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ORIGINAL RESEARCH

Association among sexual function, functional independence and quality of life in patients after cerebrovascular accident

Associação entre função sexual, independência funcional e qualidade de vida em pacientes após acidente vascular encefálico

La asociación entre la función sexual, la independencia funcional y la calidad de vida en sujetos tras sufrir accidente cerebrovascular

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ABSTRACT | This observational, quantitative and cross-sectional study aimed to assess the sexual function and compare the quality of life and functional independence among individuals, affected by cerebrovascular accident (CVA), sexually active and inactive. Individuals were previously contacted by telephone and scheduled at their convenience. We applied an assessment form containing demographic data, life habits, self-reported health and sexual function, in addition to the WHOQOL questionnaire for the evaluation of quality of life and scale of measure of functional independence. When assessing 29 individuals, we found that 48.3% were sexually active. Among them, 64.3 individuals were male and 35.7 were female. Most of the sample reported decreased sexual activity after the stroke (64.3%), 60% of women have sexual dysfunction through female sexual quotient, and 77.7% of men have erectile dysfunction, evaluated by the International Index of Erectile Function. We observed that sexually active individuals had better quality of life on the physical domain (p=0.035), greater functional (p=0.005) and cognitive (p=0.006) motor independence when compared with individuals who were not sexually active. We concluded that a significant portion of patients remain sexually active and that sexual activity was associated with cognitive and motor independence.

Keywords | Sexuality; Quality of Life; Stroke.

RESUMO | Este estudo observacional, quantitativo e transversal teve por objetivo avaliar a função sexual e comparar a qualidade de vida e independência funcional entre indivíduos acometidos por acidente vascular encefálico (AVE) sexualmente ativos e inativos. Estes foram previamente contatados por telefone e tiveram suas avaliações agendadas de acordo com sua conveniência. Realizou-se a aplicação de uma ficha de avaliação contendo dados sociodemográficos, hábitos de vida, saúde referida e função sexual, além do questionário abreviado de avaliação de qualidade de vida WHOQOL e da escala de medida de independência funcional. Ao avaliar 29 indivíduos, observou-se que 48,3% eram sexualmente ativos. Destes, 64,3% eram do sexo masculino e 35,7% do sexo feminino. A maioria da amostra relatou diminuição da atividade sexual após a

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doença (64,3%); 60% das mulheres apresentou disfunção sexual pelo quociente sexual – versão feminina –, e 77,7% dos homens apresentou disfunção erétil, avaliada pelo Índice Internacional de Função Erétil. Observou-se que os indivíduos ativos sexualmente apresentavam melhor qualidade de vida relativa ao domínio físico (p=0,035) e maior independência funcional motora (p=0,005) e cognitiva (p=0,006) quando comparados aos indivíduos que não praticavam atividade sexual. Concluiu-se que uma parcela significativa dos pacientes continua ativa sexualmente e que a prática de atividade sexual esteve associada à independência cognitiva e motora.

Descritores | Sexualidade; Qualidade de Vida; Acidente Vascular Cerebral.

RESUMEN | Este estudio de tipo observacional, cuantitativo, transversal tiene el objetivo de analizar la función sexual y comparar la calidad de vida y la independencia funcional entre los sujetos sexualmente activos e inactivos, acometidos por accidente cerebrovascular. Se contactaron a los sujetos por teléfono y se agendó una cita con ellos según la disponibilidad. Se les aplicó a los participantes una encuesta de evaluación para conocer sus datos sociodemográficos, hábitos de vida, salud y función sexual, además del cuestionario abreviado de la evaluación de la calidad de vida Whoqol-Bref y la escala de la medida de independencia funcional. De los 29 sujetos evaluados un 48,3% eran sexualmente activos. De estos, un 64,3% son hombres y un 35,7% mujeres. La mayoría de los participantes informaron que hubo una disminución de la actividad sexual tras la enfermedad (64,3%), un 60% de las mujeres presentaron disfunción sexual por el coeficiente sexual –versión femenina, y un 77,7% de los hombres presentaron disfunción eréctil, evaluada por el Índice internacional de función eréctil. Los sujetos sexualmente activos presentaron una mejor calidad de vida referente al dominio físico (p=0,035), una mayor independencia funcional motora (p=0,005) y cognitiva (p=0,006) en comparación a los que no tenían actividad sexual. Se concluye que gran parte de estos sujetos mantienen una vida sexual activa y que hay asociación entre la práctica de la actividad sexual a la independencia cognitiva y motora.

