

Cumulative Association of Sexual, Cognitive, and Depressive Disorders with Quality of Life After Stroke: A Rehabilitation Cohort in Kinshasa

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Abstract

This study assessed the individual and cumulative associations of post-stroke cognitive, depressive, and sexual disorders with quality of life (QoL) among patients undergoing rehabilitation. This cross-sectional study included 169 stroke survivors receiving outpatient rehabilitation. QoL was assessed using the Stroke Impact Scale version 3.0 (SIS 3.0). Cognitive, depressive, sexual, motor, and disability status were assessed using validated instruments. Bivariate analyses and multivariable linear regression were performed. Cumulative association was examined using a 0–3 disorder score and ANOVA with Tukey post-hoc comparisons. Cognitive impairment, depressive symptoms, and sexual dysfunction were identified in 29.6%, 46.7%, and 55.0% of participants, respectively. Lower SIS scores were observed among participants with cognitive impairment, depressive symptoms, and interview-reported sexual difficulties. In multivariable regression, participants without cognitive impairment had higher QoL scores than those with impairment ($B = 8.23$, 95% CI [4.05, 12.42], $p < 0.001$). Depressive symptoms ($B = -4.80$, 95% CI [-9.10, -0.40], $p = .031$) and interview-reported sexual difficulties ($B = -5.30$, 95% CI [-10.20, -0.30], $p = .037$) were independently associated with lower QoL, whereas BISF-W/MSHQ-assessed sexual dysfunction was not. Age and motor function were positively associated with QoL, whereas disability was negatively associated. QoL differed significantly by number of co-occurring disorders (ANOVA $F = 5.61$, $p = .001$, $\eta^2 = 0.093$), decreasing from 55.3% with no disorders to 38.6% with three disorders. Co-occurring disorders were cumulatively associated with QoL. Given the cross-sectional design, causality cannot be inferred. The findings support multidimensional rehabilitation addressing motor and non-motor sequelae in this rehabilitation cohort in Kinshasa.

Keywords: stroke · quality of life · cognitive impairment · depression · sexual dysfunction · neurorehabilitation

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Introduction

Stroke is a leading cause of mortality and long-term disability worldwide, responsible for multiple complications affecting motor, cognitive, and psychosocial domains (Stolwyk et al., 2024). It represents a major public health concern due to its high incidence, residual disabilities, recurrence rates, mortality, and substantial socioeconomic burden (Feigin & Owolabi, 2023).

Among post-stroke sequelae, cognitive impairment, depression, and sexual dysfunction are highly prevalent and significantly affect patients' quality of life (QoL). Cognitive impairment, particularly involving memory, attention, and executive functions, has been consistently associated with poor functional recovery and reduced QoL (Stolwyk et al., 2024). Similarly, post-stroke depression (PSD) is a frequent complication that negatively influences activities of daily living, psychosocial well-being, and overall recovery trajectories (Butsing et al., 2024; Li et al., 2023).

Sexual dysfunction, although often underrecognized in clinical practice, is also common after stroke and may profoundly affect self-esteem, interpersonal relationships, and QoL (Na et al., 2020; Zhang et al., 2025). These disorders share complex and interrelated mechanisms, including neurobiological alterations (e.g., fronto-limbic dysfunction), psychological distress, and social consequences, which may act synergistically to worsen patient outcomes (Na et al., 2020; Rosenbaum et al., 2014).

Despite substantial evidence on each condition individually, their combined and cumulative association with QoL remains insufficiently explored, particularly in low- and middle-income countries. In the Democratic Republic of Congo, stroke care is further challenged by limited access to specialized rehabilitation services, underdiagnosis of non-motor sequelae, and sociocultural factors that may influence the reporting and management of conditions such as sexual dysfunction.

Quality of life is a key outcome in stroke recovery, reflecting both functional status and patients' subjective perception of well-being. A better understanding of how cognitive impairment, depression, and sexual dysfunction interact and cumulatively affect QoL is essential to inform integrated, patient-centered rehabilitation strategies. Therefore, this study aimed to assess the individual and cumulative associations of post-stroke cognitive impairment, depressive symptoms, and sexual dysfunction with quality of life among stroke survivors undergoing rehabilitation in Kinshasa. We hypothesized that each disorder would be

independently associated with lower QoL and that a greater number of co-occurring disorders would be associated with progressively lower QoL.

