Depression, social support and management preferences among Ghanaian post-stroke patients: a case study

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ABSTRACT

Post-stroke depression (PSD) significantly impacts on the lives of cerebrovascular accident (CVA) survivors, yet tailored support systems and management preferences remain under-researched, particularly in specific healthcare settings. This study assessed the experience of depressive symptoms among CVA survivors, the support systems available to them, and their preferred management methods at the Ledzokuku-Krowor Municipal Assembly (LEKMA) Hospital in Ghana. Utilizing the descriptive case study design, 50 CVA patients were surveyed using a self-structured questionnaire and the Centre for Epidemiological Studies Depression Scale Revised (CESD-R-20). Data were analyzed with Microsoft Excel and STATA version 17. The Chi-square test of association was used to measure the severity of depression and specific demographic groups. Results indicated a high prevalence of depression (86%), with 10% experiencing moderate and 76% severe depression. Marital status significantly correlated with post-stroke depression (PSD) severity. Primary support sources included spouses/partners and children, providing various forms of support such as physical assistance, emotional well-being, and financial aid. Preferred management options were pharmacology and psychotherapy, driven by the desire for quick symptom relief and concerns over medication side effects and costs. These findings highlight the critical need for enhanced support systems and responsive management strategies to include depression for CVA survivors.

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1. INTRODUCTION

Cerebrovascular accident (CVA) or stroke, is a global health concern with high mortality and morbidity rates worldwide [1]. More than 100 million people have experienced stroke globally, with over 12 million new cases diagnosed each year. Of these, 6.5 million resulted in death [2]. The World Stroke Organization [2] reported that while the likelihood of stroke increases significantly with age, more than 60% of cases occur in people younger than 70 [3].

The aftermath of stroke leads to profound life changes for individuals and families, including loss of independence and unemployment, often leading to anxiety and depression [1]. The available evidence shows varied prevalent rates of depression and anxiety among stroke survivors [3]-[5]. A systematic review of post-stroke depression (PSD) in North Africa and Middle East shows prevalence ranging between 17% and 73% [6]. Similarly, two Nigerian papers found PSD at 22.9% [7] and 42.9% [8], respectively. In Ghana, the rate of depression following stroke is 80%. Additionally, 20% of stroke survivors in Ghana exhibit early PSD from

one to nine months after the event [9], [10], and effects extending beyond personal struggles, including longer hospital stays, hindered recovery, and higher mortality rates, among others, to societal burdens [9]. PSD also places a significant financial burden on families, shown by increased medical costs and impacts on caregivers' mental and emotional health. Death rate among post-stroke depression patients is also alarming [11]. For example, even though many stroke sufferers are physically unable to act on suicidal thoughts, their suicide risk is twice that of their age-matched peers who did not have stroke [12]. Again, past stroke, difficulties with daily activities, and depressive symptoms are major risk factors for suicide in stroke patients [13].

Despite this, PSD is often under-recognized, especially in healthcare facilities frequently visited by CVA survivors, resulting in gaps in empirical evidence regarding support systems and management options tailored to PSD among CVA survivors in Ghana [14]. Existing studies explored only limited aspects of PSD, covering risk factors [1], [15], treatment modalities [16], and the impact of PSD on CVA survivors [14], [16], [17]. There is also a considerable gap in knowledge about the connection between medication potency and PSD treatment, highlighting the need for further investigation into the prevalence of PSD among CVA survivors and survivors' preferences for management and treatment options [18]. Understanding survivors' preferences in this area is essential for developing patient-centered approaches to managing PSD and enhancing treatment outcomes [15]. Similarly, despite the high prevalence of stroke in Ghana, there is a notable lack of research focusing on the support needs of CVA survivors [15], [19], hindering the development and implementation of relevant health policies to address the condition in Ghanaian hospitals [9].

