

The Influence of Physical Activity on Quality Life in Patients With Stroke Sequel Performing Physical Therapy

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ABSTRACT

INTRODUCTION: Stroke is one of the most common neurological disorders and incapacitating during aging resulting in the decrease of quality life. Quality of life is the set of conditions that contribute to the physical and mental welfare of individuals in society, directly

related to physical activity that aims at a favorable effect on the maintenance of one or more components of physical fitness.

OBJECTIVE: To evaluate the influence of physical activity in quality of life in patients after stroke who perform physical therapy.

METHOD: The study was conducted with 11 individuals with stroke sequels, which were divided into two groups: the first group was composed of 4 individuals who practiced regular physical activity (AFR group). To compose the second group, 7 subjects who do not practice regular physical activity (AFN group). They were applied to the individual SF-36 and WHOQOL-Brefcom order to show whether there are significant differences in the fields related to quality of life between the two groups.

RESULTS: There was a higher scorer for the item pain in AFN group. The domain that showed higher averages in active people in general was the domain named general health (66.5). AFN in the domain group that has lower average compared to other aspects is the so-called physical (39.3).

CONCLUSION: Regular physical activity brings beneficial physiological effects the quality of life, although this study was not able to evaluate statistically significant differences in the analyzed domains.

Key words: Stroke; Physical activity; Quality of life

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INTRODUCTION

The stroke (stroke) is the leading cause of disability among adults. According to the Brazilian Society of Cardiology, the AVE is one of the most common neurological changes during aging, and can be understood as a neurological disability, temporary or permanent, secondary to vascular damage in some region of the brain. Are cited

as post-stroke events: motor deficits, disability, language disorders, dysphagia (difficulty swallowing), depression, social misfit and life quality worsening.^[1-3]

The term quality of life was coined in 1920 by Redou in his book *The Economics of Welfare*, and after World War II, with the resizing of the concept of health by the World Health Organization (WHO), was included in the physical well-being, mental and social^[4].

Although there is no consensus on the concept of QL, three main aspects are considered: subjectivity, multidimensionality and the presence of positive and negative dimensions^[5].

The adequate quality of life is related to the increase in physical activity practice and related to ADLs - activities of daily living such as personal tasks related to self-care, or also to other relevant skills to daily life like aerobic activity (walking and cycling) and water activities.

The literature points epidemiological evidence about the positive effect of adopting an active lifestyle or engaging in systematic physical activity programs in preventing and minimizing the deleterious effects of aging^[6]. Indicating that exercise has favorable effect on the reduction / prevention of increase in blood pressure (BP), body weight, and blood clotting.

Brazil has little data on the prevalence of physical activity and its relationship with QOL among older people, especially women^[7].

Caspersen, Powell and Christensen defined physical activity as any bodily movement produced by skeletal muscles that results in energy expenditure greater than resting levels, for example, such as walking, dancing, gardening, climbing stairs, among other activities. These authors conceptualized physical exercise as all physical activity planned, structured and repetitive that aims to improve and maintain one or more components of physical fitness^[8].

Prescription of continuous exercise is characterized by activities of at least 30 minutes three days a week, at an intensity of 50 to 70% of maximum heart rate. Intermittent exercise is characterized by changes in its intensity during the course of training, ranging from 50 to 85% of maximum heart rate^[9].

In this circumstance, we aimed to verify if physical activity, influences the quality of life of the individuals with stroke sequels performing physical therapy treatment.

METHODS

For this study were evaluated 11 individuals with stroke who underwent physical therapy, which were divided into two groups: the first group consisted of 4 subjects who practiced regular physical activity (AFR group). To compose the second group, 7 subjects who did not practice regular physical activity (AFN group). The study participants have an average age of 58 ± 54.25 years, 4 men, 7 women. The sample characterization follows in Table 1.

Showing in Table 2 the scores achieved by each subject in the MMSE test (Mini Mental State Examination) showing the ability to respond to other questionnaires.

For the study was obtained ethical permission given by the ethics committee of the Association for Assistance to Disabled Children (AACD) - Opinion Number: 1259635 - also with all participants of the research subjects were told and informed about the objectives of this study voluntarily signing the Informed Consent and Informed.

