke

Table 2: The knowledge, attitude and practice of the population towards stroke

Variables		Frequency (n = 463)	Percent (% = 100)
What do you understand by stroke?	Brain Disease	225	48.6
	Entire Body	136	29.4
	Spiritual Attack	50	10.8
	No Idea	52	11.2
What is your source of information	Television	1	0.2
	Radio	56	12.1
	Friends	116	25.1
	Health worker	144	31.1
	Family/Relations	89	19.2
	Social Media	57	12.3
What are the causes of stroke?	Spiritual	65	14.0
	Hypertension	329	71.1
	Charms	44	9.5
	Stress	5	1.1
	Diabetes	2	1.4
	No Idea	18	3.9
Are you aware it is hereditary or runs in the family?	Yes	145	31.3
	No	318	68.7
Do you think stroke is treatable?	Yes	405	87.5
	No	57	12.3
	No Idea	1	0.2
Stroke can be treated by traditional medicine healers	Yes	223	48.2
	No	163	35.2
	Don't know	77	16.6
Stroke can be treated in spiritual churches	Yes	283	61.1
	No	111	24.0
	Don't know	69	14.9
Stroke can be treated with food supplements sold through network marketing	Yes	140	30.2
	No	210	45.4
	Don't know	113	24.4
Stroke can be treated in the chemist shops	Yes	19	4.1
	No	369	79.7
	Don't know	75	16.2
Where do you always encourage or refer stroke patients to?	Hospital	300	64.8
	Traditional/Herbal Home	120	25.9
	Churches	43	9.3
	Orthodox Alone	302	65.2

What is the best option for stroke treatment?	Herbal Alone	95	20.5
	Prayer Alone	46	9.9
	Physiotherapist	20	4.3

Table 2 shows that most of the participants (48.6%) had adequate knowledge about stroke as a disease of brain. Also, their major source of information as recorded were from health workers. Most of the participants (71.1%) believe that the cause of stroke is hypertension. On the other hand, majority of the participants (68.7%) disagree that stroke is not hereditary or runs in the family. Most of the participants thought that stroke is treated by traditional medicine healer (48.2%), spiritual churches (61.1%), food supplements sold through network marketing (30.2%) and chemist shop (4.1%). More than half of the participants (64.8%) would choose the hospital as the referral option for stroke patients. The most useful method for treatment of stroke was orthodox alone (65.2%) and physiotherapist (4.3%).

Sources of information of knowledge and practice towards stroke

Table 3: The sources of information of knowledge and practice towards stroke within the population

Knowledge	**What is your source of information?**					
	Television	**Radio**	**Friends**	**Health Worker**	**Family/ Relations**	**Social Media**
What do you understand by stroke?						
Brain disease	1 (0.4%)	31 (13.8%)	62 (27.6%)	63 (28.0%)	46 (20.4%)	22 (9.8%)
Entire body	0 (0.0%)	11 (8.1%)	34 (25.0%)	45 (33.1%)	27 (19.9%)	19 (14.0%)
Spiritual attack	0 (0.0%)	6 (11.5%)	11 (21.2%)	17 (32.7%)	8 (15.4%)	10 (19.2%)
No idea	0 (0.0%)	8 (16.0%)	9 (18.0%)	19 (38.0%)	8 (16.0%)	6 (12.0%)
P-value	16.329					
X^2	0.905					
Are you aware is hereditary or runs in the family?						
Yes	0 (0.0%)	15 (10.3%)	42 (29.0%)	41 (28.3%)	27 (18.6%)	20 (13.8%)
No	1 (0.3%)	41 (12.9%)	74 (23.3%)	103 (32.4%)	62 (19.5%)	37 (11.6%)
P-value	3.238					
X^2	0.663					
Do you think stroke is treatable?						
Yes	1 (0.2%)	50 12.3%)	103 (25.4%)	125 (30.9%)	77 (19.0%)	49 (12.1%)
No	0 (0.0%)	6 (10.5%)	13 (22.8%)	19 (33.3%)	11 (19.3%)	8 (14.0%)
No idea	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
P-value	4.879					

X^2	0.899					
Practice						
Where do you always encourage or refer stroke patients to?						
Hospital	1 (0.3%)	34 (11.3%)	80 (26.7%)	86 (28.7%)	61 (20.3%)	38 (12.7%)
Traditional/Herbal Home	0 (0.0%)	15 (12.5%)	24 (20.0%)	43 (35.8%)	25 (20.8%)	13 (10.8%)
Churches	0 (0.0%)	7 (16.3%)	12 (27.9%)	15 (34.9%)	3 (7.0%)	6 (14.0%)
P-value	8.681					
X^2	0.563					
What is the best option for stroke treatment?						
Orthodox alone	1 (0.3%)	33 (10.9%)	82 (27.2%)	88 (29.1%)	62 (20.5%)	36 (11.9%)
Herbal alone	0 (0.0%)	10 (10.5%)	20 (21.1%)	36 (37.9%)	15 (15.8%)	14 (14.7%)
Prayer alone	0 (0.0%)	9 (19.6%)	12 (26.1%)	15 (32.6%)	4 (8.7%)	6 (13.0%)
Physiotherapist	0 (0.0%)	4 (20.0%)	2 (10.0%)	5 (25.0%)	8 (40.0%)	1 (5.0%)
P-value	18.620					
X^2	0.231					

