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Knowledge and utilization of standardized stroke outcome measures among physiotherapists in tertiary health institutions in Anambra State, Nigeria

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Abstract

Background Knowledge and utilization of standardized stroke outcome measures (SOMs) are important as it helps in the evaluation of patient response to therapy and decision of further step in patient care. This study evaluated the current knowledge and utilization of standardized stroke outcome measures and the factors that influence them.

Methods A cross-sectional survey research design was used for the study. The consecutive sampling technique was used to recruit 40 (16 females and 24 males) respondents from two tertiary hospitals located in Anambra State. Data were analyzed using the IBM Statistical Package for the Social Sciences (SPSS) version 21. The frequency counts and percentages, mean and standard deviation, chi-square test, and Spearman rank-order correlation were used in the analysis of different variables. The alpha level was set at 0.05.

Results A total of 37.5% had poor knowledge, 30% had fair knowledge, and 32.5% had good knowledge of SOMs. The highest familiarity (i.e., very familiar) was observed as follows: 6-min walk test (72.5%), Modified Ashworth Scale (70%), Barthel Index (65.75%), Mini-mental Stroke Examination (52.5%), Functional Independence Measure (65%), Berg Balance Scale (50%), and National Institute of Health Stroke Scale (50%). Poor utilization was observed in % of the respondents, fair utilization was observed in 25%, and good was observed in 20% of them. There was a positive correlation between knowledge and utilization of standardized stroke outcome measures (p < 0.01). Knowledge and utilization were each significantly associated with gender and educational qualification. Utilization alone was significantly associated with center of practice.

Conclusion There is still a deficit in the awareness and utilization of standardized stroke outcome measures in the study population. There has not been an appreciable improvement in the knowledge of SOMs among the population of physiotherapists that participated in the current study. However, the utilization of SOMs is still at a low level. This requires action from critical stakeholders in Nigeria's health system to encourage its regular use in clinical practice as it will serve to improve service delivery to patients.

Keywords Stroke, Outcome measures, Knowledge, Utilization, Physiotherapists, Tertiary institution

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Background

Stroke is a devastating and disabling cerebrovascular disease with a significant amount of residual deficit leading to economic loss [1]. It is a collection of clinical syndromes resulting from cerebral ischemia to intracranial hemorrhage [2]. A study identified that 7% of medical and 45% of neurological admissions were due to stroke with a fatality rate of 9% at hospital discharge and 20% at 28 days [3]. Hypertension, alcoholism, smoking, and dyslipidemia are the commonest cause of stroke among the elderly, and smoking, alcoholism, increased BMI, diabetes, and hypertension are significantly associated with strokes among young people [4].

Rehabilitation forms a cornerstone in the management of poststroke-related disabilities. In rehabilitating a stroke patient, physical therapy, occupational therapy, and speech and language therapy are instituted [5]. The need to understand the impact of such therapy on patients has led to the adoption of various measures and tests [6]. Physical therapists continually compare tests and measures to choose those most appropriate for each patient, and the term outcome measure (OM) is often used to describe these tests since they are frequently used to determine whether there has been a change in patient status or outcome [7].

Outcome measures are known to inform clinical decisions such as planning treatment and setting realistic treatment goals [8]. The integration of outcome measures into clinical practice improves patient care and enhances communication with patients and their family on treatment goals [9]. Similarly, the use of stroke outcome measures is useful in monitoring the effectiveness of interventions and can serve as useful educational tools for patients and their families. In effect, outcome management facilitates communication between care settings and increases the efficiency of clinical practice among the multidisciplinary health professionals involved in the management of stroke [8]. Therefore, the use of outcome measures is strongly recommended worldwide [10]. The Intercollegiate Stroke Working Party (Royal College of Physicians, 2016) of London published clinical guidelines for the management of stroke and indicated that measurement of function is central to the rehabilitation process of stroke patients and that measurement of function is best achieved with the use of outcome measures [11]. It is in line with this that the World Health Organization (WHO) developed several assessment tools used by healthcare professionals to assess outcomes post-stroke based on the International Classification of Function, Disability, and Health [12].