Palabras clave | Sexualidad; Calidad de Vida; Accidente Cerebrovascular.

INTRODUCTION

In Brazil, the cerebrovascular accident (CVA) has represented a major cause of death, affecting both men and women in different age groups. The permanence of disabling sequelae leads to functional dependence and limitation of daily life activities, undermining the possibilities of managing the personal and familiar life[1,2].

Some authors suggest CVA is one of the most common neurological disorders in adult life, and can be understood as a transitional or permanent brain impairment, secondary to vascular injury in any region of the brain and that can result in motor deficits, language disorders, dysphagia (difficulty swallowing), depression, social misfit, sexual and bladder dysfunction, and poor quality of life[3-5].

Previous studies show CVA, as an example of other neurological diseases, interferes significantly in sexual function, leading patients to report this negative impact as one of the main losses and sequelae of the their condition[6,7].

In the post-CVA patient, frequently, the answers and the processing of sexual stimuli change, reducing libido, the frequency of sexual activity, vaginal lubrication, orgasm in females, and erectile dysfunction and premature ejaculation in males[8,9].

The appropriate sexual activity includes multiple phases, comprising desire, arousal, orgasm, and resolution, characterized by relaxation. Any change in these phases is regarded as sexual dysfunction, which can influence the quality of life of the individual affected[10].

Sexual dysfunction, in turn, are characterized by discomfort and/or pain during sexual response in one of the phases of this event (desire, arousal and/or orgasm), impacting negatively on the quality of life, health perception and affective relations of those who experience this, considering that sex and sexuality are a fundamental part of the human nature[7,11]. Although it occurs in both sexes, the symptomatology differs between men and women, being more common erectile dysfunction in men and decreased libido and dyspareunia in women[7,11,12].

Although there are several studies on the patient's sequelae and functional deficits post-CVA, little information is found in the literature about the functioning of the patients' sexual life. Accordingly, this

study assessed sexual function and compared the quality of life and functional independence among individuals, affected by cerebrovascular accident (CVA), sexually active and inactive, in a school service of physical therapy in the countryside of Brazilian Northeast.

METHODOLOGY

This is an observational, cross-sectional study of quantitative character, developed with post-accident cerebrovascular patients (CVA), recruited in Clínica Escola de Fisioterapia of Faculdade de Ciências da Saúde do FACISA/UFRN, in Santa Cruz – RN. The period of data collection occurred from April to July 2015.

The research was approved by the Ethics and Research Committee of Faculdade de Ciências da Saúde do Trairi – FACISA/UFRN, under the opinion no. 976,376 and the recommendations of resolution no. 466/2012 CONEP.

The study included individuals over the age of 18 years, with a history of CVA, who have already had sexual intercourse and who agreed to participate in the research by signing an informed consent form. Participants who obtained score lower than 19/20 for individuals without school record and 23/24 for individuals with record on the Mini-Mental State Examination (MMSE) would be excluded[12]. Twenty-nine patients with sequelae of CVA were assessed and included, 12 of them were male and 17 were female. No one was excluded from this study.

After previous contact by telephone, the patients were scheduled, at their convenience. Data collection was conducted in Clínica Escola de Fisioterapia of Faculdade de Ciências da Saúde do Trairi – FACISA.

For data collection, an evaluation form was applied, by a previously trained researcher, containing: sociodemographic data, life habits and self-reported health scale[13]. Then, they were questioned about their sex life (sexual activity after stroke, reason of abstinence, presence of regular partner, difference of sex life after lesion, perception of pleasure and orgasm frequency). In addition, the following instruments were applied: International Index of Erectile Function and Female Sexual Quotient for assessment of sexual function in men and women, respectively; the WHOQOL, and the Functional Independence Measurement.