Out of 463 participants, the commonest source of information on stroke from the multiple responses was health worker (28.0%) followed by friends (27.6%), family/relations (20.4%), radio (13.8%) social media (9.8%) and television (0.4%) ($P = 0.905$). On the other hand, the major source of information on the awareness if stroke is hereditary or run in the family were friends (29.0%), health worker (28.3%), family/relations (18.6%), social media (13.8%) and radio (10.3%) ($P = 0.663$). Most of the participants think stroke is treatable through health worker (30.9%), friends (25.4%), family/relations (19.0%), radio (12.3%), social media (12.1%) and television (0.2%) ($P = 0.899$). However, the commonest source of information on the practical method of participants to encourage or refer patients was heard from health worker (28.7%), friends (26.7%), family/relations (20.3%), social media (12.7%), radio (11.3%) and television (0.3%) ($P = 0.563$). Also, practice regarding best option for stroke treatment was heard through health worker (29.1%), friends (27.2%), family/relations (20.5%), social media (11.9%), radio (10.9%) and television (0.3%) ($P = 0.231$).

DISCUSSION

The findings of this study prove educated individuals to seek medical information and adhere to evidence-based healthcare practices compared to the uneducated explaining the relatively high awareness levels observed in this study. This is consistent with the study by [7], which found that education significantly influences health literacy and disease awareness in Nigerian populations. Health workers remained the primary source of stroke-related information, followed by friends and family and social media in this study, aligning with the documentation of [10], who reported that healthcare professionals remain the most trusted sources of medical information in Nigeria. The role of social media as a secondary source suggests an increasing reliance on digital health communication which previous studies have cautioned against based on the misinformation from unverified online sources, which can perpetuate myths and hinder proper health management [11]. A lot of studies conducted in sub-Saharan Africa documented cultural beliefs and religious interpretations to be a major contributor of the misconceptions about stroke [9], [4]; [8], possibly explaining the reason for the high percentage (22%) perceive stroke as spiritual attack, highlighting the continued influence of traditional and religious beliefs on health perceptions in African societies. A majority of participants correctly identified hypertension as the leading cause of stroke, consistent with extensive epidemiological studies linking high blood pressure to cerebrovascular diseases [1]. However, 23.5% attributed stroke to spiritual causes, and 2.5% associated it with stress or other health conditions, reinforcing findings by [4], that stroke misconceptions remain prevalent in African settings which can delay appropriate medical intervention, contributing to increased morbidity and mortality. A significant proportion (68.7%) were unaware that stroke can be hereditary, which aligns with previous research indicating limited knowledge of genetic risk factors in low-resource settings [2]. Additionally, 12.7% did not believe stroke is treatable, which could discourage timely medical intervention. This misconception is particularly concerning, as early treatment is critical in reducing disability and improving recovery outcomes [3]. Regarding treatment preferences, 48.2% believed traditional medicine was the best treatment option, while 61.1% considered spiritual churches as the most effective place for stroke treatment. This is consistent with research in rural Nigeria, where over 50% of stroke patients sought traditional healers or spiritual interventions before considering hospital treatment [12]. [9], suggests such beliefs to be as a result of distrust in the healthcare system, financial barriers, or cultural reliance on traditional healing. In contrast, 65.2% of participants ultimately favored orthodox treatment, while 20.5% preferred herbal medicine, 9.9% chose prayers, and 4.3% opted for physiotherapy. The preference for orthodox treatment aligns with studies from urban settings in Nigeria, where individuals with higher education levels tend to favor medical interventions over traditional practices [7]. However, the significant reliance on herbal medicine and spiritual interventions suggests the need for more public health campaigns to promote evidence-based stroke management. The findings from this study are comparable to findings in

Ghana and Uganda, where traditional beliefs and spiritual explanations for stroke remain widespread even with the increase in health awareness [13], [14]. However, studies in developed countries such as the United States and the United Kingdom showed higher awareness and greater reliance on orthodox stroke treatment. This underscores the differences in health literacy, accessibility, and cultural perceptions of disease between developed and developing countries [6]. These differences reflect the need for more health awareness about stroke and improved healthcare access in Nigeria and whole of Africa as to reduce the burden of stroke-related morbidity and mortality.

CONCLUSION

This study highlights that despite the fact that there is considerable awareness of stroke as a brain disorder and its link to hypertension, misconceptions about its causes and treatment persist. This emphasizes the need for culturally sensitive health education strategies to improve stroke literacy and promote timely medical intervention. Future research should explore barriers to seeking medical care and evaluate the effectiveness of community-based educational interventions in addressing stroke misconceptions.

RECOMMENDATIONS

The findings underscore the urgent need for targeted health awareness education programs to improve stroke awareness and correct misconceptions, especially regarding heredity, treatment options, and modifiable risk factors.

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