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An ecological approach to understanding stroke experience and access to rehabilitation services in Ghana: A cross-sectional study

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Abstract

Despite a growing burden of stroke in low-middle-income countries, research on patient's experiences and access to rehabilitation services remains limited. This study explores the experiences of stroke patients in relation to access and use of stroke rehabilitation services, coping strategies and strategies to improve care in Ghana. A cross-sectional study was conducted. A total of 136 adult stroke patients hospitalised and subsequently discharged in three major referral hospitals in Ghana participated in the study. A paper-based questionnaire was used to collect data. Data were inputted into STATA version 12, cleaned and analysed using descriptive statistics and Chi-Square tests. Findings showed that stroke patients experience stroke differently. Early detection (awareness) of stroke symptoms at onset was low (29.4%). Hypertension was the major (58.1%) predisposing risk factor for stroke, followed by diabetes (14.7%). Multiple barriers impede access to outpatient rehabilitation services: high cost of medications (43.4%), transportation constraints (10.3%), long waiting time (6.6%), forgetfulness about appointment (4.4%), limited education on rehabilitation (20.6%), lack of community support (12.5%) and ineffective communication with healthcare providers (5.2%). Recommended strategies to improve access to rehabilitation care included public education on stroke and its associated risk, reduction in the cost of drugs and increased stroke rehabilitation funding by the NHIS, especially for physiotherapy consultation and training support to caregivers on patient care. Given the difference in stroke experience and barriers in accessing rehabilitation care, multi-level health policy and service delivery reforms are needed to improve access to rehabilitation care, including national public awareness campaigns on early signs of stroke and subsidised cost of stroke rehabilitation.

KEYWORDS

access, barriers, Ghana, outpatient care, stroke rehabilitation, user's views

1 | BACKGROUND

Stroke and other chronic non-communicable diseases (NCDs) are becoming more prevalent in low-middle-income countries. Global and regional epidemiological studies show that sub-Saharan Africa and other resource-poor regions have consistently experienced a rise in the burden of stroke (Ezzati et al., 2018; Feigin et al., 2017; Sajjad et al., 2013). Studies show that stroke-associated mortality is 49 deaths per 100,000 in LMICs compared to 22 deaths per 100,000 in HICs (Stroke Unit Trialists' Collaboration, 2013). Stroke awareness and education initiatives are relatively greater in HIC compared to LMICs (Chimatiro & Rhoda, 2019; Ezejimofor et al., 2016). With projections of a further rise in the burden of stroke (Gardener et al., 2015), many more people will need optimal stroke rehabilitation. For example, the WHO estimated that about a billion people in the world will require rehabilitation care (World Health Organization, 2011), with the need of rehabilitation disproportionately higher in LMICs.

In recent times, major scientific and technological advancements in stroke rehabilitation care have been made (Ezzati et al., 2018; Feigin et al., 2017; Sajjad et al., 2013). While this transformation has led to better rehabilitation care and improved patients' outcomes (survival and functional outcomes) in high-income countries (HICs), stroke patients in LMICs still face multitude of barriers to accessing available evidence-based rehabilitation care. These barriers range from individual to structural determinants such as high cost of treatment, low public awareness of early stroke signs, limited health infrastructure and logistics for stroke care, and inadequate stroke rehabilitation professionals (Chimatiro & Rhoda, 2019; Ezejimofor et al., 2016; Gardener et al., 2015; World Health Organization, 2011).

Despite the fact that people experience stroke differently, and face numerous challenges to accessing existing rehabilitation services (Baatiema et al., 2017; Brainin et al., 2007; Yan et al., 2015), studies examining experiences and challenges faced by stroke patients are limited globally. This knowledge gap is relatively higher in LMICs, including Ghana. In Ghana, for example, the few single health facility-level studies on experiences of stroke and access to rehabilitation care (see Quartey & Kwakye, 2015; Sarfo et al., 2017) do not examine coping strategies and how access to rehabilitation could be improved. To our knowledge, no research has been conducted in the entire northern Ghana where access to healthcare is very poor (Saleh, 2012). Such lack of evidence is inimical to any coordinated and effective advocacy as well as effective response to improve the currently limited and poor nature of stroke rehabilitation care in this context. In order to effectively improve stroke rehabilitation care in any population, it is imperative to understand how stroke is experienced and responded to by stroke survivors. The experiences and perspectives of stroke survivors regarding barriers they face in accessing rehabilitation services are critical to developing patient-centred, innovative and quality rehabilitation interventions including support services for improved health outcomes (Jones & Riazi, 2011; Murtezani et al., 2009; Saleh, 2012; Wood et al., 2010). This study therefore examined stroke patients' experiences of stroke, and the challenges they faced in accessing rehabilitation care. Specifically, the study sought to answer the following questions: 1) How do people experience a stroke and the nature of their response, 2) what are the barriers faced by people with a stroke in accessing stroke rehabilitation care, 3) what coping strategies are adopted to support the stroke recovery/rehabilitation journey and 4) what are their views on how stroke rehabilitation could be improved for better outcomes?

What is known about the study?

