CLINICAL STUDIES / ETUDES CLINIQUES

QUALITY OF LIFE AND SEX-DIFFERENCES IN A SOUTH-EASTERN NIGERIAN STROKE SAMPLE

AKOSILE Christopher Olusanjo [1]
ADEGOKE Babatunde [2]
EZEIFE Chioma Adaobi [1]
MARUF Fatai Adesina [1]
IBIKUNLE Peter Olanrewaju [1]
JOHNSON Olubusola Esther [3]
IHUDIEBUBE-SPLENDOR Chikaodili [4]
DADA Olumide Olasunkanmi [5]

1. Department of Medical Rehabilitation, Faculty of Health Sciences and Technology, Nnamdi Azikiwe University, Nnewi Campus, Anambra State, Nigeria
2. Department of Physiotherapy, College of Medicine, University of Ibadan, Nigeria
3. Department of Medical Rehabilitation, Faculty of Basic Medical Sciences, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria
4. Department of Nursing Science, College of Health Sciences, Nnamdi Azikiwe University, Nnewi Campus, Anambra State, Nigeria
5. Department of Physiotherapy, University Health Services, University of Ibadan, Ibadan

E-Mail Contact - AKOSILE Christopher Olusanjo : coakosile (at) yahoo (dot) com

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ABSTRACT

Background
Quality of Life (QOL) studies in stroke among Africans are rather few and mainly from South-Western Nigeria. Hardly is there any from the other regions of this vast nation. Reports on gender influences on stroke survivors' QOL have also been contradictory.

Objectives
This study set out to provide preliminary data on the QOL of stroke survivors in South-Eastern Nigeria and also investigate sex-differences in the QOL.

Methods
One hundred and three volunteering stroke survivors (53 males, 50 females) were recruited from various settings. The Stroke-Specific Quality of Life (SS-QOL) scale was used to assess participants' QOL. Participants mean QOL score in the overall and individual domains were presented as percentages of Maximum Possible Scores (MPS) while sex-differences across domains were investigated with Mann-Whitney U test statistics at 0.05 alpha level.

Results
Participants mean scores in the vision (12.44 ± 3.56), thinking (11.50 ± 3.71), mood (18.55 ± 4.81) and language (19.04 ± 6.81) domains were above 70 percent of MPS while mean score in the social role (11.82 ± 4.75) was below 50% of MPS. Overall QOL score was slightly below 70% of the MPS. No significant sex-difference was found in all the SS-QOL domains (p<0.05).

Conclusions
QOL seems to be affected, albeit not too severely, among stroke survivors from South-Eastern Nigeria. The effect is however similar for survivors of both gender. Social and family roles and physical functioning seem to be areas requiring keener clinicians' attention.

INTRODUCTION

Measuring health-related quality of life is not only important for quantifying the burden of a disease but also for evaluating the effect of therapies [22]. Evaluation of QOL in stroke populations revealed it as one condition with a multidimensional impact on the QOL of its survivors [3, 14, 20]. This impact may be present

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even among survivors with mild consequences of stroke and those who may have achieved full independence in Activities of Daily Living (ADL) [1, 4, 13]. Findings from different studies revealed that individual QOL domains may be affected in varying degrees among stroke survivors from different populations. This suggests that environmental or societal factors may also play some role in post-stroke QOL.

Factors that may influence QOL in people with stroke include but are not limited to gender [11, 24], depression [4, 14, 21], advanced age [10, 21] communicative disorders [13], cognitive impairment [13, 15, 21] and aphasia [21]. Others are physical disability, [13, 21], poor functional status [10] isolation and diminished social activities [2, 4, 21]. Identifying any factor that may be associated with QOL among stroke survivors in a given population may be crucial to enhancing and ensuring optimal care for individual survivors within that population. Studies from different populations on sex-differences in stroke have been rather contradictory [7, 11, 20, 21], making it necessary to investigate this attribute in the context of individual population.

Stroke survivors' QOL have received considerable attention in the developed world but has just been more recently reported in Nigeria [1, 20]. The available reports from Nigeria are mainly from the South-West, one of the six geopolitical zones in a rather multi-ethnic and highly populated country. There is hardly any report from any other region including the South-East. This hospital-based study set out to provide preliminary data on the QOL of stroke survivors resident in South-Eastern Nigeria and also determine whether there would be sex-differences in the different domains of the SS-QOL for study sample. The study hypothesized that there would be significant differences in the QOL of male and female stroke survivors.

