

The Prevalence and Pattern of Poststroke Anxiety in a Tertiary Hospital in Abakaliki Nigeria: An Observational Study

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Abstract

Background: Anxiety is a very common mental health complication after an acute stroke. It hurts the overall poststroke outcome. There has not been any study to demonstrate the burden of poststroke Anxiety in Abakaliki, Nigeria. It is against this background that we embarked on this study of the Prevalence and Pattern of Poststroke Anxiety in a Federal Tertiary Hospital in Abakaliki Nigeria.

Methods: This is a cross-sectional and observational hospital-based study undertaken at the Adult Neurology Outpatient Clinic of Alex Ekwueme Federal University Teaching Hospital Abakaliki, Nigeria from January 2022 to July 2022 (7-month period).

Results: Out of the 156 stroke survivors that fulfilled the inclusion criteria, 71 (45.51%) had Post-Stroke Anxiety and it was more prevalent among female folks, the young age group, and those with poststroke depression.

Conclusion: Post-stroke Anxiety is prevalent among stroke survivors in Abakaliki, Nigeria. It is more preponderant in women, young stroke survivors, and in the presence of post-stroke depression.

Keywords: Anxiety • Depression • Neurology clinic • Stroke

Introduction

Stroke is an acute focal injury of the Central Nervous System (CNS) caused by a vascular lesion and it is characterized by a neurological deficit [1]. It includes ischemic and hemorrhagic stroke. Ischemic stroke (Cerebral infarction) occurs due to vascular occlusion while hemorrhagic stroke occurs following a rupture of blood vessels. Stroke is the most common aetiology of disability globally [2].

A mental illness occurs in more than 30% of stroke survivors and it may be associated with poor outcomes [3]. Globally, anxiety disorders are the most common group of mental health disorders in the general population, with an estimated lifetime occurrence of about 11% [4]. Anxiety after an acute cerebrovascular accident occurs in approximately 24% to 50% of stroke survivors [5,6]. Longitudinal studies suggest that Post-Stroke Anxiety (PSA) could persist for as long as a decade [7].

Stroke survivors have reported anxiety symptoms like palpitations, memory impairment, agoraphobia, stress intolerance, fear of a repeat stroke, and avoidance of coital exposure [6]. They have also reported a phobia of being home alone, going out alone, and travelling on public transport [6]. Anxiety can impair the outcome of stroke rehabilitation and consequently lead to poor quality of life [8].

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The mechanisms of PSA remain elusive, though recent findings point to abnormal functioning of the Hypothalamic-Pituitary-Adrenergic (HPA) axis, neurotransmitter disorders, neuronal excitability changes, cytokine levels imbalance, stroke lesion site, and psychophysiology [9].

There are limited data on the burden of PSA in Nigeria and Sub-Saharan Africa despite its high morbidity. It is against this background that we embarked on this study of the Prevalence and Pattern of Post-stroke Anxiety in a Federal Tertiary Hospital in Abakaliki Nigeria. The data derived from this study will form the database for future reference and planning purposes.

Methodology

Study design

This is a cross-sectional observational study conducted in the hospital.

Setting

The study was carried out at the adult Neurology outpatient clinic of Alex Ekwueme Federal University Teaching Hospital (AEFUTH) Abakaliki, a tertiary hospital in Abakaliki Nigeria from January to July. The hospital is a referral hub for Ebonyi state, and the surrounding states such as Enugu, Abia, Imo, Benue, and Cross River states. The Neurology clinic is held every Tuesday, and it is run by Consultant Neurologists and Senior Resident doctors in Neurology. The patients that are seen at the clinic are usually those who came for check-ups after initial discharge from the hospital, those referred from other outpatient clinics, and referrals from other hospitals.

Selection of patients

Consecutive patients of both genders and ≥ 18 years who presented to the clinic within the above period were recruited for the study. The exclusion criteria included aphasia, altered sensorium (Glasgow coma scale of 14 and below), history of psychiatric illness before stroke onset, significant bilateral hearing impairment, significant cognitive disturbances (Mini-mental state examination score of ≤ 10), and duration of less than seven days from stroke onset (acute stroke).