Method

Study design and setting

This cross-sectional analytical study was conducted at the University Clinics of Kinshasa (CUK) and the Physical Rehabilitation Center for Persons with Disabilities (CRHP) in Kinshasa, Democratic Republic of Congo, between March 2022 and March 2023. The study aimed to assess the individual and cumulative associations of post-stroke cognitive, depressive, and sexual disorders with quality of life among patients undergoing rehabilitation.

Participants and sampling

Eligible participants were adults aged 18 years or older with a confirmed diagnosis of ischemic or hemorrhagic stroke, who were actively enrolled in an outpatient rehabilitation program.

A consecutive sampling strategy was used, including all eligible patients during the study period.

Inclusion criteria

- Stroke confirmed by neuroimaging (computed tomography and/or magnetic resonance imaging)
- Post-stroke duration ≥ 3 months
- Ability to understand and respond to study questionnaires
- Provision of written informed consent

Exclusion criteria

- Altered level of consciousness
- Severe aphasia preventing reliable communication
- Documented pre-stroke psychiatric disorders
- Post-stroke duration < 3 months

A total of 169 participants were included in the final analysis.

No formal sample size calculation was performed due to the lack of reliable local epidemiological data. This may limit statistical power and generalizability; therefore, findings should be interpreted with caution.

Data collection and assessment tools

Data were collected through medical record review, structured interviews, and standardized clinical assessments.

Sociodemographic and clinical variables

Collected variables included age, sex, marital status, level of education, stroke type, time since stroke onset, motor function, and level of disability.

Assessment instruments

Validated instruments were used for each domain:

- Cognitive function: Montreal Cognitive Assessment (MoCA). Cognitive impairment was defined as a score < 26 (Tu et al., 2013).
- Depressive symptoms: Montgomery–Åsberg Depression Rating Scale (MADRS). Depressive symptoms were defined as a MADRS score >7, consistent with the threshold used in the present study. The total MADRS score (range 0–60) was interpreted as follows: 0–6 = no depression; 7–19 = mild depression; 20–34 = moderate depression; > 34 = severe depression (Montgomery & Åsberg, 1979).
- Sexual dysfunction:

Sexual health was assessed using two complementary approaches. First, sexual difficulties were initially screened using a structured, patient-centered interview (Screening for Sexual Difficulties [SSD]). Participants who agreed to discuss sexual health received standardized information about the potential impact of stroke on sexuality. A positive screening result was defined as the expression of unmet sexual health needs or a desire for sexual health support within the rehabilitation process. This interview-based measure reflected participants' subjective perception of their post-stroke sexual difficulties and was considered separately from the standardized assessment of sexual dysfunction. Second, sexual function was assessed using sex-specific standardized instruments: the Brief Index of Sexual Functioning for Women (BISF-W) in women and the Male Sexual Health Questionnaire (MSHQ) in men. Sexual dysfunction was defined according to the pre-specified, instrument-specific thresholds for the BISF-W and MSHQ. For the cumulative burden analysis, the sexual component was based on this instrument-defined sexual dysfunction, together with cognitive impairment and depressive symptoms.

In women, the total score ranges from –17 to 75, with interpretation as follows: –16 to 19 = severe sexual dysfunction; 20 to 40 = mild to moderate dysfunction; 41 to 75 = normal sexual function (Mazer et al., 2000; Taylor et al., 1994).

In men, sexual dysfunction was operationally defined from the three MSHQ domains assessed in the present study: erectile function, ejaculatory function, and sexual satisfaction (Rosen et al., 2004). The MSHQ-EjD score was considered abnormal when <22 (Rosen RC et al., 2007). For sexual satisfaction, responses of 1–2 were classified as indicating dissatisfaction, whereas responses of 3–5 were considered satisfactory, consistent with the approach described by Saitz et al. (Saitz et al., 2013). The erectile function component comprised three items (maximum score, 9 points), and the satisfaction component comprised six items (maximum score, 18 points). Because no universally validated cutoff for overall sexual dysfunction based on the combined MSHQ domains was available, a study-specific operational rule was applied. A combined score of ≥ 49 points (22 + 9 + 18) was classified as satisfactory-to-good overall sexual function, whereas a score <49 was classified as sexual dysfunction. This composite threshold was specific to the present study and should not be interpreted as a universally validated MSHQ cutoff.

- Quality of life: Stroke Impact Scale version 3.0 (SIS 3.0). The total score (maximum 100) was converted into a percentage for ease of interpretation.
- Motor function: Demeurisse Motor Index (DMI), with scores ranging from 0 to 100 (Demeurisse et al., 1980).
- Disability level: Modified Rankin Scale (mRS), score range 0–6 (Banks & Marotta, 2007).

