





ORIGINAL ARTICLE

Physical activity, quality of life and functional performance in the activities of daily life of elderly

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Keywords

Abstract

Elderly; Physiotherapy; Everyday Activities; Quality of Life; Physical Exercises.

The main objective of this study is to evaluate the level of physical activity, quality of life and functional performance in the daily activities of the elderly who participate in a physiotherapy group. The method used for the research was a cross-sectional case series study in 32 elderly people, where the participants were submitted to a data collection form and then to the application of questionnaires, through the following instruments: IPAQ for the evaluation of the level of physical activity of the elderly, Katz and Lawton-Brody Index for the identification of independence in basic and instrumental activities of daily living and Brazilian Version of the Quality of Life Questionnaire - SF-36. The results of the research revealed that the mean age of the individuals studied was 72.81 ± 8.66 years, with the majority of women. Regarding the level of physical activity, 20 participants were classified as active, 12 as moderately active and none of the participants were categorized as sedentary. Regarding the degree of dependence on basic daily life activities, 81.3% of the elderly were categorized as independent and the others as partially dependent. As for instrumental activities of daily living, all were classified as independent. The worst performance in the Limitations by Physical Aspects and the best scores in the Mental Health domain were observed in the evaluation of the quality of life. Significant differences between the analyzed variables could not be established.

When comparing the data obtained with other findings, the results of the research revealed that physical activity exerts a positive influence on functional performance in activities of daily living and quality of life of the elderly.

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INTRODUCTION

Population aging is a natural phenomenon, irreversible and worldwide repercussions, which has been occurring in an accelerated way in Brazil^{1,2}. As reported by data obtained in the IBGE³ demographic census, in the city of Vitória, Espírito Santo, the elderly represented 12.4% of the total population in 2010.

The aging process is progressive and dynamic that generates morphological, physiological, biochemical and psychological changes, resulting in the progressive loss of the individual's ability to adapt to the environment⁴.

Besides anatomical and physiological alterations characteristic of normal aging, it is conceivable to associate with a pathological condition, in which chronic non-transmissible diseases prevails, leading to a greater decline in the capacity to perform the basic activities of daily living, changes in the autonomy, independence and quality of life of the individual^{5,6}.

Physical activity is essential for the maintenance of health aging. Its benefits are extensive and include reduced risk of cardiovascular disease, thromboembolic stroke, hypertension, type II diabetes mellitus, osteoporosis, obesity, colon cancer, breast cancer, anxiety and depression⁷.

Recommendations on the type and amount of physical activity are indispensable for health promotion and disease prevention in the elderly are present in several literatures^{8,9}. Chou, Hwang and Wu¹⁰ observed that there is evidence that regular physical activity minimizes the physiological changes associated with aging, promotes cognitive health, and complements the treatment of chronic diseases in the elderly, although such practice cannot stop the process of aging. In addition, it slows down the deterioration in the ability to perform activities of daily living and promotes the maintenance of a good quality of life.

Therefore, the main objective of the study was to evaluate the level of physical activity, quality of life and functional performance in the activities of daily living of elderly people participating in a physiotherapy group in a clinic school in Vitória.

METHODS

A cross-sectional case series study was carried out at EMESCAM from July 2015 to May 2016, at a Clinical School of Physiotherapy of the College of Sciences of Santa Casa de Misericórdia de Vitória (EMESCAM). Convenience sample of 38 elderly people. A Data Collection form for obtaining personal data related to the sample was initially applied. The study included patients of both sexes, aged 60 years or older, according to what the World Health Organization recommends in developing countries, with independent ambulation, who agreed to sign the ICF and who attended the group Of physiotherapy for more than 6 months. Elderly patients with severe neurological and musculoskeletal disorders, or with cognitive deficits that compromised the understanding of the interview, were excluded. Of the participants, two did not agree to sign the EHIC, three participated in the group for less than 6 months and one individual had a neurological sequel and were excluded from the study.

Only the individuals who met the inclusion criteria were submitted to scales using the following instruments: IPAQ (International Physical Activity Questionnaire), version 8, long form, Katz Index, Lawton-Brody Index and SF-36 (Medical Outcomes Study 36-Item Short-Form Health Survey). The interviews were individual and there was previous training for the application of the instruments.