We used the validity version by Gonzales et al.[14] of the International Index of Erectile Function (IIEF), which consists of a short and reproducible instrument for measurement of erectile function in men. The questionnaire contains 15 items and is divided into five domains of sexual function: erectile function (six items), function of the orgasm (two items), sexual desire (two items), sexual satisfaction (three items), and overall satisfaction (two items). The score ranges classify the severity of sexual dysfunction (SD) in five groups: No SD (26-30), mild SD (22-25), mild to moderate SD (17-21), moderate SD (11-16), and severe SD (6-10)[14].

To assess sexual dysfunction among women, we used the Female Sexual Quotient (FSQ) developed by Abdo et al.[15]. The FSQ is an instrument that assess the various domains of sexual activity for women (desire, arousal, orgasm and their respective psychophysical effects). Comprised of 10 items, the score ranges between 0 and 100, with higher values informing better performance/sexual satisfaction. A score lower than or equal to 60 is established as the cutoff point to diagnose female sexual dysfunction[15].

To assess quality of life, we used the Portuguese version validated for the WHOQOL[16]. This questionnaire consists of four domains of quality of life, and each domain has the objective to verify the physical capacity (seven questions), psychological well-being (six questions), social relations (three questions), and the environment where the individual is inserted (eight questions), totaling 24 questions. In addition to these four areas, the questionnaire has two general questions about quality of life overall. The higher the score obtained, the better the quality of life overall or in domains[16].

The functionality was assessed using the validated version for Brazil of the Functional Independence Measure (FIM) instrument, which is used to assess the inability of patients with functional limitations[17]. This instrument assesses quantitatively the amount of assistance demanded by a person to carry out a series of daily life activities, both motor and cognitive. Self-care, transfers, locomotion, sphincter control, communication, and social cognition are among the activities assessed. Each activity assessed receives a score from 1 (total dependence) to 7 (full independence), in such a way that the total score ranges from 18 to 126. The higher the score, the greater the functional independence of the individual[17].

Data were analyzed in the software Statistical Package for Social Sciences for Personal Computer

(SPSS-PC), version 20.0. By the Kolmogorov-Smirnov test, data showed non-parametric distribution. Thus, we used the median and interquartile range as measures of central tendency and dispersion, concomitantly.

Categorical variables were presented in absolute and relative frequency. Pearson's Chi-square test was applied to identify association between categorical variables and sexual activity. For comparison between groups of participants with and without sexual activity and their relationship with quantitative variables, we applied the Mann-Whitney test. For all the inferential analyses, the level of statistical significance of $p<0.05$ was adopted.

RESULTS

In this study, 48.3% of the post-CVA patients were sexually active. Of these, 13.7% were acute post-CVA patients and 86.2% were chronic; 64.3% were male with an average age of 63.1 (SD±13.6) and 35.7% were female with an average age of 64.1 (SD±12.7). Among the participants who were sexually active, most (85.7%) self-declared themselves black, brown and other; 98.8% did not have partner and, overall, they assessed their health as good. On the other hand, in individuals who were not sexually active, 51.7% assessed their health as poor.

Data showed statistically significant values for association between the practice of sexual activity, the participant's gender (p=0.020), marital status (p=0.049), and self-perception of health (p=0.025), as described in Table 1. Among the motivations for not having an active sex life, 26.7% attributed to the loss of interest, 20.0% claimed not to perform out of fear and most, 53.3%, for lack of partner after lesion.

When male sexual function was assessed, 77.7% of them showed erectile dysfunction, being minimum in 71.4%, moderate and severe in 14.3%, each. In women, 40% attained the sexual satisfaction function, and 60% showed sexual dysfunction.

Table 1. Values found for sexual activity or inactivity and categorical variables in post-CVA individuals (n=29)

		Sexually active Yes (n=14)	Sexually inactive No (n=15)	Chi-square*
Sex	Male	9 (64.3%)	3 (20%)	0.020*
	Female	5 (35.7%)	12 (80%)	
Race	White	2 (14.2%)	4 (26.6%)	0.361
	Non-white	12 (85.7%)	11 (73.3%)	
Marital status	With partner	1 (7.1%)	6 (40%)	0.049*
	No partner	13 (92.8%)	9 (60%)	
School	Not literate	6 (42.8%)	5 (33.3%)	0.597
	Literate	8 (57.1%)	10 (66.6%)	
Self-reported health	Poor	0 (0%)	5 (33.3%)	0.025*
	Satisfactory	14 (100%)	10 (66.6%)	

*Chi-square; for cells smaller than 5, the Fisher exact test was used.

