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Prevalence and Sociodemographic Profile of Caregiver Strain Among Caregivers of Stroke Survivors in Oyo State, Nigeria

David Samuel Otu, MPH
Department of Field Epidemiology, University of Aberdeen, Scotland; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Ikeoluwapo Ajayi, PhD
Department of Epidemiology & Medical Statistics, University of Ibadan, Nigeria

Eniola Bamgboye, PhD
Department of Epidemiology & Medical Statistics, University of Ibadan, Nigeria

Kennedy Oberhiri Obohwemu, PhD
Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Gordon Mabengban Yakpir, PhD
Faculty of Health, Wellbeing & Social Care, Oxford Brookes University, GBS Partnership, Birmingham Campus, United Kingdom; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Celestine Emeka Ekwuluo, MPH
Family Health International, Ukraine; and PENKUP Research Institute, Birmingham, United Kingdom; Department of Multidisciplinary Studies & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Kenneth Oshiokhayamhe Iyevhobu, MPH
Department of Medical Laboratory Science, Faculty of Applied Health Science, Edo State University, Iyamho, Edo State, Nigeria; Department of Medical Microbiology, Faculty of Medical Laboratory Science, Ambrose Alli University, Ekpoma, Edo State, Nigeria; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Eddy Eidenehi Esezobor, PhD
Department of Management Studies, Universidad Católica San Antonio de Murcia (UCAM), Murcia, Spain; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Festus Ituah, PhD
School of Health and Sports Science, Regent College, London, United Kingdom; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Nera Perpetual Kadiri-Eneh, PhD
School of Public Health, University of Port Harcourt, Rivers State, Nigeria; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Jennifer Adaeze Chukwu, PhD
World Health Organization, United Nations House, Abuja, Nigeria; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

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Obiageli Uzoamaka Onyemelukwe, FWACP
Alras General Hospital, Alras, Al-Qassim, Saidi Arabia; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Barth Onyekachi Nwokedi, MScPH
Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Ekenedilichukwu Anselem Odiegwu, MScPH
Tees, Esk and Wear Valleys NHS Foundation Trust, Lanchester Road Hospital, Durham, United Kingdom; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Yetunde Esther Olotu, MScPH
Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Akinwande Maajulah Oyeteju, MScPH (in progress)
School of Public and Allied Health, Liverpool John Moore University, United Kingdom; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Imaobong Imayuse Ekanem, MBBS
Department of Internal Medicine, Kubwa General Hospital, Abuja, Nigeria; and Department of Interdisciplinary Research and Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Emilia Nwamaka Nwaojei, MBBS
Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Emmanuel Ifeanyi Eze, MBBS
Eye Center, Lily Hospital, Warri, Nigeria; and Department of Interdisciplinary Research & Statistics, PENKUP Research Institute, Birmingham, United Kingdom.

Corresponding Author: Dr. Kennedy Oberhiri Obohwemu, Senior Researcher & Project Coordinator, PENKUP Research Institute, Birmingham, United Kingdom. https://orcid.org/0000-0001-5175-1179, Kennedy.Obohwemu@penkup.com

ABSTRACT

Stroke often results in long-term functional limitations that require sustained caregiving support. Informal caregivers, therefore, assume a central role in rehabilitation and daily care. Despite their importance, caregiving responsibilities frequently expose caregivers to significant physical, psychological, and social pressures. Evidence from many settings indicates that caregiver strain remains a common experience among those supporting stroke survivors. The present study examined the prevalence of caregiver strain and described the sociodemographic characteristics of caregivers of stroke survivors attending selected health facilities in Oyo State, Nigeria.

A cross-sectional study design was employed involving 241 caregivers recruited through systematic random sampling from several health facilities providing stroke care. Data were collected using a

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structured questionnaire that included the Caregiver Strain Index (CSI). Descriptive statistical analyses were conducted using SPSS version 20.

The mean age of caregivers was 39.5 ± 15.6 years. Female caregivers constituted 55.6% of the sample. Children of stroke survivors formed the largest caregiving group at 42.7%, followed by spouses at 21.6%. The prevalence of caregiver strain was 71.8%, with a mean CSI score of 7.11 ± 2.03.

