

Stroke-related knowledge and perception among church leaders in the Delta Central Senatorial district, South-South Nigeria

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ABSTRACT

Background: The initial strategy for the prevention and management of stroke involves enhancing public awareness of its warning signs and risk factors. Thus, this study seeks to evaluate the extent of stroke-related knowledge and perceptions among Church leaders in Delta Central senatorial district, South-South Nigeria. This study is vital as people's health-related decisions can be influenced by their religious/traditional perceptions, and this can be influenced by their religious leader's knowledge of the situation as well, thus impacting both themselves and the public. **Methodology:** A cross-sectional descriptive research design, with a multi-stage sampling technique, was used in this research work (n=414). **Results:** Data from this study revealed that stroke-related knowledge was good, with the major signs/symptoms identified included weakness of the arm and leg (91.3%), while the main risk factor (RF) identified was hypertension (85.9%). Generally, the respondents recorded positive perception, with 58.5% agreeing that stroke results from unhealthy lifestyles such as drinking and smoking, still the study population upholds some religious/traditional perceptions such as persistent fasting and prayers can heal a stroke patient (54.1%), stroke is caused by a spiritual arrow sent through diabolic means by witches/wizards (49.8%). In response to stroke emergencies, 64.5% people agreed to take the victim to a hospital, while 21.50% agreed to take the victim to a traditional healer. **Conclusion:** The study revealed that despite the good knowledge of stroke among the study population, more awareness programs are still required to shape their knowledge and perception better.

Keywords: Stroke; Knowledge; Perception; Church leader

INTRODUCTION

The lives, health, and quality of life of people are at risk due to the global rise in stroke. According to the World Health Organisation (WHO), stroke ranks second in the world in terms of cause of death, after ischemic heart disease, and is a significant factor in adult disability (Katan & Lufta, 2018). Each year, stroke results in around 5.5 million fatalities and 44 million disabled people (Debriaj & Chirag, 2011). The WHO estimates that the number of disability-adjusted life years (DALYs) attributable to stroke increases sevenfold in low- and middle-income regions compared to high-income regions, with developing countries being disproportionately affected (GDB, 2017).

Stroke is highly prevalent in Nigeria, accounting for 1.14 incidents per 1000 individuals. Males have a greater rate than females, with 1.51 cases per 1000

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versus 0.69 instances per 1000. (Owolabi, et al., 2009). With a rate of 24.14 cases per 1000 in people over 65, the prevalence of stroke likewise rises with age. (Wahab, 2008). Additionally, Nigeria has a 40% 30-day case fatality rate, according to reports. (Owolabi, et al., 2009). According to data from hospital-based research done in Nigeria, stroke accounts for more than 60% of neurological hospitalisations, making it the most common cause of admission. (Danesi et al., 2007). A 10-year retrospective assessment found that 2.4% of all patients who arrived at the emergency room had a stroke. (Eze & Kalu, 2019). As a result of this, stroke is a serious public health issue with severe financial, economic, and social implications. (Ogun et al., 2014). Stroke is avoidable to some extent because many of the known risk factors can be avoided with medication or healthy lifestyle choices. (Feigin et al.,

2017). Research has indicated that a major contributing factor to delayed hospital admission following a stroke is the inability to recognise the warning indications of the condition (Donkor et al, 2014). For this reason, increasing public knowledge of the risk factors and warning signs for stroke is essential to its prevention and management.

The objective of this study is to investigate church leaders' perceptions and knowledge about stroke in the Delta Central Senatorial District, South-South Nigeria. This research is necessary due to the prevalence of church ministers passing out during services. Furthermore, people's acceptance and use of certain types of knowledge in the event of unexpected medical situations, as well as with certain illnesses that are deemed incurable or inexplicable, might be influenced by their cultural and religious perceptions. Additionally, the study's target population consists primarily of churchgoers, and church leaders have been found to have the power to shape their congregations' perceptions and knowledge based on their own experiences and views. This is demonstrated by the opposition and reluctance to the COVID-19 vaccination, as certain religious leaders have affected the vaccination decisions of their followers by imposing their personal beliefs on them. Consequently, this research will serve as a basis and source of direction for future health education on stroke, protecting both the public and those who are at risk. This assumes particular significance in Nigeria, the world's most populous black nation and a key player in the developing world.