All instruments were administered in French. When necessary, additional explanations were provided to ensure comprehension. Although widely used internationally, these instruments have not been formally validated in the Congolese population, which should be considered when interpreting the findings.

Ethical considerations

Ethical approval was obtained from the National Ethics Committee of the Ministry of Scientific Research (Approval No. 452/CNES/BN/PMMF/2022, January 8, 2022), prior to data collection and statistical analyses.

The study was conducted in accordance with the principles of the Declaration of Helsinki. Written

informed consent was obtained from all participants, and confidentiality was strictly maintained.

Statistical analysis

Analyses were performed using Stata version 18 and Jamovi version 2.6.44. Continuous variables were expressed as mean $\pm$ standard deviation or median (interquartile range), depending on distribution. Categorical variables were presented as frequencies and percentages.

Group comparisons were conducted using Student's t-test or Mann–Whitney U test for continuous variables and chi-square or Fisher's exact test for categorical variables.

A multivariable linear regression analysis was performed to examine independent associations with quality of life (QoL). The final model included cognitive status, depressive symptoms, sexual difficulties identified during the interview, sexual dysfunction assessed using the BISF-W/MSHQ, sex, age, employment status, motor function, disability level, time since stroke, and marital status. The reference categories were, as applicable, absence of cognitive impairment, absence of depressive symptoms, absence of self-reported sexual difficulties identified during the interview, absence of sexual dysfunction according to the BISF-W/MSHQ classification, male sex, being employed, and being unmarried. The model was estimated using complete-case analysis. No missing data were observed for any of the variables included in the regression model; therefore, all 169 participants were included in the final model. Model fit was assessed using the coefficient of

determination (R^2) and adjusted R^2 , and the overall statistical significance of the model was assessed using the F-test.

Model assumptions were assessed by examining residual normality, homoscedasticity, and multicollinearity. Residual normality was evaluated using the Shapiro–Wilk test and visual inspection; homoscedasticity was assessed through residual analysis; and multicollinearity was evaluated using the variance inflation factor (VIF) and tolerance. A VIF <5 and tolerance >0.20 were considered acceptable.

One point was assigned for each of the following conditions: cognitive impairment (MoCA <26), depressive symptoms (MADRS >7), and instrument-defined sexual dysfunction based on the pre-specified, sex-specific thresholds of the BISF-W and MSHQ. The cumulative score was compared across groups using one-way analysis of variance (ANOVA), followed by Tukey post-hoc comparisons. The effect size for the ANOVA was expressed using eta-squared (η^2). Statistical significance was set at $p < 0.05$.

Results

A total of 169 patients undergoing post-stroke rehabilitation were included. The sample was predominantly male (58.0%), with a mean age of 61.3 ± 12.8 years. Most participants were married (74.6%) and had attained higher education (66.9%) (Table 1). Cognitive impairment, depressive symptoms, and sexual dysfunction were observed in 29.6%, 46.7%, and 55.0% of participants, respectively (Table 1).

Table 1. Sociodemographic and clinical characteristics of post-stroke patients undergoing rehabilitation in Kinshasa

Variables	N (%)	Mean	Median	SD	IQR
Age	-	61.3	62	12.8	[51–71]
Gender: Male	98 (58.0)	-	-	-	-
Gender: Female	71 (42.0)	-	-	-	-
Marital status (Married)	126 (74.6)	-	-	-	-
Education level: High school or less	56 (33.1)	-	-	-	-
Education level: Higher education	113 (66.9)	-	-	-	-
Pre-stroke occupation: Unemployed	71 (42.0)	-	-	-	-
Pre-stroke occupation: Employed	98 (58.0)	-	-	-	-
Time since stroke (months)	-	10.5	9	4.9	[7–12]
Stroke type: Ischemic	125 (74.0)	-	-	-	-
Stroke type: Hemorrhagic	44 (26.0)	-	-	-	-
Global Demeurisse motor score (DMI / 100)	-	60.1	58.5	13.3	[49–70.5]
Cognitive impairment (MoCA < 26)	50 (29.6)	-	-	-	-
Depressive symptoms (MADRS > 7)	79 (46.7)	-	-	-	-
Sexual dysfunction (BISF-W < 41 / MSHQ < 49)	93 (55.0)	-	-	-	-

Legend: SD = standard deviation; IQR = interquartile range

Bivariate analyses showed that quality of life (QoL) scores were significantly lower among patients with depressive symptoms (44.7 ± 14.2 vs. 50.8 ± 14.5 ; $t = 2.74$; $p = 0.007$), cognitive impairment (43.9 ± 12.6 vs. 49.7 ± 15.2 ; $t = -2.36$; $p = 0.019$), and self-reported sexual dysfunction (45.1 ± 14.2 vs. 52.8 ± 14.3 ; $t = 3.41$; $p < 0.001$) (Table 2).