1. The burden of stroke is disproportionately higher in low-middle-income countries.
2. Interventions to improve stroke experience and rehabilitation exist globally.
3. Access to evidence-based stroke rehabilitation care in low-middle-income countries is a major challenge.

What this paper adds?

1. The study presents a more expanded and comprehensive approach to understanding how stroke is experienced and responded to by stroke survivors.
2. Multi-level health policy and service delivery reforms at the individual, community and national contexts are needed to improve access to stroke rehabilitation care.

2 | THEORETICAL FRAMEWORK: SOCIAL-ECOLOGICAL FRAMEWORK

This study adopts the social-ecological framework to understand how people experience, respond and cope with a stroke. The framework is based on the premise that the experience of health is often occasioned by factors situated within and beyond the individual (Urimubenshi & Rhoda, 2011). Popularised in the 1980s, the framework is premised on the fact that multiple factors including individual, community and environmental factors interplay to shape individual behaviours and actions in relation to accessing healthcare. The framework posits five key layers or factors: individual level (See Figure 1) factors, interpersonal factors, community, organisational and policy/environmental level factors. These multiple factors are considered important to shaping individual interaction with the environment within the social ecological framework.

In the context of the present study, the challenges stroke survivors experience in accessing rehabilitation care is shaped by different multi-level factors. This conceptualisation is acknowledged by the WHO as essential given individuals' closeness to their

environment and how this tends to shape their health practices and seeking behaviours (Sarfo et al., 2017). While there is limited scholarship on the application of this framework to understanding the multilayered factors underpinning stroke patients' experiences in accessing rehabilitation care in a resource-poor setting, the framework has potential to offer a more theoretically grounded approach to understanding how people experience, cope and respond to stroke.

3 | MATERIALS AND METHODS

3.1 | Study design

A cross-sectional survey design was employed to collect data. The data collection was conducted concurrently in three separate study sites over a 3-month period (April–June 2016). The design, implementation and reporting of results followed a standardised guideline for survey research (Rosewilliam et al., 2011).

3.2 | Setting

The study was conducted in three major referral hospitals in northern Ghana: Tamale Teaching Hospital, Upper West Regional Hospital and Upper East Regional Hospital. These health facilities were purposively sampled: they were the only referral hospitals with functional and well-equipped physiotherapy departments in the three administrative regions of northern Ghana. Among the three study hospitals, one was a tertiary teaching hospital, while the other two were regional hospitals. Access to healthcare in northern Ghana is considerably limited compared to the rest of Ghana, often resulting in poor health outcomes (Cott, 2004; Palmadottir, 2006).

3.3 | Participants

A total of 136 stroke patients aged 18 years and above who were receiving outpatient rehabilitation services were recruited into the study. For eligibility, participants were clinically diagnosed with a stroke, 18 years and above, of both gender, are currently receiving rehabilitation care in the study sites and able to give informed consent. Only patients hospitalised and subsequently discharged in any of the three hospitals were eligible to respond to the survey. Only patients who were certified by healthcare providers as fit, both cognitive and communication wise, were recruited into the study.

3.4 | Recruitment and sampling

Participants' recruitment process was undertaken in three stages. First, formal letters were sent to the hospital administrators and later to the Head of the Physiotherapy Departments of the respective study hospitals informing them about the study. Following approval to undertake the study, feasibility discussions were held between the research team and the head/staff of the physiotherapy unit. This was immediately followed by discussions on the eligibility criteria for the survey. Second, patients were informed about the study during clinical consultation at the Physiotherapy Departments and where they expressed interest in participating, Physiotherapists at the study sites discussed the

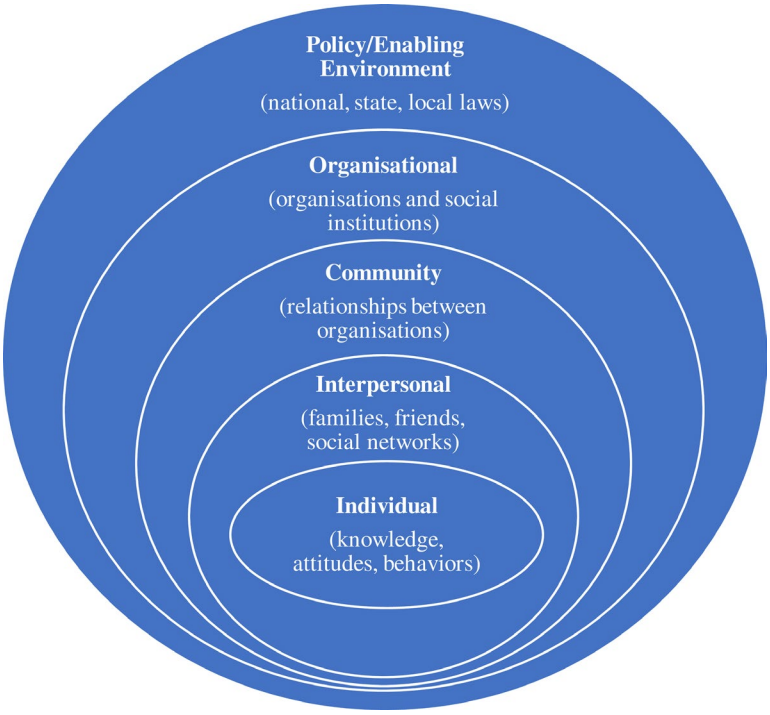

FIGURE 1 The Social Ecological Model (Adapted from the Centers for Disease Control and Prevention (CDC), The Social Ecological Model: A Framework for Prevention)

