

Sexual dysfunction in Nigerian stroke survivors

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Abstract

Background: Over three-quarters of stroke survivors experience disruption of sexual functioning. Studies reporting post-stroke sexual function of Nigerian patients are few.

Objectives: This survey reports sexual dysfunction in Nigerian stroke survivors, and determines the influence of socio-demographic, clinical and psychological factors on the dysfunction.

Methods: Participants were 77 stroke survivors (60 males; 17 females) recruited consecutively from a teaching hospital. Participants completed the Beck Depression Inventory, Stroke Specific Quality of Life Scale and post-stroke sexual function questionnaire. Participants' motor ability was rated on the Modified Motor Assessment Scale. Data were analysed using Chi square test and Mann-Whitney U test (alpha level set at 0.05).

Results: Participants were aged 55.2 ± 10.8 (28-79) years. Most (94.8%) participants reported a dysfunction in sexual function. Decline in libido and coital frequency were reported by >70% and in erection, ejaculation and orgasm by >60% of participants. Participants with erectile dysfunction were significantly older than those without ($U=267.0$; $p=0.02$). Depression, quality of life, willingness to have sex, general attitude to sex and ability to express sexual feelings had significant influence on sexual dysfunction reported by participants ($p<0.05$).

Conclusion: Our findings suggest that sexual dysfunction is common among Nigerian stroke survivors and it is mostly associated with psychological factors.

Keywords: Stroke-Survivors, Sexual dysfunction, Psychological factors, Quality of life

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Introduction

Stroke is a major cause of long-term disability worldwide, as it results in considerable impairment of sensory, motor, mental, perceptual and language functions¹. It is a leading cause of morbidity and mortality in adults in the productive ages². Stroke was believed to be rare in the Black Africans five decades ago³, but is known to be common in developing countries such as Nigeria as in the Western world⁴.

Sexuality is an integral part of normal life in men and women of all ages. A marked decline in sexuality has been reported after stroke. It has been reported that as many as three-quarters of stroke survivors experience disruption of sexual functioning. According to Buzzelli et al⁵ and Korpelainen et al⁶, post-stroke decline in sexual function was predominantly due to psychological rather than physiological causes. However, other authors have

identified the causes to include anatomical lesion in the brain, pre-morbid medical conditions (diabetes, hypertension, cardiac disease), and several interpersonal factors^{5,7}. The most commonly reported post-stroke sexual problems include decline in libido and coital frequency, reduced vaginal lubrication and orgasmic ability in women, and poor or absent erection and ejaculation in men as well as decreased enjoyment and satisfaction with sexual life. In cultures where it is more or less a taboo to discuss sexuality publicly, discussing sexuality with individuals with neurologic disabilities is difficult and thus makes its rehabilitation difficult⁸. This is probably the reason for the negligent attitude shown by professionals towards the effect of stroke on sexuality and the sexual health of stroke survivors⁹.

Studies reporting sexual dysfunction among stroke survivors in Nigeria are not common. The only study from Nigeria reported decline in sexual function in a small sample of male stroke survivors with hemiparesis, attending a hospital in Northern Nigeria¹⁰.

The aims of the present study were to survey sexual dysfunction among stroke survivors attending a hospital in Southwestern Nigeria, and to determine

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the influence of socio-demographic, clinical and psychological factors on the dysfunction.

Methods

The study protocol was approved by the University of Ibadan and University College Hospital, Ibadan Research Ethics Committee. Participants were 77 stroke survivors attending physiotherapy out-patient department of the University College Hospital, Ibadan, Nigeria. They were recruited consecutively over a period of 9 months (October, 2008 to July, 2009). Only male and female Nigerians who have had stroke for at least three months, who were married and/or were living with their spouse(s) and who gave informed consent participated in this study.