However, given the significance of scientific evidence on recovery from PSD [7] and the need for sustained mental health services for post-stroke patients [20], [21], research on treatment preferences and support systems for managing post-stroke depression (PSD) among CVA survivors receiving healthcare at Ledzokuku-Krowor Municipal Hospital (LEKMA Hospital) in Accra is essential. The outcome offers emotional and practical support to CVA survivors and guides clinical practice and policy frameworks aimed at improving the long-term well-being of CVA survivors [22].

2. METHOD

2.1. Study design

We adopted the descriptive case study design for the study. The research assessed the experience of depressive symptoms among CVA survivors in Ghana and examined their preferred support and management methods. This design enabled the detailed and in-depth investigation of PSD among CVAs, ensuring that the outcome of the study provides a vivid description of the dynamics and context of the phenomenon without essentially seeking to generalize [23].

2.2. Study area and population

Ledzokuku-Krowor Municipal Assembly Hospital (LEKMA Hospital) is a public hospital in the Greater Accra Region of Ghana. The Hospital is the largest in the Ga municipality and provides access to a diverse patient population [24]. It has a 100-bed capacity with over 200 nurses and an average of 22 doctors [24]. The facility had an active cerebrovascular accident unit ensuring the availability of eligible participants for the study.

The study population comprised 68 CVA patients receiving care from the Cerebrovascular Accident Unit of LEKMA Hospital. The study population was limited to CVA survivors who are residents of the LEKMA municipality and receiving care from the LEKMA hospital to ensure homogeneity, reduce potential confounding variables, and enhance the internal validity of the study [25]. As these individuals are directly affected by CVA, this allowed for the collection of firsthand experiences and insights [23]. Only CVA survivors above 18 years who received care from LEKMA hospital and could consent to participate in the research were included.

2.3. Sampling and sample size

A purposive sampling technique was used to select respondents from the target population. This approach allowed for the selection of individuals who met the specific criteria relevant to the research objectives, such as age, gender, and clinical status, and were willing to offer informed consent for participation in the study. For hypergeometric populations, comprising finite sets of individuals, objects, or elements, small sample sizes of ≥ 50 are adequate [25]. Although a non-probability sampling technique was used, and no rigorous sample size calculation was necessary, we determined the sample size by utilizing a formula for sampling in small populations [25]:

$$n = \frac{NZ2\ pq}{(E2\ (N-1)+Z2pq)} \tag{1}$$

Where:

n: is the required sample size.

N: is the population size (N = 68)

p: and q are the population proportions (0.5).

z: is the level of confidence at 95% (1.96).

E: sets the accuracy of the sample proportion. E is set to 0.05.

Based on this, the sample size for the study is 58 patients [25]. By purposively selecting participants from the cerebrovascular accident unit and the outpatient department, the study ensured adequate representation of patients from different stages of recovery and treatment. The inclusion criteria for the selection of participants for the research were past and current CVA patients of LEKMA Hospital who are adults and could provide informed consent for participation [23].

2.4. Data collection

Overall, 50 questionnaires were fully completed. The data collection tool was a self-structured questionnaire designed using the Center for Epidemiological Studies Depression Scale Revised (CESD-R-20) scale [22], [26]. It is a reliable and practical tool for assessing depression. CESD-R-20 was validated for assessing depression and gathering demographic information, ensuring the accuracy and validity of the data collected. The questionnaires were directly administered to the respondents, allowing for clarification of ambiguities and ensuring the collection of accurate responses.

The questionnaire had four sections, namely demographic data, post-stroke depression, support systems available for CVA survivors to deal with depression, and Management preferences of CVA survivors. The CESD-R-20 depression self-report scale [26] was used to measure respondents' sadness (dysphoria), loss of interest (anhedonia), appetite, sleep, thinking/concentration, guilt (worthlessness), tiredness (fatigue), movement (agitation), and suicidal ideation. Proximity to the hospital was categorized as either "near" or "far." This classification was based on travel distance away from the facility. Participants who had a travel time of less than one hour were classified as "near," while those beyond this range were considered "far". An interviewer-assisted approach was employed for those who could not read or understand. Completed questionnaires were personally received. Data collection occurred between January and April 2023.