Table 2. Bivariate analysis of the association between sexual, depressive, and cognitive disorders and post-stroke quality of life measured by SIS 3.0

Disorders	Present	Mean QoL score (%) $\pm$ SD	t	p
Cognitive disorders (MoCA)	Yes	43.9 ± 12.5	-2.36	0.019
	No	49.7 ± 15.2		
Depressive disorders (MADRS)	Yes	44.7 ± 14.1	2.74	0.007
	No	50.8 ± 14.5		
Sexual disorders by interview	Yes	45.1 ± 14.2	3.41	<0.001
	No	52.8 ± 14.3		
Sexual disorders (clinical assessment)	Yes	46.1 ± 14.6	-1.95	0.053
	No	50.5 ± 14.4		

Sexual dysfunction assessed using BISF-W/MSHQ showed a borderline association with QoL (46.1 ± 14.6 vs. 50.5 ± 14.4 ; $t = -1.95$; $p = 0.053$). The final multivariable linear regression model included 169 participants with complete data and 11 predictors. The model explained 44.4% of the variance in QoL ($R^2 = 0.444$; adjusted $R^2 = 0.397$) and was statistically significant overall ($F(11,157) = 11.43$, $p < 0.001$). As shown in Table 3, depressive symptoms were independently associated with lower QoL ($B = -4.80$, 95% CI $[-9.10, -0.40]$, $p = .031$), whereas participants without cognitive impairment had higher QoL scores than those with cognitive impairment ($B = 8.23$, 95% CI $[4.05, 12.42]$, $p < .001$).

Table 3. Factors associated with quality of life measured by the Stroke Impact Scale 3.0: multivariable linear regression analysis

Predictor	Adjusted B	95% CI	P	Tolerance	VIF
Intercept	14.0	$[-16.5; 44.5]$	0.365	-	-
No cognitive impairment vs cognitive impairment	8.2	$[4.0; 12.4]$	<0.001	0.82	1.21
Post-stroke depression symptoms	-4.8	$[-9.1; -0.4]$	0.031	0.6	1.54
Sexual difficulties by interview	-5.3	$[-10.2; -0.3]$	0.037	0.5	1.88
Sexual dysfunction by BISF-W/MSHQ	-1.1	$[-5.2; 2.9]$	0.591	0.7	1.37
Female vs male	-0.7	$[-4.9; 3.5]$	0.752	0.7	1.44
Age, years	0.45	$[0.25; 0.6]$	<0.001	0.5	1.97
Inactive vs active occupation	-2.5	$[-6.5; 1.4]$	0.209	0.8	1.25
DMI/100	0.31	$[0.03; 0.6]$	0.027	0.22	4.35
Modified Rankin Scale	-3.13	$[-6.08; -0.2]$	0.038	0.22	4.46
Disease duration, months	0.06	$[-0.30; 0.5]$	0.758	0.8	1.26
In couple vs single	-1.6	$[-5.87; 2.7]$	0.469	0.9	1.15

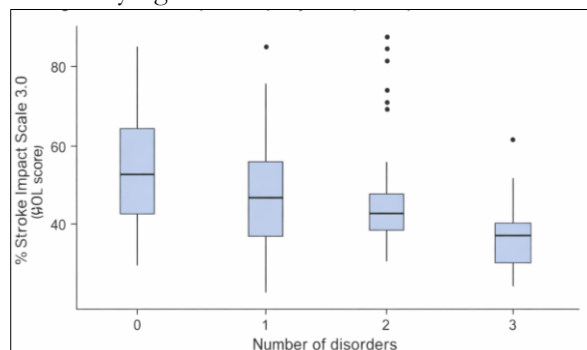
Legend: VIF = Variance Inflation Factor; BISF-W/MSHQ = Brief Index of Sexual Functioning for Women/Men Sexual Health Questionnaire

