DOI: 10.1590/1809-2950/20008528032021

Preference of exercises of individuals affected by stroke users of primary health care

Preferência de exercícios de indivíduos acometidos pelo acidente vascular cerebral usuários da atenção básica de saúde

Los ejercicios preferidos de las personas afectadas por accidentes cerebrovasculares usuarias de la atención primaria de salud

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ABSTRACT | Individuals affected by stroke tend to maintain a sedentary lifestyle with insufficient level of physical activity, generating functional limitations, restricted participation, and difficulty in engaging in exercise programs. Understanding the exercise preference of this population is important to understand contextual factors and the adequacy of programs aimed at promoting health and functionality. This is a cross-sectional study with a convenience sample, whose objectives were: to identify the exercise preference of individuals in the chronic phase of stroke users of the Brazilian Unified Health System in Belo Horizonte/MG/Brazil and to investigate the association with degree of motor impairment, gait speed, level of physical activity, and quality of life. Exercise preference was assessed using the e Exercise Preference Questionnaire$_{(stroke)}$-Brazil. In total, 24 individuals (59±15 years old) who reported a preference for exercises performed in controlled environments and offered in groups were evaluated. Favorite exercises were walking and muscle strength training. There was no correlation between exercise preference and the investigated variables. Identifying the exercise preference of this population can contribute to better health care provided by public services, in addition to increasing these individuals' adherence to health and functionality promotion programs.

Keywords | Stroke; Exercise; Patient Preference; Unified Health System.

RESUMO | Indivíduos acometidos pelo acidente vascular cerebral (AVC) tendem a manter um padrão sedentário de vida com nível de atividade física insuficiente, gerando limitações funcionais, restrição na participação e dificuldade de envolvimento em programas de exercícios. Compreender a preferência de exercícios desta população é importante para o entendimento dos fatores contextuais e a adequação de programas voltados à promoção de saúde e funcionalidade. Trata-se de um estudo transversal com amostra de conveniência, cujos objetivos foram identificar a preferência de exercícios de indivíduos na fase crônica do AVC usuários do Sistema Único de Saúde em Belo Horizonte, (MG), Brasil, e investigar a associação com o grau de comprometimento motor, velocidade de marcha, nível de atividade física e qualidade de vida. A preferência de exercícios foi avaliada pelo Questionário de Preferência de Exercícios $_{(AVC)}$-Brasil. Foram entrevistados 24 indivíduos (59±15 anos) que reportaram preferência por exercícios realizados em ambientes controlados e ofertados em grupo. Os exercícios favoritos foram a caminhada e o treino de força muscular. Não houve correlação entre a preferência de exercícios e as variáveis investigadas. Identificar a preferência de exercícios desta população pode contribuir para uma melhor assistência à saúde fornecida pelos serviços públicos, além de aumentar a adesão desses indivíduos aos programas de promoção à saúde e funcionalidade.

Descritores | Acidente Vascular Cerebral; Exercício; Preferência do Paciente; Sistema Único de Saúde.

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RESUMEN | Los individuos afectados por accidente cerebrovascular (ACV) tienden a mantener un patrón de vida sedentario con niveles insuficientes de actividad física, lo que resulta en limitaciones funcionales, participación restringida y dificultad para realizar programas de ejercicio físico. Conocer la preferencia del tipo de ejercicios en esta población es importante para entender los factores contextuales y la adecuación de los programas destinados a promover la salud y la funcionalidad de estas personas. Este es un estudio transversal, con una muestra de conveniencia, y sus objetivos fueron: identificar la preferencia de tipo de ejercicio de los individuos en fase crónica de ACV usuarios del Sistema Único de Salud en Belo Horizonte (Minas Gerais, Brasil) e investigar la asociación con el grado de deterioro motor, velocidad de marcha, nivel de actividad física y calidad de vida. La preferencia del tipo de ejercicio fue evaluada por el Cuestionario de Preferencia de Ejercicios $_{(ACV)}$-Brasil. Se evaluaron a 24 individuos (59±15 años) quienes informaron preferir ejercicios realizados en ambientes controlados y en grupo. Los ejercicios favoritos fueron caminata y entrenamiento de fuerza muscular. No se encontró correlación entre la preferencia de ejercicios y las variables investigadas. El conocimiento de la preferencia de ejercicio de esta población puede ayudar a una mejor asistencia sanitaria de los servicios públicos, además de incrementar la adherencia de estas personas a los programas de promoción de la salud y la funcionalidad.