Interventions

There was no intervention.

Methods of measurement

The patients were screened for Poststroke anxiety with the Hamilton Anxiety Rating Scale (HAM-A) [10]. HAM-A was among the early introduced rating instruments for measuring the severity of anxiety symptoms [11]. It is among the most widely used rating scales and it has been used as a reference point for recently introduced rating instruments [12-14]. The presence of Post-Stroke Anxiety (PSA) was defined as a HAM-A score of ≥ 8 [15].

Data collection and processing

A structured and pretested questionnaire was used to document data on age, sex, educational attainment, and clinical characteristics while the Hamilton Anxiety rating scale (HAM-A) was used to assess for the presence of Anxiety from consecutive stroke survivors who met the inclusion criteria (Table 1) [10]. Post-Stroke Anxiety (PSA) was present when the HAM-A score was ≥ 8 [15] (Table 1).

The sample population was grouped into working-age (18-65 years) and elderly (≥ 65 years) groups [16]. The sample population was also classified according to Stroke type into Ischemic and hemorrhagic stroke based on the Neuroimaging report [17]. The further classification was based on the duration from stroke onset into Subacute (7 days to <6 months) and chronic stroke (6 months and above) [18]. modified Rankin Score (mRS) was used to measure the level of stroke outcome [19] and good outcome was mRS of 0-2 while poor outcome was 3-5 [20,21]. Education attainment was classified based on the duration of formal education as low (≤ 12 years) and high (>12 years) attainment. Depression was assessed using Beck's Depression Inventory (BDI) and a score of >10 defines the presence of depression [22].

Loss of data such as dropouts or patients lost to follow-up

There was no significant attrition as it was a cross-sectional study.

Statistical methods used

The data were analyzed with Statistical Package for the Social Sciences (SPSS) version 25. The qualitative variables were presented as proportions and percentages while the continuous variables were presented as means and standard deviations. Chi-square with Yates correction was used to test for the statistical significance of the qualitative variables while the student t-test was used to test for the statistical significance of continuous variables at a 95% confidence interval with a p-value of <0.05 as significant.

Ethical guidelines followed by the investigators

Ethical approval was secured from the Internal Medicine department and the institutional Research Ethics committee. Consent was also obtained from the patients before recruitment. The patient's identity was not disclosed during data reporting.

Results

One Hundred and fifty-six (156) stroke survivors who met the study inclusion criteria were included in the study. There were 99 (63.46%) males and 57 (36.54%) females with a sex ratio of approximately 2:1 respectively. The mean age was 62.75 ± 13.28 years (male- 64.32 ± 14.21 , female= 58.18 ± 12.72) with an age range of 25 to 89 years. The modal and median age ranges were 60 - 69 years respectively (Table 2).

Seventy-one (45.51%) patients had Post-Stroke Anxiety (PSA) with significant female preponderance. Twenty-five (35.21%) had mild PSA, while 38 (55.52%) and 8 (11.28%) patients had moderate and severe anxiety symptoms respectively (Table 3).

Younger age, female sex, and presence of depression were significantly associated with PSA. Type of stroke, stroke severity, stroke duration, and educational attainment were not significantly associated with PSA (Table 4).

Table 1. Hamilton anxiety rating scale severity grading.

Severity	Score
Normal	0-7
Mild	8-14
Moderate	15-23
Severe	≥ 24

Table 2. Age and sex distribution.

Age Range	Male- n (%)	Female- n (%)	Total- N (%)
18- 29	1 (0.64)	0 (0.00)	1 (0.64)
30- 39	2 (1.28)	1 (0.64)	3 (1.92)
40- 49	8 (5.13)	5 (3.21)	13 (8.33)
50- 59	21 (13.46)	17 (10.90)	38 (24.36)
60- 69	40 (25.64)	22 (14.10)	62 (39.74)
70- 79	16 (10.25)	7 (4.49)	23 (14.74)
≥ 80	10 (6.41)	5 (3.21)	15 (9.62)
Total	99 (63.46)	57 (36.54)	156 (100)

Table 3. Pattern and severity of poststroke anxiety.