2.5. Ethical considerations

Participation was voluntary. There was counselling support for distressed participants, and confidentiality measures were implemented, and informed consent for participation obtained to safeguard participants' welfare and trust.

2.6. Data analyses

Data were analyzed descriptively. The accuracy and completeness of each questionnaire were first confirmed, and the data inputted into Microsoft Excel and STATA version 17 for organization and analysis. The total number of items on the scale is 20 [25]-[27]. Reliability/internal consistency (Cronbach's = 0.80-0.85) and test-retest reliability was 0.45–0.70. The tool's validity using the Hamilton Clinician's Rating Scale, and the Raskin Rating Scale resulted in a moderate correlation with the CES-D (0.44 to 0.54). The 20 items were calculated on scores between 0 and 60. A person at risk for clinical depression is scored at least 16. The scale described major depressive episodes as individuals suffering from daily anhedonia or dysphoria or four more diagnostic and statistical manual (DSM) of mental disorders symptoms during the last two weeks. Probable major depressive episodes are described as episodes of Anhedonia or dysphoria almost every day for the last two weeks, and symptoms in an extra 3 DSM symptom categories reported to have occurred almost daily for the past two weeks. Possible major depressive episodes of anhedonia or dysphoria for two weeks and symptoms in another 2 DSM symptom categories that had been reported as happening either nearly every day for the past two weeks or 5-7 days in the previous week. Subthreshold depression symptoms are those who do not fit the previous requirements but had a CESD-style score of at least 16. Finally, individuals with a combined CES-D score of less than 16 across all 20 questions were considered to have no clinical significance. Individuals with a cumulative CESD-style score of less than 16 in all 20 questions were considered to have "no clinical significance," that is, they were not at risk for clinical depression. Scores between 16 and 23 indicated moderate depression, and a score of 24 or above indicated severe depression. A questionnaire was employed to assess management preferences among participants. The scale provided a structured means to capture the strength of preference for different management options, ranging from pharmacological to non-pharmacological treatments. The scale offered rich insights into patient-centered care. The Chi-square test of association was used to test associations between relevant socio-demographic characteristics and PSD at a 5% significance level. Frequency and percentages were calculated for the available support systems and participants' management preferences using Microsoft Excel.

3.   RESULTS AND DISCUSSION
3.1.   Result
3.1.1. Demographic characteristics and depression among CVA survivors

The findings revealed a high incidence of depression among the CVA survivors studied. At least 86% of the study population experienced depression. Out of this, 10% had moderate depression and 76% had severe depression. Most of the CVA survivors reported ischemic stroke (80%), and 20% reported hemorrhagic stroke. Age did not significantly correlate with PSD status (p = 0.246). However, the severity of PSD tended to increase with age. Similarly, there was no significant association between sex and PSD status (p = 0.385), although females tended to experience more severe depression. Marital status showed a significant correlation with PSD status (p = 0.018). However, married individuals experienced more severe depression compared to unmarried individuals. Again, neither educational level nor employment status showed significant associations with PSD status (p = 0.831 and 0.197). Likewise, the number of children and proximity to the hospital did not correlate significantly with PSD status (p = 0.778 and 0.401) as shown in Table 1.