Palabras clave | Accidente Cerebrovascular; Ejercicio; Prioridad del Paciente; Sistema Único de Salud.

INTRODUCTION

Stroke is one of the main causes of long-term disability in Western countries, being a significant theme in health care programs and functionality recovery[1]. In Brazil, more than 2 million individuals are affected by stroke, with approximately 568,000 presenting severe limitations of functionality[2].

Studies have shown that post-stroke individuals maintain a sedentary standard of living or insufficient physical activity[3-5]. Despite recommendations of current clinical guidelines to reduce inactivity, these individuals show a difficulty in participating in physical exercise programs[6,7]. The practice of physical exercise, in a post-stroke situation, improves cardiorespiratory fitness, functional performance, and quality of life, in addition to controlling risk factors for the disease[1,8,9].

Different barriers to the participation of post-stroke individuals in physical exercise programs have already been described[10]. It is believed that factors related to the environment and the individual can also act as barriers to the practice of physical exercise[10,11]. Understanding post-stroke individuals' preference exercise is important to understand the contextual factors on which these individuals are inserted. Thus, exercise programs can be improved to attend the specific needs of this population[11]. Considering the Brazilian Unified Health System (SUS) – mainly primary health care, developing actions that prioritize risk groups, such as post-stroke individuals[12] – the knowledge about preferences and factors related to exercise practice can generate more satisfaction and increase adherence to programs developed to health and functionality promotion[12,13].

Therefore, this study aimed to know the preference of exercises of individuals in the chronic phase of stroke, users of the SUS; and to investigate whether there is an association between exercise preference and the degree of motor impairment, gait speed, level of physical activity, and quality of life of these individuals.

METHODOLOGY

This is a cross-sectional study, with a convenience sample, composed of individuals in the chronic phase of stroke, users of the SUS, recruited from two Basic Health Units (UBS) in the city of Belo Horizonte (MG), from July 2016 to July 2017. To participate in the study, individuals should present clinical diagnosis of stroke for more than six months; be aged ≥19 years; be resident in the area covered by the two chosen UBS; be able to walk independently[14], and be classified as inactive or insufficiently active in relation to physical exercise[15]. Individuals with cognitive impairment,[16] aphasia of comprehension, pain and/or other neurological diseases other than stroke were excluded. All participants agreed to voluntarily participate.

Clinical-demographic information (measures to characterize the sample); exercise preference[5] (primary outcome); degree of motor impairment[17], gait speed[18], level of physical activity[19], and quality of life[20] (secondary outcomes) were obtained by a single trained examiner.

The exercise preference was evaluated by the Exercise Preference Questionnaire $_{(STROKE)}$-Brazil (EPQ$_{(STROKE)}$

-Brazil), translated into and validated for the Brazilian population[5]. This questionnaire has 33 questions divided into three sections. The first section identifies the frequency and type of current physical exercise. The second section identifies the agreement of the participants in relation to seven factors: Factor-1 - Presence of instruction/planning; Factor-2 - Ability to perform the exercise; Factor-3 - Exercises with family/friends-flexibility of the program; Factor-4 - Exercises in gym/centers with people of the same age; Factor-5 - Exercises alone; Factor-6 - Exercises in gym/centers with people who had stroke and Factor-7 - Exercises as part of the routine (planned, instructed, light, at home, morning). The third section identifies individual preferences about the practice of exercises.[5,6] The questionnaire does not provide a final score, but performs a survey of contextual factors related to the practice of physical exercise.

The degree of motor impairment was evaluated by the Fugl-Meyer scale[21]. Only items related to motor function of upper limbs and lower limbs were applied, totaling 100 points[21]. The gait speed was evaluated by the 10-meter walking speed test[18]. The time to perform the test was considered for the estimation of gait speed (in m/s)[18, 22]. Standardized verbal command was used, with only one repetition after familiarization[22]. The level of physical activity was assessed by the Human Activity Profile questionnaire questionnaire (HAP)[19], applied as an interview and using the adjusted activity score (in points) to obtain the participants' level of physical activity. Quality of life was assessed by the Stroke Specific Quality of Life Scale (SSQOL)[20], which has a minimum score of 49 points and a maximum of 245. The questionnaire was applied in the form of an interview, considering the previous week[20].

