European Journal of
Health Sciences
(EJHS)

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European Journal of Health Sciences
ISSN 2520-4645 (online)
Vol. 10 No 3, pp 27 - 43, 2024

www.ajpojournals.org

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Article history

Submitted 30.02.2024 Revised Version Received 05.04.2024 Accepted 07.05.2024

Abstract

Purpose: Stroke is a leading cause of disability globally. Deaths from stroke and stroke-related disability occur more in low-income and middle-income countries. However, most studies narrated a lack of public knowledge and practice related to stroke. This study aims to investigate stroke-related knowledge, associated factors, and prevention practices among Healthcare workers.

Materials and Methods: This was a cross-sectional study among 200 Healthcare workers from the Federal Medical Centre, Asaba Nigeria. They were selected by systematic sampling technique to participate in the study. A semi-structured questionnaire was used to collect data on the research variables. Data were analyzed using the IBM SPSS version 25 statistical package

Findings: The mean age of respondents was 36.20 ± 10.60 years and they were predominantly females (56.5%). The respondents had good aggregate knowledge of stroke (84%), its warning signs or symptoms (72%), and risk factors (78%). However, the aggregate practice of stroke prevention among healthcare workers was poor (61%). There was a significant association ($p < 0.0001$) between good knowledge of stroke and Clinical Healthcare when compared with Non-Clinical Health Care workers [Chi-squares =27.1, 95%CI= (0.029-0.256)] but this did not affect their practice [Chi-square =3.570, p-value = 0.02, 95%CI= (0.321-1.023)]

Implications to Theory, Practice and Policy: There is a need for healthcare workers to encourage health educational programs on Knowledge and behavior-changing strategies toward stroke prevention practices.

Keywords: *Stroke, Knowledge, Symptoms, Risk Factors, Practice, Prevention*

JEL Codes: I1Health, I2 Behavior, I8 Public Health

1.0 INTRODUCTION

Stroke is the main cause of death and disability Worldwide, afflicting about 13 million people annually[1]. Men have more occurrences than females, while the rate of death is lesser in men when compared to women. In the USA, stroke is known as the fifth foremost reason of death for males, but the third for womenfolk[1]. Women also have poorer recovery and greater disability rates than men post-stroke because women face more complications during their recovery due to activity problems and lower points of mental and physical health[2]. In Africa, it is established that stroke is the main cause of death in developing countries and that about 70% of all deaths and 87% of stroke-related disability happen in low-income and middle-income countries[3]. Data in Sub-Saharan Africa indicates that a greater number of years of potential life lost is from the effect of Stroke, also the enormous social and economic problem of stroke requires well-organized strategies for prevention, treatment, and rehabilitation in a greater number of years of potential life lost[3]. According to the World Health Organization's global fact sheet on stroke in 2022, the main risk factor is high blood pressure[4].

The other risk factors are smoking, a sedentary lifestyle, poor diet, and alcohol. High lipid levels in the blood, obesity, hereditary tendencies, stress, depression, and arterial fibrillation were also implicated. The Stroke Investigative Research and Educational Network (SIREN)[5] research found that 98.2% (95% CI 97.2–99.0) of the adjusted Population attributable risks (PAR) of stroke were connected with 11 potentially modifiable risk factors: hypertension, dyslipidemia, regular meat intake, central obesity, diabetes mellitus, low consumption of green leafy vegetables, stress, added salt at the table, cardiac diseases, physical inactivity, and current cigarette smoking[5]. Globally air pollution has been considered as an evolving factor; - epidemiological studies have demonstrated that both short- and long-term exposure to air pollution increases the risk of stroke. This suggests that air quality is also a vital cause of cardiovascular health challenges including both Ischemic heart disease and stroke[6]. The most common types of disability after stroke are impaired speech, restricted physical abilities, weakness or paralysis of limbs on one side of the body, difficulty gripping or holding things, and a slow ability to communicate[7]. Recovery time after a stroke is distinct for everyone—it can take weeks, months, or even years. Some people improve fully, but others have long-term or lifelong disabilities. A stroke can occasionally cause temporary or permanent disabilities, depending on how long the brain is deficient in blood flow and which part is affected. Complications may comprise Paralysis or loss of muscle movement[7]. The disability of Stroke is the main problem because it affects individuals' ability to engage in activities of daily living[7]. These are those skills required to manage one's simple physical requirements, including individual hygiene or grooming, dressing, toileting, movement or ambulating, and ingestion of food[7].