Table 1. Demographic characteristics and PSD score of CVA survivors

Variable	PSD score			Chi-square	p-value
	No PSD *n (%)*	Moderate *n (%)*	Severe *n (%)*		
Age				7.896	0.246
40 – 49	4 (36.4)	1 (9.1)	6 (54.5)		
50 – 59	1 (8.3)	2 (16.7)	9 (75.0)		
60 – 69	2 (10.0)	2 (10.0)	16 (80.0)		
70 and above	0 (0.0)	0 (0.0)	7 (100.0)		
Sex				1.907	0.385
Male	5 (20.0)	3 (12.0)	17 (68.0)		
Female	2 (8.0)	2 (8.0)	21 (84.0)		
Marital status				15.320	0.018
Single	1 (16.7)	3 (50.0)	2 (33.3)		
Married	4 (15.4)	0 (0.0)	22 (84.6)		
Widowed	1 (7.7)	1 (7.7)	3 (84.6)		
Divorced/separated	1 (20.0)	1 (20.0)	3 (60)		
Educational level				1.473	0.831
Primary	4 (17.4)	2 (8.7)	17 (73.9)		
Secondary	1 (7.1)	1 (7.1)	12 (85.7)		
Tertiary	2 (15.4)	2 (15.4)	9 (69.2)		
Employment status				8.609	0.197
Unemployed	13 (12.0)	5 (20.0)	17 (68.0)		
Private employed	0 (0.0)	0 (0.0)	9 (100.0)		
Government employed	1 (25.0)	0 (0.0)	3 (75.0)		
Self employed	3 (25.0)	0 (0.0)	9 (75.0)		
Number of children				1.771	0.778
1 – 3	3 (13.0)	2 (8.7)	18 (78.3)		
4 – 6	4 (17.4)	2 (8.7)	17 (73.9)		
7 and above	0 (0.0)	1 (25.0)	3 (75.0)		
Proximity to Hospital				1.830	0.401
Far	5 (20.8)	2 (8.3)	17 (70.8)		
Near	2 (7.7)	3 (11.5)	21 (80.8)		
Total	7 (14.0)	5 (10.0)	38 (76.0)		

Source: Field data 2023

3.1.2. Social support for CVA survivors

The findings on support systems available for CVA survivors provide a detailed understanding of the sources, types, frequency, and benefits of support received. Spouses or partners and children emerged as the top two sources, accounting for 86% and 84% respectively, followed by relatives (60%), church members (36%), friends (20%), and work associates (10%). The types of support received include physical, emotional, financial, social, mental, and spiritual support. Activities of daily living, including washing, feeding, and dressing, were the primary ways through which support was given (72.0%), followed by encouragement (68.0%). Other forms of support included financial assistance (money, bills or allowance) (36.0%), visits (16.0%), social interactions (12.0%), and prayers (8.0%). The benefits of the support received were manifold. All the respondents considered physical assistance and improved emotional well-being as extremely beneficial. Reduced feelings of isolation or loneliness came next with 90.0%, financial aid (78.0%), spiritual encouragement (70.0%), and unprompted check-ins (4.0%) as shown in Table 2. These findings highlight the diverse sources and forms of support available to CVA survivors, showing the importance of such support in promoting their well-being and recovery.

Table 2. Support systems for CVA survivors

	Type of support	Count (n)	Percentage (%)
Supportive persons	Spouse/partner	43	86.0
	Children	12	84.0
	Relatives	30	60.0
	Friends	10	20.0
	Neighbors	0	0.0
	Church members	18	36.0
	Work associates	5	10.0
How support was given	Assistance with activities of daily living (E.g. washing, feeding, dressing-up)	36	72.0
	Offering encouragement	34	68.0
	Giving a listening ear	15	30.0
	Visitation	8	16.0
	Prayers, worship, or church meetings	4	8.0
	Money, bills or allowance	18	36.0
	Social interaction with other people	6	12.0
Benefits of support received	Isolation/loneliness prevention	45	90.0
	Improved emotional well-being/boost mood.	50	100.0
	Reduced anxiety & improved stress management.	6	12.0
	Spiritual encouragement.	35	70.0
	Financial aid.	39	78.0
	Provision of regular unprompted check-ins.	4	8.0
	Physical assistance.	50	100.0