Descriptive statistics were used for the analyses. The normality of quantitative variables was verified (Shapiro-Wilk test). Spearman's correlation coefficient was used to verify the association between the seven factors of the $EPQ_{(STROKE)}$-Brazil and the secondary variables of the study. The Statistical Package SPSS® for Windows (Version 17.0, SPSS Inc., Chicago, Illinois, USA) was used and an α=5% significance level was established.

RESULTS

In total, we evaluated 24 individuals affected by stroke, users of the SUS. Clinical-demographic characteristic of the individuals are presented in Table 1.

Table 1. Characteristics of participants (n=24)

Characteristic	Participant	
Age (years) mean±SD [min-max]	58.9±15.4	[21–81]
Post-stroke time (months) median±IQ [min-max]	35.5±64.0	[6–204]
Female - n (%)	12	(50.0)
Type of stroke - n (%)		
Ischemic	14	(58.3)
Hemorrhagic	7	(29.2)
Not registered/not know	3	(12.5)
Exercise Level - n (%)		
Insufficient	4	(16.7)
Inactive	20	(83.3)
Degree of motor impairment (points) median±IQ [min-max]	89.0±18.0	[0–98]
Gait speed (m/s) mean±SD [min-max]	0.9±0.4	[0.25–1.75]
Physical activity level (points) mean±SD [min-max]	63.0±11.3	[41–89]
Quality of life (points) mean±SD [min-max]	184.7±32.5	[135–240]

SD: standard deviation; IQ: interquartile range.

According to the first section of the $EPQ_{(STROKE)}$-Brazil, most participants reported not participating in any exercise program (n=22, 91.7%). The second section of the $EPQ_{(STROKE)}$-Brazil indicated a greater agreement of the participants to the factors: 2 – Ability to perform the exercise; 3 – Exercises with family/friends-flexibility of the program; 4 – Exercises in gym/centers with people of the same age; and 6 – Exercises in gym/centers with people who had stroke (Table 2).

Table 2. Answers to the second section of the Exercise Preference Questionnaire $_{(STROKE)}$ Brazil

Questionnaire Factor	Answer*
Factor-1	35.0±100.0
Factor-2	75.0±100.0
Factor-3	70.0±100.0
Factor-4	80.0±100.0
Factor-5	35.0±100.0
Factor-6	65.0±100.0
Factor-7	50.0±100.0

*responses in median±interquartile range

Regarding the third section of $EPQ_{(STROKE)}$- Brazil, it was noticed that individuals engaged in physical activities enjoyed welfare and disposition, refusing excessive fatigue and difficult exercises. Tiredness, pain,

and laziness are the factors that lead to interrupt physical exercise (Table 3).

The participants reported as favorite exercises walking (n=10; 41.6%) and muscle strength training (n=5; 20.8%), followed by ground gymnastics (n=4; 16.6%), water aerobics (n=2; 8.3%), stretching (n=1; 4.1%), and dancing (n=1, 4.1%). Only one individual (4.1%) reported disliking every exercise.

No significant correlations were found between the seven factors of $EPQ_{(SROKE)}$-Brazil and the variables investigated ($0.10 \leq p \leq 0.98$) (Table4).

Table 3. Answers to the third section of the Exercise Preference Questionnaire (stroke)-Brazil about what individuals like, dislike and limitations during exercises

	Indicated Answer	N (%)
Likes with exercise	1- Welfare	9 (37.5)
	2- Disposition	7 (29.1)
	3- Sleep Improvement	3 (12.5)
	4-Reduction of tiredness	2 (8.3)
	5- Improved Flexibility	1 (4.1)
Dislikes with exercise	1- Excessive tiredness	8 (33.3)
	2- Exercise difficulty	4 (16.6)
	3- None	4 (16.6)
Limitations during the exercise	1- Excessive tiredness	5 (20.8)
	2-Pain	5 (20.8)
	3- Laziness	3 (12.5)
	4- None	2 (8.3)
	5- Other things to do	2 (8.3)

Table 4. Correlation between the factors of the Exercise Preference Questionnaire $_{(STROKE)}$- Brazil and the degree of motor impairment, gait speed, level of physical activity and quality of life

