Arch Physioter 2026; 16: 130-140
ISSN 2057-0082 | DOI: 10.33393/aop.2026.3885
ORIGINAL RESEARCH ARTICLE

Utilization of physiotherapy services and associated factors among stroke survivors attending hospitals in Gondar Town, Northwest Ethiopia

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ABSTRACT

Introduction: The physiotherapy service plays a vital role in stroke rehabilitation by improving mobility, reducing disability, and enhancing quality of life. This study assessed physiotherapy service utilization and associated factors among stroke survivors attending hospitals in Gondar Town, Northwest Ethiopia.

Methods: An institution-based cross-sectional study was conducted from April to May 2025. A systematic random sampling technique was used to select participants. Data was collected using a structured interviewer-administered questionnaire supported by medical record review. Descriptive statistics were used to summarize participant characteristics. Variables with a p-value of less than 0.25 in the Bivariable regression were entered into a multivariable logistic regression, and a p-value of <0.05 was considered statistically significant.

Results: A total of 400 stroke survivors participated in the study, of whom 46.75% utilized physiotherapy services. Utilization of physiotherapy service was significantly associated with the acute phase of stroke survivors (AOR = 1.63, p < 0.000), stroke survivors those who were dependence in activities of daily living (AOR = 1.07, p = 0.002), stroke survivors with balance impairment (AOR = 1.12, p = 0.019), and those with abnormal speed of mobility (AOR = 1.01, p = 0.018) were significantly associated with utilization of physiotherapy service.

Conclusion: Physiotherapy service utilization among stroke survivors in Gondar Town was suboptimal. Utilization was significantly associated among patients in the acute phase and those with dependence in activities of daily living, balance impairment and abnormal speed of mobility. Improving access, strengthening referral systems, and enhancing follow-up care are recommended to increase physiotherapy service utilization.

Keywords: Ethiopia, Factors, Gondar Town, Physiotherapy utilization, Stroke, Service

What is already known on this topic?

- *Stroke is a major cause of long-term disability and often requires multidisciplinary rehabilitation to optimize recovery.*
- *Physiotherapy is a cornerstone of stroke rehabilitation and improves mobility, balance, functional independence, and quality of life.*
- *Access to and utilization of physiotherapy services remain limited in many low- and middle-income countries because of financial, geographical, and health-system barriers.*

What this manuscript adds?

- *Less than half (46.75%) of stroke survivors attending hospitals in Gondar Town utilized physiotherapy services.*
- *Physiotherapy utilization was significantly associated with the acute phase of stroke, dependence in activities of daily living, balance impairment, and abnormal mobility speed.*
- *The findings provide local evidence that can support strategies to improve access to rehabilitation services and strengthen referral and follow-up systems for stroke survivors in Ethiopia.*

Received: December 21, 2025
Accepted: May 31, 2026
Published online: July 6, 2026

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Introduction

Stroke is recognized as one of the leading causes of death and long-term disability worldwide, with profound consequences for individuals, families, and health systems (1). Globally, millions of people experience stroke each year, and a substantial proportion live with permanent functional impairments

requiring rehabilitation services such as physiotherapy (2). These disabilities often limit independence, reduce productivity, and increase reliance on caregivers, imposing considerable social and economic burdens (3).

Physiotherapy plays a central role in post-stroke rehabilitation by improving motor function, enhancing independence, and promoting quality of life. Early and consistent physiotherapy has been shown to significantly improve functional outcomes and reduce long-term complications (2-4). Despite its importance, access to and utilization of physiotherapy services remain uneven, particularly in low- and middle-income countries, where health systems face resource limitations and structural challenges (5-7).

The utilization of physiotherapy among stroke survivors is influenced by a combination of patient-related, socioeconomic, and institutional factors (8,9). Patient-related factors include age, stroke severity, and the presence of comorbidities, while socioeconomic conditions such as income, education, and family support also play a critical role in determining service uptake (10). Institutional factors, including the availability of trained physiotherapists, adequate infrastructure, and structured therapy schedules, further shape access to and continuity of rehabilitation services (11). A comprehensive understanding of these factors is essential to guide targeted interventions that enhance physiotherapy utilization and improve functional recovery outcomes (9,12).