The study included: (1) Post-stroke patients; (2) Who had ambulation conditions with or without running auxiliary device; (3) Aged between 30 and 60 years; (4) Who performed physical therapy and who performed conventional therapy associated with daily physical activity; (5) It was considered as exclusion criteria, patients

had MMSE below 23 points.

The physical activity program consisted of continuous exercise and / or intermittent being performed at least three times a week, with duration of 30 minutes minimum. The activities with the individuals take into account the following aspects: (1) activities that could be carried out in accordance with the pace and functional capacity of each participant; (2) could be held in group or individually by the participants after the end of the study; (3) activities that could provide motivation, joy and pleasure^[10].

The instruments used for data collection was the “Medical Outcomes Study 36-Item Short-Form Health Survey” (SF-36) questionnaire consists of 36 items assessing 08 dimensions distributed as follows: ten (10) items related to functional capacity, 04 (four) items related to physical aspects; 02 (two) items related to pain; 05 (five) items related to general health, 04 (four) items related to vitality; 02 (two) items with regard to social aspects; 03 (three) items on emotional aspects and five (05) items related to mental health. Considering that the questions should be asked in a clear and objective manner without double interpretation. the application of SF-36 is intended to show whether there is difference significant between the two groups defined in relation to life quality^[11].

The questionnaire life quality Assessment (WHOQOL - Abbreviated 1998, also known as WHOQOL- Brefconsta 26 questions, two general questions and the remaining 24 represent each of the 24 facets that make up the original instrument Thus, unlike WHOQOL- 100em that each of the 24 facets is evaluated from 4 questions, the WHOQOL-bREF is evaluated by only one question. the data that led to the abridged version were extracted from 20 centers field test in 18 countries diferentes^[12].

The criteria for selection of issues was both psychometric and conceptual. At the conceptual level, defined by the WHO life quality Group of the comprehensive character of the instrument should be preserved. Thus, each of the 24 facets that make up the original instrument (WHOQOL-100) should be represented by a question. In the psychometric level was then selected the question more highly to correlate with the total score, calculated by the average of all facets. After this step, the selected items were examined by a panel of experts to establish conceptually represented each domain where came facets. Of the 24 selected items, six were replaced by questions that best define the corresponding facet. Three items of the Environment domain were replaced because they are very correlated with the psychological domain. The three other items were

Table 1 Sample Characterization.

Sample Characterization	Group AFR (n = 4)		Group AFN (n = 7)	
	No. (%)	Average	No. (%)	Average
Men	1 (25)	-	3 (42.85)	-
Women	3 (75)	-	4 (57.14)	-
Age - from	-	58.75	-	53.57
Injury righth	2 (50)	-	3 (42.86)	-
Injury left	2 (50)	-	4 (57.14)	-
Hemorrhagic	1 (25)	-	2 (28.57)	-
Ischemic	3 (75)	-	5 (71.42)	-

AFR: stroke group that performs regular physical activity; AFN: stroke group that does not perform regular physical activity.

Table 2 Scores achieved by each subject in the MMSE test.

Mini Mental State Examination (MEEM)											
Patient	1	2	3	4	5	6	7	8	9	10	11
TOTAL	24	25	30	30	45	30	31	26	30	24	30

replaced by better explaining the facet in questão^[12]. A confirmatory factor analysis was performed for a solution to four domains. So the WHOQOL-Bref consists of 4 areas: Physical, Psychological, Social Affairs and Middle- ambiente^[12].

The individuals were also subjected to a test that evaluates cognitive health of individuals who participated in the survey. The Mini-examination consists of several questions grouped into seven categories, each of which has the objective to assess specific cognitive functions such as: time orientation (5 points), guidance for location (5 points), three-word record (3 points), attention and calculation (5 points), recall the three recorded words (3 points), language (8 points) and 11 visual constructive capacity (1 point). The Mini-exam score can range from 0 to 30 points. The MMSE (Mini-Mental State Examination) is widely used by professionals, although not replace a full assessment and is very sensitive to detect subtle changes in cognition^[12,13].