Severity	Male- n (%)	Female- n (%)	Total- N (%)	Chi-square	p-value
Normal	68 (80.00)	17 (20.00)	85 (100)	20.4908	<0.0001
Mild	6 (24.00)	19 (76.00)	25 (100)	-	-
Moderate	22 (57.89)	16 (42.11)	38 (100)	-	-
Severe	3 (37.50)	5 (62.50)	8 (100)	-	-

Table 4. Poststroke anxiety and clinical characteristics.

Variables	Mean HAM-A	Frequency- n (%)	t- value	95 % CI	p-value	
Age Range (years)	18- 64	11.76	83 (53.21)	3.6918	2.4826 to 8.1974	0.0003
	≥ 65	6.42	73 (46.79)	-	-	-
Sex	Male	7.39	99 (63.46)	3.7431	-9.1514 to -2.8286	0.0003
	Female	13.38	57 (36.54)	-	-	-
Type of Stroke	Ischemic	9.60	135 (86.54)	1.2644	-1.462 to 6.662	0.2080
	Hemorrhagic	7.00	21 (13.46)	-	-	-
Modified Rankin Score	0-2	10.29	101 (64.74)	1.8768	-0.1499 to 5.8499	0.0624
	3-5	7.44	55 (35.26)	-	-	-
Duration of Stroke (Months)	0-5	8.07	81 (51.92)	1.8548	-5.5343 to 0.1743	0.0655
	≥ 6	10.75	75 (48.08)	-	-	-
Years of formal Education	≤ 12	10.29	105 (67.31)	1.8280	-0.2300 to 5.9300	0.0695
	> 12	7.44	51 (32.69)	-	-	-
Depression	Absent	8.14	109 (69.87)	4.8078	-13.5587 to -5.6613	0.0001
	Present	17.75	47 (30.13)	-	-	-

CI: Confidence Interval and HAM-A: Hamilton Anxiety rating scale

Discussion

Poststroke anxiety is one of the most prevalent mental health illnesses following stroke. The prevalence varies widely depending on the diagnostic instrument and other factors. The prevalence in this study was 45% and it is like other studies that reported 24% - 50% [5,6,22]. Contrarywise, Oni OD, et al. reported a lower prevalence rate of 10% in Lagos Nigeria [23]. Oni OD, et al. used the Schedule for Clinical Assessment in Neuropsychiatry (SCAN version 2.0) for PSA diagnosis while the Hamilton Anxiety rating scale was used in this study. This observed disparity could result from the different diagnostic tools used, the study sample size, and the mean age. The high prevalence of PSA in this study is of great concern considering the negative impact it has on functional outcomes and health-related quality of life after stroke [8,24,25].

The pattern of severity of PSA in this study was predominantly moderate to severe anxiety symptoms. This trend is even more worrisome. It portends great danger as the negative effect of PSA will have overwhelming consequences on stroke survivors.

There was a significant statistical association between PSA and working age (young adults). This agrees with the report from other hospital-based studies [26,27]. This working age group has lower poststroke mortality than elderly counterparts and they invariably live longer with poststroke disabilities and their attendant consequences [28]. This trend could stem from their vulnerability to developing poststroke psychosocial problems when they fail to fulfill key familial, occupational, and societal roles including forming families, making decisive career moves, and living an active social life [29-31]. This makes them require significant adjustments to daily life than their older counterparts to surmount the challenges ahead.

Furthermore, there was a significant statistical association between PSA and female gender. This agrees with the reports from other studies [32-35]. This female predilection may be multifactorial ranging from psychosocial issues, and biological issues. Stroke mortality is lower in females than in their male counterparts, so they live longer with poststroke sequelae which include PSA. Most of the female stroke survivors may have lost their husbands which results in increased psychosocial issues which predispose them to PSA [36]. Female sex hormones especially estradiol and progesterone may be implicated in the pathogenesis of PSA [37].