In Africa, the burden of stroke has grown markedly over the past decades, driven by rising rates of hypertension, diabetes, and other non-communicable diseases (13,14). Evidence indicates that stroke incidence in sub-Saharan Africa is higher than previously estimated, with younger populations increasingly affected compared to global averages (15,16). Despite this growing burden, physiotherapy services remain limited due to inadequate infrastructure, shortages of skilled professionals, and insufficient health financing (17). Consequently, many stroke survivors experience poor functional outcomes and prolonged disability, underscoring the urgent need for institutional strengthening and evidence-based interventions (18).

Ethiopia reflects many of these continental challenges, with increasing stroke admissions reported in hospitals and growing rehabilitation needs (19,20). Physiotherapy services were recognized as essential but remain limited in scope and accessibility (21). Barriers such as financial constraints, transportation challenges, and limited awareness reduce utilization, particularly among chronic-phase survivors (19,22). At the same time, patients who receive consistent and early physiotherapy demonstrate significantly better recovery in terms of mobility, independence, and reintegration into daily life (23,24). Importantly, no prior study has investigated physiotherapy service utilization and associated factors among stroke survivors in Gondar Town. This lack of local evidence highlights a significant knowledge gap and underscores the need for context-specific research to guide healthcare planning, optimize resource allocation, and develop interventions that improve access, continuity, and functional recovery.

Therefore, this study aims to assess the utilization of physiotherapy services and associated factors among stroke survivors attending hospitals in Gondar Town, Northwest Ethiopia.

Methods

Study design and period

An institution-based cross-sectional study design was conducted from April to May 2025 to assess the utilization of physiotherapy services and identify the associated factors among stroke survivors attending hospitals in Gondar Town, Northwest Ethiopia.

Study Area and Setting

The study was conducted in Gondar town, one of the major urban centers in the Amhara Regional State, situated approximately 780 kilometers northwest of Addis Ababa. The town was located at an elevation of 1,859 meters above sea level (44). Gondar serves as a medical center for the surrounding districts and provides a wide range of health services, including specialized care and rehabilitation. The town had four hospitals that deliver physiotherapy and stroke-related healthcare services. These include two governmental hospitals: the University of Gondar Comprehensive Specialized Hospital (UoGCSH), which serves as a tertiary referral center and Ayira Referral Hospital and two private hospitals, namely Nur General Hospital and Ibex General Hospital. Together, these hospitals provide both inpatient and outpatient services and have operational physiotherapy units staffed with qualified physiotherapists who manage stroke rehabilitation among other conditions. This diverse healthcare environment makes Gondar Town an ideal setting for assessing physiotherapy utilization among stroke survivors.

Study Population

Source Population: All stroke survivors attending any of the four hospitals in Gondar town during the study period.

Study Population: Stroke survivors visiting the selected hospitals (UoGCSH, Ayira Referral Hospital, Nur General Hospital, and Ibex General Hospital) during the data collection period and who meet the eligibility criteria.

Eligibility Criteria

Inclusion Criteria: The study included stroke survivors aged 18 years and above who had been diagnosed with either ischemic or hemorrhagic stroke by a physician. Participants must be receiving either inpatient or outpatient care in any of the four hospitals in Gondar Town. Additionally, only individuals who are able to communicate verbally or with the assistance of a reliable caretaker were considered eligible for the study.

Exclusion Criteria: Individuals with severe cognitive impairment confirmed by using the Standardized Mini-Mental State Examination (SMMSE) checklist (25), who do not have a caregiver capable of providing accurate information, were not included. Patients who have visited physiotherapy services only once for assessment without subsequent follow-up sessions were also excluded.