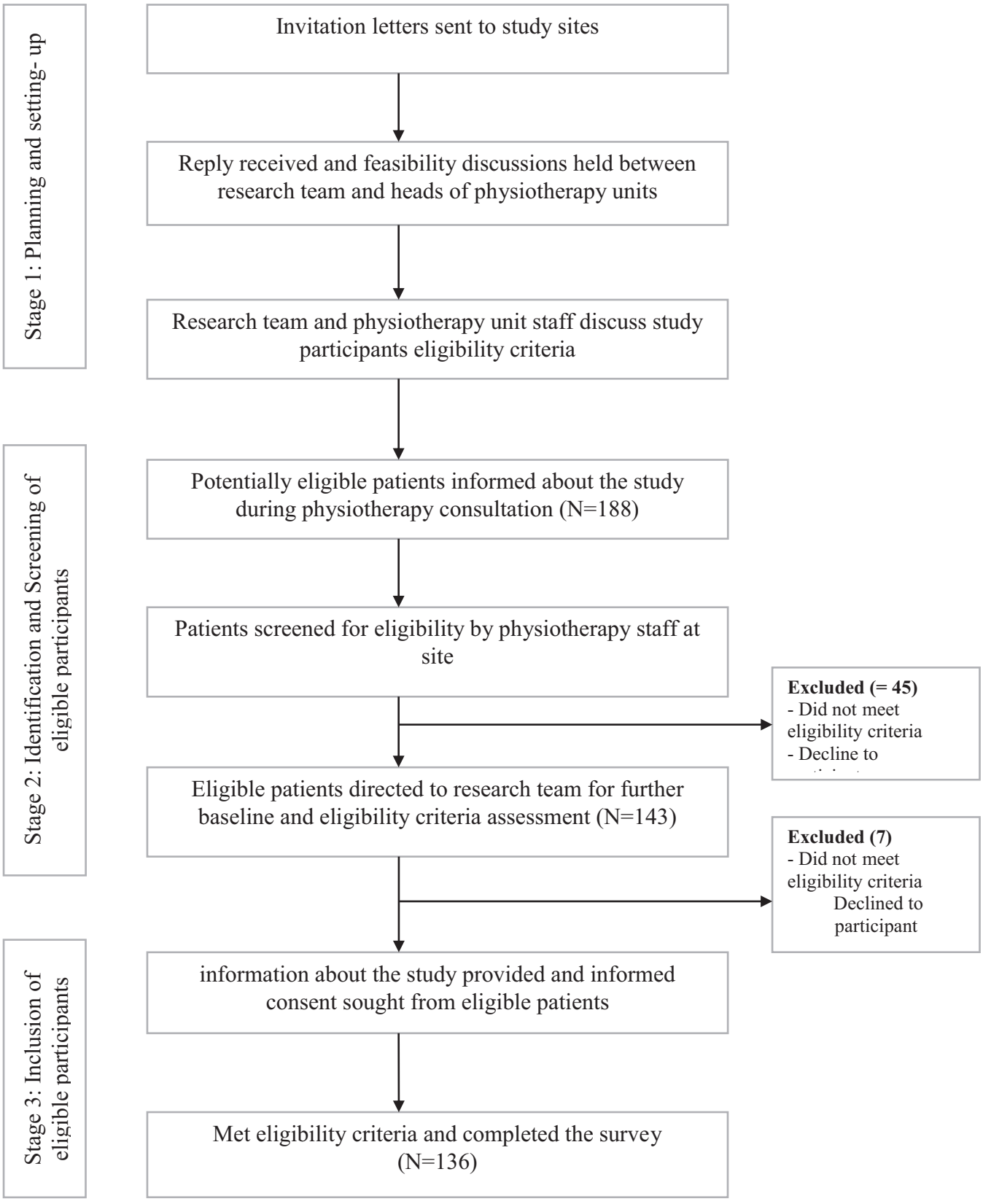

FIGURE 2 Flowchart of participants' recruitment process

study in more detail, screened patients for eligibility and those eligible were referred to research assistants who were on standby. Finally, the research assistants provided further details about the study to eligible stroke patients using the participant information sheet. Informed consent was then obtained from all eligible participants before interviews were conducted.

In each study hospital, convenient and purposive sampling techniques were employed to recruit participants. These sampling techniques were used because the stroke condition, based on our inclusion criteria, was rare, difficult to reach subjects, hence, we did case finding (see Figure 2).

3.5 | Study instrument

A structured closed-ended questionnaire was the data collection instrument. The questionnaire was designed based on review of relevant literature (Bennett et al., 2011; Brainin et al., 2007; Feldacker et al., 2011). The questionnaire was organised into five domains. The first collected information on the sociodemographic characteristics of respondents. The next section gathered information on patients' experiences at onset such as location at stroke onset, stroke symptoms and awareness level. In the third section, data were collected on barriers faced in accessing rehabilitation care in outpatient settings of the three hospitals. The fourth domain contains information on coping strategies adopted by patients following the stroke. The last domain was open ended in nature and sought to explore their perspectives on strategies to improve stroke rehabilitation care.