The findings indicate that caregiver strain among stroke caregivers in this setting is widespread. Recognition of caregiver strain within stroke rehabilitation programmes is essential. Clinical services should incorporate routine caregiver assessment and support strategies to sustain caregiving capacity and improve long-term patient outcomes.

Keywords: Caregiver strain, stroke survivors, informal caregiving, prevalence, Nigeria

INTRODUCTION

Stroke remains one of the leading causes of disability worldwide and continues to impose a substantial burden on patients, families, and health systems. Survivors often experience long-term limitations in mobility, communication, and daily functioning that require ongoing support. Informal caregivers therefore become indispensable in the rehabilitation and long-term management of stroke survivors (Okoye et al., 2019; Michael et al., 2025).

Informal caregiving refers to the provision of care by relatives, friends, or other individuals within a person's social network who offer assistance without formal compensation or professional training (Rocard & Llena-Nozal, 2022). Caregivers frequently provide assistance with mobility, personal care, medication administration, and emotional support. Such responsibilities often arise suddenly following a stroke event, leaving caregivers little opportunity to prepare for their new role.

The concept of caregiver strain captures the multidimensional pressures associated with caregiving. The Oncology Nursing Society describes caregiver strain as the cumulative difficulties experienced while fulfilling caregiving responsibilities, including disruptions to physical health, emotional wellbeing, and social functioning (Jadalla et al., 2020). When care demands exceed available resources, caregivers may experience exhaustion, stress, and reduced quality of life.

Stroke caregiving presents distinctive challenges compared with other chronic conditions. The sudden onset of stroke frequently results in abrupt changes to family roles and household responsibilities. Family members often become primary caregivers immediately after hospital discharge. In many settings, especially in low- and middle-income countries, formal long-term care services such as nursing homes or rehabilitation facilities remain limited. As a result, family caregivers shoulder most of the responsibility for ongoing care (Glinskaya, Feng & Suarez, 2022).

Evidence from several studies indicates that caregiver strain among stroke caregivers can be substantial. Research conducted in India reported that 100% of caregivers of stroke survivors experienced strain, with 16.8% classified as severe, 53.6% as moderate, and 29.6% as mild (Gaur et al., 2023). Studies conducted in Nigeria have also documented high levels of caregiver burden within family

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caregiving contexts (Udoh et al., 2021). These findings highlight the need to better understand caregiver experiences in different settings, particularly where health system resources remain constrained.

Quality of life considerations further emphasise the importance of examining caregiver wellbeing. The World Health Organization defines quality of life as an individual's perception of their position in life within the cultural and value systems in which they live, and in relation to their goals and expectations (WHO, 2012). Caregiving demands can disrupt several dimensions of life including employment, physical health, emotional stability, and social relationships. Sustained caregiver strain may therefore affect both caregiver wellbeing and the quality of care provided to patients.

Understanding the prevalence of caregiver strain within specific populations provides important insights for clinical practice and health policy. Identification of the sociodemographic characteristics of caregivers also contributes to the development of targeted interventions aimed at supporting caregiver wellbeing. Health systems that recognise caregivers as partners in rehabilitation may be better positioned to improve long term outcomes for stroke survivors.

Despite the growing body of research on stroke caregiving, evidence from many parts of sub-Saharan Africa remains limited. Cultural expectations of family support, limited access to institutional care facilities, and constrained health system resources create unique caregiving environments that require careful study.

The present research therefore examined the prevalence of caregiver strain among caregivers of stroke survivors attending selected health facilities in Oyo State, Nigeria. In addition, the study described the sociodemographic characteristics of caregivers involved in stroke care within this setting.

METHODS

Study Design

A cross-sectional study design was adopted to examine caregiver strain among caregivers of stroke survivors attending selected health facilities in Oyo State, Nigeria. Cross-sectional designs are widely used in health research to estimate the prevalence of outcomes and to describe population characteristics at a single point in time (Setia, 2016). This design was appropriate for the present study as it enabled the wider research to quantify the burden of caregiver strain within a defined population while also providing a clear descriptive profile of caregivers within the study setting. Given the resource constraints often associated with facility-based research in low- and middle-income settings, cross-sectional approaches remain a practical and efficient method for generating baseline evidence that can inform service planning and policy development (Maier et al., 2023).