The Sustainable Development Goals (SDGs)[8] 3 by 2030 aims to reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being, Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol. It also substantially increases health financing, the recruitment, expansion, re-training, and retaining of the health workforce in developing countries, least developed countries, and small Island developing States. Universal health coverage included financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality, affordable essential medicines and vaccines for all[8]. Non-communicable diseases such as cardiovascular diseases (CVDs) present serious health threats. In 2019, it was

anticipated that about 17.9 million persons would lose their lives due to CVDs, which is 32% of all worldwide deaths. Of these deaths, 85% were heart attacks and strokes. Over three portion of CVD deaths were among low- and middle-income countries[9] (WHO, 2021). Out of 17 million premature deaths (under the age of 70) from non-infectious diseases in 2019, 38% were by CVDs[10]. Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity, and harmful use of alcohol. It is important to become aware of cardiovascular disease as early as possible so that management with counseling and medicines can begin. People living in low- and middle-income countries often do not have the advantage of primary health care programs for early detection and treatment of people with risk factors for CVDs[10].

The lack of knowledge, inappropriate diagnosis, and inadequate management of HTN added to an increased risk of stroke in developing countries[11]. Several studies have shown inadequate awareness among hypertensive patients concerning risk factors, warning signs, and behaviors of acute stroke[11]. For example, a study conducted in northwest Ethiopia among hypertensive patients revealed that nearly 72% of the respondents did not know any risk factors and warning signs of stroke[12]. Largely community-based studies showed that the general public has a lack of knowledge about stroke, lifestyle risk factors, and warning signs[13]. An unavailability of information and poor self-care practice enlarge the burden of HTN and Stroke. They are critical challenges in controlling HTN[14]. A study conducted in the Kingdom of Saudi Arabia revealed relatively poor Knowledge about stroke and its risk factors. The study showed that 58.5% were unaware of stroke risk factors such as diabetes, and 59.9% did not recognize the warning signs of stroke, including facial asymmetry[15]. Population knowledge is vital to confront the lack of information regarding stroke and its associated factors for early stroke prevention[16] and management. As High Blood Pressure is believed as the main modifiable risk factor for stroke, there are still few studies that examine hypertensive patients' awareness of stroke[16]. Although some studies about Hypertension among various Kingdom of Saudi Arabia provinces commonly differ in Hypertension prevalence between 5% and 30%, no study has been found that directed attention to an underserved population such as those who are living in rural areas[17]. Consequently, it is essential to measure hypertensive patients' awareness, attitudes, and practices toward stroke prevention among rural populations and to discover factors that may add to the Knowledge Attitude and Practice levels[17].

Therefore, insufficient knowledge of risk factors, warning signs, preventive practices, and urgent management approach options have been identified as a crucial cause of increased mortality and morbidity due to stroke[18]. Similarly, this knowledge deficiency has been identified as one of the significant barriers to accessing quality health care for stroke in Africa, as well as a factor affecting pre-hospital time[19,20].

Problem Statement

Stroke is increasingly becoming a major cause of disability and mortality in Nigeria, no evidence in a previous study published on the level of knowledge of stroke, its symptoms or signs, risk factors, and practice of prevention strategies among Healthcare workers in Nigeria. For this reason, the present study will; -

i. Investigation of the Knowledge of stroke, its symptoms or signs, and risk factors, among healthcare workers in a tertiary hospital in Nigeria.

ii. Explore stroke, prevention practices among healthcare workers in a tertiary hospital in Nigeria.

Theoretical Framework

The health belief theory model was adopted in this study as a psychological health behavior change model developed by social psychologists in 1950 to explain and predict health-related behaviors, particularly regarding the uptake of health services. This submits that people's beliefs about health problems, perceived susceptibility, perceived severity, perceived benefits of action and barriers to action, and self-efficacy explain engagement (or lack of engagement) in health-promoting behavior[36]. A stimulus, or cue to action, must also be present to trigger the health-promoting behavior.