3.6 | Data collection

A pre-test exercise was conducted on 20 patients (not included in the actual study) to test the reliability of the data collection instrument, and ensure questions were clear and without any ambiguities. Following the pre-test, modifications were made to the instrument where necessary. Data were collected by three trained research assistants. Prior to data collection, the research assistants were trained to understand the content of the items in the questionnaire, how to conduct ethical research and recruitment of study patients. Participants who agreed to participate were given a consent form to complete. In few instances, participants opted to provide verbal consent. The questionnaires were administered outside where care was received, in specifically designed room/office in the health facility where privacy and confidentiality were maintained. Data collection was in the English Language and where respondents did not speak or understand the English language, the questionnaires were translated in their native local language. Participants were informed that their participation was voluntary, and they were not obliged to answer every question. Averagely, the survey took about 20–30 min to complete for each participant.

3.7 | Data analysis

All completed questionnaires were individually cross-checked for completeness before coding and data entry into SPSS by the fourth author and later verified by the first and second authors. Identified errors and inconsistencies were discussed and resolved before exporting the dataset into STATA 12. As a quality measure, frequencies were run on selected variables of interest to ensure all coded data were consistent. Descriptive statistics such as frequency distributions and percentages were used to describe the sociodemographic characteristics of participants. Cross tabulations and Chi-square tests were used to show how participants' characteristics, stroke history and experiences, barriers to accessing outpatient stroke rehabilitation care and coping strategies varied by gender. A *P*-value of <0.05 was considered statistically significant.

4 | RESULTS

4.1 | Background characteristics of participants

The background characteristics of participants are presented in Table 1. More than half of the participants were women. The highest proportion (44.1%) was recruited from the Northern region. About 60.0% of the participants were aged 60 years and above. More than one-fifth (28.7%) had no formal education, and more than one-third (35.3%) had secondary education or higher. Majority of the participants (88.2%) were currently married (men 90.8% versus. women 85.0%). More than half (58.1%) were Christians. More than half (52.9%) had health insurance. Regarding the major risk factors experienced by the respondents, more than half (58.1%) mentioned that hypertension was the major predisposing factor for their stroke, and this was followed by diabetes (14.7%). More than one-tenth (11.8%) had experienced previous stroke.

4.2 | Stroke history and experiences

Table 2 presents information on the history of stroke among respondents as well as key experiences after the onset of stroke. History and experiences of stroke did not significantly vary by gender except in the area of who took the decision to seek medical care. Many of the stroke patients (61.8%) were either with family members or friends when the stroke symptoms started. Less than one-third (29.4%) knew that it was a stroke when the symptoms started; this awareness was higher among men (35.5%) compared to women (21.7%). More than one-tenth (11.8%) had experienced previous stroke.

Regarding the major risk factors experienced by the respondents, more than half (58.1%) mentioned that hypertension was the major predisposing factor for their stroke. After the onset of the stroke symptoms, more than half (58.8%) were taken to the hospital, 27.2% visited an herbalist or a faith healer, 8.1% was given first aid at home and 5.9% did nothing about the symptoms. Regarding whose decision it was to seek medical care, about 46.0% mentioned that they were influenced by the head of the family to seek medical care and this was followed by spousal influence (34.6%).

With respect to the mode of transport to hospital, more than half (54.4%) used Taxi, followed by private car (23.5%), motorbike (16.2%) and ambulance (5.9%). When the stroke patients were asked

TABLE 1 Characteristics of study participants, *N* (%)

Characteristics	Male (*n* = 76) *n* (%)	Female (*n* = 60) *n* (%)	Total (*N* = 136) *N* (%)	χ^2	*p*-values
Region					
Northern	36 (47.4)	24 (40.0)	60 (44.1)	0.849	0.654
Upper East	13 (17.1)	13 (21.7)	26 (19.1)		
Upper West	27 (35.5)	23 (38.3)	50 (36.8)		
Age					
31–40	11 (14.5)	10 (16.7)	21 (15.4)	3.990	0.136
41–50	27 (35.5)	12 (20.0)	39 (28.7)		
60 and above	38 (50.0)	38 (63.3)	76 (55.9)		
Level of education					
None	17 (22.4)	22 (36.7)	39 (28.7)	8.955	0.062
Primary	35 (46.1)	14 (23.3)	49 (36.0)		
Secondary	15 (19.7)	13 (21.7)	28 (20.6)		
Vocational/ Technical	5 (6.6)	4 (6.7)	9 (6.6)		
Tertiary	4 (5.3)	7 (11.6)	11 (8.1)		
Marital status					
Never married	4 (5.2)	2 (3.3)	6 (4.4)	3.128	0.209
Currently married	69 (90.8)	51 (85.0)	120 (88.2)		
Formerly married	3 (4.0)	7 (11.7)	10 (7.4)		
Religion					
None	4 (5.3)	1 (1.6)	5 (3.7)	3.589	0.309
Christianity	45 (59.2)	34 (56.7)	79 (58.1)		
Islam	22 (29.0)	16 (26.7)	38 (27.9)		
Traditionalist/ Spiritualist	5 (6.6)	9 (15.0)	14 (10.3)		
Had Health Insurance					
Yes	37 (48.7)	35 (58.3)	72 (52.9)	1.253	0.263
No	39 (51.3)	25 (41.7)	64 (47.1)		

how long it took them to seek medical care after experiencing the stroke symptoms, less than one-tenth (8.8%) received medical care within the first 3 hr of stroke onset. The highest proportion (51.5%) received treatment between 6 and 9 hr after the stroke and 11.8% received treatment after 24 hr. More than one-fifth (27.2%) could not remember how long it took them to seek medical care after notification of stroke symptoms.