Study Setting

Data collection was carried out across multiple health facilities involved in stroke care within Oyo State. These included the University College Hospital Ibadan, Ring Road State Hospital Ibadan, General Hospital Oyo, Adeoyo Hospital Yemetu, Jericho Nursing Home, and the Family Medicine Clinic in Dugbe, Ibadan. These facilities provide a range of services including outpatient care, physiotherapy, and rehabilitation support for stroke survivors. Stroke management often requires long-term follow-up, which makes outpatient clinics key points of interaction between healthcare

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providers, patients, and caregivers (Ekechukwu et al., 2020; Ogunde et al., 2023). The inclusion of multiple centres enhanced the representativeness of the sample and allowed the wider research to capture caregiving experiences across different service contexts within the state.

Study Population

The study population comprised informal caregivers accompanying stroke survivors to clinic visits. Informal caregivers are typically family members or close associates who provide unpaid care and support to individuals with chronic conditions (Kisangala et al., 2024; Hailu et al., 2025). A total of 241 caregivers participated in the study. This sample size was consistent with established recommendations for cross-sectional studies seeking to estimate prevalence with acceptable precision (Bonsra et al., 2015). Caregivers included individuals providing assistance with daily activities, mobility, and general support to stroke survivors during clinic attendance.

Systematic random sampling was employed to recruit participants. Clinic appointment registers served as sampling frames. The first participant was selected randomly, after which every nth caregiver accompanying a stroke patient was approached for inclusion. Systematic sampling is recognised as a robust method for reducing selection bias when a complete sampling frame is available, particularly in clinical settings where patient flow is structured (Etikan & Bala, 2017). This approach ensured that participant selection followed a consistent and transparent procedure across all study sites.

Data Collection Instrument

Data were collected using a structured questionnaire divided into four sections. Section A captured sociodemographic characteristics including age, gender, occupation, educational level, and relationship to the stroke survivor. These variables are commonly examined in caregiving research as they provide insight into the social and economic context of caregiving (Minichil, Getinet & Kassew, 2021; Tang et al., 2021; Kirk, Kabdebo & Whitehead, 2022).

Section B assessed caregiver strain using the Caregiver Strain Index (CSI). The CSI is a validated twelve-item screening tool developed to identify strain among caregivers. Each item is scored dichotomously, with responses summed to produce a composite score. A score of seven or higher indicates the presence of caregiver strain. The CSI has demonstrated good reliability and validity across diverse caregiving populations and remains widely used in clinical and research settings (Robinson, 1983; Thornton & Travis, 2003). Its brevity and ease of administration make it particularly suitable for use in busy outpatient environments.

Data Analysis

Data were analysed using the Statistical Package for Social Sciences version 20. Descriptive statistical methods were employed to summarise the characteristics of the study population and the distribution of caregiver strain. Continuous variables were presented as means and standard deviations, while categorical variables were summarised using frequencies and percentages. Descriptive analysis provides a clear and interpretable overview of study findings and is essential for prevalence studies where the primary objective is to quantify the burden of a condition within a population (Sapkota, 2023).

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RESULTS

Sociodemographic Characteristics of Caregivers

The study included a total of 241 caregivers of stroke survivors, providing a detailed overview of the caregiving population within the study setting. The mean age of caregivers was 39.5 years (SD = 15.6), indicating a relatively young to middle-aged population actively involved in caregiving responsibilities. This age distribution suggests that caregiving is largely undertaken by individuals who may also be engaged in employment, family responsibilities, and other social roles, which may have implications for caregiving capacity and sustainability.

Female caregivers constituted the majority of the sample, accounting for 55.6%, while male caregivers represented 44.4%. This distribution reflects a modest gender imbalance, with caregiving roles more frequently assumed by women. Such a pattern highlights the continued importance of gendered caregiving roles within family systems, where women often take on primary responsibility for informal care.