The health belief model theorized that healthcare workers in this study will have good knowledge of stroke, its symptoms or signs, risk factors, and good practice of stroke prevention. When they have perceived threat (susceptibility and seriousness) of the disease (stroke). And also have perceived benefits of preventive strategies employed over their perceived barriers; -their cultural norms, and their religious or spiritual belief. This will encourage good health-promoting behavior by propagating stroke prevention practices among healthcare workers. Health belief theory is therefore highly related to this study as it provides a good explanation of the link between knowledge of stroke, its symptoms or signs, risk factors, and practice of stroke prevention.

2.0 MATERIALS AND METHODS

This was a descriptive cross-sectional study conducted at Federal Medical Centre, Asaba[21]. The study participants were Health Care Workers; doctors, nurses, pharmacists, physiotherapists, radiographers, laboratory scientists, health attendants, Administrative staff, Staff in the works department, and other Hospital workers. They were grouped into two for the study. Those who worked directly with the patients in the wards. They had responsibilities related to diagnosis and treatment. They were considered`` Clinical Health Care workers" This represented the Doctors and the Nurses[22]. Those who did not work directly with the patients in the ward and had no responsibilities relating to diagnosis and treatment were considered ` Non-clinical Health Care Workers". This represented others[22].

The Health Care workers were sampled by using simple random sampling of systematic technique[23]. Purposive sampling of the non-probability method was used in sharing the sample size. Doctors 290, Nurses 480, Pharmacists 52, physiotherapists 20, Radiographers 20, Lab science 44, Health attendants 50, and other non-clinical health workers 485, giving a total of 1441 Health care workers. The Inclusion criteria were:

i. Those who have been in the employment of Federal Medical Centre for not less than six months.
ii. Those who were not in any way incapacitated.
iii. Those who were willing to dispense information.
iv. Those who gave consent and their confidentiality maintained.
v. Those who did not give consent were excluded from the study.

Sample Size Calculation

The sample was derived using Taro Yamane's formula for sample size determination[24,25].

$$\frac{N}{1+N(e^2)}$$

Where e = level of precision = 0.05

N = population size = 335

n= sample size

$$\frac{N}{1+N(e^2)}==$$

$$\frac{335}{1+335(0.0025)} = \frac{335}{1+0.8375}$$

$$= \frac{335}{1.8375} = 182.31 \sim 182+10\%=200.$$

Total= 200 which was the sample size

Systematic random sampling[23] was used for each of the workgroups. The sampling interval was derived using the formula below: Sample interval = a Total number of health workers/Sample size. From the total list of healthcare workers in the different categories, a sampling ratio was calculated for each category giving a Nth number of 3,

n=200 sample size

N=1441 Total number of healthcare workers

Sampling fraction= n/N

200/1441

Sampling fraction= 0.1388

Doctors 290x 0.1388 = 40.25approximate 40

Nurses=480x 0.1388=66.62 Ω 67

Pharmacist 52x 0.1388=7.21 Ω 7

Physiotherapist 20x 0.1388=2.78 Ω 3

Radiographers 20x 0.1388=2.78 Ω3

Lab science 44x 0.1388= 6.11Ω 6

Health attendant=50x 0.1388=6.94 Ω7

Contract staffs = 485x 0.1388= 67.32 Ω 67

i. Doctors – 290/40=7
ii. Nurses-480/67=7
iii. Pharmacist-52/7=7
iv. Physiotherapist-20/3=7
v. Radiographers 20/3=7
vi. Lab scientist 44/6=7
vii. Health attendant 50/7=7

viii. Other non-clinical staffs 485/67=7

Therefore, every 7th Staff of the hospital in each category was recruited for the study until the total number was obtained.

