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Outpatient appraisal of community reintegration and quality of life for stroke survivors towards rebuilding social lives

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Abstract

Background: Community reintegration and quality of life are important outcomes of rehabilitation on a long-term basis, yet it has received little attention from the rehabilitation team post-discharge, especially in Ghana.

Objective: This study aimed to appraise the community reintegration (CRI) and quality of life (QoL) of stroke survivors in relation to their age, gender, and comorbidities.

Methods: One hundred and eight stroke survivors attending outpatient physiotherapy units of three hospitals in Accra Metropolis were consecutively enrolled in the study. The Maleka Stroke Community Reintegration Measure and the Stroke-specific QoL questionnaire were used as the main outcome measures. Descriptive data were summarised with frequency and percentage, while the association and odd ratios of variables were determined with the Chi-square and multiple regression tests, respectively, at a 95% confidence interval.

Results: Most participants (85.2%) indicated that they did not benefit from community reintegration following their hospital care, while 52 (47.9%) reported overall poor QoL. Contrarily, most participants indicated good QoL in language (66.7%), thinking (74.1%) and vision (93.4%) subscales of the QoL questionnaire. Participants' gender significantly influenced the levels of CRI (P = 0.043), while QoL was significantly influenced by age only (P = 0.009). Males were four times more likely to have minimal reintegration [OR = 4(1.0-15.3)] relative to having no reintegration as compared to females. Participants within the age range 48 - 63 years were also found to be four times more likely to have fair QoL [OR = 4(1.4-11.1)] relative to having poor QoL as compared to those aged 64 years and above. There was a statistically significant association (P < 0.001) between CRI levels and QoL subscales.

Conclusion: Community reintegration seems to influence the QoL of stroke survivors, while gender and age were found to be strong determinants of CRI and QoL, respectively.

Keywords: Stroke, community reintegration, quality of life, stroke survivors.

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INTRODUCTION

Cerebrovascular accident (Stroke) remains a major public health concern, being the leading cause of disability worldwide, with a higher burden documented in lower-middle-income countries such as Ghana [1]. Approximately 20 million people are projected to suffer stroke each year globally, about 5 million of whom may not survive, and 85% of associated deaths may likely occur in developing countries [2].

Among the survivors, 20% will require institutional care after 3 months, and 15% to 30% may become disabled

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permanently [3]. Stroke-related disabilities present an enormous burden on patients and their families, with potentially debilitating effects on daily living. Such burden underlines rehabilitation as the mainstay to curb the deterioration of physical functions while also promoting the available residual functions [4]. However, the rehabilitation programme is incomplete unless the survivors are made to systematically return to their community.

Community reintegration is described as the ability of persons to return to day-to-day activities of life, including work, recreation and interaction with family and friends after a disease condition [5]. Following institution-based stroke rehabilitation, the focus is shifted toward enabling patients to regain the best possible acceptable lifestyle as well as participating in both social and domestic activities [6]. Such requisite transition may have implications for Quality of life (QoL), which describes individuals' perceptions of their position in life in relation to the goals, expectations, standards, and concerns in the context of the culture and value system in which they live [7]. Quality of life encompasses the physical, emotional, cognitive, and social aspects of life as well as an individual's perception of health and well-being. Generally, community reintegration, good QoL and societal participation are the overarching goals of rehabilitation programmes, including those of stroke survivors [8]. Despite the documented improvement in stroke management, community reintegration in connection with QoL of stroke survivors still receives less attention through research in a local context, especially in low-to-middle-income countries [9].

Indeed, some studies in middle-and-high-income countries have shown that community reintegration influences QoL [10,11]. Mayo et al. found that the extent of activity participation influences the QoL of community-dwelling stroke patients in Quebec [11]. Similarly, a study in Thailand showed that community-dwelling stroke survivors had good reintegration and also experienced good QoL [10]. In lower-middle-income countries (including Ghana), however, only a few studies have reported community reintegration [8,12-14] and QoL in stroke patients [15] in isolation. A study by Akosile et al. investigated community reintegration in relation to the age, gender, employment, and comorbidities of stroke survivors in Nigeria [14]. Also, Matos et al. [13] and Olaoye et al. [8] assessed predictors of community reintegration and the relationship between community reintegration and life satisfaction among Nigerian stroke survivors. In Ghana, Yusuf, Kwakye and Quartey [12] examined the relationship between physiotherapy intervention and the level of community reintegration in stroke survivors, while Donkor et al. [16] assessed the profile and health-related QoL of Ghanaian stroke survivors.