In terms of educational attainment, the largest proportion of caregivers had completed secondary education (44.8%), followed by those with tertiary education (32.0%). A smaller proportion had only primary education (14.1%), while 9.1% had completed postgraduate education. This distribution indicates that most caregivers possessed at least a basic level of formal education, which may influence their ability to navigate healthcare systems and understand treatment requirements.

Occupationally, caregivers were engaged in diverse activities, with the largest group involved in sales or business (37.8%). This reflects a predominance of informal or self-employed economic activities within the caregiving population. The presence of caregivers within such occupations may suggest potential financial instability or variability in income, which could interact with caregiving demands.

Family relationships between caregivers and stroke survivors revealed that children constituted the largest caregiving group (42.7%), followed by spouses (21.6%). Other relationships formed smaller proportions of the caregiving population. This distribution underscores the central role of immediate family members in providing care, with caregiving responsibilities largely concentrated within close familial networks.

Health insurance coverage among stroke survivors was notably low. Only 16.2% of stroke survivors were reported to have health insurance, while the majority, 83.8%, were uninsured. This finding highlights potential financial vulnerabilities within caregiving households and suggests that many caregivers may be supporting patients within contexts of limited financial protection.

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Table 1 presents the full sociodemographic profile of caregivers.

Table 1: Sociodemographic profile of caregivers.

Variable	n	%
Male	107	44.4
Female	134	55.6
Completed Primary	34	14.1
Completed Secondary	108	44.8
Completed Tertiary	77	32.0
Completed Postgraduate	22	9.1

Note: N = 241. Percentages may not total 100 due to rounding.

Caregivers reported a mean monthly income of ₦43,483 (SD = 84,359), indicating substantial variability in earnings within the study population. The wide standard deviation suggests that while some caregivers may have relatively stable income levels, others may experience considerable financial constraints.

The mean duration of stroke among patients was 1.74 years (SD = 2.92), reflecting a population of stroke survivors at varying stages of recovery and long-term care. The average duration of caregiving was 1.52 years (SD = 2.67), suggesting that caregiving responsibilities were often sustained over extended periods. Such prolonged caregiving may have important implications for caregiver wellbeing and long-term strain.

On average, three caregivers were involved per stroke survivor (SD = 2), indicating that caregiving responsibilities were often shared among multiple individuals. This pattern suggests the presence of informal support networks within households, although the distribution of caregiving tasks among these individuals remains variable.

These characteristics are summarised in Table 2.

Table 2: Additional characteristics of caregivers

Variable	Mean ± SD
Average monthly income (₦)	43,483 ± 84,359
Duration of stroke (years)	1.74 ± 2.92
Length of caregiving (years)	1.52 ± 2.67
Number of caregivers	3 ± 2

Note: N = 241.

Prevalence of Caregiver Strain

Caregiver strain was highly prevalent within the study population. A total of 71.8% of caregivers recorded Caregiver Strain Index scores indicative of strain, demonstrating that a substantial proportion of caregivers experienced measurable burden associated with their caregiving roles. The mean Caregiver

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Strain Index score was 7.11 (SD = 2.03), further reinforcing the overall high level of strain within the sample.

Among caregivers classified as strained, 58% were female, while 42% were male. This distribution indicates a slightly higher burden of strain among female caregivers. Although both genders were affected, the higher proportion among women reflects the broader caregiving pattern observed within the sample, where women were more frequently represented.

Mostly, the findings highlight a caregiving population characterised by diverse sociodemographic backgrounds, limited insurance coverage, and substantial caregiving demands, alongside a high prevalence of caregiver strain.

DISCUSSION

The present study examined caregiver strain among caregivers of stroke survivors receiving care in selected health facilities in Oyo State, Nigeria. The findings indicate that caregiver strain is highly prevalent within this population, with close to three-quarters of caregivers experiencing levels of strain that meet established thresholds. This level of burden underscores the intensity of caregiving demands within stroke care contexts, particularly in settings where formal support systems remain limited.