The International Physical Activity Questionnaire (IPAQ), which verified the level of physical activity (AF) of the elderly, also allows estimating the weekly time and the energy expenditure in physical activities of light, moderate and vigorous intensity in different contexts of daily life, such as: Work, transportation, domestic tasks and leisure, and also determines the time spent in passive activities performed in the sitting position.

The version 8, long form, usual week¹¹⁻¹³ was applied and, after the interview, the scores and the classification of the elderly were calculated according to the IPAQ Guidelines for Processing and Data Analysis¹⁹, expressing the Results in MET-minutes / week.

Participants who performed vigorous activity for at least three days were categorized as active, accumulating at least 1500 MET-min / wk or when the sum of all activities reached a minimum of 3000 METmin / wk for at least seven days. Those whose combination of activities reached five or more days, spent at least 600 METmin / wk, when they practiced five or more days of moderate and / or light intensity activity for 30 minutes a day or when they performed three or more Days of vigorous intensity activity at least 20 minutes per day were considered to be moderately active. On the other hand, the elderly who did not practice any type of physical activity, or who did not fulfill the classification criteria of the other categories, were classified as sedentary.

The Katz Index¹⁴⁻¹⁶, which consists of an instrument containing 6 basic tasks of daily living: bathing, clothing, personal hygiene, transfers, continence and feeding, was used to identify independence in basic daily life activities. Each task receives the independent score (1 point) or dependent score (0). The maximum score of 6 points indicates independence for basic activities of daily living, 4 and 5 points show partial dependence or moderate deficit and 2 points or less reveal significant dependence or marked deficit.

The Lawton-Brody Index¹⁷ allowed the observation of performance in instrumental activities of daily living. The instrument comprises 9 tasks such as telephone use, shopping, meal preparation, household chores, transportation use, medication management, and money. The items are classified according to the need for help, the quality of the execution and the initiative, varying from 1 to 3, in which 1 represents the need for total help to carry out the activity, 2 that the elderly need some help and 3 total independence function. If the elderly present a final score between 19 and 27, it is classified as independent between 10 and 18 semi-dependent points and 1 to 9 points is categorized as dependent.

SF-36¹⁸ was used to observe the quality of life of the elderly. It is a generic instrument of easy administration and comprehension, divided into 8 domains: functional capacity, physical aspects, pain, general health, vitality, social aspects, emotional aspects and mental health. It presents a final score, for each dimension, ranging from 0 to 100, with 0 being the worst and 100 being the best state of health. Although there is no global score proposed, the domains can be grouped into two components: physical, which encompasses the domains functional capacity, physical aspects, pain and overall health; And mental, which encompasses the domains vitality, social aspects, emotional aspects and mental health.

The descriptive analysis of the data collected was carried out taking into account the frequencies and the percentage for the qualitative variables and data summary measures as mean, median and standard deviation for the quantitative variables. In order to verify the association between functional performance and physical activity levels, we chose to use the chi-square test or Fisher's exact test when one or more expected frequencies were less than 5. And for the comparison between the Domains of quality of life with physical activity levels, the Mann-Whitney test was used. The values were considered statistically significant when p < 0.05. The program used was "SPSS version 22". The research was approved by the Ethics Committee (CEP) of the College of Sciences of the Santa Casa de Misericórdia de Vitória (EMESCAM), under the number of opinion 1,162,062 on July 28, 2015.

RESULTS

The sample consisted of 32 elderly people, who were participants in the physiotherapy group of the EMESCAM school clinic, where 28 were female (87.5%) and 4 were male (12.5%), with a mean age of 72,8 \pm 8,7 years.