Interview-reported sexual difficulties were also independently associated with lower QoL ($B = -5.30$, 95% CI $[-10.20, -0.30]$, $p = .037$), whereas sexual dysfunction assessed using the BISF-W/MSHQ was not significantly associated with QoL after adjustment ($B = -1.10$, 95% CI $[-5.20, 2.90]$, $p = .591$). Age ($B = 0.45$, 95% CI $[0.25, 0.60]$, $p < .001$) and motor function ($B = 0.31$, 95% CI $[0.03, 0.60]$, $p = .027$) were positively associated with QoL, whereas disability level, measured using the modified Rankin Scale, was negatively associated with QoL ($B = -3.13$, 95% CI $[-6.08, -0.17]$, $p = .038$). No statistically significant associations were observed for sex, occupation, disease duration, or marital status. Multicollinearity was not considered problematic, with all variance inflation factor (VIF) values <4.5 and tolerance values > 0.20. The cumulative association between post-stroke disorders and quality of life was assessed using ANOVA. Homogeneity of variances was confirmed by Levene's test ($p = 0.375$), supporting the validity of the analysis (Table 4).

Table 4. Cumulative association between the number of post-stroke sexual, depressive, and cognitive disorders and quality of life measured by the SIS 3.0

Number of disorders	N (%)	Mean QoL (%) $\pm$ SD
No disorder	36 (21.3)	55.3 $\pm$ 13.9
1 disorder	56 (33.1)	47.8 $\pm$ 14.9
2 disorders	64 (37.9)	45.9 $\pm$ 14.0
3 disorders	13 (7.7)	38.6 $\pm$ 10.8
Overall test – ANOVA	-	ANOVA (F = 5.61)
p-value	-	0.001
Levene's test (p)	-	0.375
Effect size (η^2)	-	0.093

QoL scores decreased progressively with an increasing number of co-occurring disorders, with mean SIS scores of 55.3% among participants with no disorders, 47.8% among those with one disorder, 45.9% among those with two disorders, and 38.6% among those with three disorders. The overall between-group difference was statistically significant (ANOVA $F = 5.61$, $p = .001$; $\eta^2 = 0.093$). Tukey post-hoc analysis identified a statistically significant difference between participants with no disorders and those with three disorders (adjusted $p < .01$). The progressive decrease across the four groups is illustrated in Figure 1 and should be interpreted as a descriptive pattern rather than evidence that all pairwise differences were statistically significant.

**Figure 1.** Distribution of quality of life scores according to the number of post-stroke sexual, cognitive, and depressive disorders.

Discussion

The present study highlights the important association between non-motor sequelae, particularly depressive, cognitive, and sexual disorders, and quality of life (QoL) among post-stroke patients undergoing rehabilitation in Kinshasa. These findings emphasize that, beyond motor impairment, emotional, cognitive, and sexual health are significantly associated with perceived recovery and overall well-being, reflecting the multidimensional consequences of stroke (Stolwyk et al., 2024).

Cognitive impairment affected nearly one-third of patients and was significantly associated with QoL in multivariate analysis. Participants without cognitive impairment had higher QoL scores than those with cognitive impairment, indicating an independent association between cognitive status and QoL after adjustment for the other variables included in the model. These findings are consistent with previous studies reporting that post-stroke cognitive impairment is associated with reduced autonomy in activities of daily living (ADLs), decreased social participation, and limited community reintegration, independently of motor deficit severity (Cumming et al., 2014; Stolwyk et al., 2024). Attentional and executive dysfunctions, frequently observed after stroke, may be associated with reduced adaptive functioning and lower engagement in rehabilitation, which may in turn be linked to poorer perceived quality of life.

Post-stroke depression is widely recognized as one of the factors most strongly associated with impaired quality of life (Hackett & Pickles, 2014; Hu et al., 2024; Robinson & Jorge, 2016). It is associated with reduced motivation, lower treatment adherence, impaired social interaction, and a more negative perception of disability. Longitudinal evidence further suggests that the association between depression and QoL may be more pronounced than that observed for some physical impairments, highlighting the importance of systematic screening and early management in neurorehabilitation (Teoh et al., 2009).

Sexual health showed different findings according to the assessment method used. Interview-reported sexual difficulties were independently associated with lower QoL after multivariable adjustment ($B = -5.30$, $p = .037$), whereas sexual dysfunction assessed using BISF-W/MSHQ was not independently associated with QoL ($B = -1.10$, $p = .591$). This difference may reflect the distinct constructs captured by the two approaches. The interview-based variable reflects the participant's subjective perception of post-stroke sexual

difficulties, whereas BISF-W/MSHQ provides a structured assessment of specific aspects of sexual functioning. Differences in measurement characteristics, the operational definition of sexual dysfunction, and the number of participants contributing to each assessment may also have influenced the observed associations. Nevertheless, sexual health remains an important dimension of physical, psychological, and relational well-being after stroke (Bugnicourt et al., 2014; Na et al., 2020; Stein et al., 2013).