Questionnaire Factors	Cognitive impairment		Gait Speed		Physical activity level		Quality of life	
	rs	*p*	*rs*	*p*	*rs*	*p*	*rs*	*p*
Factor-1	-0.14	0.52	0.19	0.36	-0.07	0.73	-0.05	0.81
Factor-2	-0.34	0.10	0.02	0.94	- 0.16	0.47	-0.11	0.62
Factor-3	0.03	0.91	0.14	0.52	0.16	0.45	0.11	0.62
Factor-4	-0.05	0.81	-0.02	0.91	0.05	0.80	-0.06	0.98
Factor-5	-0.14	0.52	0.19	0.36	-0.07	0.73	-0.05	0.81
Factor-6	-0.17	0.42	0.07	0.75	-0.07	0.75	-0.12	0.57
Factor-7	0.14	0.51	-0.21	0.34	-0.12	0.58	-0.02	0.92

rs: Spearman's correlation coefficient; *$p<0.05$

DISCUSSION

This study identified that most individuals in the chronic phase of stroke—users of primary care of the SUS in the city of Belo Horizonte (Minas Gerais) – were not involved in an organized exercise program. These individuals feel able to exercise, they prefer exercises in controlled environments (gyms/rehabilitation centers) and those offered in groups (with family/friends, other individuals of similar age and health condition). Individuals provided different answers about what they like, what they do not like, and the limitations they encounter when exercising. Walking and muscle strength training were indicated as the favorite exercises. No correlations were identified between the analyzed variables.

The preference for performing exercises in controlled and group environments has already been indicated in previous studies[4-6]. Disabilities acquired after stroke can be a reason for individuals to feel safer when performing exercises in professionally supervised environments and adapted to their needs. The performance of exercises in groups contributes to socialization and feeling of belonging, helping to combat social isolation, a significant post-stroke issue[23].

The participants' answers regarding what they like and what they do not like when practicing exercises

corroborates previous studies[4,6]. The results demonstrate the importance of identifying individual factors related to exercise, their limitations and facilitators; improving health education and promoting guidance on pain limits for the practice of physical activity and perception of tolerable tiredness, generating real benefits to this population.

The choice of walking and muscle strength training as preferred exercises by most participants corroborates a previous study conducted in Brazil[4]. The fact that walking is a cheap exercise, easy to perform and commonly recommended by health professionals may justify its choice. Furthermore, the limitation of mobility observed in individuals affected by stroke, causes gait exercises to be included in rehabilitation programs[8]. Caetano et al. indicated that the improvement in gait capacity is related to adherence of these individuals to the practice of physical exercises[24]. Therefore, the creation of walking groups can be an interesting strategy for greater adhesion of this population to physical exercise. As for strength training, muscle strengthening brings benefits such as improved mobility and independence[25]. Different resources can be used for overload (dumbbells, shin, square equipment, and body weight itself)[25], making the exercise low cost. Note that, such exercise must be prescribed, planned, and supervised by a trained professional.

Although previous studies indicate an association between the factors of $EPQ_{(STROKE)}$-Brazil and variables such as level of physical activity[6], gait speed[4], and quality of life[6], no correlation was found between them in our study. The differences in the results may be related to the characteristics of the sample. In this study, the sample was more homogeneous in relation to the level of physical activity and gait speed. In correlation studies, a greater sample variability is important in relation to the outcomes that may influence the variable of interest. The small sample size may also have interfered with the results of the correlations.

The sample of this study consisted of low-active individuals. Thus, the exercise preference of more active individuals may be different from that found here. Nevertheless, it is worth mentioning that individuals with similar characteristics to those in this study are the ones who need help to be inserted in physical exercise programs. Therefore, understanding their preferences can help to develop programs that improve their participation. Studies with broad samples with individuals' characteristics distinct from those included in this study are necessary to better understand the exercise preference of post-stroke individuals, users of the SUS.

CONCLUSION

Individuals in the chronic phase of stroke, users of the SUS in the city of Belo Horizonte , indicated preference for exercises performed in controlled environments and offered in groups, with walking and muscle strength training as favorite exercises. Identifying the preference of exercises of this population can contribute to a better health care provided by public services, in addition to increasing the support of these individuals to programs for the prevention of health and disability problems and health promotion and functionality.

ACKNOWLEDGEMENTS

To the Coordination for the Improvement of Higher Education Personnel (CAPES 001), the National Council for Scientific and Technological Development (CNPq), the Minas Gerais Research Support Foundation (FAPEMIG) and the Research Pro-Rectory of the Federal University of Minas Gerais (UFMG).

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