Participant's socio-demographic and clinical information (age, gender, duration of stroke, presence and side of hemiparesis/hemiplegia) were collected through interview and from participants' hospital files. Their motor ability was rated on the Modified Motor Assessment Scale¹¹ by one of the authors. Participants then completed 3 questionnaires which were the Stroke Specific Quality of Life Scale (SS-QOL)¹², the Beck Depression Inventory¹³ and a questionnaire on sexual dysfunction in stroke survivors adapted from a previous study⁶. The order of administration of the questionnaire was randomized using fish bowling method. The questionnaire on post-stroke sexual dysfunction included seven sexual functions (libido, coital frequency, erection, ejaculation vaginal lubrication, orgasm and satisfaction with sexual life). Two sexual functions (erection, ejaculation) were specific to males and one (vaginal lubrication) was specific to females. Participants were asked to rate each sexual function based on their post-stroke sexual state relative to their pre-stroke sexual state on a 4 or 5 point likert scale as follows: libido: (1) increased, (2) no change, (3) diminished, (4) markedly diminished, (5) none; coital frequency: (1) more than once a week, (2) once a week, (3) once or twice a month, (4) less than once a month, (5) none; erection, ejaculation, vaginal lubrication, and orgasm: (1) normal, (2) slightly diminished, (3) markedly diminished, (4) none; satisfaction with sexual life: (1) very satisfied, (2) moderately satisfied, (3) moderately dissatisfied, (4) completely dissatisfied. The questionnaire also included five psychological factors which were: General attitude towards sexuality: (1) extremely important, (2) fairly important, (3) unimportant; Fear of impotence: (1) no, (2) yes; Fear of another stroke: (1) no, (2) yes; Ability to discuss sexuality with the

spouse: (1) yes, with ease, (2) yes, with trouble, (3) no; Unwillingness to participate in sexual activity: (1) no, (2) yes.

Sexual dysfunction was defined in terms of response options as follows: Libido dysfunction- diminished, markedly diminished and no libido; coital frequency dysfunction- once or twice a month, less than once a month and no coitus; penile erection, ejaculation, vaginal lubrication orgasm dysfunction- slightly diminished, markedly diminished and none; dissatisfaction with sexual life – moderately dissatisfied and completely dissatisfied. Prior to data collection, each of the 3 questionnaires was translated into Yoruba (the indigenous language of the south-western Nigeria) by two language experts, who later produced a consensus translation which was taken through the process of back translation and review by an expert panel¹⁴. This ensured the participation of stroke-survivors who were not literate in English

Data were summarized using frequency, percentage, median, mean and standard deviation. Inferential statistics of Chi Square test and Mann-Whitney U test were used to analyze data. The alpha level was set at 0.05.

Results

A total of seventy seven stroke survivors comprising 60 males (77.9%) and 17 females (22.1%) participated in the study. Their age ranged from 28 to 79 years with a mean of 55.2+ 10.8 years. The mean age for the males was 57.0±10.0 (38 to 79) years and that of the females was 48.4±10.2 (28 to 65) years. Thirty-three (43.4%) had right hemiparesis and 43 (56.6%) had left hemiparesis. Participants have had stroke for 3-84 months (median of stroke duration was 13.5 months. Participants had a mean depression score of 13.1±8.3 (out of a maximum obtainable score of 63) and a mean quality of life score of 181.0±30.5 (out of a maximum obtainable score of 245). Sixty three (81.9%) of the participants regarded sex as important and 52 (67.5%) could express sexual feelings to their spouses and 48 (62%) expressed unwillingness to have sex. Thirty-nine participants (50.6%) had fear of another stroke episode and 31 males (60%) had fear of impotence.

Seventy-three (94.8%) reported a dysfunction in one or more of the 7 sexual activities (libido, coital frequency, vaginal lubrication, erection, ejaculation, orgasm, satisfaction with sexual life) considered in this study (table 1). More than 70% of participants reported dysfunctions in libido and coital frequency and over 60% reported dysfunction in

erection, ejaculation and orgasm. The least frequently reported sexual dysfunction was dissatisfaction with sexual life which was expressed by 30 (39%) of participants (table 1). Table 2 shows the frequency

distribution of participants with or without dysfunction by gender, clinical and psychological variables.