Finally, they were submitted to answer the IPAQ Questionnaire - Short Version, in order to get physical activity measures that were internationally comparable. Validated in 12 countries and 14 research centers - to this end, the International Physical Activity Questionnaire (IPAQ International Physical Activity Questionnaire) was proposed. The IPAQ is a questionnaire that allows to estimate the weekly time spent on physical activities of moderate and vigorous in different everyday contexts, such as: work, transportation, housework and leisure, and even the time spent in passive activities, held in position sitting. The short version of IPAQ consists of seven open questions and allow your information to estimate the time spent per week in different dimensions of physical activity (walking and physical efforts of moderate and high intensity) and physical inactivity (sitting)^[14-19].

Data analysis

They were considered as dependent variables to score each item of the SF-36 and WHOQOL-BREF questionnaire. As the data met the

assumptions of normality, the dependent variables were subjected to one-way ANOVA, for intergroup analysis. The significance level was set at $p < 0.05$. The software used for analysis was SPSS 20.0. It was also the IPAQ results classifying each subject as active or inactive according to the interpretation of the questionnaire.

RESULTS

The variance analysis showed only marginal differences for the item PAIN [F (1, 10) = 4.9; $p = 0.054$], the other items were no statistically significant differences between groups in the SF-36 questionnaire as there was not in any of the items in the WHOQOL BREF. Tables 3 and 4 show the score for each subject for all items in both questionnaires.

DISCUSSION

Evidence supports a positive association between physical activity and life quality, but this relationship is not yet fully established. The magnitude of this association is divergent in populations, and the results seem to be different when comparing the instruments measure physical activity and quality of life, as well as designs^[20].

A recent review examined the association between AF with the perception of apparently healthy adult LQ and despite the positive association, the authors stressed the importance of using the results in individuals of other age groups, health conditions and more specific measuring instruments^[13-20].

According to Shephard and Bouchard cited Furtadore regular physical activity not only has a direct influence on the overall health, but also influences the appearance of feeling healthy. The same authors further argue that regular aerobic physical activity may interfere beneficially in reaction time, to control cholesterol levels, blood pressure, reduction of fractures caused by osteoporosis, among others. Pescatello & DI Pietro^[21] complement this claim, stating that

Table 3 Description of the score of each subject (mean and standard deviation) in both groups on all items of the SF-36 questionnaire. Smaller items presented for highest scoring average for each group.

Group AFR						Group AFN								
Individual	1	2	3	4	Mean(SD)	Individual	5	6	7	8	9	10	11	Mean(SD)
Pain	20	52	41	0	28,2(23)	Physical aspects	0	75	0	100	0	0	100	39,3(49,7)
Physical aspects	50	100	0	0	37,5(47,9)	Functional capacity	65	60	60	60	20	20	75	51,4(22,1)
Social Aspects	25	50	37,5	62,5	43,8(15,9)	Emotional aspects	0	100	0	100	0	100	100	57,1(53,4)
Functional Capacity	55	80	35	15	46,3(27,8)	Pain	84	100	74	20	51	51	61	63(26,1)
Emotional aspects	0	100	33,3	66,6	50(43,1)	Mental health	56	100	44	96	20	84	64	66,3(29,1)
Mental health	56	60	76	40	58(14,8)	Vitality	85	80	75	75	20	75	80	70(22,4)
Vitality	75	55	55	55	60(10)	General health	52	92	82	72	47	62	92	71,3(18,4)
General Health	82	62	72	50	66,5(13,7)	Social Aspects	87,5	100	62,5	100	12,5	62,5	100	75(32,5)
Total	363	559	349,8	289,1	390,2(117)	Total	429,5	707	397,5	623	170,5	454,5	672	493,4(188,9)

AFR: stroke group that performs regular physical activity; AFN: stroke group that does not perform regular physical activity; SD: standard deviation.

Table 4 Description of the score of each individual (mean and standard deviation) in both groups on all items of the WHOQOL BREF. smaller items presented for highest scoring average for each group.

