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Prevalence of Learned Helplessness among Stroke Survivors at the University of Ilorin Teaching Hospital, Ilorin, Nigeria

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ABSTRACT
Stroke is a leading cause of mortality and long-term disability worldwide, often resulting in physical, cognitive, and psychological challenges. Among these, learned helplessness, a perceived lack of control, and diminished personal agency can hinder rehabilitation engagement and recovery. Despite its significance, evidence on learned helplessness among stroke survivors in Nigeria is limited. This study examined the prevalence and socio-demographic predictors of learned helplessness among stroke survivors receiving rehabilitation at the University of Ilorin Teaching Hospital. Using a cross-sectional design, participants completed the Learned Helplessness Scale and provided socio-demographic information. Findings revealed a moderate prevalence of learned helplessness, characterized by reduced perceived control, lower task persistence, and attributions of failure to personal ability, while some aspects of agency remained intact. Regression analyses identified sex as the only significant predictor, with male survivors exhibiting higher helplessness than females; age and educational level showed no significant effect. These results highlighted the selective nature of learned helplessness and underscore the importance of gender-sensitive psychological interventions in stroke rehabilitation. It is recommended that psychological screening be routinely integrated into stroke rehabilitation programs and that targeted interventions, including cognitive-behavioral therapy, psycho-education, and resilience-building strategies, be incorporated to enhance self-efficacy, strengthen adaptive coping, and improve adherence to rehabilitation, ultimately promoting better functional recovery outcomes.

Keywords: stroke, learned helplessness, rehabilitation, self-efficacy, psychological resilience, socio-demographic factors

INTRODUCTION

Stroke remains a devastating medical condition and a major global public health challenge, affecting millions of individuals and imposing substantial social and economic burdens on families and healthcare systems[1]. It is widely recognized as one of the leading causes of mortality and long-term disability worldwide[2]. Reports indicate that stroke accounts for approximately 11.6% of total global deaths, ranking as the second leading cause of death internationally[3]. Data from the Global Burden of Diseases, Injuries, and Risk Factors Study[4] further identified stroke as the third leading cause of combined death and disability, contributing about 5.7% of total disability-adjusted life years (DALYs) globally[5,6]. More recent estimates suggest that stroke was responsible for approximately 6.7 million deaths and 116.4 million DALYs in 2019 alone[7], underscoring its persistent global impact.

Clinically, stroke is defined as an acute onset of focal neurological deficit resulting from vascular injury to the central nervous system. This vascular injury may occur due to cerebral infarction (ischemic stroke) or hemorrhage, including intracerebral hemorrhage (ICH) and subarachnoid hemorrhage (SAH), collectively referred to as hemorrhagic stroke[8]. Ischemic stroke is the most common subtype and is frequently linked to conditions such as atrial fibrillation, atherosclerosis, and hypertension. Both hereditary and acquired clotting disorders may also contribute to ischemic events[9]. The burden of stroke is particularly pronounced in low- and middle-income countries. Approximately 86% of global stroke deaths and 89% of stroke-related DALYs occur in lower-income and lower-middle-income nations[10]. In Africa, stroke incidence rates have been reported as high as 316 per 100,000 population annually, among the highest worldwide[11, 12]. Although earlier community-based studies in southwestern Nigeria reported lower crude incidence rates of 25 per 100,000[12]. The overall regional burden remains substantial and concerning. Numerous modifiable and non-modifiable risk factors contribute to stroke occurrence. Key modifiable

factors include hypertension, diabetes mellitus, smoking, and physical inactivity, while non-modifiable factors include age, sex, race, and genetic predisposition[13,14]. Risk factors may also operate over varying time frames, including short-term triggers such as infection and stress, intermediate-term factors such as hypertension and hyperlipidemia, and long-term determinants such as sex and race[15].

Stroke is a complex medical condition with consequences that extend beyond physical impairment, affecting cognitive and psychological functioning. Survivors often encounter challenges in regaining motor skills, relearning activities of daily living, and managing emotional and psychological distress[13]. The impact of stroke not only compromises physical health but also disrupts psychological resilience and coping capacities[16]. While physical rehabilitation approaches such as passive mobilization (PM), proprioceptive neuromuscular facilitation (PNF), and free or active exercises play a critical role in post-stroke recovery, the contribution of psychological factors to overall rehabilitation outcomes cannot be overlooked. Conditions such as depression and anxiety, along with coping mechanisms, significantly influence the success of recovery efforts[17]. Optimism and positive psychological states have been shown to create a conducive environment for neural recovery, highlighting the need to understand the psychological dimensions of stroke as an integral component of rehabilitation.