METHODS AND MATERIALS

Participants

Participants were volunteer stroke survivors from purposively selected hospitals and also from randomly-selected communities of Nnewi, Anamba State. Inclusion criteria included a single stroke incidence at least two months prior to data collection, ability to comprehend the English language and attending physicians' diagnosis of mild to moderate stroke. They were recruited from Nnamdi Azikiwe University Teaching Hospital, (NAUTH), Nnewi, Anambra State; Enugu State University Teaching Hospital, Enugu, Enugu State and Federal Medical Centre, Owerri, Imo State. Those recruited from the communities were recruited through adverts placed in church bulletins and community town-criers. Some others were recruited by snowballing sampling technique from contacts made through initial volunteers. Majority of this group of participants had been managed at private health facilities and provided information on diagnosis based on what the attending physician told them. Each participant signed an informed consent form in accordance with the ethical principles contained in the Declaration of Helsinki (1964, revised in 1975, 1983, 1989, 1996 and 2000) of the World Medical Association.

Measurement and data analysis

Participants' QOL was evaluated with the Stroke-Specific Quality of Life Scale (SS-QOL). This is a patient-centred outcome measure intended to provide an assessment of health-related quality of life specific to patients with stroke. It is a self-report scale containing 49 items in 12 domains viz: Mobility, Energy, Upper extremity function, Work/productivity, Mood, Self-care, Social roles, Family roles, Vision, Language, Thinking, and Personality. Items are rated on a 5-point Likert scale. One out of three different response sets each with scores ranging from 1 (for total help/ could not do it at all/ strongly agree) to 5 (for no help needed/ no trouble at all/ strongly disagree) is applicable to each of the items. Higher scores for any item or domain indicate better functioning [17]. The internal consistency value is 0.73 for all domains while the test-retest and inter-rater reliability are respectively 0.92 [25]. The SS-QOL questionnaire was self-administered on most participants but an interviewer (research assistant) administered it on those who choose to have it that way. Sum scores for each domain range between 15 and 25 while total maximum score is 245. Mean overall and domain scores are presented as percentages of the maximum possible score overall or for individual domains. This clearly gives an idea of how well participants fared overall or in the individual domains. Mann-Whitney U test statistics was used to compare QOL scores of male and female participants.

RESULTS

One hundred and three (53 males, 50 females) stroke survivors participated in this study, 55.34% of whom had the hemiparetic lesions on their right limbs. The right limbs were affected in over 64% and 47% of females and males respectively (p=0.12). The average study participant was 62.80±11.46 (range =25.0 to 86.0) years old and had a mean post-stroke period of 14.18±26.76 months at the time of data collection.

Average post-stroke period for males (15.89±35.16 months) was not significantly different to that for females (12.38 ± 3.13). Participants in both groups were also matched for age.

Participants' best scores were in the vision, thinking, mood and language domains of the SS-QOL and their worst score was in the social roles domain. Participants' overall QOL score of 156.71 ± 41.64 could be regarded as fairly good (Table 2). QOL scores were not significantly different for males and females overall and in all the domains (P≥ 0.05).

DISCUSSIONS

The QOL scores for participants in this study as proportions of the maximum possible scores were well above average overall. Scores in the vision, thinking, mood and language domains were very good but scores in most of the other domains were just about average. There was no significant influence of gender on any of the domains and overall QOL.

The fairly high overall QOL score for the participants is in agreement with previous reports [1, 11, 20]. Owolabi and Ogunniyi [20] suggested that QOL may not be severely affected in milder forms of stroke and that acquired coping strategies may minimize the effect of stroke on QOL. The generally good scores obtained in the vision, thinking, mood and language domains might be reflective of a rather low presence of visual field and cognitive function impairments, depression and aphasia respectively among study participants. The exclusion of subjects with acute and severe stroke affectation may be partly responsible for good scores in these domains as the presence of the listed conditions are more easily observable in the acute phase and with increasing severity of stroke [4, 9, 19]. Participants might also have fairly recovered from some of these co-morbid conditions because their stroke is long-standing. A previous study for example had shown that prevalence and severity of depression decline greatly over a 6-month period for individuals with acute stroke [9].