The association of PSA with PSD as reported in this study is not unexpected as they have similar pathogenesis both biologically and psychosocially [6]. The association between PSA and PSD was similarly reported by other studies [38,39]. Following a stroke, the changes observed in the brain either facilitate stroke recovery or result in behavioral changes that result in mental health disorders, particularly anxiety, and depression [40]. The mental distress caused by post-stroke physical disabilities and the disruption of cerebral

neuronal circuitry play a major role in the pathogenesis of both PSD and PSA [41,42]. The above association increases the morbidity of stroke and worsens functional outcomes and quality of life.

PSA was more prevalent in patients that had an ischemic stroke compared to hemorrhagic stroke, though not statistically significant which is like the report of Samantray S, et al. [41] and Ojagbemi A, et al. [43] reported a higher prevalence of PSA in hemorrhagic stroke [43]. The difference in the findings could be related to different instruments used in PSA diagnosis. Ojagbemi, et al. used Hospital Anxiety and Depression Scale (HADS) while this study and Samantray S, et al. used HAM-A [41]. Cerebral ischemia is reported to play a major role in the pathogenesis of PSA [6].

There was no significant statistical association between PSA and stroke severity, duration from stroke onset, and level of education. Ojagbemi A, et al. expectedly reported a higher prevalence of PSA in more severe strokes [43]. Severe stroke is associated with greater cerebral neuronal disruption and is expected to cause many mental changes. The difference in the findings could be related to PSA diagnosis and the sample size difference. PSA was reported to be associated with chronic stroke more than subacute stroke. This could be related to the persistence of poststroke disability and possible subclinical recurrence which worsens the cerebral neuronal disruption. This study reported more prevalence of PSA in patients with low education attainment, though not statistically significant which was like the report of Oni OD, et al. [23]. Stroke survivors with limited formal education may be exposed to higher levels of psychosocial stress from financial constraints and misconceptions of stroke sequelae.

Limitations

The associations established in this study may not be very strong considering that it is a cross-sectional and observational study. Also, the limited sample size and one-centre study could affect the generalizability of the findings.

Conclusion

The prevalence of poststroke anxiety is high amongst stroke survivors in Abakaliki Nigeria and it is associated with working-class age groups, female folks, and the presence of post-stroke depression. The majority had moderate to severe forms.

There is a need to screen all stroke survivors for the presence of PSA and manage accordingly to mitigate the adverse consequences. There is also the need for a multi-center collaborative and longitudinal study to identify the true burden of Poststroke Anxiety

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Conflict of Interest

The authors declare that they have no competing interests.