The observed prevalence of approximately 72% aligns with results reported in several international studies. Research conducted in India reported caregiver strain levels exceeding 80% among caregivers of stroke survivors (Raju et al., 2012). Similar levels of strain have also been reported in studies examining informal caregiving contexts in Nigeria (Abdullahi et al., 2022). These consistent findings across different geographical settings suggest that caregiver strain is not an isolated phenomenon but rather a widespread outcome of the demands associated with stroke care. Comparative research has also shown that caregiver burden in stroke populations often exceeds that observed in other chronic conditions, reflecting the sudden onset and complex rehabilitation needs associated with stroke (Suksatanet al., 2022; Tziaka et al., 2024).

High prevalence levels may reflect the substantial demands associated with stroke caregiving. Stroke survivors often require assistance with activities of daily living, including feeding, dressing, mobility, and personal hygiene. In addition, caregivers may provide ongoing supervision due to cognitive impairment or functional limitations. Caregiving responsibilities may therefore extend across many hours each day and persist for several years following the initial stroke event. Evidence from longitudinal studies indicates that caregiver burden can remain elevated long after hospital discharge, particularly when functional recovery is limited (Pont et al., 2020; Lin et al., 2022; Schenin-King Andrianisaina et al., 2025). These sustained demands place considerable physical and psychological strain on caregivers.

The sociodemographic profile of caregivers observed in this study highlights the central role of family members in stroke care. Children and spouses constituted the largest caregiving groups. Such patterns are consistent with cultural expectations of family responsibility within many African communities where institutional long-term care facilities remain limited (Curreri et al., 2023; Hailu et al., 2025; Okigbo et al., 2025). Informal caregiving structures are therefore shaped not only by necessity but also by deeply rooted social norms that prioritise family-based care over institutional alternatives.

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Female caregivers represented the majority of respondents in this study. This distribution reflects broader patterns observed in global caregiving research, where women frequently assume primary caregiving roles within families (Asuquo & Akpan-Idiok, 2020; Kusi et al., 2020). Caregiving responsibilities may therefore intersect with other social roles, including employment, parenting, and household management. Such overlapping responsibilities can intensify caregiver burden and contribute to physical and emotional exhaustion.

Educational attainment among caregivers varied, although secondary education represented the largest category. Occupational profiles also revealed substantial representation among individuals engaged in sales or informal economic activities. These findings suggest that caregiving responsibilities may occur alongside economic pressures, particularly within contexts where formal social support systems remain limited. Informal employment often lacks job security and flexible working conditions, which may further complicate the ability of caregivers to balance work and caregiving demands.

Low health insurance coverage among stroke survivors further highlights the financial vulnerability faced by caregiving households. Limited insurance access may increase out-of-pocket expenditures associated with treatment, rehabilitation, and transportation to health facilities. Previous research has shown that financial strain is a significant contributor to caregiver burden, particularly in low-resource settings (Scheffler & Mash, 2019; Makanjuola & Ngcobo, 2025; Onomuighokpo et al., 2025).

The combination of high caregiving demands, limited institutional support, and financial pressures may contribute to the elevated levels of caregiver strain observed in this study. Recognition of these challenges within health service planning remains essential, particularly in designing interventions that support both caregivers and stroke survivors within resource-constrained environments.

Strengths of the Study

This study offers important insights into caregiver strain within a clinical stroke population in Oyo State, Nigeria. One key strength lies in the inclusion of multiple health facilities across the state, which enhances the diversity of the sample and improves the representativeness of the findings within the study context. The use of a systematic random sampling approach further strengthens the internal validity of the study, as it reduces the likelihood of selection bias during participant recruitment.

Another strength is the use of the Caregiver Strain Index, a well-established and widely applied screening tool with demonstrated reliability in caregiving research (Robinson, 1983; Thornton & Travis, 2003). Its structured format and ease of administration make it particularly suitable for use in busy outpatient settings, ensuring consistency in data collection.

The study also provides a detailed sociodemographic profile of caregivers, which contributes to a clearer understanding of the caregiving context. Such descriptive data are essential for informing service planning and identifying priority groups for intervention within stroke rehabilitation programmes.