Lower scores in the role functioning domains (family roles and particularly social role domains) more than most others suggest that participants judge themselves more poorly when it comes to activities involving interaction with significant others. The expectations of these significant others could have directly or indirectly influenced survivors' judgment of these aspects of their lives. The observance of lower scores in these domains is in line with that of Hackett et al [11] but contrary to that of Kong and Yang [14]. Both studies used the Short Form Health Survey (SF-36) Questionnaire, a generic scale to assess QOL. Akinpelu and Gbiri [1] and Owolabi and Ogunniyi [20] using different generic and stroke-specific QOL scales respectively found survivors QOL different to that of apparently healthy controls in the community domain but not in the intimacy domains. These domains may be equated to the social role and family roles of the SSQOL. The finding on the other hand may be reflective of participants' perception of family and community support. The contribution of social support to the health-related QOL of stroke survivors is already documented [19]. This was however not investigated in this study. Organized social support services are not readily available in Nigeria and the pressure of surviving a harsh economic environment is gradually eroding the Nigerian cum African traditional (informal) social support system.

The mobility, upper extremity function, work/productivity and self care (Physical functioning) domains were also remarkably affected as scores only ranged between 53 and 62 percent of possible maximum for each domain. Studies have generally reported decline in physical function as the most significantly affected aspect of QOL [1, 11, 14, 16, 20]. The energy domain was just as affected in the sample as the physical functioning domains. The energy (vitality) domain in stroke survivors had been reported not to be significantly different from that of the general population [14, 24].

This study could not establish statistically significant gender difference in QOL among stroke survivors. Previous studies have reported that female stroke survivors have poorer QOL than males [4, 8, 24]. Our findings seem to contradict this, though the scores for female survivors were slightly but not significantly lower in all but three of the QOL domains.

The finding of though not-significantly lower scores in the mobility, upper extremity function, self care and work productivity domains may suggest to some extent lower physical functioning in females. This however may reflect pre-stroke differences rather than the effect of stroke. Prestroke physical functioning has been reported to be lower in females [16]. Contrary to our findings, other authors have reported lower physical functioning in women after stroke [8, 16]. Another has even suggested functional recovery post-stroke to be poorer in women [5]. Male and female participants in this study reported similar scores in the language domain. This was in contrast to our expectation. Shaywitz et al [23] had reported that cerebral localization of language was more bilateral in its cerebral location in females than in males and one would thus expect a more severe implication in the language domain for females who have suffered a cerebrovascular accident.

Though female survivors in this study reported lower scores in the mood domain, the difference was not statistically different from that of the male. Women have been described as more likely to experience depression after stroke [4, 12] and to self-report depression [6]. Male survivors also have non-significantly higher scores in the personality domains. Similarly lower scores for females in both the mood and personality domains may be in line with Gargano and Reeves' [8] suggestion of a tendency toward depressive affect influencing patients' perceptions about their QOL in other areas. Mean scores for both sex-groups being well-above average in the two domains, yet lower among females seem to buttress these authors' suggestions. Scores in the Thinking and Energy domains for females in this study though higher, were not significantly different from those for males. Other authors [8] found men to have higher and significantly different scores in the Thinking domain. They however suggested that women may have attached more value to cognitive functioning (memory and concentration) which may explain the slightly higher score for females.

Male survivors have a non-statistically significant higher score in the family role domain which might just be due to females placing more emphasis on these expected roles. The typical Nigerian woman, like her counterparts in some other African and non-African cultures manages the home and organizes things for her spouse and children. She is more likely to feel she is a burden and regards her condition as great interference with her personal life if due to functional limitation; she is hardly able to perform these roles. A similar finding was reported by Gargano and Reeves [8]. Lai et al [16] also reported that men rated better on an Instrumental Activities of Daily Living (IADL) scale assessing activities traditionally performed by women (shopping for groceries, preparing meals etc). The least score for study participants was obtained in the social role domain. There was however no difference in the scores of male and female participants in this domain. This suggests that both sexes may be experiencing similar challenges from a largely inadequate and poorly organized social support system. Lynch et al [18] had earlier reported that social roles are altered significantly when patients can no longer work. Our study participants scored slightly just above average in the work/productivity domain. Real or perceived inability to do productive work may be responsible for the rather poor score in the social role domain.