Sample Size Determination and Sampling Procedure

Since no prior study has assessed physiotherapy service utilization and associated factors among stroke survivors in Gondar town, the single population proportion formula was used, assuming a prevalence (p) of 50% to maximize sample size, a 95% confidence interval (Z = 1.96), and a 5% margin of error (d = 0.05)(45).

$$n = \frac{(z\alpha/2)2(p)(1-p)}{d^2}$$

$$n = \frac{(1.96)2(0.5)(1-0.5)}{(0.05)^2} = 385$$

By adding a 10% non-response rate, the final sample size was 424 participants.

After calculating the final sample size, participants were selected from each hospital using a systematic random sampling technique. The total sample was proportionally allocated across the four selected hospitals based on their respective patient loads.

The sampling interval (K = N/n) was calculated and found to be 2. To minimize selection bias, the first participant in each hospital was chosen randomly using a lottery method. Thereafter, participants were selected systematically based on their order of arrival in the medical and physiotherapy departments of the hospital, where every second eligible stroke survivor was recruited until the required sample size for each hospital was achieved.

To ensure data quality and prevent duplication, participant charts were reviewed carefully, marked using a special marker after inclusion, and checked throughout the data collection process. Verbal confirmation was also obtained from participants or caregivers when necessary.

The total study population across the four hospitals was 792 stroke survivors, including 207 stroke survivors from the University of Gondar Comprehensive Specialized Hospital (UoGCSH), 198 from Ayira Referral Hospital, 198 from Nur General Hospital, and 189 from Ibex General Hospital. Data collection continued in each hospital until the final required sample size of 424 participants was achieved (Fig. 1).

Study Variables

Dependent Variable

Utilization of Physiotherapy service (Yes/No)

Independent Variables

Socio-demographic factors: age, sex, occupation, education, income, residence, marital status