4.3 | Barriers to accessing outpatient stroke rehabilitation care

Table 3 presents barriers experienced by respondents in accessing outpatient rehabilitation care. Respondents mentioned six main barriers to accessing care: high cost of medications (43.4%), transportation constraints (10.3%), long waiting time (6.6%), forgetfulness about appointment (4.4%), limited education/information about rehabilitation (20.6%), lack of community/social support (12.5%) and ineffective communication with healthcare providers (5.2%). Generally, while barriers regarding cost of medications, transportation constraints, long waiting time, forgetfulness and lack of community/social support were higher among men, limited education/information on rehabilitation and ineffective communication with healthcare providers were higher among women.

4.4 | Coping strategies

Respondents were also asked to mention how they cope with their stroke condition. Their responses, presented in Table 4, show that there was a statistically significant gender difference in the use of prayer as a coping strategy. Use of prayer as a coping strategy was significantly higher among women (33.3%) than men (15.8%). Some (41.9%) said they watched television or listened to music, and 49.3% said they engaged in physical activity such as walking. Additionally, about one-quarter (23.5%) used prayer as a coping

TABLE 2 Stroke history and experiences

Stroke history and experiences	Male *n* (%)	Female *n* (%)	Total *N* (%)	χ^2	*p*-values
Where respondent was when stroke symptoms started					
Alone	16 (21.1)	7 (11.7)	23 (16.9)	4.780	0.187
Family	45 (59.2)	37 (61.7)	82 (60.3)		
Friends	2 (2.6)	0 (0.0)	2 (1.5)		
At work	13 (17.1)	16 (26.6)	29 (21.3)		
Knows it was a stroke					
Yes	27 (35.5)	13 (21.7)	40 (29.4)	3.102	0.078
No	49 (64.5)	47 (78.3)	96 (70.6)		
Experience of previous stroke					
Yes	8 (10.5)	8 (13.3)	16 (11.8)	0.255	0.614
No	68 (89.5)	52 (86.7)	120 (88.2)		
Stroke risk factors experienced					
Hypertension	41 (54.0)	38 (63.3)	79 (58.1)	3.756	0.710
High cholesterol	2 (2.6)	1 (1.7)	3 (2.2)		
Smoking	6 (7.9)	2 (3.3)	8 (5.9)		
Diabetes	11 (14.5)	9 (15.0)	20 (14.7)		
Heart disease	1 (1.3)	2 (3.3)	3 (2.2)		
Physical inactivity	7 (9.2)	5 (8.3)	12 (8.8)		
Obesity	8 (10.5)	3 (5.0)	11 (8.1)		
First action when stroke symptoms started					
Went immediately to the hospital	42 (55.3)	38 (63.3)	80 (58.8)	4.398	0.355
Received first aid at home	5 (6.6)	6 (10.0)	11 (8.1)		
Visited a herbalist for treatment	12 (15.8)	9 (15.0)	21 (15.4)		
Waited to see if symptoms will stop	7 (9.2)	1 (1.7)	8 (5.9)		
Called a minister of God (Mallam) for prayers	10 (13.1)	6 (10.0)	16 (11.8)		
Whose decision was it for patient to seek hospital care					
Head of family	42 (55.3)	20 (33.3)	62 (45.6)	12.139	0.016
Spouse	23 (30.3)	24 (40.0)	47 (34.6)		
Friend	8 (10.5)	5 (8.3)	13 (9.5)		
Family doctor	1 (1.3)	1 (1.7)	2 (1.5)		
Personal decision	2 (2.6)	10 (16.7)	12 (8.8)		
Mode of transport to the hospital					
Ambulance service	5 (6.6)	3 (5.0)	8 (5.9)	1.688	0.640
Taxi	41 (54.0)	33 (55.0)	74 (54.4)		
Motorbike	10 (13.2)	12 (20.0)	22 (16.2)		
Private car	20 (26.3)	12 (20.0)	32 (23.5)		
Travel time to seek medical care since symptoms onset					
0–3hours	5 (6.6)	7 (11.7)	12 (8.8)	5.647	0.342
3–6hours	0 (0.0)	1 (1.7)	1 (0.7)		
6–9hours	38 (50.0)	32 (53.3)	70 (51.5)		
1–2days	8 (10.5)	4 (6.7)	12 (8.8)		
3 or more days	1 (1.3)	3 (5.0)	4 (3.0)		
Don't remember	24 (31.6)	13 (21.7)	37 (27.2)		

strategy while 11.8% resort to reading. Other coping strategies include seeking for counselling (2.9%) and crying (3.7%). Differences between men and women were, however, noted in some of the coping strategies. While a higher proportion of women resorted to prayer and crying to cope with their stroke, a higher proportion of men engaged in physical activity and go for counselling.