One psychological factor of interest in this context is learned helplessness, a phenomenon first described by Seligman and Maier[18]. Learned helplessness occurs when individuals perceive a lack of control over their environment, resulting in passivity and a diminished sense of agency[19]. In clinical populations, including those with chronic illnesses, learned helplessness has been associated with poorer coping, reduced engagement in adaptive behaviors, and negative health outcomes. Specifically, for stroke survivors, the North American Nursing Diagnosis Association (NANDA) defines helplessness as “the lived experience of lack of control over a situation, including a perception that one’s actions do not significantly influence outcomes”[20].

Post-stroke challenges, ranging from adapting to functional limitations, navigating healthcare systems, and confronting societal attitudes, may contribute to the development or intensification of learned helplessness[21]. When present, learned helplessness can impede rehabilitation participation and compromise recovery. Despite extensive research on learned helplessness in other health contexts, its role in stroke survivors remains underexplored. Understanding how perceived lack of control influences psychological well-being and rehabilitation adherence is therefore essential for designing comprehensive and effective stroke rehabilitation strategies. There is a paucity of data on the effect of learned helplessness on stroke survivors in Nigeria. This study, therefore, aims at bridging the gaps by shedding light on the psychological experience of stroke survivors and their relationship with socio-demographic data among stroke survivors receiving rehabilitation at the University of Ilorin Teaching Hospital.

MATERIAL AND METHODS

Methods

This study employed a descriptive cross-sectional survey design to determine the prevalence and demographic factors associated with learned helplessness among stroke survivors attending the University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria. A quantitative approach was adopted to assess levels of learned helplessness within the study population. The study was conducted at the Physiotherapy Department and Neurology Outpatient Clinic of the University of Ilorin Teaching Hospital. These clinics provide rehabilitative and follow-up care for stroke survivors discharged from inpatient management.

Participants

Participants comprised stroke survivors attending outpatient physiotherapy and neurology clinics at UITH. Eligible participants were male and female stroke survivors aged between 35 and 85 years who had previously been hospitalized for stroke and were currently attending follow-up or physiotherapy sessions. A total calculated sample size of 96 was targeted; however, 93 participants who met the inclusion criteria and consented to participate were recruited.

Inclusion criteria

Participants were stroke survivors aged 18 years and above attending the Physiotherapy Department or Neurology Clinic of UITH and provided informed consent to participate in the study.

Exclusion criteria

Participants with significant expression or communication difficulties that could interfere with questionnaire administration were excluded from the study.

Sample and sampling technique

The sample size was calculated using Fisher’s formula for populations greater than 10,000. The calculated sample size (n) was 115. Since the projected population of stroke survivors attending the clinics was less than 10,000 (estimated at 500), the finite population correction formula was applied, which yielded a corrected sample size of 93 participants. A purposive sampling technique was used to recruit eligible stroke survivors. All individuals who met the inclusion criteria and attended clinic appointments during the study period were approached and invited to participate.

Instrumentations

Data were collected using a structured questionnaire consisting of two sections:

Section A: A researcher-designed socio-demographic questionnaire capturing age, gender, religion, marital status, educational level, and employment status.

Section B: The Learned Helplessness Scale (LHS), a 20-item self-report instrument rated on a four-point Likert scale (1 = Strongly Disagree to 4 = Strongly Agree). Total scores range from 20 to 80, with higher scores indicating higher levels of learned helplessness. The LHS was researcher-administered to ensure clarity and completeness.

Data collection

Institutional Ethical approval was obtained from the Ethical Review Committee of the University of Ilorin Teaching Hospital (UITH); Ref. no. UITH/CAT/189/VOL21^{B}/681. The purpose and procedures of the study were explained to each participant, and written informed consent was obtained prior to data collection. Confidentiality and anonymity were maintained throughout the study. Eligible participants completed the socio-demographic questionnaire and the LHS during their clinic visits. The data collected were analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to summarize demographic characteristics and the prevalence of learned helplessness. Appropriate inferential statistics were applied to determine associations between learned helplessness and selected demographic variables. Statistical significance was set at $p \leq 0.05$.