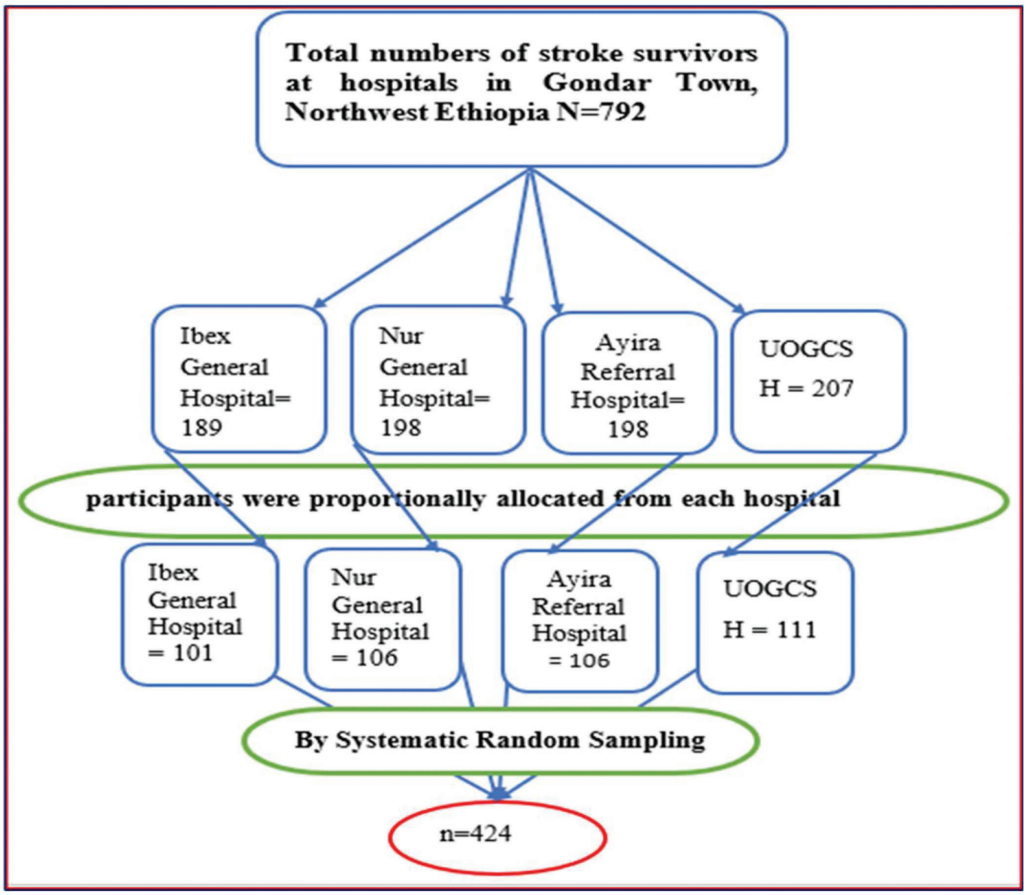

FIGURE 1 - Sampling procedure for assessing physiotherapy service utilization and associated factors among stroke survivors in Gondar Town, Northwest Ethiopia.

Psychosocial factors: Depressive symptoms

Clinical factors: stroke type, severity, comorbidities, duration since onset (phase).

Mobility and functional factors: Speed of mobility, activity of daily living, balance impairment, and use of mobility aids.

Operational definitions

Utilization of Physiotherapy service: In this study, it was defined as a stroke survivor's attendance of at least two or more physiotherapy sessions after a confirmed stroke diagnosis. It was measured through patient self-report during interviews and verified using hospital physiotherapy attendance records (26).

Balance impairment (BI): Presence of deficits in balance problem, measured using the 14-item Berg Balance Scale (BBS), with scores 0-20 indicating balance impairment, and scores 21-56 indicating no impairment (27).

Activity of Daily Living (ADL): The degree of independence in performing ADLs, assessed using the Barthel Index, an ordinal scale, assessed activities of daily living, with scores ≤60 indicating dependence and scores 61-100 indicating independence (28).

Mobility aid usage: Use of any device to assist movement, including a cane, walker, or wheelchair (29).

Stroke Type: Classified as either ischemic stroke, caused by obstruction of blood flow to the brain, or hemorrhagic stroke, was confirmed through medical records (30).

Duration Since Onset: The time elapsed between the initial stroke event and the date of data collection, measured in weeks or months. It is categorized as acute phase (1–6 months) or chronic phase (>6 months) (31).

Comorbidities: Other medical conditions present alongside stroke, such as hypertension, diabetes mellitus, heart disease, or renal disorders, as recorded in the patient's medical chart (32).

Depression symptoms: Using the Geriatric Depression Scale-Short Form (GDS-SF), participants who score <5 are normal, and a score ≥ 5 indicates a depressive symptom (33).

Speed of Mobility: was measured using the Timed Up and Go (TUG) test, defined as the time in seconds required for a participant to rise from a chair, walk three meters, turn, return, and sit down; longer times indicate reduced mobility (34).

Data collection procedure

Data were collected through face-to-face interviews using a structured questionnaire consisting of four sections: socio-demographic characteristics, clinical, medical health and comorbidity-related factors, psychosocial factors, and functional status. The questionnaire was originally developed in English, translated into Amharic, and back-translated to maintain linguistic consistency. Trained physiotherapists conducted the interviews after obtaining informed consent from each participant.

Data Quality Assurance

A pretest was conducted on 5% of the sample in Debre Tabor Hospital to assess the clarity and reliability of the questionnaire. Data collectors and supervisors received comprehensive training on the study protocol, ethical considerations, and data collection procedures. Daily supervision and review of completed questionnaires were conducted to ensure completeness and accuracy. Inconsistencies were addressed promptly.

Data Processing and Analysis

Data were entered into EPI Info version 7 and exported to SPSS version 25 for statistical analysis. Descriptive statistics were used to summarize the data. The Hosmer-Lemeshow test ($p = 0.934$) was employed to assess model fitness (35). Multicollinearity was evaluated using variance inflation factors (VIF < 10) (36). Variables with a p-value <0.25 in bivariate logistic regression were included in the multivariable logistic regression model (37). Statistical significance was declared at $p < 0.05$, and adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported.

Result

Socio-demographic characteristics

A total of 400 stroke survivors participated in this study at Gondar Town Hospital, yielding a response rate with a 95% confidence interval ranging from 46.58% to 56.38%. The remaining participants were unwilling to respond and provided incomplete data. The participants ranged in age from 18 to 95 years, with half (50%) aged between 61 and 95 years. More than half of the respondents were female (57.5%). Regarding marital status, 54% were unmarried.