Despite recent evidence-based practice initiatives and the need for accountability that have highlighted the need to use SOMs, recent studies show that their use in clinical practice in Nigeria remains limited [13]. Some barriers associated with the selection and use of SOMs have been blamed for this [13]. Surveyed PTs indicate that barriers include time constraints, difficulty for patients to complete the SOMs, lack of equipment, and lack of knowledge regarding OMs. A limited understanding of how to select and apply the best SOMs has been reported to be a barrier to their use in clinical practice [13]. Having seen the importance of stroke outcome measures in clinical practice and the need to improve their use, following the previous finding that their use in clinical practice in Nigeria was limited, this study was, therefore, meant to determine the level of awareness and utilization of selected standardized SOMs among physiotherapists in two tertiary health facilities in Anambra State, southeast Nigeria, 5 years after a related study was done in Nigeria. Besides, a literature search has revealed that a similar study has not been conducted in the southeastern part of Nigeria, hence the current study. Also, the current study restricted the outcome measures to those relevant to stroke rehabilitation, unlike the previous studies that were mixed.

Methods

Research design

A cross-sectional survey research design was used for this study.

Population of study

The target population was physiotherapists working in tertiary hospitals located in Anambra State. The tertiary hospitals in Anambra State that were used in this study are Nnamdi Azikiwe University Teaching Hospital (NAUTH) and Chukwuemeka Odumegwu Ojikwu University Teaching Hospital (COOUTH). NAUTH is located in Nnewi and is affiliated with the College of Health Sciences Nnamdi Azikiwe University, Nnewi campus. COOUTH is located in Awka and is affiliated with the College of Medicine Chukwuemeka Odumegwu University Uli, Anambra State. It must be emphasized that the teaching staff of Nnamdi Azikiwe University, Nnewi Campus, were included as staff of NAUTH, Nnewi; hence, those of them that consented were included in the study.

Eligibility

The inclusion criteria include physiotherapists at all levels of practice in tertiary hospitals located in Anambra State. Those that were excluded physiotherapists that were on leave and those that declined to participate.

Sample size

The sample size was calculated using G*Power 3.0.10. The acceptable sample size will have at least a 95% power of detecting an effect size of 0.15 at an alpha level of 0.05.

Sampling technique

The consecutive sampling technique was used to recruit physiotherapists in tertiary hospitals located in Anambra State, Nigeria.

Research instrument

The questionnaire on Standardized Outcome Measures in Rehabilitation was adopted and modified from the previous study instrument [14]. The final draft of the questionnaire was given to three research experts to determine the face and content validity of the questionnaire. A content validity index of 100% was given. Also, a pilot study involving 15 students from a different institution other than the study population was conducted to determine the feasibility of the study. The overall purpose of the pilot testing was to examine the validity of each question: whether the question was capturing the information it intended to measure, determine if the goals and objectives of the study would be realized, and analyze various aspects of the whole questionnaire. Feedback was received from the participants that enabled the researchers to clean up the questionnaire. The study instrument consisted of three domains numbered A to C. Domain A consisted of questions on the sociodemographic characteristics of the population. Domain B evaluated the knowledge of stroke rehabilitation outcome measures among physiotherapists. Domain C evaluated the utilization of stroke outcome measures among physiotherapists. The instrument was appropriately scored using Likert scoring; for knowledge, not familiar, barely familiar, quite familiar, and vary familiar were given scores of 0, 1, 2, and 3, respectively. The total familiarity was processed as a percentage of the highest possible score. Percentages between 0 and 49 were graded as poor knowledge, 50-69 as fair knowledge, and 70-100 as good knowledge. For utilization, never, rarely, sometimes, often, and frequently were scored 0, 1, 2, 3, and 4, respectively. The total utilization score was processed as a percentage of the highest possible score. Percentages between 0 and 49 were graded as poor utilization, 50–69 as fair utilization, and 70–100 as good utilization.