Data Collection

The study was conducted by using a semi-structured interviewer-administered questionnaire [12,16,26]. The questionnaire was developed with the help of reviewed literature in the empirical review of the study. It will consist of three parts :(1) Socio-demographic characteristics (age, gender, educational level, profession, etc.). (2) Knowledge of Health Care Workers on Stroke, symptoms or signs and its risk factors (3) Practice of Health Care Workers on Stroke Prevention. The nature and purpose of the study were explained to each respondent and informed and written consent was obtained. The duration of the study was one month. For the convenience of analyses, the total number of questions to assess knowledge and Practice were ten (10) and (11) respectively, each correct response was scored one (1) and for each wrong response zero (0). The total scores for each respondent were converted to percentage scores a score of > 50% was termed Good Knowledge or Practice and a score of ≤ 50% was categorized as poor knowledge or Practice

Method of Data Analysis

Data was screened for completeness, entered, and analyzed using Statistical Package for Social Sciences (SPSS V. 25.0). Univariate analysis was carried out as quantitative variables were presented using percentages and frequencies. Aggregate scores were calculated on knowledge, and practice to know if knowledge and practice is high or low. Bivariate analysis was carried out on the relationship of Health care workers about their knowledge, symptoms or signs, risk factors, and practice of stroke prevention, using chi-square and p-value to determine the level of significance (set at $P < 0.05$).

Duration of the Study

This study was carried out within a month.

Ethical Issues/Consideration

Ethical permission to conduct this research was obtained from the Research and Ethics Committee of the Federal Medical Centre, Asaba, and the due processes in carrying out research in the hospital were maintained. There was no harm or discomfort to participants during the questionnaire distribution.

Privacy: The privacy of the respondents was of utmost importance during the conduct of the research. The code of ethics was aimed at protecting the rights of the individuals who were used as subjects of the research. Respondents were not forced into participating in the research project.

Maintenance of confidentiality: the research subject names were withheld and information given was not divulged to other people but rather was treated with utmost secrecy and strictly for the research.

3.0 FINDINGS

A total of 200 respondents participated in the study. Their Ages ranged from 18 to 58 years (mean = 36.20±10.60). Majority of the respondents were aged above 30 years (72.0%). They were

females (56.5%), married (63.0%), practiced Christianity as a religion (96.5%), and had tertiary education (97.5%) (Table 1). About 54.5% of them were Clinical Healthcare workers (Figure 1).

Table 1: Socio-Demographic Characteristics of the Respondents

VARIABLE	FREQUENCY (N = 200)	PERCENTAGE 100%
Gender		
Male	87	43.5
Female	113	56.5
Age1(years)		
≤ 30	56	28
>30	144	72
Age (in Years)		
≤ 20	5	2.5
21-30	55	27.5
31-40	68	34
41-50	47	23.5
51-60	25	12.5
Marital Status		
Single	68	34
Married	126	63
Divorced	2	1
Widowed	4	2
Profession1		
Clinical Healthcare workers	109	54.5
Non-clinical Healthcare workers	91	45.5
Profession		
Medical doctor	40	20
Nurse	67	33.5
Pharmacist	7	3.5
Lab scientist	6	3
Radiographers	3	1.5
Physiotherapist	3	1.5
Health attendants	7	3.5
Other Non-clinical Health care workers	67	33.5
Education Level1		
Poorly Educated	7	3.5
Tertiary Educated	193	97.5
Educational Level		
No formal education	0	0
Primary education	3	1.5
Secondary education	4	2
Tertiary education	193	96.5
Religion		
Christianity	193	96.5
Muslim	3	1.5
Traditional	4	2