RESULTS

Table 1 presents the mean responses of stroke survivors to selected items on the Learned Helplessness Scale (LHS). The analysis of mean scores provides insight into participants' perceptions of control, ability, and attribution patterns following stroke. The findings indicated that many respondents expressed reduced perceived control over outcomes. A mean score of 2.60 suggests that a considerable proportion of participants felt that, regardless of the effort invested in a task, they had little control over the outcome. Similarly, respondents reported avoiding situations in which outcomes were unpredictable (mean = 2.62), reflecting a tendency toward withdrawal from uncertain or potentially challenging tasks. Task persistence also appeared to be affected. With a mean score of 2.35, many respondents indicated that when they failed at a task, they were unlikely to attempt similar tasks again due to fear of repeated failure. Attribution patterns further revealed self-doubt; participants tended to believe that unsuccessful outcomes were due to a lack of inherent ability (mean = 2.54), and when they performed poorly, they attributed it to insufficient ability to perform better (mean = 2.38). Additionally, respondents generally felt they had limited control over work-related outcomes (mean = 2.52). Interestingly, stroke survivors moderately agreed that others could perform better than they did at most tasks (mean = 2.65), suggesting diminished self-confidence. However, they were less inclined to attribute failure to personal stupidity (mean = 2.08), indicating some preservation of self-worth.

Conversely, respondents largely disagreed with the statement that "no matter how hard they try, things never seem to work out the way they want them to" (mean = 2.84). This suggests that despite experiences of reduced control and lowered task persistence, many participants did not fully endorse a global sense of hopelessness. This implies that the findings reflect moderate levels of learned helplessness among stroke survivors, characterized by reduced perceived control, lowered task persistence, and ability-based attributions for failure, alongside some retained sense of personal agency.

As presented in Table 2, sex consistently emerged as a significant predictor of learned helplessness across all regression models. The positive regression coefficient for sex ($B \approx 0.22$ in each model) indicates that being male (based on the coding applied) is associated with a higher prevalence of learned helplessness among stroke survivors. The consistency of this finding across the three models underscores its robustness and suggests that sex plays a meaningful role in explaining variations in learned helplessness within the study population. In contrast, age did not demonstrate a statistically significant relationship with learned helplessness in Model 1 ($p = 0.771$), indicating that age differences were not associated with meaningful changes in learned helplessness prevalence. Likewise, educational level failed to show statistical significance across all models ($p > 0.25$), suggesting that variations in educational attainment do not substantially influence the likelihood of experiencing learned helplessness in this sample.

These findings therefore indicate that sex is the only demographic variable among those examined that significantly predicts learned helplessness among stroke survivors. The lack of significant effects for age and education suggests that their contribution to explaining learned helplessness in this context is minimal. Although the regression models explain a relatively small proportion of the total variance in learned helplessness prevalence (R^2 values approximately 9–10%), the results highlight the prominent influence of sex. The modest explanatory power of the models also suggests that other psychosocial, clinical, or environmental factors not included in this analysis may contribute substantially to learned helplessness among stroke survivors. Further research is therefore warranted to explore additional determinants that may better account for the observed variance.

Table 1: The prevalence of characteristic traits of learned helplessness among stroke survivors

Variables	1	2	3	4	Mean
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	
No matter how much energy I put into a task, I feel I have no control over the outcome	7 (7.5)	33 (35.5)	43 (46.2)	10 (10.8)	2.60
I don't place myself in situations in which I cannot predict the outcome	7(7.5)	25(26.9)	57(61.3)	4(4.3)	2.62
When I do not succeed at a task, I do not attempt any similar task because I feel that I will also fail it.	13(14.0)	40(43.0)	34(36.6)	6(6.5)	2.35
When something doesn't turn out the way I planned, I know it is because I didn't have the ability to start with other people	8(8.6)	29(31.2)	54(58.1)	2(2.2)	2.54
Other people have more control over their success or failure than I do	14(15.1)	43(46.2)	31(33.3)	5(5.5)	2.29
When I perform poorly, it is because I don't have the ability to perform better	8(8.6)	42(45.2)	43(46.2)	0(0)	2.38
I feel that I have little control over the outcomes of my works	5(5.4)	43(46.2)	37(39.8)	8(8.6)	2.52
I feel that anyone else could be better than me at most tasks	7(7.5)	29(31.2)	47(50.5)	10(10.8)	2.65
When I don't succeed at a task, I find myself blaming my own stupidity for my failure	17(18.3)	55(59.1)	18(19.4)	3(3.2)	2.08
No matter how hard I try, things never seem to work out the way I want them to.	6(6.5)	54(57.0)	33(35.5)	1(1.1)	2.31

Key: 1 = strongly disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree. Freq= Frequency; % = percentage