Procedure for data collection

Ethical approval was obtained from the Ethical Review Committee of the Faculty of Health Sciences and Technology, Nnamdi Azikwe University (NAU) before the commencement of the study. The participants were informed about the purpose of the study and were assured of the anonymity of their identity. A written informed consent document was sought from the participants before administering the questionnaire. It takes an average of 10 min to fill out the questionnaire. The questionnaire administration and collation of the completed questionnaire lasted for 2 weeks. The collated questionnaires were screened for completeness of the information. Data were extracted, inputted in an excel format, coded for anonymity, and handed over to the biostatistician for analysis.

Data analysis

Data were analyzed using the IBM Statistical Package for the Social Sciences (SPSS) version 21. The descriptive data comprising the participants' sociodemographics and their scores on knowledge and utilization of standardized outcome measures were summarized using frequency counts and percentages and mean and standard deviation. The chi-square test for association was used to test for the influence of gender, years of practice, educational qualification, and center of practice on knowledge and utilization of SOMs. Spearman rank-order correlation was used to test for the relationship between knowledge and utilization of standardized outcome measures. The alpha level was set at 0.05.

Results

As shown in Table 1, the sample size in this research consisted of 40 physiotherapists, 16 (40%) females and 24 (60%) males. Most of them had years of experience either below 5 years (40%) or between 5 and 10 years (25%); only a minority had years of experience above these ranges. BSc was a relatively common highest qualification (68%). More than half (55%) of the participants worked in NAUTH.

In Table 2, on average, 7.8 (19.5%) of the participants were not familiar with at least some of the SOMs, 7.06 (17.67%) of them were barely familiar with them, 9.47 (23.67%) of them were quite familiar with them, while 15.67(39.16%) of them were very familiar with them. The highest familiarity (i.e., very familiar above 50%) was observed in the MMSE, MAS, NIHSS, BI, BBS, FIM, and SMWT.

Table 3 shows that 10.13 (25.65%) of the participants never used some of the SOMs, 6.6 (16.59%) rarely used them, 10.53 (26.58%) used them sometimes, 5.87 (14.78%) used them often, while 6.53 (16.4%) use them always.

After grading their levels of knowledge and utilization of standardized outcome measures, 37.5% had poor knowledge, 30% had fair knowledge, and 32.5% had good knowledge (see Table 4). Also shown in Table 4, poor practice was observed in 55% of the respondents, fair practice

Table 1 Distribution of familiarity of	respondents with various stand	dardized stroke outcome measures
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	Not familiar	Barely familiar	Quite familiar	Very familiar
	n (%)	n (%)	n (%)	n (%)
Beck Depression Inventory	13 (32.5)	9 (22.5)	10 (25)	8 (20)
Geriatric Depression Test	11 (27.5)	12 (30)	6 (15)	11 (27.5)
Mini-mental Stroke Examination	2 (5)	5 (12.5)	12 (30)	21 (52.5)
Modified Ashworth Scale	0 (0)	0 (0)	12 (30)	28 (70)
National Institute of Health Stroke Scale	11 (27.5)	3 (7.5)	6 (15)	20 (50)
Action Research Arm Test	18 (45)	7 (17.5)	10 (25)	5 (12.5)
Barthel Index	2 (5)	0 (0)	11 (27.5)	27 (67.5)
Berg Balance Scale	3 (7.5)	3 (7.5)	14 (35)	20 (50)
Functional Independence Measure	1 (2.5)	2 (5)	11 (27.5)	26 (65)
Six-min [™] walk test	0 (0)	5 (12.5)	6 (15)	29 (72.5)
Stroke Impact Test	7 (17.5)	16 (40)	10 (25)	7 (17.5)
Stroke quality of life	4 (10)	15 (37.5)	11 (27.5)	10 (25)
Medical Outcomes Study Short Form (SF-36)	17 (42.5)	9 (22.5)	7 (17.5)	7 (17.5)
Life-H (Assessment of Life Habits)	18 (45)	10 (25)	4 (10)	8 (20)
EuroQoL quality-of-life scale	10 (25)	10 (25)	12 (30)	8 (20)
Overall response	7.8 (19.5)	7.06 (17.67)	9.47 (23.67)	15.67 (39.16)