Group AFR						Group AFN								
Individual	1	2	3	4	Mean(SD)	Individual	5	6	7	8	9	10	11	Mean(SD)
Social relations	3.66	2.33	4	2.66	3,1 (1,0)	Social relations	3.42	3.14	3.42	4.28	3.14	3.85	3	3,3(0,5)
Physical	3.71	3.28	3.28	2.85	3,2 (0,5)	Psychological	3.25	2.87	3.25	4.37	3.5	4	3.25	3,4(0,5)
Local environment	3.12	3.5	3.62	2.87	3,2 (0,6)	Local environment	4	3.33	2.33	3	2.66	5	4	3,4(1,0)
Psychological	4.16	4	4	2.66	3,7 (0,5)	Physical	4	3	2.83	4.66	3.33	4.83	3.83	3,9(0,9)
Total	14.65	13.11	14.9	11.04	13,4 (1,9)	Total	14.67	12.34	11.83	16.31	12.63	17.68	14.08	14,3(2,2)

AFR: stroke group that performs regular physical activity; AFN:stroke group that does not perform regular physical activity; SD: standard deviation.

many of the chronic diseases or physiological changes can be the result of physical inactivity.

The questionnaires as decisively assessment of domains related to LQ, shows important advantages such as low cost and speed in getting the data, but are subjective methods and therefore more room for error when compared to more direct measures.

This study showed a marginal difference identified for the item pain [$F(1, 10) = 4.9; p = 0.054$] showing higher scores in the NFA group. result similar to findings in other studies.

There is a common physiological basis to the heaviest physical training that can influence the pain, as discussed below^[22].

The association between physical exercise and reduction in pain symptoms can be explained at least partly by the fact that muscle contractions activate muscle tension receptors, whose afferents trigger the release of endogenous opioids which stimulate the release of endorphins by the gland pituitary^[1]. Thus, it is believed that the increased endorphin levels to the final training would reduce both the central and peripheral pain. Another theory about the role of physical training on the relief of painful manifestations, according to Waling *et al.*^[23], is associated with the fact that strength training and / or resistance would function in stimulating the growth of blood capillaries, which would optimize the supply of oxygen, removing allogetic metabolic waste and promote better nutrition of muscle tissue.

Although this study did not point to a significant variation between the domains, to compare them in AFR group, the domain that showed highest average was the so-called general state of health (66.5) as shown in Table 3. This result can be explained by a study that points out the benefits of exercise in patients with psychological disorders, acting as interpersonal catalysts, stimulating overcoming small challenges, allegedly results in a series of physiological and biochemical changes involved in the release of neurotransmitters and activation specific receptors, helping to reduce scores indicative of depression and anxiety, as some of these neurotransmitters contribute to the onset or reducing these disorders^[24].

In this study the NFA group shows that the domain that has lower average compared to other aspects is the so-called physical (39.3) as shown in table 3.

Numerous studies show that the practice of daily physical activity promotes a gain in the American Sports Medicine College of calls muscular fitness, which is meant the set of capabilities such as muscle strength, muscular endurance and flexibility^[25].

Improving these skills naturally decreases the physical limitations because, with these gains the individual becomes better able to perform their daily tasks. In contrast individuals not physically active will certainly not benefit from these improvements.

In the psychological aspect of the AFR group had higher average (3.7) in the WHOQOL-BREF questionnaire compared to the NFA group. Complementing this data, the lowest average in the NFA group was given the appearance social relations (3.3) as shown in table 4.

These data corroborate literature describing that regular physical activity is more than simply a means to move, representing also the opportunity to make and consolidate friendly relations. For individuals with stroke sequels this regular physical activity demonstrates a new possibility of establishing relations with the outside world, outside of hospitals, rehabilitation clinics and even the family environment, contributing in this way to expand your social relationships^[22].

In the study Coast, A.M., Duarte^[22], expressions of impatience, intolerance and even an expression of seriousness, after four weeks

of physical training, gave way to smile, companionship, comradeship and mutual assistance in group activities proposed.

It is suggested that further studies be conducted to evaluate the influence of physical activity in LQ in sedentary individuals. Being relevant to consider in this study, the group called AFN is composed of individuals who do not practice regular physical activity beyond conventional physical therapy rehabilitation which in turn is considered to exercise. Thus these subjects may not be considered physically inactive or sedentary subjects. Explanations for the data are not significant they may be related to limiting factors such as the small number of participants involved in the research and also the difference in the number of participants in each group.

CONCLUSION

There was no difference in the quality of life in stroke patients who practiced physical activity.

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