Table 2. Percentage results regarding the characteristics of sexual domains in both men and women (n=29)

		Total (n=14)	Male (n=9)	Female (n=5)
Regular partner	Yes	12 (85,7%)	8 (88,8%)	4 (80%)
	No	2 (14,2%)	1 (11,1%)	1 (20%)
Difference of sex life after stroke	Yes	10 (71,4%)	7 (77,7%)	3 (60%)
	No	4 (28,6%)	2 (22,2%)	2 (40%)
Sexual desire	Decreased	9 (64,3%)	7 (77,7%)	2 (40%)
	Continued the same	4 (28,6%)	2 (22,2%)	2 (40%)
	Increased	1 (7,1%)	0 (0%)	1 (20%)
Frequency of orgasm	Never	2 (14,3%)	1 (11,1%)	1 (20%)
	Sometimes	5 (35,7%)	4 (44,4%)	1 (20%)
	Often	1 (7,1%)	1 (11,1%)	0 (0%)
	Always	6 (42,9%)	3 (33,3%)	3 (60%)

As to the characteristics of the sexual domains, most participants had regular partner (85.7%), reported difference in sex life after lesion (71.4%) and decreased sexual desire (64.3%) (Table 2).

Comparing the quality of life of participants with and without sexual activity, sexually active patients had higher scores on the physical domain (p<0.035). No statistically significant difference was found for the other domains (Table 3).

Significant difference was found among the groups for motor FIM (p<0.005), cognitive FIM (p<0.006), and total FIM (p<0.003). The sexually active group showed increased motor and cognitive functional independence (Table 4).

Table 3. Results found for association between sexual activity and quality of life (WHOQOL)

	Sexually active (n=14) Mean±SD	Sexually inactive (n=15) Mean±SD	95% CI	p-Value
Physical Domain	54.34±17.66	40.48±15.95	1.04 – 26.66	0.035*
Psychological Domain	63.38±14.72	56.95±17.86	-6.02 – 18.88	0.298
Social Domain	67.26±10.57	61.12±21.04	-6.60 – 18.87	0.328
Environmental Domain	58.94±11.35	58.33±10.28	-7.64 – 8.84	0.882
Total quality of life	60.98±10.41	54.67±12.42	-2.45 – 15.08	0.151

Table 4. Sexual activity and functionality (FIM)

	Sexually active (n=14) Mean±SD	Sexually inactive (n=15) Mean±SD	95% CI	p-Value
Motor FIM	33.71±2.26	29.67±4.57	8.08 – 40.08	0.005*
Cognitive FIM	83.14±13.82	59.07±26.21	1.26 – 6.83	0.006*
Total FIM	116.86±15.41	88.73±29.01	10.37 – 45.87	0.003*

FIM: functional independence measure.

DISCUSSION

Sexuality does not refer only to the sexual act itself, but comprises self-image and self-appreciation. Thus, it is one of the factors responsible for the individual welfare[18,19]. This study has highlighted an important percentage of sexually active individuals (48.3%), with predominance in males. This result corroborates the findings of previous studies[18,20], which observed that men are more sexually active and have less sexual decline than women.

Cardiovascular diseases, psychological and psychiatric disorders are the main risk factors associated with sexual dysfunction. They, in turn, are the result of a combination of biological, psychological, social and cultural factors, which block the sexual response of the individual, related to desire, arousal and orgasm[21,22].

In this study, when the sexual function was assessed by FSQ and IIEF, we observed the prevalence of sexual dysfunction of 60.0% and 77.7% in women and men, respectively. These values are higher than those found for healthy individuals, according to the study by Lara et al.[23], who verified the prevalence of sexual dysfunction in 40 to 45% of women and 20 to 30% of men. This shows that CVA causes negative impact on an individual's sexual function, increasing the probability of sexual dysfunctions.