Table 2 Distribution of utilization of various standardized stroke outcome measures by the participants

	Never	Rarely	Sometimes	Often	Frequently
	n (%)	n (%)	n (%)	n (%)	n (%)
Beck Depression Inventory	23 (57.5)	4 (10)	6 (15)	3 (7.5)	4 (10)
Geriatric Depression Test	13 (32.5)	11 (27.5)	5 (12.5)	7 (17.5)	4 (10)
Mini-mental Stroke Examination	4 (10)	12 (30)	11 (27.5)	6 (15)	7 (17.5)
Modified Ashworth Scale	1 (2.5)	1 (2.5)	18 (45)	13 (32.5)	7 (17.5)
National Institute of Health Stroke Scale	13 (32.5)	6 (15)	13 (32.5)	3 (7.5)	5 (12.5)
Action Research Arm Test	14 (35)	15 (37.5)	4 (10)	3 (7.5)	4 (10)
Barthel Index	0 (0)	5 (12.5)	13 (32.5)	8 (20)	14 (35)
Berg Balance Scale	5 (12.5)	3 (7.5)	14 (35)	7 (17.5)	11 (27.5)
Functional Independence Measure	3 (7.5)	6 (15)	15 (37.5)	8 (20)	8 (20)
Six-min walk test	5 (12.5)	5 (12.5)	9 (22.5)	11 (27.5)	10 (25)
Stroke Impact Test	17 (42.5)	4 (10)	11 (27.5)	2 (5)	6 (15)
Stroke quality of life	9 (22.5)	10 (25)	9 (22.5)	6 (15)	6 (15)
Medical Outcomes Study Short Form (SF-36)	15 (37.5)	9 (22.5)	9 (22.5)	1 (2.5)	6 (15)
Life-H (Assessment of Life Habits)	18 (47.4)	4 (10.5)	8 (21.1)	5 (13.2)	3 (7.9)
EuroQoL quality-of-life scale	12 (32.4)	4 (10.8)	13 (35.1)	5 (13.5)	3 (8.1)
Overall response	10.13 (25.65)	6.6 (16.59)	10.53 (26.58)	5.87 (14.78)	6.53 (16.4)

was observed in 25%, and good practice was observed in 20% of them. Furthermore, Table 4 shows that there was a positive correlation between knowledge and utilization of standardized stroke outcome measures (p < 0.01).

Tables 5 and 6 show the association between various sociodemographic variables as tested using chi-square statistic. Gender was associated with both knowledge and utilization, years of experience was associated with only utilization, educational qualification was

associated with both knowledge and utilization, and practice institution was associated with only utilization of standardized stroke outcome measures (Table 7).

Discussion

Standardized stroke outcome measures are important for the estimation of recovery from stroke and the impact of stroke rehabilitation. This aids in the decision-making of the next line of action toward patient care. However, **Table 3** Distribution of various levels of knowledge andutilization of stroke outcome measures among respondents

	Frequency	Percent
Knowledge level		
Poor knowledge	15	37.5
Fair knowledge	12	30
Good knowledge	13	32.5
Total	40	100
Utilization level		
Poor utilization	22	55
Fair utilization	10	25
Good utilization	8	20
Total	40	100

Table 4 Association between sociodemographic variables andknowledge of stroke OMs