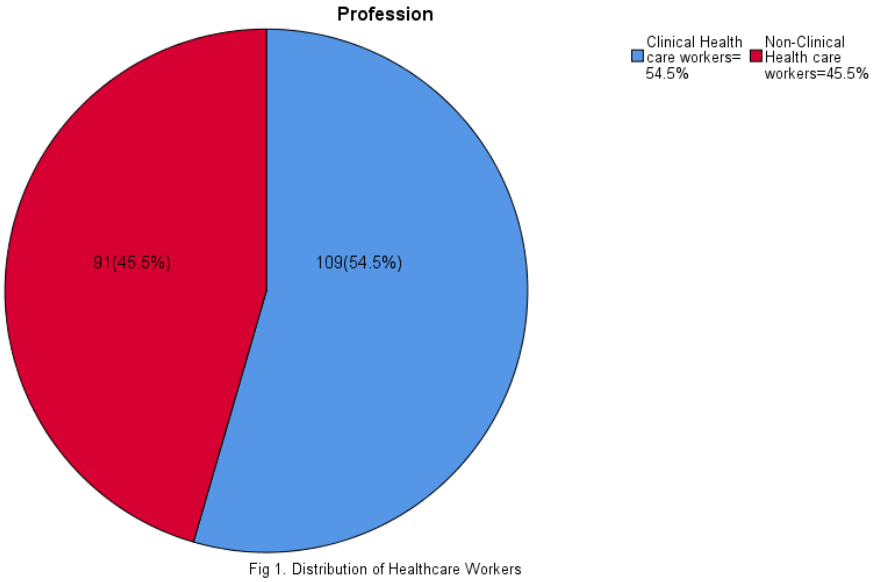

Figure 1: Distribution of Healthcare Workers

Respondents' knowledge of stroke: Although, the majority, 168 (84.0%) of the 200 respondents have good aggregate knowledge about stroke, about 87.5 % knew stroke as a disease of the blood vessels in the brain and also preventable (93.5%), however about less than half (48%) of them believe that stroke is a curable disease. Table 2.

Table 2: Knowledge of Stroke and Its Prevention among Respondents

KNOWLEDGE QUESTIONS	YES (%)	NO (%)
Is stroke a disease of the blood vessels of the Brain?	87.5	12.5
Is Stroke a Preventable disease?	93.5	6.5
Can one have a stroke more than once?	83	17
Does stroke affect daily activities like driving a car, dressing, having a job, etc	95.5	4.5
Is Stroke a disease requiring urgent care?	94.5	5.5
Stroke is a disabling disease	63	37
Stroke is a curable disease	48	52
Stroke is an old man's disease	93.5	6.5
Stroke is a contagious disease	2	98
Stroke a hereditary disease	78.5	21.5
Aggregate knowledge		
Good	168	84
Poor	32	16

Respondent's knowledge of the signs or symptoms of stroke: The majority, 144 (72.0%) of the 200 respondents had good knowledge of the signs or symptoms of a stroke. The signs or symptoms of stroke most commonly known to the respondents include sudden weakness or paralysis on one side of the body (88.5%), sudden loss or reduced sensation all over the body (76%), sudden loss or reduced sensation on one side of the body (73.5%). More than half of respondents (73.0%) had

sudden severe Headaches, sudden dizziness or loss of balance or coordination (66.0%), and sudden loss of vision (60.0). (Table 3)

Table 3: Respondent's Knowledge of Stroke Symptoms or Warning Signs

Stroke Symptoms or signs	Yes (%)	No (%)
Sudden loss of vision	60	40
Sudden loss or reduced sensation on one side of the body	73.5	26.5
Sudden dizziness or loss of balance or coordination	66	34
Sudden and severe headache	73	27
Sudden weakness or paralysis on one side of the body	88.5	11.5
Sudden loss or reduced sensation all over the body	76	24
Aggregate knowledge of stroke warning signs or symptoms		
Good	144	72
Poor	56	28

Respondent's knowledge of stroke risk factors: The majority, 156 (78.0%) of the 200 respondents had good knowledge of stroke risk factors. The stroke risk factors most commonly known to the respondents include hypertension (93.0%), being overweight or obese (76.0%), excessive alcohol intake (75.5%), cigarette smoking (74.5%), and diabetes mellitus (73.5%). More than half of respondents knew aging (62.0%) as a stroke risk factor (Table 4).