Table 1: Frequency distribution of participants with and without Sexual dysfunction post stroke

Variables	n	Without dysfunction		With dysfunction	
		F	%	F	%
Libido	77	23	29.9	54	70.1
Coital frequency	77	18	23.3	59	76.7
Erection	60	23	38.3	37	61.7
Ejaculation	60	22	36.7	38	63.3
Vaginal lubrication	17	9	52.9	8	47.1
Orgasm	77	28	36.4	49	63.6
Sexual satisfaction	77	47	61.0	30	39.0
Any sexual dysfunction	77	4	5.2	73	94.8

Table 2: Frequency distribution of participants with or without sexual dysfunction by Gender, Clinical and Psychological variables

Variable	LB		CF		ER		EJ		VL		OR		SS	
	ND	D	ND	D	ND	D	ND	D	ND	D	ND	D	ND	D
Gender														
Male	37	23	26	34	23	37	22	38	-	-	22	38	37	23
Female	10	7	9	8	-	-	-	-	9	8	6	11	10	7
Side of Hemiparesis														
Right	18	15	13	20	9	16	8	17	5	3	11	22	18	15
Left	29	14	22	21	14	21	14	21	4	4	17	26	29	14
Attitude to Sex														
Important	42	21	33	30	20	29	21	28	8	6	27	36	42	21
unimportant	5	9	2	12	3	8	1	10	1	2	1	13	5	9
Fear of Impotence														
No	24	14	17	21	16	22	13	25	-	-	15	23	24	14
yes	13	9	9	13	7	15	9	13	-	-	7	15	13	9
Fear of another stroke														
No	25	13	17	21	14	19	13	20	3	2	16	22	25	13
yes	22	17	18	21	9	18	9	18	6	6	12	27	22	17
Express sexual feelings														
Yes	35	17	31	21	18	22	19	21	6	6	22	30	35	17
No	12	13	4	21	5	15	3	17	3	2	6	19	12	13
Unwilling to have sex														
Yes	16	13	11	18	20	19	21	18	5	4	7	22	16	13
No	31	17	24	24	3	18	1	20	4	4	21	27	31	17

LB – Libido CF- Coital Frequency ER- Erection EJ – Ejaculation VL- Vaginal Lubrication
 ND- No Dysfunction D- Dysfunction

Table 3: Association between sexual dysfunctions and gender, clinical, psychological variables

Variable	LB		CF		ER		EJ		VL		OR		SS	
	χ^2	P-value												
Gender														
Male	0.306	0.580	0.493	0.483	-	-	-	-	-	-	0.011	0.917	0.045	0.832
Female														
Side of Hemiparesis														
Right	0.000	0.995	1.041	0.308	0.099	0.753	0.402	0.526	0.254	0.614	0.309	0.579	1.316	0.251
Left														
Attitude to Sex														
Important	0.582	0.445	6.705	0.010*	0.697	0.404	4.411	0.036*	0.562	0.453	6.314	0.012*	4.615	0.032*
unimportant														
Fear of Impotence														
No	0.208	0.649	0.083	0.773	0.624	0.430	0.269	0.604	-	-	0.352	0.553	0.097	0.755
yes														
Fear of another stroke														
No	1.741	0.187	0.016	0.901	0.519	0.471	0.235	0.628	0.142	0.707	1.609	1.301	0.712	0.399
yes														
Express sexual feelings														
Yes	3.400	0.065	12.954	0.001*	2.256	0.133	6.065	0.014*	0.142	0.707	2.445	0.118	2.647	0.104
No														
Unwilling to have sex														
Yes	5.740	0.017*	1.062	0.303	7.904	0.005*	14.162	0.001*	0.052	0.819	3.005	0.083	0.673	0.412
No														

LB – Libido CF- Coital Frequency EF- Erection EJ – Ejaculation VL- Vaginal Lubrication
 OR- Orgasm SS- Satisfaction with Sexual Life *statistically significant at $p < 0.05$ $\chi^2 =$ chi square value

Table 4: Mean values of selected variables of participants With and Without Sexual dysfunction