MATERIALS AND METHODS

Study area

This study was conducted in Delta Central Senatorial District, located in Delta State, south-south Nigeria. It is between latitudes 50091 and 60031 North of the equator and longitudes 50301 and 60121 East of the Greenwich Meridian, the region is roughly 3,700 km³ in size (Ministry of Land's Survey and Urban development Delta State, 2008). Religions are, mainly Christianity, and Ibge. The language is Urhobo (Urhobo, Okpe, and Uvwie). Figure 1.



Figure 1: Map of Delta State Showing the Study Area (Source: Adapted from the Ministry of Land's Survey and Urban Development, Delta State, 2008).

Research design

A cross-sectional descriptive study design was used.

Study population

The study population is church leaders drawn from various churches in Delta Central senatorial district (this includes ministers full-time and part-time, deacons and deaconesses, group leaders, prophets and prophetesses, evangelists, catechists, lay-leaders, etc., and excludes church members or group members that do not bear any leadership responsibility within the church). According to the Nigeria Population projection 2022, the residents of the study area are estimated to be 2,152,900. This study comprises both males and females drawn from various churches within the area of study.

Sample size

Sample size calculation (Yamane, 2007)

$$n = N / (1 + N \times (e)^2)$$

Where n = Sample size, N= population under study, e = margin of error.

The total number of populations= 2,152,900, with a 5% margin of error (e), the calculation for the required sample size will be as follows:

$$n = 2,152,900 / (1 + 2,152,900 \times (0.05)^2)$$

$$n = 399.9$$

Hence, the sample size is taken as 400 to the nearest hundreds.

Sampling technique

This study made use of a multi-staged sampling technique. The first stage involved randomly selecting four local governments from the 8 local governments in Delta Central senatorial district by balloting, and Ethiope East, Ughelli North, Udu, and Uvwie local government areas (LGAs) was selected for the study. For the second stage five federal wards were randomly selected by balloting from each of the four sampled LGAs, totaling twenty wards from the four LGAs. The third stage involves obtaining data from the Christian Association of Nigeria (CAN) on how various churches fall into each of the five blocks of the Christian association of Nigeria (CAN) which are Catholic Secretariat of Nigeria (CSN), Christian Council of Nigeria (CCN), Christian Pentecostal Fellowship of Nigeria/Pentecostal Fellowship of Nigeria (CPFN/PFN), Organization of African Instituted Churches (OAIC), The Fellowship of Churches of Christ in Nigeria/Evangelical church Winning all (TEKAN/ECWA), providing strata for the study, and the fourth stage involved sampling at least one church branch/ parish from each of the five CAN blocks in each of the sampled ward, in each LGA by convenience sampling technique which means sampling five churches from each ward, as such twenty five churches from the five wards in each LGA, and hundred churches from the twenty wards sampled from the four LGAs. At least five

self-administered structured questionnaires were given to each church leader, and data were collected.

Research instruments

This study used a structured questionnaire. The questionnaire for this study was self-developed and comprised questions on demographics, knowledge of stroke warning signs/symptoms, risk factors, questions on stroke perceptions, and participants' responses to stroke emergencies.

Reliability of the instrument

The instrument's reliability was pilot-tested with 25 individuals (church leaders) in two worship centres in Warri South LGA, Delta South senatorial district, which were ST. Theresa Catholic Church, Ubeji and church of God Mission International, Warri South Bishopric headquarters, Odibo. The Cronbach alpha was 0.51.

Ethical approval

Ethical approval was obtained from the Health Research Ethics Committee (HREC), Delta State University Teaching Hospital with approval number HREC/PAN/2023/081/0614. Consent was also obtained from the pastors/bishops and other leaders of the churches.

Data analysis

Descriptive and comparative statistical analyses were done using the Statistical Package for Social Sciences (SPSS, 22.0). Categorical data are presented as frequencies and percentages, with a comparison based on the Chi-square test. Statistical significance was assigned at the level $P < 0.05$. Data are presented in tables and figures.