	Poor knowledge	Fair knowledge	Good knowledge	X 2	<i>p</i> -value
Educational qua	alification				
BSc	11	9	7	12.247	0.016
MSC	4	1	0		
PhD	0	2	6		
Specialty					
None	1	0	0	16.31	0.177
Cardiovas-	1	0	2		
Geriatric	2	4	5		
Neurology	4	4	4		
Orthopedic	4	2	0		
Pediatric	0	2	2		
Sports	3	0	0		
Institution					
NAUTH	8	7	7	0.078	0.962
COOUTH	7	5	6		
Years practised					
<5 years	6	4	6	11.253	0.188
5–10 years	4	3	3		
11–15 years	1	2	0		
16–20 years	0	2	4		
> 20 years	4	1	0		

a previous study reported poor knowledge and practice by Nigerian physiotherapists; thus, this study aimed to assess the current knowledge and utilization of standardized stroke outcome measures and to evaluate the influence of sociodemographic background on its knowledge and usage. The observation of male gender dominance in physiotherapy (Fig. 1), years of practice mostly below 10 years (Fig. 2), and the higher prevalence of BSc degrees (Figs. 3 and 4) were all similar to the findings of previous studies in Nigeria [14, 15]. Interestingly too, most of the

	Poor utilization	Fair utilization	Good utilization	X 2	<i>p</i> -value
Educational qua	alification				
BSc	17	6	4	14.848	0.005
MSC	5	0	0		
PhD	0	4	4		
Specialty					
None	1	0	0	18.97	0.089
Cardiovas- cular	1	2	0		
Geriatric	2	6	3		
Neurology	8	2	2		
Orthopedic	5	0	1		
Pediatric	2	0	2		
Sports	3	0	0		
Institution					
NAUTH	13	8	1	8.512	0.014
COOUTH	9	2	7		
Years practised	b				
<5 years	9	4	3	18.456	0.018
5–10 years	7	0	3		

Table 5 Association between sociodemographic variables and

utilization of stroke OMs

11-15 years

16-20 years

>20 years

1

0

5

Table 6 Correlation between level of knowledge and utilization of standardized outcome measures

0

2

0

2

4

0

Correlations					
	Knowledge level	Practice level			
Spearman's rho					
Knowledge level					
Correlation coefficient	1.000	0.741 ^a			
Sig. (2-tailed)		.000			
Ν	40	40			
Utilization level					
Correlation coefficient	0.741 ^a	1.000			
Sig. (2-tailed)	.000				
Ν	40	40			

^a Correlation is significant at the 0.01 level (2-tailed)

respondents were from NAUTH [55%]; this may be justified by the fact that it is a bigger tertiary health institution than COOUTH [45%].

The current study reports that many of the respondents are not familiar with the SOMs. This shows that much improvement has not been recorded since the

 Table 7
 Association between level of knowledge and utilization with gender

Knowledge level Poor knowledge N 3 12 7.350	<i>p</i> -value
Poor knowledge <i>N</i> 3 12 7.350	
N 3 12 7.350	
	0.025
% 18.80% 50.00%	
Fair knowledge	
N 4 8	
% 25.00% 33.30%	
Good knowledge	
N 9 4	
% 56.30% 16.70%	
Utilization level	
Poor utilization	
N 4 18 12.30	0.002
% 25.00% 75.00%	
Fair utilization	
N 5 5	
% 31.30% 20.80%	
Good utilization	
N 7 1	
% 43.80% 4.20%	



Fig. 1 The gender of the respondents. The 40 respondents were recruited via a consecutive sampling technique, 16 (40%) were females and 24 (60%) were males

previous studies were conducted in some parts of Nigeria [13, 14]. The implication is that evidence-based clinical evaluation of patients among the population is still lacking. This outcome is not different from previous studies which reported poor familiarity with outcome measures among Nigerian physiotherapists [14, 16]. In contrast, a study reported that 66.7% of physiotherapists were familiar with stroke scales as against 33.3% that were not familiar. Significantly, it also reported that only 28% of the participants were taught stroke scales either at the undergraduate or postgraduate levels in Nigerian training institutions, whereas 72% were not taught at either level [16]. This finding in the current study may suggest that the curriculum for training physiotherapists in Nigeria is wanting in the aspect of comprehensive training of SOMs. The authors think that curriculum enhancement might lead to greater familiarization and utilization in clinical care upon graduation.