The analyzed individuals were characterized by color, schooling, income, marital status and occupational status, as shown in Table 1. Besides, they were questioned about the number of children and an average of 3.03 ± 2.40 children, Ranging from 0 to 8, with 75% having up to 3 children. Table 1 – Distribution of the elderly in relation to color, education, income, marital status, occupational situation and presence of morbidities

Color	n	%
Brown	15	46,9
White	9	28,1
Black	8	25,0
Education		
No schooling	3	9,4
Elementary School incomplete	16	50,0
Elementary School complete	2	6,3
High School incomplete	8	25,0
High School complete	3	9,4
Income		
None	2	6,3
Up to 1 SM	13	40,6
⊳1 a 2 SM	10	31,3
>2 a 3 SM	5	15,6
> 3 a 4 SM	1	3,1
> 4 SM	1	3,1
Marital Status		
Married	12	37,5
Single	9	28,1
Widower	8	25,0
Divorced	3	9,4
Ocupacional Situation		
Retired	17	53,1
Pensioner / Other benefits	8	25,0
Housewife	4	12,5
Retired and working	2	6,3
Paid work	1	3,1
Morbidities		
Systemic Arterial Hypertension	21	65,6
Hypercolesterolemia	8	25
Diabetes Mellitus	4	12,5
Cardiopathy	4	12,5
Arthrosis	4	12,5
Hypo/Hyperthyroidism	3	9,4
Osteoporosis	2	6,3
Withou morbidity	1	3,1
SM = minimum wage		

Concerning the presence of morbidities, Systemic Arterial Hypertension had the highest prevalence (65.6%). Of the study participants, 19 (59.4%) reported on only one morbidity, 5 elderly (15.6%) had two and seven individuals (21.9%) mentioned three or more morbidities and just one elderly (3.1%) did not address associated disease.

With respect to the number of drugs used, the mean was 3.29 ± 2.21 drugs, of which 18 (56.3%) used up to three drugs, 8 (25%) used between four and five and 5 15.6%) used more than five medicines. An elderly person did not know to inform about the amount of medicines used.

The members participated in the group for a time greater than six months. Those who attended the group for more than 12 months represented 81.3%. Regarding the weekly participation frequency, 8 elderly people (25%) participated in the activities twice a week, 15 (46.9%) three times a week, representing the majority and 9 (28.1), four times weekly.

Three categories were delineated according to the International Physical Activity Questionnaire, of which 20 participants were classified as active, representing 62.5% and 12 as moderately active, representing 37.5% of the sample. No participant was categorized as sedentary. The mean total physical activity was 3276.69 ± 1099.32 MET's. Household tasks followed by recreation, transportation and work were the main contributors to total physical activity as shown in table 2. In consonance with the intensity of total physical activity, the average energy expenditure was 780.72 \pm 477, 46 MET's in mild activities and 2495.98 \pm 969.82 MET's for moderate activities. None of the participants performed any vigorous activity in the various fields of IPAO.

Table 2. Equivalent total metabolic in the IPAQ domains

	Minimum	Maximum	Average	DP
Work	0	6102	486,94	1468,12
Transportation	0	1188	505,12	280,32
Home	180	7680	2527,56	1802,34
Recreation	400	1817	894,38	326,97

DP = standard deviation

With respect to the degree of dependence on the basic activities of daily living, 26 elderly (81.3%) were classified as independent in all tasks and the others as partially dependent. The continence activity was the one that presented the lowest proportion of independence, for 6 elderly (18.7%) reported not having complete control of urinating and / or evacuating functions. According the instrumental activities of daily living, all the elderly were classified as independent. This way, the mean score was 25 ± 2.1 points, ranging from 19 to 27 points.

The results of the data obtained by the SF-36 instrument, described in table 3, revealed the worst performance in the field of Limitations by Physical Aspects and the best scores in the Mental Health domain.

	Minimum	Maximum	Average	Median	DP
Physical Component					
Functional Capacity	15	100	81,9	90,0	19,4
Limitation by Physical Aspects	0	100	73,3	87,5	35,6
Ache	21	100	75,9	84,0	25,9
General Health Status	25	97	77	84,5	18,4
Mental Component					
Vitality	45	100	82	90,0	15,3
Social Aspects	25	100	81,6	100,0	26,2
Emotional Aspects	0	100	80,2	100,0	35,8
Mental Health	16	100	84,3	92,0	19,2
DP = standard deviation	·				

Table 3. Scoring in the domains of SF-36

The chi-square test was used to determine the association between different levels of physical activity and functional performance in basic activities of daily living. The result showed no association between the variables (p> 0.05). It was not possible to establish an association between physical activity levels and functional performance in instrumental activities of daily living, since all the elderly

were categorized as independent. The Mann-Whitney test was used to compare scores on the physical component (Graph 1) and mental (Graph 2), among the physical activity levels of the elderly. The result pointed out that there is no significant difference in the quality of life between the moderately active and active categories (p > 0.05) in the physical and mental components.