RESULTS

Five hundred questionnaires were distributed, out of which 414 were correctly filled and returned, giving a response rate of 82.8%. The modal age group was 35-54 years (56.0%). The mean age of the participants was 38.0 ± 12.0 years. There were slightly more males (55.1%) than females (44.9%). The predominant tribe was Urhobo (44.7%). Concerning the educational cadre, the greatest proportion was those with a tertiary level of schooling (73.7%), while the least 1.7% had no formal education (Table1).

Stroke-related knowledge

Table 2 shows that only 23.7% of respondents were able to identify the brain as the primary part of the body affected by stroke, despite a high number of respondents being able to identify the signs and symptoms of stroke such as weakness of the arm and leg 91.3%, speech problem 84.5%, loss of balance or coordination 84.3%, and risk factors such as most identified by respondents was hypertension 85.9% and lack of exercise 68.6%. On the overall knowledge assessment, 214(51.7%) were graded as having good knowledge of stroke.

Stroke-related perceptions

Table 3 shows that various stroke-related perceptions were expressed by the respondents, some of which were related to spirituality and religion. More than two-thirds (37.0%) said stroke was caused by an attack from unforeseen forces such as spiritual demons. Almost half (49.8%) perceive stroke is caused by a spiritual arrow sent through diabolical means by witches and wizards. Thirty-seven point seven of the participants were of the view that traditional methods were the best approach for treating stroke.

Response to stroke emergencies

Figure 2 shows that 64.5% of the 414 respondents agreed to respond to a stroke emergency by taking victims to a hospital, while 21.50% agreed to take victims to a traditional healer, and 7.0% agreed to take victims to church.

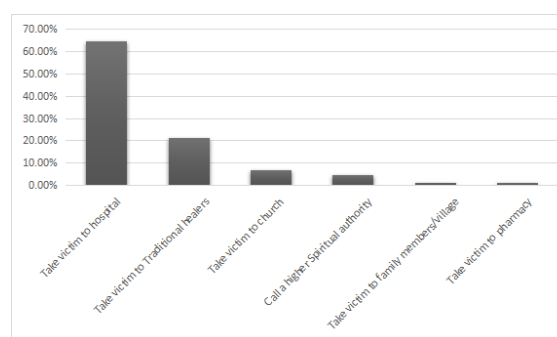


Figure 2: A bar chart showing the response to stroke emergencies from respondents (multiple responses indicated) n=414

Chi-Square test for respondents' educational status and their response to stroke emergencies

Table 4 indicates that with a P-value of <0.001 , there is a statistically significant difference between respondents' educational background and their response to stroke emergencies.

DISCUSSION

There was generally a good level of awareness of the term stroke, as all the respondents (100%) had heard of the concept before the study. This large-scale survey on knowledge related to stroke was done among leaders in faith-based organisations (Christian Association of Nigeria). This high rate of awareness may be related to their educational status and the need to deliver health services to members of their congregations. In our study, about half of the respondents (51.7%) were assessed to have good knowledge of stroke. This finding was lower than the result obtained from Federal Medical Centre, Asaba where good knowledge was found in 84.0% of the population. (Giaguinto et al., 2010.) A possible reason for the higher proportion recorded in Asaba

may be attributed to a higher educational status in the Asaba study population, in which 97.5% had a tertiary level of schooling, whereas in total 73.7% in our study had a tertiary level of education. In addition, the study population in the Asaba research was the staff of primary health facilities who are expected to be more knowledgeable in health affairs by virtue of their work exposure.

In our study, the majority of the respondents did not know the primary organ affected by stroke, as less than one-quarter (23.7%) correctly indicated the brain as the specific organ involved in stroke. The same low and worrisome finding was seen in a study in North-Central Nigeria, where only 8% cited the brain as the primary area affected during stroke. (Hawkes et al., 2015.) The finding from our study was low (23.7%) when compared to another study in Benin City (38.7%) (Giaguinto et al., 2010).

The most frequently mentioned symptom of stroke in our study was the sudden onset of weakness in the arm and leg (91.3%). The same symptom was mentioned by the studies done in Plateau State, Nigeria (53%) and Asaba (88.5%). (Giaguinto et al., 2010; Hawkes et al., 2015.) In the same vein, sudden weakness of face, arm and leg were the preponderant symptoms mentioned in research carried out in Morocco (37.3%) and Brazaville (67%) (Ezunu et al., 2014 ; Osaigbovo et al., 2021.)