Table 4: Respondent's Knowledge of Stroke Risk Factors

Stroke Risk factors	Yes (%)	No (%)
Excessive alcohol intake	75.5	24.5
Diabetes mellitus	73.5	26.5
Cigarette smoking	74.5	25.5
High blood pressure(Hypertension)	93.0	7
Advancement in age	62	38
Being overweight or obese	76	24
Aggregate knowledge of stroke risk factors		
Good	156	78
Poor	44	22

Healthcare Workers Relationship with Knowledge of Stroke, Its Warning Signs and Risk Factors

There was a significant association ($p < 0.0001$) of good knowledge of stroke by Clinical Healthcare workers [Chi-squares =27.1, 95%CI= (0.029-0.256)] when compared with non-clinical healthcare workers. This is the same with their knowledge of risk factors of stroke (Chi-squares=19.787, $p < 0.0001$, 95%CI (0.093-0.420). However, there was no significant association ($p=0.102$) between good knowledge of stroke symptoms or warning signs and the Clinical Health care workers [Chi-square=2.043, 95%CI= (0.342-1.185)], when compared with Non-Clinical Health care workers.

Table 5: Healthcare Worker's Relationship with Knowledge of Stroke, Its Warning Signs and Risk Factors

Variables	Good Knowledge (%)	Poor Knowledge (%)	Chi-Square	P-Value	95%CI
Clinical Healthcare Workers	105(96.3)	4(3.7)	27.1	0.0001	(0.342-1.185)
Non-Clinical Healthcare Workers	63(69.2)	28(30.8)			
Variables	**Knowledge of Symptoms and Warning Signs**				
	Good Knowledge (%)	**Poor Knowledge (%)**	**Chi-Square**	**P-Value**	**95%CI**
Clinical Healthcare Workers	83(76.1)	26(23.9)	2.043	0.102	(0.342-1.185)
Non-Clinical Healthcare Workers	61(67)	30(33)			
Variables	**Knowledge of Risk Factors**				
	Good Knowledge (%)	**Poor Knowledge (%)**	**Chi-Square**	**P-Value**	**95%CI**
Clinical Healthcare Workers	98(89.9)	11(10.1)	19.787	0.0001	(0.093-0.420)
Non-Clinical Healthcare Workers	58(63.7)	33(36.3)			

Respondents' stroke prevention practices: The aggregate practice of stroke prevention among the health care workers was poor (54%). Most of the respondents observed that stroke prevention practices such as taking the patient to the hospital on the slightest suspicion of stroke or its warning sign (91.5%) and reduction in alcohol intake (75.7%) were important, while less than half of them will check their Blood pressure (30.0%) regularly or check their blood sugar (46%) regularly for those who are diabetics or counsel others to do so. The same with healthcare workers (43.5%) who control their cholesterol or advise others to do so and also for those who try to lose weight (46.5%) or advise others regularly to do so. About one-third (39%) of the respondents do regular exercise. The aggregate practice of stroke prevention among the responders was poor (54%). There was Poor Compliance with stroke prevention practices among Clinical Healthcare workers and Nonclinical Healthcare workers [Chi-square =3.570, p-value = 0.02, 95%CI= (0.321-1.023)]

Table 3: The Practice of Stroke Prevention among Respondents

PRACTICE QUESTIONS	YES (%)	NO (%)
I will immediately sprinkle water over the face of the person who has stroke	11	89
I will call or take the stroke patient immediately to the hospital	91.5	8.5
I will wait for spontaneous recovery for individuals that have stroke	14.5	85.5
Do you control your cholesterol level or advise others to do so?	43.5	56.5
I check my blood pressure regularly and advise others to do so	30	70
Do you regularly exercise or counsel others to do so?	39	61
Do you try to lose weight or advise others regularly? to do so?	46.5	53.5
I check my blood sugar level regularly and advise others to do so who are diabetes	46	54
Cigarette smoking is discouraged to prevent stroke	84.5	15.5
I do a dietary regimen to prevent stroke	69	31
I will not give home remedies immediately person has a stroke and will not advise others to do the same	64.5	35.5
Aggregate practice of stroke prevention		
Good	78	39
Poor	122	61

Table 7: Healthcare Worker's Relationship with the Practice of Stroke Prevention

Variables	Good Practice (%)	Poor Practice (%)	Chi-square	P-value	95%CI
Clinical Healthcare Workers	49(45.0)	60(55.0)	3.570	0.02	(0.321-1.023)
Non-Clinical Healthcare Workers	29(31.9)	62(68.1)			

Discussion

The ages of the respondents in this study ranged from 18 to 58 years with a mean age of 36.20±10.60 years, this compares well with the findings in a study on Healthcare professionals conducted in Botswana by Ookeditse Ookeditse et al[27], with a mean age of f 37.0 ± 9.0 years and 36.8 ± 14 years also was observed in a study conducted in Ghana[28]. The majority (56.5%) of respondents in our study were females which is similar to the findings in a study in Uganda (68%) [29].