The SOMs that were most known among the study population include the MMSE, MAS, NIHSS, BI, BBS, FIM, and SMWT. However, the respondent's level of knowledge of the SOMs does not correspond to their level of utilization. This shows that most of them have low utilization as shown in a previous study [16] and will be detrimental to clinical care. A study reported that 47.6% of physiotherapists in Ghana used recommended outcome measures for the clinical management of patients [15]; furthermore, similar studies from the United States of America (USA) and Egypt reported that 52% and 57% of physiotherapists, respectively, do not use SOMs for stroke rehabilitation [17, 18]. In contrast, high usage of SOMs has been reported in the United Kingdom (UK) and Saudi Arabia where 96% and 62% of physiotherapists, respectively, reported using at least one standardized SOMs in stroke rehabilitation [19]. The differences in the reported levels of usage of SOMs could be attributed to the different levels of awareness of the usefulness of SOMs in the clinical management of patients. Also, barriers that could be attributed to low utilization include time constraints, difficulty for patients to complete the SOMs, lack of equipment, and lack of knowledge regarding OMs. A limited understanding of how to select and apply the best SOMs has been reported to be a barrier to their use in clinical practice [13].

Current results show that relative to other outcome measures, the most used were BI, BBS, FIM, and SMWT. Nonetheless, the finding that all the listed SOMs were at least used to some extent indicates some improvement as earlier reported that only three types of stroke scales were utilized by their respondents in their various institutions of clinical practice, which were the NIHSS, BI, and MRS [16]. Comparatively, the commonly used SOMs by physiotherapists for stroke rehabilitation, as reported by a previous study, were the 6-min walk test, BI, Time Up and Go test (TUTG), Stroke Impact Scale (SIS), and BBS with stroke impact scale topping the list [15]. Another similar study reported that the Community Integration Questionnaire (CIQ), Maleka Stroke Community Reintegration Measure (MSCR), Barthel Index (BI), quality-of-life (QoL) index, and the Rivermead Mobility Index (RMI) were the



Fig. 2 The years of experience of the respondents. Most of them had years of experience either below five years (40%) or between 5 and 10 years (25%); only a minority had years of experience above these ranges. Respondents who had spent 11-15 years were least in number



Fig. 3 The educational qualification of the respondents. Most of the respondents were BSc (68%), the PhD 20%, while M.Sc. were 12.50%. This is a reflection of academic qualifications for physiotherapists in the Nigeria Universities

top five SOMs used by community physiotherapists in South Africa for their clinical practice [20]. The wide variations in the usage of SOMs found in the previous studies and the current study may be attributed to the lack of consistency and the purpose of the use of SOMs for the clinical practice among physiotherapists. Another reason could be the difference in the factor that determines the choice of SOM. It would appear that one of the reasons for the choice of these SOMs in our study was because they are easy to administer and do not take more than 10 min on average to complete. Speculatively, a large turnout of patients may impose time pressure on the PTs that there will be inconsistencies in the application of SOMs. Also revealed was that only the educational qualification was statistically significantly associated with the knowledge of SOMs among the respondents. Other variables such as specialization, place of work, and years of practice had no significant association with the knowledge of SOMs (Table 4). This entails that the higher the educational qualification, the more knowledgeable the respondents become about the studied outcome measures. The utilization of SOMs also varied significantly between facilities in the current study (Table 5). According to a previous report, the availability of SOMs is linked to their utilization, and the absence of recommended SOMs in their facility for the rehabilitation of



Fig. 4 The respondents place of work. This shows that 55% of the respondents were recruited from NAUTH, while 45% were from COOUTH

stroke patients led to no usage of SOMs by physiotherapists in their clinical practice [15]. In contrast to the above, a previous report did not agree with this view as they reported that 70% of respondents to whom these SOMs were made available do not put them into clinical use as a result of factors described as time constraints and high patient workload [16]. Years of experience significantly affected the level of utilization of SOMs; those with 16-20 years of experience in this work had the highest overall utilization of SOMs. However, those above 20 years of experience all had poor utilization, suggesting that older practitioners were less likely to use SOMs. The finding that physiotherapists with more work experience are less likely to use SOMs than their colleagues with less work experience is supported by a study conducted in the Netherlands [15, 21]. The authors suggest that this might be because the older physiotherapists in the population studied might be involved in both administrative and supervisory roles than routine clinical practice. Sometimes, this would make them delegate clinical responsibilities to the younger ones.