References

- Sacco, Ralph L., Scott E. Kasner, Joseph P. Broderick and Louis R. Caplan, et al. "An updated definition of stroke for the 21st century: A statement for healthcare professionals from the American Heart Association/American Stroke Association." *Stroke* 44 (2013): 2064-2089.
- Tsao, Connie W., Aaron W. Aday, Zaid I. Almarzooq and Cheryl AM Anderson, et al. "Heart disease and stroke statistics—2023 update: A report from the American Heart Association." *Circ* 147 (2023): e93-e621.
- Almeida, Osvaldo P. and Jianguo Xiao. "Mortality associated with incident mental health disorders after stroke." *Aust N Z J Psychiatry* 41 (2007): 274-281.
- Kessler, Ronald C., Sergio Aguilar-Gaxiola, Jordi Alons and Somnath Chatterji, et al. "The global burden of mental disorders: An update from the WHO World Mental Health (WMH) surveys." *Epidemiol Psychiatr Sci* 18 (2009): 23-33.
- Burton, C. Alexia Campbell, Jenni Murray, John Holmes and Felicity Astin, et al. "Frequency of anxiety after stroke: A systematic review and meta-analysis of observational studies." *Int J Stroke* 8 (2013): 545-559.
- Naghavi, Farzaneh Sadat, Erin E. Koffman, Boren Lin and Jianyang Du. "Post-stroke neuronal circuits and mental illnesses." *Int J Physiol Pathophysiol Pharmacol* 11 (2019): 1.
- Ayerbe, Luis, Salma A. Ayis, Siobhan Crichton and Charles DA Wolfe, et al. "Natural history, predictors and associated outcomes of anxiety up to 10 years after stroke: The South London Stroke Register." *Age and Ageing* 43 (2014): 542-547.
- Astrom, Monica. "Generalized anxiety disorder in stroke patients: A 3-year longitudinal study." *Stroke* 27 (1996): 270-275.
- Shu, Yu-Qian, Fan Wu, Fan Zhang and Jiao Lu, et al. "Research progress on the mechanism of post-stroke anxiety." *Sheng Li Xue Acta Physiologica Sinica* 74 (2022): 648-656.
- Hamilton, M. A. X. "The assessment of anxiety states by rating." *Br J Health Psychol* (1959).
- Thompson, Euan. "Hamilton rating scale for anxiety (HAM-A)." *Occup Med* 65 (2015): 601-601.
- Beck, Aaron T., Norman Epstein, Gary Brown and Robert A. Steer. "An inventory for measuring clinical anxiety: Psychometric properties." *J Consult Clin Psychol* 56 (1988): 893.
- Donzuso, Giulia, Antonio Cerasa, Maria C. Gioia and Manuela Caracciolo, et al. "The neuroanatomical correlates of anxiety in a healthy population: Differences between the state-trait anxiety inventory and the Hamilton anxiety rating scale." *Brain Behav* 4 (2014): 504-514.
- Beck, Aaron T. and Robert A. Steer. "Relationship between the Beck anxiety inventory and the Hamilton anxiety rating scale with anxious outpatients." *J Anxiety Disord* 5 (1991): 213-223.
- Matza, Louis S., Robert Morlock, Chris Sexton and Karen Malley, et al. "Identifying HAM-A cutoffs for mild, moderate, and severe generalized anxiety disorder." *Int J Methods Psychiatr Res* 19 (2010): 223-232.
- <https://www.ncbi.nlm.nih.gov/books/NBK235450/>
- Kuriakose, Diji and Zhicheng Xiao. "Pathophysiology and treatment of stroke: Present status and future perspectives." *Int J Mol Sci* 21 (2020): 7609.
- Grefkes, Christian and Gereon R. Fink. "Recovery from stroke: Current concepts and future perspectives." *Neurol Res Pract* 2 (2020): 17.
- Broderick, Joseph P., Yuko Y. Palesch, Andrew M. Demchuk and Sharon D. Yeatts, et al. "Endovascular therapy after intravenous t-PA vs. t-PA alone for stroke." *N Engl J Med* 368 (2013): 893-903.
- Furlan, Anthony, Randall Higashida, Lawrence Wechsler and Michael Gent, et al. "Intra-arterial prourokinase for acute ischemic stroke: The PROACT II study: A randomized controlled trial." *Jama* 282 (1999): 2003-2011.
- Jackson-Koku, Gordon. "Beck depression inventory." *Occup Med* 66 (2016): 174-175.
- Buoli, Massimiliano, Maria Rosaria Malerba, Marta Serati and Alfredo Carlo Altamura, et al. "Psychiatric symptoms in patients with stroke: A six-month follow-up study." *J Stroke Cerebrovasc Dis* 25 (2016): 2087-2088.
- Oni, Osunwale Dahunsi, Andrew T. Olagunju, Peter O. Ogunnubi and Olatunji F. Aina, et al. "Poststroke anxiety disorders in a Nigerian hospital: Prevalence, associated factors, and impacts on quality of life." *J Clin Sci* 14 (2017): 106-112.