Unlike the poor perception of stroke reported in previous studies among patients in Nigeria[16] and even in community-based studies in Malawi[30] and Tanzania[31] majority of the respondents in this study had a good aggregate knowledge (84%) of Stroke and they (87.5%) knew stroke as a disease of the blood vessels in the brain which is consistent (87.4%) with the findings of the study done in Sokoto Nigeria[16]. The majority of the healthcare workers (93.5%) in this study knew that stroke is a preventable disease. They had a good aggregate knowledge of stroke symptoms or signs (72%) and stroke risk factors (78%). , with a sudden weakness or paralysis on one side of the body(88.5%)

and Hypertension(93%) being the most commonly known signs or symptoms and risk factors of stroke respectively. This is in agreement with the finding in a study in Ghana that reported numbness or paralysis as the commonest stroke warning sign known to respondents[28]. While Hypertension was reported as the commonest risk factor of stroke in Brazil[32], it differs from the findings in studies conducted in Kano Nigeria[33] where headache and vertigo were the most common features accounting for 83.6% and 86.3%respectively.In Ireland[16] visual problems and slurred speech were reported respectively as the commonest stroke signs identified.

In our study, there was a significant association ($p < 0.0001$) of good knowledge of stroke by Clinical Healthcare workers [Chi-squares =27.1, 95%CI= (0.029-0.256)] when compared with non-clinical healthcare workers. This is the same with their knowledge of risk factors of stroke (Chi-squares=19.787, $p < 0.0001$, 95%CI (0.093-0.420). However, there was no significant association (p=0.102) between good knowledge of stroke symptoms or warning signs by the Clinical Health care workers [Chi-square=2.043, 95%CI= (0.342-1.185)] when compared with Non-Clinical Health care workers. Another study that added to the limited previous literature on Health professionals on knowledge of stroke, its prevention, risk factors, and warning signs focused only on doctors[34], nurses, and paramedics. The study looked at Community physicians' knowledge of secondary prevention after ischemic stroke in china[27]. The awareness rate of all healthcare professionals was highest for hypertension (96.5%), followed by obesity (93.3%), smoking (91.9%), elevated total cholesterol (91.0%), and physical inactivity (83.4%)[27]. This is consistent with our finding, that the most commonly known risk factors to the respondents included hypertension (93.0%), being overweight or obese (76.0%), excessive alcohol intake (75.5%), cigarette smoking (74.5%), and diabetes mellitus (73.5%). Only 44.2% of healthcare professionals recognized all eight modifiable risk factors while in our study about 78 % recognized all six risk factors showing low knowledge of stroke risk factors among some healthcare professionals in their subgroups.

The differences may have been attributed to different levels of prevention, sample size, respondents' educational levels, and different professional groups involved in the two studies. There were significant disperities[27] among the groups, with doctors scoring highest, followed by nurses and paramedics lowest[27]. The same in our study with 89.9% of doctors and nurses who had good knowledge of stroke risk factors as compared with other non-clinical healthcare workers 63.7%. These can partly be due to the 2.9% variance in the knowledge that is explained by profession in their study, and different education levels with doctors having the highest education level, followed by nurses and lowest paramedics. About 97.5% of healthcare workers in this study had tertiary education giving the impression that levels of education for the respondents were virtually the same. Indicating that the influence of the Profession is over and above levels of education on knowledge of stroke risk factors. Moreover, paramedic's attentions were more on recognizing emergencies rather than recognizing risk factors for those emergencies[27]