TABLE 3 Barriers to accessing outpatient stroke rehabilitation care

Barriers	Male *n*(%)	Female *n*(%)	Total *N*(%)	χ^2	*p*-values
Cost of medications					
Yes	38 (50.0)	21 (35.0)	59 (43.4)	3.072	0.080
No	38 (50.0)	39 (65.0)	77 (56.6)		
Transportation constraints					
Yes	7 (9.2)	7 (11.7)	14 (10.3)	0.938	0.333
No	69 (90.8	53 (88.3)	122 (89.7)		
Long waiting time					
Yes	6 (7.9)	3 (5.0)	9 (6.6)	0.455	0.500
No	70 (92.1)	57 (95.0)	127 (93.4)		
Forgetfulness					
Yes	4 (5.3)	2 (3.3)	6 (4.4)	0.296	0.586
No	72 (94.7)	58 (96.7)	130 (95.6)		
Limited education/information on rehabilitation					
Yes	14 (18.4)	14 (23.3)	28 (20.6)	0.495	0.482
No	62 (81.6)	46 (76.7)	108 (79.4)		
Lack of community/family support					
Yes	12 (15.8)	5 (8.3)	17 (12.5)	1.704	0.192
No	64 (84.2)	55 (91.7)	119 (87.5)		
Ineffective communication with healthcare providers					
Yes	3 (4.0)	4 (6.7)	7 (5.2)	0.508	0.476
No	73 (96.0)	56 (93.3)	129 (94.8)		

TABLE 4 Coping strategies adopted by stroke patients following a stroke

Coping strategies	Male *n* (%)	Female *n* (%)	Total *N* (%)	χ^2	*p*-values
Prayer					
Yes	12 (15.8)	20 (33.3)	32 (23.5)	5.736	0.017
No	64 (84.2)	40 (66.7)	104 (76.5)		
Counselling					
Yes	3 (4.0)	1 (1.7)	4 (2.9)	0.611	0.434
No	73 (96.0)	59 (98.3)	132 (97.1)		
Watch TV/listen to music					
Yes	33 (43.4)	24 (40.0)	57 (41.9)	0.161	0.688
No	43 (56.6)	36 (60.0)	79 (58.1)		
Crying					
Yes	1 (1.3)	4 (6.7)	5 (3.7)	2.711	0.100
No	75 (98.7)	56 (93.3)	131 (96.3)		
Engage in physical activity					
Yes	43 (56.6)	24 (40.0)	67 (49.3)	3.687	0.055
No	33 (43.4)	36 (60.0)	69 (50.7)		
Reading					
Yes	10 (13.2)	6 (10.0)	16 (11.8)	0.322	0.570
No	66 (86.8)	54 (90.0)	120 (88.2)		

4.5 | Patients' perspectives on improving stroke rehabilitation care in Ghana

Respondents recommended four key strategies to improve access to stroke rehabilitation care. These comprised public education on stroke and its associated risk (32.4%); reduction in cost of pharmaceutical drugs for stroke either through subsidy or absorbing all stroke rehabilitation cost under the NHIS (26.5%); increase in consultation visits to a physiotherapist as covered by the national health insurance scheme (22.8%); and provision of training support

to caregivers to equip them with the requisite knowledge and skills to support them in their recovery journey (18.3%). Further details about the recommended strategies to improve stroke rehabilitation care are provided in Table 5

5 | DISCUSSION

5.1 | Summary of study findings

This study examined the stroke survivors' experiences of stroke, response mechanisms, challenges faced in accessing rehabilitation care services, coping strategies and views on strategies to improve stroke rehabilitation care in Northern Ghana. The study showed that stroke patients experience and respond to stroke differently. They also encountered a diversity of challenges in accessing care at the outpatient level. Common barriers faced in accessing outpatient care comprised high cost of medications, transportation constraints, long waiting time, limited education/information on rehabilitation, lack of community/family support and ineffective communication with healthcare providers. Coping strategies included praying, counselling, watching TV/ Listening to music, crying, physical exercise and reading. Recommended strategies to improve access to rehabilitation care included public education on stroke and its associated risk, reduction in the cost of drugs, increased stroke rehabilitation funding by the NHIS especially for physiotherapy consultation and training support to caregivers on patient care. Overall, the social ecological framework used to guide the conduct of this study helped in understanding the contextual experiences of accessing rehabilitation care in a LMICs. In congruence with the social ecological framework, the findings showed that survivors' experiences of access to rehabilitation care were mediated by multiple factors at the individual level, interpersonal level, community level, organisational and policy levels. This reinforces existing evidence about stroke survivors' different and unique experiences regarding access to care in different contexts and highlights a need for multi-pronged and context-specific approaches to improving access to rehabilitation care for stroke survivors in Ghana and other LMICs.