- Wing, John Kenneth, Thomas Babor, T. S. Brugha and J. Burke, et al. "SCAN: Schedules four clinical assessment in neuropsychiatry." *Arch Gen Psychiatry* 47 (1990): 589-593.
- Tang, Wai Kwong, Chieh Grace Lau, Vincent Mok and Gabor S. Ungvari, et al. "Impact of anxiety on health-related quality of life after stroke: A cross-sectional study." *Arch Phys Med Rehabil* 94 (2013): 2535-2541.
- Chun, Ho-Yan Yvonne, William N. Whiteley, Martin S. Dennis and Gillian E. Mead, et al. "Anxiety after stroke: The importance of subtyping." *Stroke* 49 (2018): 556-564.
- Menlove, Leanne, Elise Crayton, Ian Kneebone and Rhani Allen-Crooks, et al. "Predictors of anxiety after stroke: A systematic review of observational studies." *J Stroke Cerebrovasc Dis* 24 (2015): 1107-1117.
- Rhudy, Lori M., Jennifer Wells-Pittman and Kelly D. Flemming. "Psychosocial sequelae of stroke in working-age adults: A pilot study." *J Neurosci Nurs* 52 (2020): 192-199.
- Martinsen, Randi, Marit Kirkevold and Unni Sveen. "Young and midlife stroke survivors' experiences with the health services and long-term follow-up needs." *J Neurosci Nurs* 47 (2015): 27-35.
- Magwood, Gayenell S., Brandi M. White and Charles Ellis. "Stroke-related disease comorbidity and secondary stroke prevention practices among young stroke survivors." *J Neurosci Nurs* 49 (2017): 296-301.
- Maaijwee, Noortje AMM, Loes CA Rutten-Jacobs, Pauline Schaapsmeeders and Ewoud J. Van Dijk, et al. "Ischaemic stroke in young adults: Risk factors and long-term consequences." *Nat Rev Neurol* 10 (2014): 315-325.
- Zalhić, Amra, Vedran Markotić, Dino Zalhić and Mirela Mabić. "Gender and quality of life after cerebral stroke." *Bosn J Basic Med Sci* 10 (2010): 94.
- Li, Wei, Wei-Min Xiao, Yang-Kun Chen and Jian-Feng Qu, et al. "Anxiety in patients with acute ischemic stroke: Risk factors and effects on functional status." *Front Psychiatry* 10 (2019): 257.
- Morrison, Val, Beth Pollard, Marie Johnston and Ron MacWalter. "Anxiety and depression 3 years following stroke: Demographic, clinical, and psychological predictors." *J Psychosom Res* 59 (2005): 209-213.
- Yao, Meiling, Hongjie Li, Ying Luo and Ling Li, et al. "High prevalence of post-stroke anxiety in elderly patients following COVID-19 outbreak." *Front Psychiatry* 12 (2021): 699869.
- Yaya, OlaOluwa S., Oluwaseun A. Otegunrin and Ahamefula E. Ogbonna. "Life expectancy in West African countries: Evidence of convergence and catching up with the north." *Stat Transit New Series* 22 (2021): 75-88.
- Li, Sophie H. and Bronwyn M. Graham. "Why are women so vulnerable to anxiety, trauma-related and stress-related disorders? The potential role of sex hormones." *Lancet Psychiatry* 4 (2017): 73-82.
- Huang, Cathy CY, Tengfei Ma, Emily A. Roltsch Hellard and Xuehua Wang, et al. "Stroke triggers nigrostriatal plasticity and increases alcohol consumption in rats." *Sci Rep* 7 (2017): 2501.
- Huang, Chiung-Ying, Miki Fujimura, Nobuo Noshita and Yung-Yee Chang, et al. "SOD1 down-regulates NF-κB and c-myc expression in mice after transient focal cerebral ischemia." *J Cereb Blood Flow Metab* 21 (2001): 163-173.
- Hackett, Maree L., Chaturangi Yapa, Varsha Parag and Craig S. Anderson. "Frequency of depression after stroke: A systematic review of observational studies." *Stroke* 36 (2005): 1330-1340.
- Samantray, Swayanka, Srikant Ku Sahoo and Surjeet Sahoo. "A study on clinical correlates of post-stroke anxiety." *Indian J Psychiatry* 64 (2022): S614.

42. Ojagbemi, A., M. Owolabi, R. Akinyemi and O. Arulogun, et al. "Prevalence and predictors of anxiety in an African sample of recent stroke survivors." *Acta Neurol Scand* 136 (2017): 617-623.
43. Ojagbemi, Akin, Joshua Akinyemi, Mayowa Owolabi and Rufus Akinyemi, et al. "Predictors and prognoses of new onset post-stroke anxiety at one year in black Africans." *J Stroke Cerebrovasc Dis* 29 (2020): 105082.

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