Table 2: ANOVA

ANOVA[a] Model	Sum of Squares	df	Mean Square	F	Sig.
1. Regression	1.460	3	.487	3.484	0.19[b]
Residual	12.432	89	.140		
Total	13.892	92			
2. Regression	1.448	2	.724	5.237	.007[c]
Residual	12.444	90	.138		
Total	13.892	92			
3. Regression	1.272	1	1.272	9.170	.003[d]
Residual	12.621	91	.139		
Total	13.892	92			

a- refers to predictors included in the model; b, c and d indicate statistical significant level at $p = 0.05$

DISCUSSION

The Learned Helplessness Scale (LHS) revealed a moderate prevalence of learned helplessness among stroke survivors attending outpatient clinics. Participants reported a reduced sense of control over outcomes, suggesting that many perceive their efforts as having limited impact on recovery. This finding aligns with [18] learned helplessness frameworks, which posit that a perceived lack of control can diminish motivation and engagement in adaptive behaviors [22].

Participants also demonstrated avoidance of unpredictable situations and lowered task persistence after failure. These behaviors reflect core elements of learned helplessness, in which repeated exposure to perceived uncontrollable circumstances fosters withdrawal from challenging tasks [23]. Attribution patterns further indicated self-doubt, with survivors attributing unsuccessful outcomes to a lack of inherent ability or insufficient capacity to perform better. Such internal, ability-based attributions are consistent with previous studies showing that low self-efficacy after stroke can negatively influence psychological adjustment and rehabilitation adherence[24].

Interestingly, participants moderately acknowledged that others might perform better than themselves but largely rejected the notion that no matter how hard they try, things never work out as they wish. This suggests that, although survivors exhibit certain elements of learned helplessness, such as reduced perceived control and lowered task persistence, they retain a degree of self-worth and agency. Contemporary research supports the view that self-efficacy and psychological resilience can buffer against complete helplessness, promoting engagement in rehabilitation and better functional outcomes [25, 26].

The demographic analysis indicates that gender was the only significant variable associated with learned helplessness among stroke survivors, with males exhibiting higher levels compared to females. This finding aligns with prior research indicating that sex differences influence psychological responses to stroke, with men often reporting greater psychological distress and lower engagement in adaptive coping strategies [27, 28]. The consistency of this association across all regression models underscores the robustness of sex as a determinant and highlights the potential need for sex-sensitive interventions in post-stroke rehabilitation.

In contrast, age did not significantly predict learned helplessness, suggesting that chronological age does not meaningfully influence its prevalence in this population. This is consistent with previous studies reporting no clear relationship between age and psychological adjustment following stroke, indicating that learned helplessness may be shaped more by psychosocial or clinical factors than by age alone[16]. Similarly, educational level did not demonstrate a significant effect, suggesting that formal education may not substantially buffer against feelings of helplessness in stroke survivors. While some studies have linked higher education to better health literacy and coping, this finding may reflect the overriding impact of stroke-related functional limitations on psychological outcomes [29].

Although the regression models accounted for only a modest proportion of the total variance in learned helplessness, the prominence of sex as a predictor emphasizes the importance of considering gendered experiences in stroke rehabilitation. The limited explanatory power also suggests that other unmeasured factors, such as severity of disability, social support, pre-existing mental health conditions, and personality traits, may play substantial roles. Future research should adopt a comprehensive biopsychosocial framework to identify additional determinants of learned helplessness, which could inform targeted interventions aimed at enhancing psychological resilience and rehabilitation adherence among stroke survivors[26,27].

Healthcare policymakers and hospital administrators, in collaboration with rehabilitation professionals, should establish standard protocols for routine psychosocial screening of stroke survivors during follow-up visits. This will ensure early identification of learned helplessness and timely implementation of individualized intervention programs aimed at improving emotional adjustment, resilience, and active participation in recovery.

Clinical psychologists, physiotherapists, neurologists, and rehabilitation nurses should collaborate to provide

cognitive-behavioral interventions, motivational counseling, and self-efficacy training, with special attention to male stroke survivors who may be at higher risk of learned helplessness.

CONCLUSION

The findings indicate that learned helplessness is moderately prevalent among stroke survivors, as many participants reported reduced perceived control, diminished task persistence, and ability-based attributions for failure, although they did not fully endorse global hopelessness.

Conflict of interest: The Authors have no conflicts of interest to declare

Authors' contribution: All Authors: research concept and design, data interpretation, drafting and revising the manuscript; HHM and OPA: data collection and analysis.

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