Since there is yet to be a structured programme in Ghana to guide the reintegration process for stroke survivors, a research study regarding the interplay of relevant clinical and sociodemographic factors is crucial. Although previous studies have indicated the importance of community reintegration and QoL independently, information regarding the link between the two variables in low-to-middle-income countries remains sparse. We hypothesised that community reintegration would not significantly influence the QoL of stroke survivors irrespective of age, gender, and comorbidities.

MATERIALS AND METHODS

Study design and site

This cross-sectional study was carried out at the Physiotherapy Outpatient Departments of the Korle Bu Teaching Hospital (KBTH), Tema General Hospital (TGH) and Amasaman District Hospital (ADH) in the Greater Accra Region of Ghana. The selected hospitals provide inpatient and outpatient stroke rehabilitation services and represent three tiers of the healthcare delivery system in Ghana, respectively: tertiary, secondary, and primary.

Study selection

One hundred and eight (108) stroke survivors were enrolled in the study using a consecutive sampling method. The sample included patients (18 years and above) who had suffered a stroke for the first time (to eliminate the effect of residual disability that characterises recurrent stroke), living with stroke for at least 6 months, as well as attending outpatient physiotherapy rehabilitation at the selected hospitals. Stroke survivors with cognitive and communication deficits were excluded. The sample size for this study was obtained using Taro Yamane's formula: $n = N/(1+Ne^2)$ where N is the population of study and e is the margin error. At the time of conducting this study, the total number of stroke patients attending outpatient physiotherapy management at the three hospitals was 147.

The low attendance was due to the COVID-19 pandemic, during which outpatient services were being rationed. Therefore, the distribution of the study population (N) as obtained from the ward records was as follows: KBTH, n = 68; TGH, n = 54; ADH, n = 25). Given an allowable error of 0.05, a minimum sample size of 108 patients was required to participate in the study. Fair representations regarding the relative number of patients available for the study in each of the hospitals were achieved using a non-proportional quota sampling technique. This was done by multiplying the estimated study sample by the ratio of the number of patients in each hospital to the total number of patients in the three hospitals. Therefore, 50 participants were recruited from KBTH, 40 from TGH, and 18 from ADH.

Instruments for data collection

Participants' information, such as age, gender, and comorbidities, was collected using a self-designed information sheet. The levels of community reintegration of stroke survivors were assessed with the Maleka Stroke Community Reintegration Measure (M-SCRIM). The measure contains 40 items across six domains: activity of

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daily living (ADLs) and self-care, social interaction and relationship, home and family responsibilities, social interaction, extended family responsibilities, and work and education [17]. The M-SCRIM is a researcher-administered questionnaire with a 4-point Likert scale (ranging from 0 to 3). The scores are interpreted as follows: "0" indicates "No ability", "1" implies "Able with major help", "2" indicates "Able with minor help" and "3" indicates "Able with no help". The measure defines "Major help" as seeking assistance from caregivers and the use of mobility aids, while "minor help" refers to soliciting assistance from a mobility aid solely. The total mean scores are computed as percentages and interpreted as no reintegration (0 - 40%), minimal reintegration (41 - 59%), moderate reintegration (60 - 79%), and full reintegration (80% and above). The SCRIM questionnaire takes about 20 minutes to complete [18]. The instrument has been adjudged valid and reliable, with good construct validity reported as r = 0.88 and internal consistency (alpha coefficient) of 0.95 [19].

The QoL of the patients was assessed with the stroke-specific quality of life scale (SSQOL). The scale comprises 12 domains, including energy, family, roles, language, mobility, mood, personality, self-care, social roles, thinking, upper extremity function, vision, work, and productivity, with a total of 49 questions. The scores can be interpreted as poor, fair and good QoL. The higher the scores on SSQOL, the higher the QoL of the respondents, hence a better indication of function. It took about 10 to 15 minutes to complete the questionnaire [20]. The SSQOL has been found to be valid with internal consistency (Cronbach's alpha) ranging between 0.81 and 0.94. It is also reliable with test re-test reliability (Spearman's rho) ranging between 0.65 and 0.99 [21]. It has been found to be a good measure of health-related QoL in stroke patients [20].