Domain SF-36





Domain SF-36

DISCUSSION

The practice of regular physical activity is a crucial resource for the increment of physical function, taking in account that it influences the maintenance of quality of life and performance in activities of daily living in older individuals¹⁹. In this study, the majority of the elderly who practiced exercise were female - data similar to the findings of researchers in other studies^{10,20}. The largest participation in the elderly group was of women, probably due to their high demand for health services.

Age is considered one of the determinants of risk for the development of chronic and debilitating diseases²¹. Thus, Cavalcanti et al.²², when verifying the prevalence of such disorders in a group of elderly in Paraíba, verified the predominance of Systemic Arterial Hypertension in the individuals analyzed. Rocha et al.²³ observed, in the state of Bahia, the prevalence of Arterial Hypertension, followed by Hypercholesterolemia, Diabetes Mellitus and Cardiopathy. Data from the two studies were in agreement with the findings of this study.

The importance of physical activity in promoting healthy aging is notorious. It is known that when performed on a regular basis, it plays an important role in the health of the population, especially in the health of the elderly²⁴. Golubic et al.²⁵ states that physical activity can be performed in different contexts of everyday life, in addition to domestic tasks, transportation, work and leisure.

Toscano and Oliveira²⁶ argued that domestic activities, followed by leisure and locomotion, contributed the most to increasing energy demand. It has been

assumed that these results occurred due to the predominance of women in the research. Considering that the sample studied is mostly retired, it was not surprising that physical activities at work were the ones that contributed least to total physical activity.

A weakness in the ability to perform activities of daily living occurs because of the changes resulting from the aging process and the common pathologies in this age group ⁵. Nevertheless, the results of the research revealed that all the elderly were independent in the instrumental tasks of daily life and also revealed that only the bladder and bowel functions had low scores.

By contrast, Smanioto and Haddad²⁷, when they verified the functional performance in 204 institutionalized elderly, noticed that only 33.3% of the individuals were independent to perform basic activities of daily living. Taking into account that the participants in the present study had an adequate level of physical activity, it can be assumed that elderly people who practice physical activity are less dependent on their daily lives.

This study findings show high averages in all domains of quality of life, ranging from 73.3 to 84.3. Nonetheless, it was not possible to establish a significant difference between the elderly classified as active and moderately active, when comparing the results with the level of physical activity of the participants.

Toscano and Oliveira²⁶ concluded, however, that more active women presented superior results in the quality of life questionnaire in all domains evaluated. These findings were revealed in a cross-sectional populationbased study conducted with the objective of comparing quality of life with the level of physical activity in a sample of 238 women aged at least 60 years.

Silva et al.²⁸ verified similar levels of physical activity among the sedentary elderly and those who performed regular physical

activity. This happens because sedentary individuals, although not performing regular physical activity, perform other types of activities such as household chores and work. Nevertheless, these elderly had a reduced quality of life compared to the nonsedentary group, ensuring the importance of physical activity practice in the quality of life of this population.

Gomes and Paiva²⁹, in a cross - sectional study carried out in the metropolitan region of Vitória - ES, aiming at comparing the quality of life of 70 functionally independent elderly people living in long - term institutions and 210 non - institutionalized elderly people, verified that the institutionalized elderly present worse quality of life in all domains evaluated, compared to the noninstitutionalized group.

CONCLUSION

Physical activity is considered an essential intervention in promoting and maintaining the health of the elderly, for it produces benefits in the various systems of the organism and it aids in the treatment of many diseases.

The study showed that elderly participants of a physiotherapy group at a clinic in Vitória exhibit good levels of physical activity and satisfactory performance in daily life activities and, therefore, present high scores in the domains of quality of life. Although it is not feasible to establish significant differences between the analyzed variables, it can be assumed, thanks to the comparison of the data obtained with other studies, that physical activity exerts a positive influence on the functional performance in activities of daily living and the quality of life of the elderly. Even so, it is still necessary to carry out new research involving sedentary, institutionalized or restricted elderly people in the home, in order to compare with the data of this study.

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