In terms of educational status, the majority of participants (82.5%) had no formal education. Nearly half (48.5%) of respondents reported a monthly income of less than 1000 Ethiopian birr, indicating a generally low socioeconomic status among the study population.

With respect to occupation, the largest proportion of participants (23.25%) were engaged in non-governmental organization-related work, reflecting limited formal employment opportunities among stroke survivors in the study setting **(Table 1).**

Clinical, Comorbidity, Confirmed Medical, and Psychosocial Characteristics of Stroke Survivors

Among the 400 stroke survivors, hemorrhagic stroke was the most common type (49.8%). Right hemisphere involvement was slightly more frequent (49.8%) compared to the left. More than half of the participants (57%) were in the acute or sub-acute phase, while 43% were in the chronic phase.

Comorbidity was reported in 17% of survivors. Depression symptoms were present in 47% of participants, whereas 53% were classified as not depressed **(Table 2).**

Mobility and Functional Characteristics of Stroke Survivors

A substantial proportion of participants experienced significant functional limitations following stroke. More than half (58.25%) were dependent in activities of daily living (ADL).

TABLE 1 - Socio-demographic characteristics of stroke survivors attending hospitals in Gondar Town with the presence or absence of physiotherapy service utilization (n = 400)

Variable	Frequency(n)	Percent (%)	Physio Utilization (%)		OR (95% CI)	p-value
			Yes	No		
Age						
18-40	101	25.25%	74	27	1	1
41-60	99	24.75%	76	23	0.82 (0.43, 1.57)	0.561
61-95	200	50.00%	37	163	12.07(6.84, 14.28)	0.000
Sex						
Male	170	42.5%	77	93	1	1
Female	230	57.5%	110	120	0.90 (0.61, 1.34)	0.616
Marital Status						
Married	184	46%	85	99	1	1
Unmarried	216	54%	102	114	1.16 (0.64, 1.42)	0.838
Education						
Formal educate	70	17.5%	30	40	1	1
Non-Educate	330	82.5%	157	173	0.82 (0.43, 1.39)	0.473
Residence						
Urban	179	44.75%	91	88	1	1
Rural	221	55.25%	96	125	1.34 (0.90, 2.00)	0.141
Income level						
<1000	194	48.5%	100	94	1	1
1001-2000	54	13.5%	32	22	0.73 (0.39, 1.34)	0.316
2001-3000	51	12.75%	20	31	1.64 (0.87, 3.09)	0.119
>30000	101	25.25%	35	66	2.01 (1.22, 3.29)	0.006

Similarly, 51.5% had balance impairment, and 54.75% exhibited abnormal speed of mobility. In addition, 59.75% of participants reported using mobility aids, indicating a high level of functional dependency within the study population **(Table 3**).

Physiotherapy service utilization

Overall, physiotherapy service utilization varied across socio-demographic, clinical, mobility and functional characteristics. Utilization was higher among younger participants, those with higher income levels, individuals in the chronic phase of stroke, and those without comorbid conditions or depressive symptoms.

Conversely, lower physiotherapy service utilization was observed among stroke survivors in the acute phase, those who were dependent in activities of daily living, individuals with balance impairment, and those with abnormal speed of mobility.

In the bivariable logistic regression analysis, variables with a p-value ≤ 0.25 were considered for inclusion in the multivariable logistic regression model (37). Based on these criteria, age, residence, income level, post-stroke duration, comorbidity, depression symptoms, activities of daily living, balance impairment, speed of mobility, and use of mobility aids were entered into the final multivariable model **(Table 4).**

Discussion

This cross-sectional study assessed the utilization of physiotherapy service and its determining factors among stroke survivors attending hospitals in Gondar town, Northwest Ethiopia. The study found that only 46.75% of stroke survivors