Procedure for data collection

The study was approved by the Ethical and Protocol Review Committee of the School of Healthcare Sciences, University of Pretoria, the Ghana Health Service Ethics Review Committee and the Korle Bu Teaching Hospital Ethical and Protocol Review Committee. Permissions were obtained from the hospital administrators and heads of physiotherapy departments at the selected study sites. The purpose of the study was clearly communicated to all participants. Thereafter, they provided their voluntary informed consent.

Two research assistants were trained on the modes of administration of the data-gathering instruments, the M-SCRIM and the SSQOL. Information about the socio-demographics (age, gender, marital, educational and employment status) and clinical characteristics (comorbidities, types of stroke and sides affected by the stroke) of the participants were gathered using a self-designed data-capturing form. The M-SCRIM and SSQOL were administered sequentially (but in no specific order) to the patient. The Research Assistants ensured that the tools were administered and collected on the same day of the administration, having informed them in advance during the first contact with the patients. All COVID-19 safety measures were duly observed during the data collection process. The participants were assured of confidentiality and anonymity regarding any information emanating from the study.

Statistical analysis

Data were analysed using the IBM SPSS Statistics for Windows, version 23 (IBM Corp., Armonk, N.Y., USA) statistical software version 23.0. Frequency and percentages were used to summarise the data, while the association between community reintegration and QoL was determined with Pearson's Chi-square test. The influence of age, gender and comorbidities on community reintegration and QoL were determined from an odd ratio using univariate logistic regression. A probability value less than 0.05 was considered statistically significant.

RESULTS

A total of 108 patients participated and completed the study, of which 16.7% (n = 18), 37% (n = 40) and 46.3% (n = 50) were recruited from primary, secondary and tertiary Hospitals, respectively. Most participants (50; 46.3%) were within the age range of 48 – 63 years. In addition, most participants were married (76.9%, n = 83), self-employed (43.5%, n = 47) and had secondary education (39.8%, n = 43). Ischemic stroke was the most common type (56.5%, n = 61) presented, and the right side of the body was most affected (55.6%, n = 60). About 71.3% (n = 77) of the participants had hypertension. Generally, most participants (89.8%, n = 97) have been living with stroke for 6 to 12 months (Table 1).

Of the total number of participants, the majority (85.2%, n = 92) did not indicate any form of community reintegration in all the domains of M-SCRIM (Table 2). Likewise, most survivors (47.9%, n = 52) reported poor overall QoL (Table 3). Contrastingly, many of the participants indicated good QoL in the sub-scales of the SSQOL, such as language (66.7%, n = 72), thinking (74.1%, n = 80) and vision (93.4%, n = 101). The relationship between sociodemographic and clinical variables with community reintegration and QoL was determined. Gender was found to significantly influence the level of community reintegration of participants (p = 0.043). Males were four times more likely to have minimal reintegration relative to having no reintegration than females (Table 4).

Similarly, age significantly influenced the QoL of stroke survivors (p = 0.009). Participants in the age range of 48 - 63 years were found to be four times more likely to have fair QoL relative to having poor QoL as compared to those who were 64 years and above (Table 5). Pearson's Chi-Square analysis showed a statistically significant relationship (p = 0.001) between community reintegration and QoL of the stroke survivors (Table 6).

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Table 1. Sociodemographic and clinical characteristics of stroke survivors

Variables	Frequency (%)	Variables	Frequency (%)
Age		Insurance used	
18-47	24(22.2)	National Health Insurance Scheme (NHIS)	101(93.5)
48-63	50(46.3)	Private	6(5.6)
≥ 64	33(30.6)	Other	1(0.9)
Gender		Family history of stroke	
Male	55(50.9)	Yes	54(50.0)
Female	53(49.1)	No	54(50.0)
Marital status		Comorbidities	
Single	12(11.1)	Diabetes	2(1.9)
Married	83(76.9)	Hypertension	77(71.3)
Divorced	2(1.9)	Other	4(3.7)
Widowed	10(9.3)	Diabetes and hypertension	25(23.1)
Other	1(0.9)	Stroke type	
Education		Haemorrhagic	6(5.5)
No education	7(6.5)	Ischemic	61(56.5)
Primary	176(14.8)	Unclassified	41(38.0)
Junior high	10(9.3)	Affected side	
Secondary	43(39.8)	Left	46(42.5)
Tertiary	32(29.6)	Right	60(55.6)
Employment		Both	2(1.9)
Unemployed	10(9.3)	Time of living with stroke	
Self-employed	47(43.5)	6-12 months	97(89.9)
Public sector	24(22.2)	>12 months	11(10.1)
Private sector	13(12.0)		
Other	13(12.0)		
Retired	1(0.9)		

Table 2. Levels of community reintegration of stroke survivors.