Source: Field data 2023

3.1.3. Management preferences of CVA survivors

The management preference of CVA survivors offers insights into relevant treatment options. Pharmacology (medications) and psychotherapy emerged as the top two preferred management or treatment options for PSD (86.0%). It was observed that spiritual intervention was preferred over herbal treatment, with the former ranking higher than the latter. Conversely, homestay with no treatment or management was the least preferred option. The reasons for these preferences were diverse, with 86.0% of respondents indicating a preference for treatment that offers quick relief of depression symptoms such as insomnia, restlessness, and suicidal thoughts. Side effects of medications, including sexual dysfunction, constipation, and diarrhea, were cited as a reason for treatment preference by 56.0% of respondents. Additionally, the high cost of diagnostic tests, laboratory investigations, and medications influenced treatment preferences for 62.0% of respondents. Socio-cultural beliefs regarding the inefficiency of orthodox medicine (32.0%) and poor attitudes of health professionals (30.0%) were also cited as reasons for treatment preference as shown in Table 3. These illustrate the complexity of decision-making processes among CVA survivors regarding their management and treatment preferences, highlighting the importance of considering individual needs and preferences in providing effective care and support.

3.2. Discussion

Findings from the study show that CVA survivors (86%) who receive care from the LEKMA hospital experienced depressive symptoms. At least 10% experienced moderate symptoms while 76% reported severe symptoms. This was confirmed by Ezema et al. [28] where at least 83% (n = 40) of screened CVA survivors were diagnosed with PSD. We also observed that the sudden loss of independence and the struggle to regain functional abilities after episodes of stroke may have contributed to feelings of helplessness and despair, thus increasing the risk of depression [28]-[30]. In addition, the increase in the severity of PSD with age is indicative of the facility's limited priority on routine screening for depression in CVA survivors to enable timely access to mental health services when needed [9], [19]. According to Mountain et al. [31] the integration of coping skills and resilience-building interventions into rehabilitation programs for CVA patients will mitigate the risk of depression for all ages [32]. Awareness among healthcare providers about early psychological interventions and fostering supportive family environments is equally required to facilitate recovery [9], [15], [19].

The predominance of spouses or partners and children as primary sources of support for CVA survivors, as indicated by the findings of this study was confirmed by Mohd et al. [22] emphasizing the crucial role of familial relationships in buffering against the challenges of stroke recovery (Estimate (E) = −0.128, SE (0.041)). The unconditional support and care provided by close family members is needed in the rehabilitation process to promote emotional well-being and facilitate physical recovery [22], [25]. However, findings from this research highlight a concerning trend regarding the limited involvement of friends, church members, work associates, and neighbors in the support networks of CVA survivors [33]. This suggests a potential gap in social support systems, with implications for the overall well-being and recovery outcomes of stroke survivors who received care from the LEKMA hospital. The reluctance or inability of individuals outside of immediate family circles to engage in supportive behaviors may have stemmed from various factors, including a lack of awareness about the needs of CVA survivors, the stigma associated with disability, and the discomfort in

navigating complex caregiving roles [14]. Addressing this gap in social support networks necessitates multifaceted interventions at the community level. Community-based initiatives should be developed to foster inclusive environments where individuals feel empowered to aid and support CVA survivors [33]. Educational programmes will increase awareness about stroke and its impact on survivors' lives, dispel misconceptions, and reduce stigma. This will encourage broader participation in caregiving and support roles [14], [34]. Additionally, leveraging technology and social media platforms can be instrumental in facilitating the formation of virtual support networks to offer opportunities for CVA survivors to connect with peers facing similar challenges and access valuable resources and information [22].

The preferences observed among CVA survivors regarding pharmacological and psychotherapeutic interventions, as evidenced by our findings, resonate with the notion of seeking comprehensive and holistic approaches to managing PSD [17], [34]. The expressed concerns regarding medication side effects and socio-cultural beliefs underscore the importance of personalized treatment approaches that consider individual needs and preferences [31], [35], [36]. Moreover, financial constraints and perceived attitudes of healthcare providers may significantly influence treatment decisions, indicating the necessity for accessible care [37]. These findings highlight several challenges in addressing PSD effectively. Firstly, the need for collaborative decision-making between healthcare providers and CVA survivors is paramount to ensure that treatment plans align with patients' goals and values [17]. We also found patient education programs to be crucial in empowering individuals. Providing comprehensive information about different treatment options and potential side effects will enable informed decision-making [31], [35], [36]. Accordingly, efforts to enhance cultural competency among healthcare professionals are essential to address the socio-cultural factors influencing treatment preferences and adherence [37]. By fostering a deeper understanding of diverse cultural perspectives and beliefs surrounding mental health and treatment, healthcare providers can better tailor interventions to meet the unique needs of CVA survivors from various cultural backgrounds. In addition, reducing financial barriers to care is crucial in ensuring equitable access to effective treatments for PSD. This may involve implementing policies to expand insurance coverage for mental health services or establishing subsidy programs to alleviate the financial burden associated with treatment [37].