TABLE 2 - Clinical, comorbidity, confirmed medical, and psychosocial characteristics of stroke survivors by physiotherapy service utilization (n = 400)

Variables	Frequency(n)	Percent (%)	Physio Utilization (%)		OR (95% CI)	p-value
			Yes	No		
Type of stroke						
undetermined	6	1.5%	3	3	1	1
Ischemic	195	48.75%	91	104	1.14 (0.22, 5.80)	0.872
Hemorrhagic	199	49.75%	93	106	1.13 (0.22,5.78)	0.875
Type of hemisphere						
Undetermined	13	3.25%	7	6	1	1
Right	199	49.75%	91	108	1.38 (0.44, 4.26)	0.571
Left	188	47.00%	89	99	1.29 (0.42, 4.01)	0.65
Post-stroke duration						
Chronic	172	43%	143	29	1	1
Acute	228	57%	44	184	20.62 (12.29,34.58)	0.000
Comorbidity						
No	332	83%	167	165	1	1
Yes	68	17%	20	48	2.42 (1.38, 4.27)	0.002
Depression Symptom						
Not depressed	212	53%	166	46	1	1
Depressed	188	47%	21	167	28.69 (16.41, 50.19)	0.000

TABLE 3 - Mobility and functional Characteristics of Stroke Survivors in Gondar Town Hospitals with the presence and absence of Physiotherapy service utilization (n = 4).

Variable	Frequency(n)	Percent (%)	Physio Utilization (%)		OR (95% CI)	p-value
			Yes	No		
Activity of daily living						
Independent	167	41.75 %	122	45	1	1
Dependent	233	58.25%	65	168	7.01(4.48,10.94)	0.000
Balance impairment						
No	194	48. 5%	159	35	1	1
Yes	206	51.5%	28	178	28.87 (16.81, 49.60)	0.000
Speed of mobility						
Normal	181	45.25%	150	31	1	1
Abnormal	219	54.75%	37	182	23.80 (14.09,40.19)	0.000
Mobility aids						
Without the use of aids	161	40.25%	132	29	1	1
use aids	239	59.75%	55	184	15.22(9.21,25.16)	0.000

TABLE 4 - Factors associated with physiotherapy service utilization among stroke survivors in public hospitals of Gondar Town, Ethiopia: a multicenter cross-sectional study

Variable	Physio Utilization		COR (95% CI)	AOR (95% CI)	p-value
	Yes	No			
Age					
18-40	74	27	1	1	1
41-60	76	23	0.82 (0.43, 1.57)	0.41 (1.31, 4.78)	0.365
61-95	37	163	12.07 (6.84, 14.28)	0.72 (0.68, 0.92)	0.876
ADL					
BI					
No	159	35	1	1	1
Yes	28	178	28.87 (16.81, 49.60)	**1.12 (0.18, 2.06) ***	**0.019**
Post Stroke duration					
Chronic	143	29	1	1	1
Acute	44	184	20.62 (12.29,34.58)	**1.63 (0.84, 2.41) ****	**0.000**
Depression Symptom					
Not Depressed	166	46	1	1	1
Depressed	21	167	28.69(16.41, 50.19)	0.77 (0.13, 1.95)	0.097
Mobility aids					
Without the use of aids	132	29	1	1	1
Use aids	55	184	15.22 (9.21,25.16)	0.41 (0.36, 1.21)	0.297
Speed of mobility					
Normal	150	31	1	1	1
Abnormal	37	182	23.80 (14.09, 40.19)	**1.01 (0.17, 1.85) ***	**0.018**
Comorbidity					
no	167	165	1	1	1
Yes	20	48	2.42 (1.38, 4.27)	0.22 (1.01, 1.57)	0.582
Residence					
Urbane	91	88	1	1	1
Rural	96	125	1.34 (0.90, 2.00)	0.21 (0.44, 0.88)	0.516
Income level					
<1000	100	94	1	1	1
1001-2000	32	22	0.73(0.39, 1.34)	0.26 (0.27, 1.73)	0.267
2001-3000	20	31	1.64 (0.87, 3.09)	0.13 (0.12, 1.03)	0.980
>30000	35	66	2.01 (1.22, 3.29)	0.48 (0.37,1.34)	0.265