Variable	LB		CF		ER		EJ		VL		OR		SS	
	ND	D	ND	D	ND	D	ND	D	ND	D	ND	D	ND	D
Age (years)														
N	53.8	55.6	54.5	55.5	53.1	59.4	53.4	59.1	45.9	51.3	54.8	54.6	55.3	55.9
SD	8.74	11.37	10.54	10.80	9.87	9.94	9.67	9.77	11.60	8.17	10.60	10.26	10.74	11.30
Stroke duration (months)														
N	21.10	21.8	22.30	21.00	19.50	22.10	19.70	22.00	28.80	16.8	23.10	20.70	23.40	18.80
SD	19.94	19.65	20.85	18.81	19.10	19.50	19.14	19.49	25.21	14.71	24.05	16.90	21.09	17.05
Depression Score														
N	11.10	14.00	10.70	15.10	10.90	14.00	9.70	14.60	16.20	11.29	11.20	14.20	11.40	15.83
SD	5.82	9.09	6.12	9.34	7.34	8.71	7.40	8.34	10.58	3.90	6.07	9.21	7.33	9.12
Motor Assessment Score														
N	33.00	33.40	34.60	32.20	32.30	35.40	35.20	31.60	32.90	36.00	33.60	33.10	34.10	31.90
SD	9.31	11.26	10.90	10.44	9.23	11.60	9.05	11.43	10.03	12.14	10.87	10.63	10.75	10.52
Quality of Life Score														
N	189.90	177.80	186.10	177.0	184.00	178.50	186.10	193.20	177.90	192.00	184.20	179.90	186.90	173.10
SD	24.05	32.22	28.85	31.35	26.50	35.22	28.85	29.77	25.72	20.43	25.24	32.98	27.99	32.37

LB – Libido CF- Coital Frequency ER- Erection EJ – Ejaculation VL- Vaginal Lubrication
 OR- Orgasm SS- Satisfaction with Sexual Life ND- No Dysfunction D- Dysfunction N- Number of Participants SD- Standard Deviation

Table 5: Mann Whitney U Test for selected variables of participants with and without sexual dysfunction

Variable	LB	CF	ER	EJ	VL	OR	SS
	U* P-value	U* P-value	U* P-value	U* P-value	U* P-value	U* P-value	U* P-value
Age (years)	558.00 0.482	698.50 267.00	267.00 0.016**	291.00 0.051	26.00 0.370	672.00 0.882	656.50 0.612
Stroke duration (months)	596.50 0.883	714.00 1.000	367.50 0.535	350.50 0.437	25.50 0.321	625.00 0.692	610.00 0.395
Depression Score	514.50 0.336	524.00 0.065	305.50 0.111	236.50 0.010**	25.00 0.536	551.00 0.283	454.50 0.021**
Motor Assessment Score	577.00 0.713	611.00 0.267	371.00 0.504	339.50 0.290	28.50 0.481	652.00 0.829	589.00 0.322
Quality of life Score	491.50 0.182	626.50 0.361	390.00 0.790	264.00 0.033**	24.00 0.277	660.50 0.991	494.50 0.038**

LB- Libido CF- Coital Frequency ER- Erection EJ- Ejaculation
 VL- Vaginal Lubrication OR- Orgasm SS- Satisfaction with Sexual Life U*= Mann Whitney U value
 **statistically significant at $p < 0.05$

During data collection, many of the stroke survivors opined that it was the first time any healthcare professional was asking them questions relating to sexual function, an area of importance to them. They also expressed a desire for proper counseling on this aspect of their lives and suggested that sexual counseling be made a part of stroke rehabilitation.

Discussion

The mean age of stroke survivors in the present study is slightly lower than the mean age of those in previous stroke studies from Nigeria, which ranged from 60.6 ± 12.4 years to 62 ± 13 years¹⁵⁻¹⁷. There was a preponderance of male in the ratio 3.5:1 in this study. This is similar to the findings of previous studies from Nigeria and other parts of the world^{6,7,15-17,18}.

Almost all (95%) the participants in this study reported at least one sexual dysfunction. This suggests that sexual dysfunction is common among Nigerian stroke survivors, as it is with stroke survivors from other parts of the world⁵⁻⁷. Dysfunction in coital frequency was the most frequently reported sexual dysfunction, followed by dysfunction in libido, orgasm, and erection. This is in line with the findings of Monga et al¹⁹ in which a 79% to 61% dysfunction in sexual activities was reported. The decline in libido, coital frequency, orgasm and satisfaction with sexual life reported by participants in this study are also similar to the findings of Korpelainen et al⁶, Kimura et al⁷ and Cheung²⁰.