An integral component of stroke prevention relies on appropriately skilled and trained healthcare workers[27], given that healthcare professionals perform vital roles in stroke risk factors stratification and diagnosis. Despite recent advances in stroke therapy, the majority of stroke patients do not seek immediate medical attention [35]. Even in developed countries like the UK and France, and the USA. Knowledge of the warning signs and symptoms of stroke is required to improve the need for rapid medical calls. This is because not recognizing the early warning signs causes a pre-hospital delay. The main reason for stroke victims' too late hospital presentation is due to their inability to

identify the symptoms of stroke, waiting for the sign to abate by itself, and eventually paucity of awareness of the benefits that could be gotten from early treatment[35]. The present study depicted that around 72% of the study subjects had good aggregate knowledge of the warning signs of stroke. However, there was no significant association (p=0.102) between good knowledge of stroke symptoms or warning signs and the Clinical Health care workers [Chi-square=2.043, 95%CI= (0.342-1.185)], when compared with Non-Clinical Health care workers. This is almost the same as compared with the previous study done in Nigeria (87%) [35]

The aggregate practice of stroke prevention among the responders in this study was poor (54%). There was Poor Compliance with stroke prevention practices among Clinical Healthcare workers and Nonclinical Healthcare workers [Chi-square =3.570, p-value = 0.02, 95%CI= (0.321-1.023)]. The majority (72%) of respondents were >30 years of age and ought to know and would have started observing these routines in stroke prevention. However, a study found out that individuals with medical conditions of both hypertension and diabetes mellitus were 2.068 times[35] more practicing to prevent a stroke than the patients having diabetes solely and much more for individuals who do not have any condition as is the case with our study. Our study did not explore those with or without these diseases. Progress in their practice for the prevention of stroke could be due to their conviction of fear of late complications of the two diseases.

The poor practice (54%) of stroke prevention observed in this study, despite their good knowledge (84%) of stroke, and also that stroke is a preventable (93.5%) disease may have been due to the influences of their spiritual belief or cultural practices. A study done in Enugu Nigeria showed that most of the respondents had an incorrect attitude and poor practice towards stroke in Enugu North[37] despite adequate knowledge of stroke. They still believed that traditional medicinal healers (48.2%), and spiritual healers (61.1%) could treat stroke and that hospitals were not suitable for stroke patients. This may not be unconnected with our findings because of these perceived cultural and spiritual barriers over the perceived benefits of taking stroke patients immediately to the hospital. There is a need for future studies to evaluate the impact of cultural and spiritual practices on stroke prevention in our environment.

Limitations

There are some limitations to this study.

First, the survey was conducted in only one Hospital in Nigeria, there may be a need to do more Multi-center studies to validate these findings.

Second, not all stroke risk factors were included in this study.

Third, self-reported knowledge may not compare well with real practice.

Notwithstanding these limitations, there was an excellent response rate of the subjects and therefore results represent recent knowledge of healthcare professionals on symptoms or signs, stroke, risk factors, and practice of stroke prevention in Federal Medical Centre, Asaba, Nigeria.

4.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

This study showed good aggregate knowledge of stroke, symptoms or signs, and risk factors, but demonstrated that Healthcare workers had poor stroke prevention practices. The gaps identified

between knowledge, signs or symptoms, risk factors, and stroke prevention practices among respondents in this study may be due to their perceived cultural and spiritual barriers over the perceived benefits of their knowledge and practice of stroke prevention. This underlines the need for healthcare providers to give sufficient attention to educating themselves more on encouraging good health-promoting behavior change. This will impact positively on various levels of stroke prevention practices.

Recommendations

- This study highlights the importance of Clinical Healthcare workers' education and empowerment in promoting better knowledge of stroke prevention than any other group.
- There is a need to encourage Clinical Healthcare worker's approach focused on delegating to educating and creating awareness of knowledge of stroke prevention to the general public.
- Such a poor stroke prevention practice observed among Healthcare workers in this study did not correlate well with their good knowledge of stroke prevention. Thus, this indicator calls for further studies to evaluate other factors taking into account their Religious belief, their cultural context, and their behavioral perceptions of the disease which may have impacted negatively to their practice of stroke prevention.
- The government to make policies that will encourage the participation of all stakeholders:- Health Institutions, Religious leaders, and Community leaders in creating awareness of Knowledge and practice of stroke prevention to the general public.

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