As for the sexual function in men, the results of this study showed significant values for the presence of erectile dysfunction. There was a higher number of men affected by ED, corroborating the study by Jung et al.[24], in which post-CVA patients showed reduction in erectile function compared with the control group, moreover, Jung et al. observed a reduction in frequency and desire of sexual intercourse.

Although most of the participants in the study reported not having partners (98.8%), most of them had regular partners (85.7%). A study conducted by Junior[25], with healthy individuals, showed that men and women who had active sex life were married or had a regular partner, which shows a different profile compared with the post-CVA patients. The profile verified was also different from the findings by Santana et al.[26], in which there was a predominance of married men and women.

Studies[21,26,27] show that changes after CVA may result in sexual dysfunctions, such as: hypoactive desire, sexual aversion, impotence, premature ejaculation, orgasmic disorder, pain, discomfort after ejaculation,

dyspareunia and vaginismus, corroborating, in part, the results of our research.

Several authors[28-30] investigated the correlation of sexual problems in post-CVA patients and described that they reported a decrease in sexual function and that a large portion of these individuals are afraid to have an active sex life after CVA, rather due to a limitation of the sexual function or due to physical and emotional problems.

As for self-reported health, all sexually active participants showed satisfaction with their health, corroborating the study results by Silva et al.[31], in which sexually active men showed satisfaction regarding their health and sex life.

Participants who were not having sexual relations attributed this fact to the loss of interest, absence of partner, fear to be refused by the spouses. This corroborates with studies[25,32] that emphasize depression, anxiety and fear as the most important factors for sexual dysfunction. Similarly, the inability to discuss sexuality with their partner seem to contribute to the decline in frequency and satisfaction in the sexual relationship, along with the indisposition of the individual affected by the CVA.

Regarding the quality of life, lower values were observed for patients who had no active sex life when compared with those who were sexually active. The physical domain showed the lowest significant value, suggesting that a better physical ability contributes to the individual's practice of sexual activity. For Monteiro et al.[9], CVA and its consequences lead patients to limitations and change the dynamics of their lives in a variety of situations, including in sexual dysfunction, leading to the decline in quality of life.

Jung et al.[24] assessed 96 individuals affected by CVA. They observed decrease in sexual function and satisfaction, as well as in the quality of life. Sexual function was singled out as an important component of the quality of life[7,33]. The reduction of physical capacity and changes in the positioning of the body and movements, during sex, can be responsible for decrease or loss of the sexual function[34]. In our study, patients who were sexually active obtained better scores on physical capacity ($p<0.035$)

Regarding the level of functional independence of patients, we observed that the ones sexually active achieved better scores in motor FIM ($p<0.005$), cognitive FIM ($p<0.006$), and total FIM ($p<0.003$). These results indicate a greater independence associated with the practice of sexual activity.

Different authors[30,32,35] stress that physical deficits, sensory, postural and occupational changes undermine motor activities, promoting sexual function changes. They also show that CVA changes the functional capacity and the permanence of sequelae after CVA, imposes limitations to patients, and can change the dynamics of these individuals' lives in a variety of situations, including third-party dependency, mobility, sexual activities, and daily life.

Fróes et al.[36] showed that individuals with lesions of CVA for longer periods were more independent and had better scores on quality of life regarding physical functioning. Some studies[37,38] also show that people with CVA may have their quality of life affected, even without significant limitations in terms of functionality.

The limitations of this study include the sample size, caused by difficulty of recruitment of patients and heterogeneity of the time of the lesion, making it impossible to establish relationships between the time of the CVA and its effects on the individuals' sexual life.

CONCLUSION

Although there is a decreased sexual desire, we observed that many post-CVA patients report sexual activity. The practice of sexual activity is associated with cognitive and motor functional independence as well as the individual's physical capacity.

Individuals who maintain sexual function have a more satisfying perception of health. This fact shows that the practice of sexual intercourse and its inherent factors (motivations, sexual desire and arousal) are possible practices in the life of post-CVA patients. Thus, based on the perspective of the completeness of the subject, the therapeutic plans should expand their goals, going beyond the control of force and muscle tone, or activities of daily living, incorporating the concern with the maintenance/restoring of the sexual function.

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