A major contribution of this study is the observation of a cumulative association between the number of co-occurring post-stroke disorders and quality of life. The progressive decline in SIS scores with an increasing number of disorders suggests that the coexistence of cognitive, depressive, and sexual difficulties is associated with a greater overall burden on perceived health status. The observed effect size ($\eta^2 = 0.093$) indicates a moderate statistical association between the number of co-occurring disorders and quality of life. However, because of the cross-sectional design, this finding should not be interpreted as evidence of a cumulative causal effect. The observed pattern is consistent with the biopsychosocial model and the International Classification of Functioning, Disability and Health (ICF), which emphasize the interdependence of impairments, activity limitations, and participation restrictions (Alford et al., 2013). Previous research has similarly shown that cumulative neuropsychiatric disturbances following stroke are associated with reduced social participation and life satisfaction (Carod-Artal & Egido, 2009). Given that quality of life encompasses functional, perceptual, and subjective dimensions (Golomb et al., 2001), it is plausible that greater stroke severity, reflected by multiple impairments and higher levels of disability, is associated with lower QoL (Sturm et al., 2004).

Functional independence was significantly associated with quality of life (Patel et al., 2007). In contrast, greater functional dependence, as assessed by the modified Rankin Scale, was associated with lower QoL in our study. Interestingly, older age was positively associated with QoL. This finding may reflect differences in perceived expectations, adaptation, coping strategies, or other unmeasured age-related factors; however, these explanations remain speculative and should be interpreted cautiously. This interpretation is consistent with previous studies (Kim et al., 2005; Lo Buono et al., 2017; Robinson-Smith, 1993; Wang & Langhammer, 2018), as well as with Folkman's work on emotion-focused coping in older adults (Folkman et al., 1987).

Clinically, these findings underscore the limitations of rehabilitation approaches focused solely on motor recovery. Emotional, cognitive, and sexual disturbances are closely associated with patient-reported outcomes and should be systematically considered within comprehensive rehabilitation programs. A multidimensional approach integrating psychological, cognitive, and sexual health interventions alongside motor training may support long-term participation and overall quality of life.

Accordingly, screening for sexual, depressive, and cognitive disorders should be routinely integrated into post-stroke rehabilitation pathways. Multidisciplinary management should extend beyond motor rehabilitation to include cognitive and psychological interventions. Early identification of coexisting impairments may help identify patients requiring comprehensive assessment and support targeted management strategies to preserve quality of life. Furthermore, in African contexts, the assessment and management of sexual health should be culturally adapted to ensure comprehensive and patient-centered care.

This study has several strengths, including the use of validated assessment instruments across multiple domains, a multidimensional evaluation of post-stroke sequelae, and the analysis of the cumulative effects of coexisting disorders on quality of life.

However, several limitations should be acknowledged. First, the cross-sectional design precludes causal inference and prevents determination of the temporal relationships between post-stroke disorders and QoL. Second, recruitment from rehabilitation centers may have introduced selection bias and may limit generalizability to stroke survivors who do not access rehabilitation services. Third, patients with severe aphasia or major communication difficulties were excluded, which may have resulted in underestimation of the burden of cognitive and communication impairments. Fourth, the two sexual-health measures captured different constructs, and the interpretation of the BISF-W/MSHQ findings should take into account the absence of a universally accepted global diagnostic threshold for the MSHQ. Fifth, sexual health may have been influenced by sociocultural factors and by willingness to disclose intimate difficulties. Finally, although the instruments used are widely established internationally, they have not been formally validated in the Congolese population, which may affect the generalizability and interpretation of the findings.

Conclusion

In this rehabilitation cohort of stroke survivors in Kinshasa, cognitive status and depressive symptoms were independently associated with quality of life after adjustment for sociodemographic and clinical characteristics. Interview-reported sexual difficulties were also independently associated with lower QoL, whereas sexual dysfunction assessed using BISF-W/MSHQ was not independently associated with QoL, highlighting the importance of distinguishing subjective sexual difficulties from structured sexual-function measures. A greater number of co-occurring cognitive, depressive, and interview-reported sexual difficulties was associated with progressively lower QoL, although the cross-sectional design precludes causal interpretation. These findings support the potential relevance of multidimensional rehabilitation strategies that systematically consider cognitive, psychological, sexual, and motor domains alongside functional disability.

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