Key: BI = balance impairment, ADL = activity of daily living, COR = crude odds ratio, AOR = adjusted odds ratio and CI = confidence interval. Physio Utilization = utilization of Physiotherapy service, 1 = reference category, * Significant variables are bolded and marked with ** indicating p-value < 0.001 and * indicating p-value < 0.05.

utilized physiotherapy services, indicating that more than half of the survivors did not access rehabilitation despite having functional limitations. This low utilization highlights a substantial gap between physiotherapy needs and service uptake and underscores the need for target interventions to improve access and utilization.

The Utilization of Physiotherapy service in this study was lower than reported from other low- and middle-income countries, such as India, where more than 67% of stroke survivors reported receiving physiotherapy treatment service (38). Furthermore, utilization remains substantially lower than in high-income countries. In Taiwan, 75% of hospitalized stroke survivors receive physiotherapy rehabilitation service as part of standard stroke care (39). This variation may also be due to those disparities in rehabilitation workforce capacity, healthcare financing, referral systems, and post-discharge follow-up mechanisms and methodological differences of the study.

However, the current study reported a higher prevalence of physiotherapy rehabilitation service utilization, with a study done in Ghana, 27% (40). Several factors may explain this discrepancy. First, differences in healthcare infrastructure may contribute; Gondar Town Hospitals, being urban referral centers, may have relatively better access to physiotherapy services compared with rural or resource-limited settings in Ghana and Nigeria. Second, variations in referral practices and hospital-based rehabilitation programs could influence utilization, as patients in Gondar may receive more systematic physiotherapy referrals during the acute and subacute phases of stroke.

Regarding the associated factors, the odds of physiotherapy service utilization were higher among patients with dependent activities of daily living (ADL) (AOR = 1.07), indicating that functional dependency was associated with an increased likelihood of using physiotherapy services. This may be explained by the greater level of disability, which increases the need for rehabilitation and often prompts caregiver involvement and referral from health professionals (41). However, despite this increased likelihood, their actual engagement remained limited due to caregiver burden, transportation difficulties, psychological challenges, and health system constraints. This suggests that greater functional need does not necessarily translate into sustained or consistent physiotherapy service utilization (42,43). This result is in line with a study conducted in Nigeria (44) and the United Kingdom (45).

In addition, survivors in the acute post-stroke phase had higher odds of physiotherapy service utilization compared to those in the chronic phase (AOR = 1.63), suggesting that the stage of recovery influences rehabilitation service use. This finding highlights how the stage of stroke recovery plays an important role in determining service utilization. The possible reasons for these were that acute patients are often hospitalized and closely monitored, which makes physiotherapy more accessible and strongly encouraged by clinical guidelines to prevent complications and promote early recovery (46). At this stage, both patients and caregivers may also feel more motivated and hopeful, driving them to engage in physiotherapy services. In contrast, survivors in the chronic phase frequently encounter barriers such as fatigue, reduced motivation, financial difficulties, transportation challenges, and caregiver burden, all of which can limit their continued participation in therapy (47). These results suggest that while acute stroke survivors benefit from structured hospital-based rehabilitation, chronic survivors need stronger follow-up systems and community-based programs to sustain engagement and improve long-term outcomes. This finding was in line with other studies conducted in Taiwan (48) and America (49).

Similarly, patients with balance impairment had higher odds of physiotherapy service utilization (AOR = 1.12). This may be because balance problems significantly affect mobility and independence, making rehabilitation more necessary and more likely to be recommended by clinicians (50). Nevertheless, utilization may still be hindered by fear of falling, reduced confidence, environmental barriers, and limited rehabilitation follow-up services. A possible reason for this finding is that balance dysfunction is a visible and clinically significant impairment that directly affects mobility, safety, and independence. Patients with balance impairment are at higher risk of falls, gait instability, and functional dependence, which may prompt clinicians to prioritize referral to physiotherapy services (51). In addition, stroke survivors who experience balance problems may perceive a greater need for rehabilitation due to fear of falling and difficulty performing daily activities, thereby increasing their motivation to seek physiotherapy care (52). Furthermore, balance impairment is often the focus of physiotherapy interventions, making affected individuals more likely to be enrolled in structured rehabilitation programs aimed at improving postural control, mobility, and functional independence (53). This finding was in line with other studies conducted in China (54) and Portugal (55).