Study Limitations

Several limitations should be considered when interpreting these findings. The cross-sectional design prevents conclusions about causality or changes in caregiver strain over time. Because caregiving is a dynamic process that shifts across stages of stroke recovery, longitudinal

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research would better capture how strain evolves. Although the study offers a clear descriptive profile of caregiver strain and sociodemographic characteristics, it does not explore underlying mechanisms or predictive factors, as no inferential modelling was conducted. The sample was drawn from caregivers attending clinic appointments, which may exclude those unable to accompany stroke survivors due to competing demands, financial barriers, or higher levels of burden, limiting representativeness. Data were self-reported, introducing the possibility of recall or social desirability bias, even with a validated tool. Finally, the study was conducted in a single region of Nigeria, so caution is needed when generalising to settings with different cultural norms, health systems, or support structures.

Implications for Practice and Policy

The high prevalence of caregiver strain observed in this study highlights the need for greater recognition of caregivers within stroke care pathways. Healthcare providers should consider integrating routine caregiver assessments into clinical practice, particularly during outpatient visits. Early identification of strain can facilitate timely support and prevent deterioration in caregiver wellbeing.

There is also a need to strengthen caregiver support systems within health services. Interventions such as caregiver education, counselling, and peer support groups may help reduce the burden associated with caregiving. Evidence from previous research suggests that structured support programmes can improve caregiver outcomes and enhance the quality of care provided to patients (Adelman et al., 2014).

From a policy perspective, expanding access to health insurance and financial protection mechanisms is essential. Low levels of insurance coverage observed in this study indicate that many households may be exposed to significant out-of-pocket costs. Policies aimed at improving financial access to care could reduce the economic burden on caregivers and improve overall care outcomes.

Directions for Future Research

Future research should build on these findings by adopting longitudinal designs to examine how caregiver strain evolves over time. Such studies would provide deeper insight into the trajectory of caregiving burden and identify critical periods for intervention.

There is also a need for research that explores the lived experiences of caregivers using qualitative approaches. Understanding caregivers' perspectives in greater depth may reveal context-specific challenges and coping strategies that are not captured through quantitative measures.

Further studies could also examine the effectiveness of targeted interventions designed to reduce caregiver strain within similar settings. Evaluating the impact of support programmes, financial assistance, and community-based initiatives would provide valuable evidence to guide policy and practice.

In addition, comparative studies across different regions and healthcare systems would help to identify contextual factors that influence caregiving experiences and inform the development of tailored interventions.

CONCLUSION

This study provides clear evidence that caregiver strain is highly prevalent among caregivers of stroke survivors in Oyo State, Nigeria. With nearly 72% of caregivers experiencing measurable levels of strain, the findings highlight the substantial burden

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associated with informal caregiving within this context. Caregiving is largely undertaken by family members, particularly children and spouses, reflecting strong familial responsibility structures in environments where formal long-term care services remain limited.

The sociodemographic profile observed in this study suggests that caregivers are often economically active individuals who must balance caregiving responsibilities with work and other social roles. The predominance of female caregivers further reflects established gender patterns in informal care provision. Limited health insurance coverage among stroke survivors adds another layer of vulnerability, as many caregiving households may be required to absorb the financial costs associated with long-term care and rehabilitation.

These findings reinforce the need to recognise caregivers as central participants in stroke care rather than peripheral actors. Integrating caregiver-focused assessments into routine clinical practice may support early identification of strain and enable timely intervention. Health systems should also consider structured support mechanisms, including caregiver education, psychosocial support, and improved access to financial protection schemes.

Largely, this study contributes important baseline evidence on caregiver strain within a Nigerian healthcare context. Addressing the needs of caregivers is essential not only for their wellbeing but also for sustaining the quality and continuity of care provided to stroke survivors.

AUTHOR CONTRIBUTION

All authors played a substantive role in shaping this study and developing the manuscript. D.S.O. conceptualised the work and designed the overall study framework. Data analysis, interpretation of data and validation of findings were carried out collaboratively, with each author contributing to the discussions that informed the final results. G.M.Y. and K.O.O. prepared the initial manuscript draft, covering the introduction, methods, results and discussion. Co-authors strengthened the analysis, offered detailed revisions and enhanced the clarity and coherence of the final document. Every author reviewed the complete manuscript, approved the final version and accepted responsibility for the integrity of the work.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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