Limitations/ Recommendation

This study has certain strength and limitations that ought to be highlighted. First is that the sample comprised survivors attending medical and physical therapy clinics in selected government-owned tertiary health centres and others receiving care at other hospital-types, faith-based clinics and alternative medical practice. Obtained result is thus somewhat representative of stroke survivors from this part of Nigeria. However, survivors with severe affectation and those who could not comprehend the English language were excluded from the sample. These findings could thus not be generalized to such individuals. Also information on stroke diagnosis for participants recruited from the communities was obtained through patients and family sources and not directly from physicians. This information may not be totally accurate. This study however provided for the first time, data on the QOL of stroke survivors from a South-Eastern Nigeria sample, allowing for regional comparison of QOL among different tribes in a multi-ethnic society like Nigeria. The focus of sex-differences in stroke survivors' QOL has particular importance in Nigeria. This is a country where different cultural demands for both sexes may influence their perception of QOL post-stroke. However our finding of non-significant differences between the two groups seem to suggest that other factors aside sex may be more important in determining survivors' QOL post-stroke. Another study, though, would be needed to confirm this. Clinicians managing stroke survivors should consider not just the biological differences between the sexes but also other sociodemographic variables.

More importantly, our findings of very low scores in the social role domain greatly underscores the importance for governments and communities in developing countries like Nigeria to show greater commitments in the area of social support. Social support services should be made readily available and easily accessible particularly for groups with special needs like stroke survivors. Vocational rehabilitation centres may particularly help to improve QOL in this domain as enhanced ability to work or be productive may increase individual's perception of well-being.

CONCLUSIONS

The QOL of stroke survivors in this sample was affected in varying degrees across the various domains. Least affected were the vision, thinking, mood and language domains. Physical and role functions (family and social) were however affected to a higher degree. The impact of stroke on survivors' QOL was similar for female and male survivors overall and in all the domains. The study thus revealed the need for clinicians

involved in stroke management to focus their attention on interventions and strategies that may enhance physical and role functioning among stroke survivors.

Conflicts of interest: None

Table 1: Participants' Mean Score for Quality of Life at Its Different Domains.

QOL DOMAINS	RANGE	MEAN	MEAN AS % (MPS)
ENERGY	3.00 - 15.00	8.32 ± 3.46	55.46
FAMILY ROLES	3.00 - 15.00	8.53 ± 3.33	56.87
LANGUAGE	5.00 - 25.00	19.04 ± 6.81	76.16
MOBILITY	6.00 - 30.00	17.74± 7.84	59.13
MOOD	7.00 - 25.00	18.55± 4.81	74.20
PERSONALITY	3.00 - 15.00	10.47 ±3.53	69.80
SELF CARE	4.00 - 24.00	15.61 ± 6.32	62.44
SOCIAL ROLES	5.00 - 23.00	11.82 ± 4.75	47.28
THINKING	3.00 - 15.00	11.50 ± 3.71	76.67
U/E FUNCTION	5.00 - 25.00	14.82 ± 6.87	59.28
VISION	3.00 - 15.00	12.44 ± 3.56	82.93
WORK/PRODUCTIVITY	3.00 - 15.00	7.97 ±4.23	53.13
TOTAL	75.00 - 228.00	156.71 ± 41.64	63.96

% (MPS) = Percentage of Maximum Possible Score
U/E= Upper extremity
QOL= Quality of life

Table 2: Comparison of participants' mean QOL scores across domains by gender using Mann-Whitney U-test

QOL DOMAINS	MEAN		
	Male (53)	Female (50)	U(p-value)
ENERGY	8.09 ± 3.56	8.56 ± 3.38	1200.50 (0.41)
FAMILY ROLES	9.09± 3.45	7.94 ± 3.13	1085.00 (0.11)
LANGUAGE	20.13 ± 6.17	17.88 ± 7.31	1127.00 (0.18)
MOBILITY	18.43 ± 7.97	17.00 ± 7.69	1192.50 (0.38)
MOOD	19.17 ± 4.50	17.90 ± 5.08	1141.00 (0.22)
PERSONALITY	11.15 ± 3.25	9.74 ±3.69	1086.00 (0.11)
SELF CARE	16.13 ± 5.95	15.06 ± 6.70	1190.50 (0.37)
SOCIAL ROLES	12.38 ± 5.28	11.22 ± 4.08	1191.50 (0.38)
THINKING	11.47 ± 3.69	11.54 ± 3.77	1302.00 (0.88)
U/E FUNCTION	16.04 ±6.92	13.52 ± 6.63	1044.00 (0.06)
VISION	11.92 ± 4.10	12.98 ± 2.82	1222.50 (0.46)
WORK/PRODUCTIVITY	8.43 ± 4.29	7.48 ±4.16	1161.00 (0.27)
TOTAL	162.45 ± 41.46	150.62 ± 41.37	1102.50 (0.14)

U= Mann-Whitney U test statistics
*=significant difference at $p < 0.05$

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