Addressing the preferences and challenges associated with pharmacological and psychotherapeutic interventions for PSD requires a multifaceted approach. The strategy must prioritize patient-centered care, cultural sensitivity, and accessibility to primary care. Thus, fostering collaboration between healthcare providers and patients, enhancing cultural competency, and addressing financial barriers, quality of care and outcomes for CVA survivors with PSD can be improved.

Table 3. Management/treatment preferences

Treatment preferences	Reasons for treatment preference	Strongly disagree		Disagree		Agree		Strongly agree		Rank
		n	%	n	%	n	%	n	%	
Management/ treatment preferred by CVA survivors	Medications (antidepressants)	1	2.0	6	12.0	14	28.0	29	58.0	1
	Psychotherapy (behavioral and interpersonal therapy)	3	6.0	4	8.0	15	30.0	28	56.0	2
	Herbal treatment	19	38.0	17	34.0	12	24.0	2	4.0	4
	Spiritual intervention	8	16.0	20	40.0	18	36.0	4	8.0	3
Reasons for type of management/treatment preferred	Quick relief of symptoms of depression such as insomnia, restlessness suicidal thoughts.	0	0.0	7	14.0	16	32.0	27	54.0	1
	Side effects of medications (E.g. sexual dysfunction, constipation, diarrhea)	9	18.0	13	26.0	25	50.0	3	6.0	2
	Socio-cultural beliefs on inefficiency of orthodox medicine	12	24.0	22	44.0	15	30.0	1	2.0	4
	High cost of diagnostic tests, laboratory investigations and medications	6	12.0	13	26.0	25	50.0	6	12.0	3
	Poor attitudes of health professionals	12	24.0	23	46.0	10	20.0	5	10.0	5

Source: Field Data 2023

4. CONCLUSION

The study revealed pervasive experiences of major depression symptoms among CVA survivors at LEKMA Hospital in Ghana. Social support systems, especially from spouses and children, played a crucial role in the recovery process. Pharmacological treatment and psychotherapy emerged as the most preferred management options, with concerns about medication side effects and high costs influencing patient choices. These findings highlight the need for patient-centered care strategies that prioritize timely screening and access to mental health services for CVA survivors. Enhancing support networks beyond immediate family members

and addressing socio-cultural and financial barriers to treatment could significantly improve mental health outcomes for this population. Future research should therefore explore how integrating mental health services into stroke rehabilitation programs can better address the unique needs of CVA survivors for improved quality of life and long-term well-being.

Given that this research is a hospital-based study that utilized only quantitative methods for data collection, with a relatively small sample of 50 respondents, the generalizability of the findings is limited to the study population and others with similar demographic characteristics and socio-cultural contexts. Accordingly, future research should consider a mixed-method national survey of multiple healthcare institutions.

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C : **C**onceptualization	I : **I**nvestigation	Vi : **Vi**sualization
M : **M**ethodology	R : **R**esources	Su : **Su**pervision
So : **So**ftware	D : **D**ata Curation	P : **P**roject administration
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CONFLICT OF INTEREST STATEMENT
The authors declare no competing interests.

DATA AVAILABILITY
The data contains sensitive information. As such, the de-identified dataset will be made available when ethical requirements are met, from the author, [JNO], on reasonable request.

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