Physiotherapists with Ph.D. had significantly higher knowledge and utilization of SOMs. This finding is supported by previous studies that showed that physiotherapists with higher qualifications were more likely to use SOMs in stroke rehabilitation compared to those with lower degrees [22, 23]. Higher educational qualification exposes physiotherapists to the rudiments of clinical practice of which the utilization of clinical outcome measures is part and parcel. This is further supported by the finding in Table 6 that there was a strong positive correlation (0.741) between the knowledge and utilization of SOMs. As the level of knowledge increases, there is a commensurate increase in the level of utilization.

Place of work was associated significantly with utilizations of SOMs. The lack of statistically significant difference in knowledge between the two institutions suggest might be due to other factors like availability rather than knowledge. We have noted that no other work in the literature compared utilization between tertiary hospitals; however, it has been compared between private and public hospitals in a study in Ghana. The study reported that physiotherapists working in public facilities in Ghana were more likely to use SOMs than those in private facilities [15]. They suggested that the less usage of SOMs in private hospitals may be due to the engagement of a lower cadre of physiotherapists and poor monitoring and audit of the physiotherapy services provided at private facilities. Evidence exists in the literature that this trend exists in developed countries where physiotherapists working in private practice showed more propensity for poor adherence to clinical practice guidelines on the management of stroke patients [21, 24].

The current study shows that gender was significantly associated with knowledge and utilization of SOMs. Females were found to have better knowledge and utilization than males. This may have something to do with females being able to absorb information faster and being able to pay better attention to details [25]; also, distribution of females to centers where SOMs were available may have played a part. However, it has been reported that male physiotherapists were more likely to use SOMs (40%) than female physiotherapists (32.4%), but unlike our findings, no significant association was established [15].

Conclusion

Our findings suggest that there is still a deficit in the awareness and utilization of standardized stroke outcome measures in the study population. There has not been an appreciable improvement in the knowledge of SOMs among the population of physiotherapists that participated in the current study. However, the utilization of SOMs is still at a low level. This requires action from critical stakeholders in Nigeria's health system to encourage its regular use in clinical practice as it will serve to improve service delivery to patients.

Contribution to knowledge

The outcome of the study has further reinforced the need for regular audits and research in the use of stroke outcome measures among the physiotherapist population. This is pertinent as global physiotherapy practice thrives in evidence-based practice, and in the prevailing circumstance, application of outcome measures in routine clinical practice seems indispensable. The outcome will awaken the regulatory body to develop, publicize, and implement a policy on the use of SOMs by Nigerian physiotherapists. Also, it will help to stimulate the training institutions in Nigeria to introduce physiotherapy students early on to the use of SOMs during their training and clinical practice to encourage usage among entry-level physiotherapists.

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Authors' contributions

UPO and CCE were involved in the conception, design, analysis, drafting, and revision of the manuscript. SCI and ESI were involved in data collection and literature review. UMC, EYI, and DCU were involved in the drafting and revision of the manuscript. The authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional and/or National Research Committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. An approval to carry out the research was obtained from the Faculty of Health Sciences Ethics Committee of Nnamdi Azikiwe University, Nnewi (Approval Number: NAU/FHST/2021/ MRH13) before the commencement of the study. Each participant signed or thumb-printed the consent form after the nature and objectives of the study had been duly explained to them.

Consent for publication

All the authors read and approved the manuscript for publication.

Competing interests

The authors declare that they have no competing interests.

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