The most frequently cited risk factor for stroke in our study was hypertension (86.0%). This is similar to findings from another study carried out in Saudi Arabia (97%). (Kharbach et al., 2020) Other studies in which hypertension was the most recognised RF for stroke include Morocco (55.7%), Benin City, Nigeria (93.2%) and South Western Nigeria (44.4%). (Ezunu et al., 2014 ; Diatwa et al., 2022 ; Alhubai et al., 2024). Unlike our study that identified hypertension as the commonest risk factor for stroke, another study in Brazaville identified stress (68.5%) as the most known RF for stroke. (Osaigbovo et al., 2021.)

Due to a limited understanding of the pathophysiology of the disease and its sudden, severe, and fatal nature, inhabitants of this area sometimes link stroke to some spiritual, traditional or religious influences. Despite a high level of good perception recorded in this study, certain perceptions were also significantly indicated by respondents as a causes, prognoses, and management of stroke. This includes perceptions such as people can be attacked with a stroke because of a lack of faith and trust in God, as agreed by 31.2% of the participants. This aligns with a study which finds that faith in God can set a stroke patient free from their ailment (Stoddard, 2007) some of the study participants still uphold beliefs such as, stroke is caused by an attack from unseen forces such as evil spirits and demons 37.0%,

stroke is caused by a spiritual arrow sent through diabolic means by witches/wizards to afflict people as agreed by 49.8% of respondents, this is similar to a study which finds that, some Africans still uphold beliefs that spiritual forces can be responsible for stroke. (Calvin et al., 2016; Agbanusi, 2016) Also, persistent fasting and prayers can set a stroke patient free of his/her ailment, as agreed by 54.1% of the respondents. Relating to these findings is a study conducted in Calabar South LGA South-South Nigeria, (Umoh, 2019), in which 89.2% agreed that persistent fasting and prayers can set a stroke patient free from stroke, indicating a poorer belief system compared to our study's respondents. This may be due to disparity in literacy levels, geographical location (rural setting) or level of civilisation, and health awareness.

Despite 58.5% of respondents from our study agreeing that stroke results from unhealthy lifestyles such as smoking and drinking, several participants still uphold certain misconceptions, such as that injecting a stroke patient will make him/her permanently disabled 21.5%, and as high as 37.7% agree that the traditional method is the best method for treating stroke. This perception was more significant in a study conducted in Calabar South LGA South-South Nigeria. (Umoh, 2019.) These perceptions may be sustained despite the absence of significant proof, due to poor public knowledge and awareness of the risk factors, and pathophysiology of the disease, poor or lack of stroke management centres or facilities, slow recovery rate, the economic burden of the disease, and finally the possibility of a transient ischemic attack (TIA) which could present a lacuna for traditional healers to claim to have some spiritual powers or traditional concoction for the treatment of the stroke.

In this study, 64.5% of the respondents would opt for taking the victims to the hospital. This position is reassuring knowing that timely decision and prompt arrival at the hospital help in saving the brain from damage. (Odetunde et al., 2021; Ezunu et al., 2024.)

Data from this study reveals that respondents' responses to stroke emergencies are significantly linked to their educational background, with a P-value <0.001, and therefore highly significant.

CONCLUSION

Future awareness on stroke should assist people in recognising and controlling stroke risk factors, emphasise that stroke is a brain disease, and indicate that it is preventable. Considering the significance of timely treatment in enhancing patient outcomes, we must keep advising people and communities on what to do in emergencies.

Finally, the study's important finding is that preventive measures must be prioritised, with a

particular emphasis on high-risk, less educated people and communities.

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Conflict of interest

The authors declare no conflict of interest of any kind.