Domain	No reintegration N (%)	Minimum reintegration N (%)	Moderate reintegration N (%)	Full reintegration N (%)
ADL	42(38.)	38(35.2)	22(20.4)	6(5.6)
Relationship	98(90.7)	5(4.6)	3(2.8)	2(1.9)
Home/family responsibilities	99(91.7)	3(2.8)	4(3.7)	2(1.9)
Social interaction	91(84.3)	15(13.9)	2(1.9)	0(0.0)
Extended family responsibilities	105(97.2)	1(0.9)	2(1.9)	0(0.0)
Work/education	103(95.4)	1(0.9)	3(2.8)	1(0.9)
Level of reintegration	92(85.2)	14(13.0)	2(1.9)	0(0.0)

Table 3: Levels of quality of life of stroke survivors.

Domain	Poor N (%)	Fair N (%)	Good N (%)
Energy	62(57.4)	35(32.4)	11(10.2)
Family role	82(76)	17(15.7)	9(8.3)
Language	15(13.9)	21(19.4)	72(66.7)
Mobility	59(54.7)	28(25.9)	21(19.4)
Mood	52(48.1)	34(31.5)	22(20.4)
Personality	43(39.8)	27(25.0)	38(35.2)
Care	62(57.4)	26(24.1)	20(18.5)
Social role	98(88.9)	6(5.6)	6(5.6)
Thinking	13(12.0)	15(13.9)	80(74.1)
Upper extremity function	69(63.9)	18(16.7)	21(19.4)
Vision	4(3.8)	3(2.8)	101(93.4)
Work	89(82.4)	12(11.1)	7(6.5)
Level of quality of life	52(47.9)	21(19.4)	35(33.7)

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Table 4. Influence of sociodemographic and clinical variables on community reintegration

Variables	OR (95% CI)	P-value	Reference category
	AGE		
Minimal reintegration			
18 - 47	0.9(0.1-9.0)	0.958	
48 - 63	1.3(0.1-10.7)	0.832	
≥ 64	Reference category		
	GENDER		
Minimal reintegration			No reintegration
Male	4(1.0-15.3)	0.043	
Female	Reference category		
	COMORBIDITY		
Minimal reintegration			
Hypertension	2(0.4-9.9)	0.367	
Hypertension and diabetes	Reference category		

Table 5. Influence of sociodemographic and clinical variables on quality of life.

Variables	OR (95%CI)	P-value	Reference category
	AGE		
Fair QOL			
18 - 47	2.6(0.8-8.3)	0.096	
48 - 63	4.0(1.4-11.1)	0.009	
≥ 64	Reference category		
Good QOL			
18 - 47	0.6(0.1-3.8)	0.630	
48 - 63	1.9(0.5-6.9)	0.334	
≥ 64	Reference category		
	GENDER		
Fair QOL			Poor QOL
Male	0.9(0.4-2.2)	0.883	
Female	Reference category		
Good			
Male	2.3(0.7-7.9)	0.181	
Female	Reference category		
	COMORBIDITY		
Fair QOL			
Hypertension	1.6(0.6-4.1)	0.369	
Hypertension and diabetes	Reference category		
Good QOL			
Hypertension	3.2(0.6-16.5)	0.159	
Hypertension and diabetes	Reference category		

Table 5. Relationship between community reintegration and quality of life

		Community reintegration				
Quality of life		No reintegration	Minimal reintegration	Moderate reintegration	Full reintegration	P-value
Poor	Count	42	0	0	0	
	% within total SSQOL	100.0%	0.0%	0.0%	0.0%	
Fair	Count	45	5	0	0	
	% within total SSQOL	90.0%	10.0%	0.0%	0.0%	0.001
Good	Count	5	9	2	0	
	% within total SSQOL	31.3%	56.2%	12.5%	0.0%	

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DISCUSSION

This study showed a significant association between community reintegration and QoL among the participants. In addition, most of the participants were not prepared for community reintegration during their rehabilitation, while more than half of the survivors reported poor QoL. Also, gender was found to have an association with community reintegration, while their QoL was influenced by their age. Males were found to have better reintegration levels than females and stroke survivors with the age range 48 - 63 years were found to have better QoL than those 64 years and above.