5.2 | Findings compared to previous literature

The main risk factors identified in this study comprised hypertension, diabetes, cholesterol, smoking, heart disease, physical inactivity and obesity. These factors were also identified in the INTER-STROKE study (Atuguba, 2013). In this study, hypertension was the principal risk factor among stroke patients regardless of gender. A study conducted in the Caribbean Island at 12-month post-stroke follow-up observed that about 70.5% of stroke survivors were hypertensive (Urimubenshi & Rhoda, 2011). Similar to the present study, an Indian study also identified hypertension, diabetes, obesity and smoking as key stroke risk factors (Urimubenshi & Rhoda, 2011). Taken together, the findings and discussion in this study show that stroke survivors present with multiple stroke risk factors, and this may require a multi-pronged approach to treat and manage such conditions in order to improve the quality of life of stroke survivors. In addition, population-level blood pressure screenings are needed to reduce the risk of stroke and to ensure that those already diagnosed with hypertension adhere to treatment.

Studies have shown different health seeking behaviours of patients following a stroke event. As observed in the present study, following a stroke, patients acted differently in relation to decision to seek care. These included immediate transportation to the hospital to seek care, administering of first aid before later seeking healthcare, visiting and consulting an herbalist or spiritualist to see if symptoms will disappear or sometimes first requesting prayers from God or a man of God for recovery. This corroborates previous studies on the decisions taken by stroke patients following a stroke onset. For example, researchers have observed that stroke patients sometimes ignore symptoms and refuse to seek care hoping the signs and symptoms of stroke will soon disappear (Macintosh et al 2012). In most developed countries, while the trend of delays in seeking care following a stroke tends to be family members and patients first calling primary care physicians and not an ambulance (Atuguba, 2013), a contrary situation exist in LMICs where patients resort to faith healers and spiritual fathers before contacting the hospital. On the other hand, most studies in Africa have so far reported low awareness rates for stroke signs and symptoms (Palm et al., 2012; Tobias et al., 2007). Unsurprisingly, the findings from this study reflected this pattern of low awareness among stroke patients about the early signs and symptoms of a stroke. As shown in the study, 70.6% of the study participants were not aware they had experienced a stroke.

Similar to findings of the present study, previous studies have also reported cost of medications, transportation constraints, long waiting times, limited information about rehabilitation care, poor communication between stroke survivors and health workers and lack of community or family support as barriers to rehabilitation care (Blixen et al., 2017; Forster et al., 2012; Harrison et al., 2017; Kamalakannan et al., 2016). For example, a study in Uganda reported different forms of barriers faced by stroke survivors including medication non-adherence, lack of community or family support and barriers at the level of the healthcare system (Blixen et al., 2017). Although some studies have suggested that medication adherence to support stroke rehabilitation is underpinned by economic barriers such as cost of transportation and medicine (Blixen et al., 2017) and access to physiotherapy facility (Feldacker et al., 2011), our study highlights subscription to the National Health Insurance Scheme as a potential determinant of medication adherence.

Communication between stroke survivors and healthcare professionals remains an integral part of their recovery journey and this was revealed in the study. In concordance with this, a study noted that stroke survivors regard the quality of the communication they have with healthcare professionals as essential to their quality of life (Pearce et al., 2015). Efforts should therefore be made to ensure that quality and trusted communication exist between healthcare providers and stroke survivors or their caregivers.

TABLE 5 Recommendations to improve access to care

Recommendations	Male *n* (%)	Female *n* (%)	Total *N* (%)	χ^2	*p*-values
Public education on stroke and its associated risk	23 (30.3)	21 (35.0)	44 (32.6)	6.577	0.087
Cost of drugs should be reduced	26 (34.2)	10 (16.7)	36 (26.5)		
Increase in physiotherapy consultation visits covered by the NHIS	13 (17.1)	18 (30.0)	31 (22.8)		
Training support to caregivers on patient care	14 (18.4)	11 (18.3)	25 (18.3)		

A key point highlighted in the study was a need for social and community support especially from family members to enable stroke survivors cope with their disability. Previous studies have also highlighted this as a major source of concern in attempts to understand factors which potentially foster better rehabilitation care for stroke survivors. For example, a study in New Zealand observed a need for stroke patients and other survivors of brain injury to access social connections and networks from families, friends and community members to enhance their rehabilitation process (Martin et al., 2015).

Findings also showed that respondents resorted to different coping strategies. Praying, reading novels, watching TV or exercising were some of the key coping strategies stroke patients adopted. As shown in past studies, stroke survivors struggle to cope and thus adopt a number of activities and strategies to cope with the stroke condition and some of these studies reported coping strategies which align with the ones observed in the present study. For example, prayers or involvement in religious activities as a source of social support and inspiration have been cited in other contexts as a notable coping strategy adopted by stroke survivors following a stroke (Cossi et al., 2012; Roger et al., 2011; Wahab et al., 2008). It is believed religious and spiritual activities such as prayers improve the mental and emotional state of stroke survivors.

5.3 | Implications

Findings from this study present different implications for policy, clinical and public health practice. Evidence of limited awareness of early stroke signs and symptoms among stroke patients in this study raises a need for population-based programs to raise public awareness. Given that most HICs such as the UK and Australia have comprehensive public awareness programs with evidence of improved public awareness of early stroke signs following the campaigns (Boger et al., 2015), Ghana and other LMICs could use the ones in HICs as models to design similar population-based stroke awareness programs, highlighting the importance of first seeking medical care in a health facility and the implications for poor health outcomes following delays.