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Table 1: Socio-Demographic Characteristics of Participants(n=414)

		Frequency (n)	Percentage (%)
Distribution of Participant Per Local Government Area (LGA)	Uvwie Local government	117	28.3
	Udu Local government	104	25.1
	Ughelli North Local government	100	24.1
	Ethiope East Local government	93	22.5
Christian Association of Nigeria (CAN) Blocks	Catholic Secretariat of Nigeria (CSN)	37	8.9
	Christian Council of Nigeria (CCN)	79	19.1
	Christian Pentecostal Fellowship of Nigeria/Pentecostal Fellowship of Nigeria (CPFN/PFN)	179	43.2
	Organization of African Instituted Churches (OAIC)	28	6.8
	The Fellowship of Churches of Christ in Nigeria/Evangelical church Winning all (TEKAN/ECWA)	91	22.0
Age	< 34-35	106	25.6
	35-54	232	56.0
	55-74	66	15.9
	75 >	10	2.4
Sex	Male	228	55.1
	Female	186	44.9
Ethnicity	Urhobo	185	44.7
	Itsekiri	9	2.2
	Ijaw	13	3.1
	Isoko	14	3.4
	Others (Ndokwa, Anioma, Igbo, Yoruba, Housa, etc.)	193	46.6
Designation	Minister (full time)	41	9.9
	Minister (part time)	35	8.5
	Deacon/Deaconess	78	18.8
	Group leader	154	37.2
	Others (Catchiest, lay leaders, Elders, Evangelist, etc.)	106	25.6
Educational Background	Primary	10	2.4
	Secondary	92	22.2
	Tertiary	305	73.7
	None	7	1.7
Employment	Unemployed	40	9.7
	Self-employed	142	34.3
	Government Employed	98	23.7
	Employed (private)	115	27.8
	Retired	19	4.6

Table 2: Stroke related knowledge (n=414)

	Frequency (n)	Percentage (%)
Primary organ of the body affected by stroke		
Arm/leg	265	64.0
Brain	98	23.7
Muscle	51	12.3
Signs and symptoms of stroke:		
sudden onset of Weakness of the arm and leg	378	91.3
Speech problem	350	84.5
Loss of balance or co-ordination	349	84.3
Weakness of the face	272	65.7
Loss of vision	170	41.1
Convulsion	84	20.3
Skin disease	53	12.8
Madness	21	5.1
Risk factors:		
Hypertension	356	86.0
Lack of exercise	284	68.6
Genetics	259	62.6
High Cholesterol	253	61.1
Old age	251	60.6
Diabetes Mellitus	222	53.6
Poison	208	50.2
Alcohol	206	49.8
Cigarette smoking	177	42.8
High fever	157	37.9
Lack of sex	62	15.0
Diarrhea	42	10.1

Table 3: Stroke related perceptions (n=414)

		Frequency (n)	Percentage (%)
People can be attacked with stroke because of a lack of faith and trust in God	True	129	31.2
	Not sure	86	20.8
	False	199	48.1
Stroke is a punishment for one's sin or atrocities committed against God	True	39	9.4
	Not sure	73	17.6
	False	302	72.9
Stroke patients are possessed by devil or evil spirit	True	46	11.1
	Not sure	55	13.3
	False	313	75.6
Persistent fasting and prayers can set a stroke patient free of his/her ailment	True	224	54.1
	Not sure	71	17.1
	False	119	28.7
Stroke is a punishment for evil committed against others (nemesis)	True	63	15.2
	Not sure	101	24.4
	False	250	60.4
Stroke is caused by attack from unseen forces such as evil spirits and demons	True	153	37.0
	Not sure	90	21.7
	False	171	41.3
Stroke is caused by a spiritual arrow sent through diabolic means by witches, wizards, evil men/women to afflict people.	True	206	49.8
	Not sure	77	18.6
	False	131	31.6
Stroke results from a curse from the gods and ancestors	True	51	12.3
	Not sure	106	25.6
	False	257	62.1

Stroke is caused by non-adherence to traditional practices such as pouring of libation to ancestors.	True Not sure False	29 104 281	7.0 25.1 67.9
Stroke results from unhealthy lifestyles such as smoking and drinking	True Not sure False	242 72 100	58.5 17.4 24.2
Stroke can be contacted from a sick person by a healthy person	True Not sure False	16 94 304	3.9 22.7 73.4
Injecting a stroke patient will make him/her permanently disabled	True Not sure False	89 144 181	21.5 34.8 43.7
Traditional method is the best for treating stroke	True Not sure False	156 124 134	37.7 30.0 32.4

Table 4: Chi-Square test for respondents' educational status and their response to stroke emergencies

Chi-Square test	Value	Df	Significance
Pearson Chi-Square	64.170	15	<0.001
Likelihood Ratio	35.033	15	0.002
Linear-by-Linear Association	1.037	1	0.309

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