This study revealed that 85.2% of stroke survivors were unable to reintegrate into their community to perform their day-to-day activities following rehabilitation. This finding was similar to that reported by Pang, Eng and Miller, which indicated that the majority of community-dwelling stroke survivors were unable to get back to work and reintegrate into their communities [22]. Nassib et al. also reported that stroke survivors are faced with challenges of reintegrating into their communities following a review of stroke rehabilitation services in Africa [23]. Similarly, Kusambiza-Kiingi, Maleka and Ntsiea reported poor QoL in all the domains of SSQOL, especially self-care, work and social roles [17]. Many factors abound as a prelude to these findings, which could be hinged on clinical and sociocultural variables. Regarding the clinical variables, stroke is a debilitating condition characterised by latent residual unilateral paresis or paralysis of the limbs, which may mar the functional capacity of patients, resulting in activity limitation and participation restriction. The cascading effect of this perceived disability has implications for social variables, which often elicit social stigma and isolation in society. This might have accounted for poor QoL and inability to reintegrate with their communities.

We found a significant association between community reintegration and QoL of stroke survivors. Previous studies in middle-and-high-income countries have also reported similar results [24]. This presupposes that the two variables are interdependent. In other words, a good community reintegration programme could guarantee optimum QoL and vice-versa. According to Kusambiza-Kiingi, Maleka and Ntsiea, once a stroke survivor is unable to return to their previous life, regarding socialising with friends and family, going back to work, or carrying out their family roles, they perceive themselves as having poor QoL [17]. The authors further opined that poor QoL could present survivors with challenges for reintegration into their community. These findings reiterate the call for more attention to the social aspects of rehabilitation, such as community reintegration programmes by healthcare professionals, to boost patients' QoL. Studies by Mohammed, Nyante and Mothabeng [25] and Conran and Anthea [9] revealed that stroke patients are hardly followed to their homes and communities during rehabilitation in Ghana, thereby creating a yearning vacuum for composite rehabilitation. Inadequate manpower in the rehabilitation fields has also been identified as a valid factor militating against community reintegration, thereby depriving patients of the required attention, which may undermine the attainment of good QoL of stroke survivors [26]. This finding has similarly been documented by Olaoye et al. [8] and Urimubenshi et al. [1], indicating an inadequate number of specialists in the rehabilitation field as the reason in low- and middle-income countries.

Gender was found to significantly influence community reintegration in this study. This finding corroborated the findings of Chau et al., who reported that gender has a direct influence on participation in day-to-day activities and engagement in social roles [27]. They also found that females recorded poorer reintegration outcomes as found in this current study. A study by Hamzat, Ekechukwu and Olaleye, however, reported that gender has no significant influence on community reintegration post-stroke, although men were found to have higher reintegration values compared to females [6]. The age of participants was found to significantly influence their QoL in this study, as also reported by Lourenço et al., where older age was reported to have a negative impact on QoL [28]. This could be attributed to a decline in function with age, which impacts QoL.

Conclusion

Community reintegration among stroke survivors was found to be closely linked to overall quality of life. Thus, it implies that a well-planned reintegration programme could serve as a recipe for optimum well-being. Although the patients reported inadequate community reintegration and QoL in this study, age and gender seem to be important factors for consideration in clinical settings. As rehabilitation has evolved towards the biopsychosocial model, these findings underscore more attention towards the social aspect of stroke rehabilitation.The present study has provided insight into the rehabilitation needs of stroke survivors in the hospitals studied and draws attention to the need for holistic care to enhance participation and improve quality of life.

DECLARATIONS

Ethical consideration

Ethical approval was received from the Ethical and Protocol Review Committee of the School of Healthcare Sciences, University of Pretoria (protocol number: 68/2020), Ghana Health Service Ethics Review Committee (protocol number: GHS-ERC 010/02/20) and Korle Bu Teaching Hospital Ethical and Protocol Review Committee (protocol number: KBTH-IRB/000165/2019).

Consent to publish

All authors agreed on the content of the final paper.

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Competing Interest
The authors declare that there is no conflict of interest regarding the publication of this article.

Author contributions
TM, JDM and GGN conceptualised the study. TM and AIB participated in the writing, review and editing of the manuscript. TM and MAR were involved in data analysis and interpretation. All the authors reviewed and approved the manuscript for submission.

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Availability of data
Data is available upon request to the corresponding author.

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