The study found that stroke survivors with abnormal speed of mobility also showed higher odds of utilizing physiotherapy services (AOR = 1.01. A possible reason for this finding was that the abnormal speed of mobility reflects underlying motor deficits and impaired functional capacity, which directly affect independence in daily activities and overall mobility (56). Survivors with slower or irregular walking patterns are more likely to be identified by clinicians as needing targeted rehabilitation to improve gait, balance, and postural control (57). In addition, these survivors may perceive a greater need for physiotherapy to regain mobility and confidence in walking, while caregivers may encourage engagement in rehabilitation to reduce the risk of falls and dependency (58). Research has shown that gait speed is a sensitive marker of post-stroke functional limitation and quality of life, and slower gait or abnormal walking patterns often lead to increased participation in structured physiotherapy programs aimed at improving walking ability and functional independence (58). This finding was in line with other studies conducted in Spain and the USA (56,59).

Limitation of the study

This study was conducted exclusively in Hospitals in Gondar Town, which may limit the generalizability of the findings to rural populations across the country. Additionally, the cross-sectional design restricts the ability to establish

causal relationships. The reliance on self-reported medical conditions may also introduce recall bias, potentially affecting the accuracy of the data.

Conclusion and Recommendations

Physiotherapy service utilization among stroke survivors in Gondar Town remains suboptimal despite a substantial burden of functional impairment. Utilization was significantly higher among patients in the acute phase and those with dependence in activities of daily living (ADLs), balance impairment, and abnormal speed of mobility. Barriers such as caregiver burden, transportation, and financial constraints limit continued use, particularly in chronic-phase patients. Improving access, strengthening referral systems, and enhancing follow-up care are recommended to increase utilization and improve recovery outcomes.

Acknowledgments

The authors extend their heartfelt appreciation to the study participants and data collectors for their generous cooperation and support. We also gratefully acknowledge the invaluable contributions of colleagues and friends whose guidance and encouragement were instrumental to the successful completion of this research.

Authors' contributions

This study was conducted in conjunction with all authors. MG: planned and designed the study. YEA: contributed to data administration and paper writing. DMM: design, data collecting, analysis, and interpretation, in manuscript edition. GJB: data collection, analysis, interpretation, and preliminary article write-up. YWA: design, data collection, analysis, and writing the manuscript. MD: Design, Data Collection, and Analysis. ES: helped handle the data and wrote the manuscript. AY: data curation, editing, and supervision. MF: Design, Data Collection, and Analysis. MDT: design, data collecting, analysis, and wrote the manuscript. AZ: design, data collecting, analysis, and GBG: contributed to the analysis of the results. SF: design, data collection, analysis, interpretation. MK: initial manuscript write-up, data collection, analysis and interpretation, and manuscript edition. All writers contributed adequately to the work and accepted responsibility for the relevant sections of the text.

Ethics and consent to participate

Ethical clearance and approval to conduct the research were obtained from the ethical review committee of the School of Medicine, College of Medicine and Health Sciences, University of Gondar, with the reference letter of Ref No/SoM 26/04/2025. The study was confirmed in accordance with the Helsinki Declaration Statement's guideline declaration for the 2013 version. Participation in this study was entirely voluntary, and participants had the option of refusing or participating after being informed about the study's objective, length, benefits, and potential dangers. Data confidentiality was maintained during the investigation. The collected data were solely utilized for the study's intended purpose. Before data collection, study participants from each selected place were told about the study and given written consent.

Disclosures

Conflict of interest: The authors declare no conflict of interest.

Financial support: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Data availability statement: The dataset supporting the conclusions of this article is available to the principal investigator upon reasonable request.

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