It is surprising that only 30 (40%) of participants in this study reported dissatisfaction with sexual life. This is in spite of the fact that more participants reported sexual dysfunction in libido,

coital frequency, erection, ejaculation and orgasm. In previous studies, higher proportions of participants (49-71%) were reported to be dissatisfied with sexual life^{6,7,20}. In the Nigerian cultural context, ability to have children is perceived as a major determinant of satisfaction with sexual life. This cultural perception might have influenced participants' response to satisfaction with sexual life. Unfortunately, we did not survey how many of the participants had or did not have children and this is regarded as a limitation of this study.

The results of this study revealed that psychological factors (willingness to have sex, general attitude to sex and ability to express sexual feelings) have a negative influence on sexual function (libido, erection, coital frequency, ejaculation, orgasm and satisfaction with sexual life) post stroke. This agrees with previous reports^{5,6,18}. The finding suggests that psychological factors play a crucial role in determining sexual function and satisfaction after stroke. Gender had no influence on the sexual function common to both gender (libido, orgasm, coital frequency and satisfaction with sexual life). This is similar to the findings of Buzzelli et al⁵ and Choi-Kwom and Kim²¹. Participants' sexual function was also not affected by the side of hemiparesis, however two psychosocial factors (fear of impotence and fear of another stroke episode) had no significant influence on sexual function. Boldrini et al²² reported that clinical features had no significant association with changes in sexual life.

Findings from this study showed that there was no significant difference between the motor assessment score of those with sexual dysfunction and those without sexual dysfunction in all the sexual

activities assessed in this study. Buzzelli et al⁵ and Choi-Kwon et al²¹ also reported that motor disability has no effect on sexual activities post stroke. Kimura et al⁷ on the other hand, reported that physical disability is an important factor influencing post stroke sexual function.

The mean age of participants with erectile dysfunction (59.4 ± 9.49 years) was found to be significantly higher than the mean age of those who reported none (53.1 ± 9.87 years) in this study, supporting the finding of Giaquinto et al¹⁸. This could be explained by the fact that sexual function appears to decline with age²³. The depression scores of those with ejaculation dysfunction were significantly higher than the scores of those who reported no dysfunction in their sexual activities. Also, the depression score of participants who reported dissatisfaction with their sexual life was significantly higher than that of those who were satisfied with their sexual life. This supports the findings of Goddess et al²⁴, Buzzelli et al⁵, Korpelainen et al²⁵ and Kimura et al⁷ who reported that sexual dysfunction was closely associated with the degree of depression post stroke. On the other hand, Buzzelli et al⁵ found no significant association between depression and sexual variations. However, we observed that participants with sexual dysfunction in penile erection, ejaculation, and satisfaction with sexual life had significantly higher quality of life scores. It is not impossible that the cultural tendency of Nigerians not to arrogate negative things to themselves might have influenced the participants' response to items on the stroke specific quality of life scale.

Conclusion

The findings of this study suggest that decline in sexual function is common among Nigerian stroke survivors. Age, depression and psychological factors (attitude to sex, ability to express sexual feelings, unwillingness to have sex) have negative influence on sexual function of Nigerian stroke survivors. The implication of these findings is that assessment of sexual function and sexual counseling should be incorporated into the management of stroke survivors in Nigeria. This will necessitate training healthcare professionals involved in the care of stroke survivors in sex life counselling. Longitudinal studies will be necessary to ascertain the causes of sexual dysfunction among stroke survivors in Nigeria. However, this study has some limitations as regards the participants recruited. All were attending

physiotherapy and so all were likely to have had mobility and/or upper limb disabilities. The participants were also married and/or lived with their spouse(s) or partner(s) leaving out single stroke survivors who masturbate and may use paid sexual service or have occasional sexual encounters. We suggest that these areas be looked into in future longitudinal studies.

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