The cost of accessing rehabilitation care is a major challenge among stroke survivors at the inpatient and outpatient levels. Cost of access to care has also come up in previous studies that examine other NCDs including diabetes and hypertension care (Chen et al., 2012; Legido-Quigley et al., 2019), suggesting the centrality of this issue in efforts to improve access to care for people living with different NCDs. What this implies is the potential for patients as a result of high cost of rehabilitation not to comply or adhere to treatment. As a result of high cost of treatment, some patients could skip or delay treatment, resort to alternative medicine or rehabilitation care such as traditional healers, spiritualists or faith healers, a situation quite replete in our study contexts. This needs to be addressed in order to improve access to evidence-based stroke rehabilitation care. A logical way to proceed is to ensure most of the medicines required by stroke survivors are covered by the existing HNIS in Ghana. This will inevitably reduce the out-of-pocket expenditure. We recommend that physiotherapy sessions should be increased and in the long term expenses related to rehabilitation be covered by the existing NHIS.

Recruitment and training of healthcare providers on stroke rehabilitation care require the attention of healthcare managers and policy makers. This is essential in order to address the current challenges of long waiting times and poor interpersonal relationships between stroke survivors or their caregivers and healthcare professionals. Ensuring adequate information regarding stroke rehabilitation at the community level following discharge is essential. This will require joint care planning with caregivers or family members and the availability of stroke care professionals to address their needs. Related to this is a need to train and educate family caregivers of stroke survivors. As caregivers play a key role in the recovery journey of stroke survivors, it is important to ensure they have the capacity to assist patients meet their rehabilitation needs. In view of this, any intervention or program seeking to enhance the recovery of stroke survivors need to consider these concerns relating to information needs of stroke survivors, caregivers and the larger community. As noted in the findings, religion plays a major role in how stroke survivors respond or cope with their disability and new life. Given the role of religiosity and spirituality in the everyday activities of stroke survivors, it is crucial to involve religious leaders as strategic collaborators in the design of interventions to support rehabilitation of stroke survivors. Insights from religious practices and beliefs need to also be incorporated into rehabilitation process.

5.4 | Limitations and strengths

Some limitations exist in the present study. First, the study was cross-sectional and involved an unrepresentative sample of participants from only three health facilities. The generalisability of the findings is therefore restricted. In addition, rigorous statistical analysis could not be carried out due to the small sample size. Future studies with larger sample sizes (e.g. more study sites and participants) should be considered. Second, given that some experienced their stroke for a long time before participating in the survey, the potential of recall bias cannot be ruled out. In future, a better approach to mitigate this will be to conduct similar studies at the inpatient care level following hospitalisation when the stroke occurred. Finally, a survey approach constricted participants from openly and freely expressing and sharing their experiences about barriers and coping strategies in greater detail. A qualitative study design using in-depth qualitative interviews is encouraged in future research to bring to bear such information.

Despite these limitations, key strengths of this study are worth mentioning. First, studies on barriers faced and experienced by stroke patients in seeking rehabilitation care are limited globally. Therefore, insights from this study could bridge this knowledge gap. In other words, a key strength of this study was the presentation of evidence based on interviews with a 'hard to reach' and 'seldom heard' group. Second, the findings also have the potential to improve stroke care professionals' understanding of stroke survivors' experiences to enable them to support their recovery journey adequately.

6 | CONCLUSION

Overall, the social ecological framework employed in this study helped to understand how a stroke event is experienced and responded to, the range of barriers to accessing stoke rehabilitation care and how both individual and structural environmental factors shape such experiences. Importantly, stroke patients experienced stroke differently, with a range of factors underpinning their access to rehabilitation care. Therefore, programs and policies need to consider the different experiences and challenges faced both at the inpatient and outpatient level of care, shaped by both individual and externally influenced environmental factors. Importantly, based on the diversity of barriers occurring at multiple and different levels, a one-size-fit-all intervention is implausible to tackle the numerous experiences of challenges faced by stroke survivors in accessing rehabilitation care. A multi-sectoral approach, which takes into account both factors within and beyond the individual stroke patient, is thus recommended.

7 | COMPETING INTERESTS

The authors have no competing interests.

AUTHORS' CONTRIBUTION

LB conceptualised the study idea. AS and BL were involved in data collection. LB, OS, BL and JKG were involved in data analysis. LB, OS, JKG, AS, BL and JS interpreted the data. LB drafted the manuscript with substantial and critical contributions from OS, JKG, AS, BL and JS. All authors reviewed and approved the final manuscript.

ETHICAL APPROVAL

The study was conducted in compliance with the Helsinki declaration for medical research. Ethical approval for the conduct of the study was obtained from the Ghana Health Service Ethical Review Committee on Research Involving Human Subjects (GHS-ERC:11/07/15). Informed consent was also obtained from all subjects prior to their participation in the study. Respondents participated in the study voluntarily without any form of coercion. Data collected were de-identified while respondents were assured of data confidentiality.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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