



RESEARCH ARTICLE

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## PHYSICAL ACTIVITY PRACTICE AND FUNCTIONAL CAPACITY IN ELDERLY

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### ABSTRACT

This aging process causes reduction of muscle size and strength what promote muscle weakening and impact in the lower-limb occasioning functional consequences as maintenance of personal independence and compromised ability to realize daily tasks. The objective of the present study is to identify the physical activity practice and functional capacity in elderly resident in the city of Vitoria da Conquista, Bahia, Brazil. This is a transversal, quantitative and descriptive study. It was selected 80 older from both gender with range of age of 60 to 90 years. To assessed the physical activity level, it was used the International Physical Activity Questionnaire (IPAQ) short form and to evaluate the functional capacity, the Lawton Instrumental Activities of Daily Living Scale. From the sample, 80% was female, 50% married, 50% of social class E and 90% didn't work. When considered the physical activity level, 85% was considered active and about the functional capacity, 60% were dependent. All the independent subjects were active. There was a significant correlation between physical activity level and functional capacity. The data found shows that physical activity level assists the maintenance of functional capacity leading to independence and autonomy of the elderly.

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## INTRODUCTION

The association between the progressive decline in mortality rates and the increase in the fertility indexes promoted an alteration in the demographic basis leading to an increase of aging population (FARIAS-ANTUNEZ *et al*, 2018). The Brazilian Institute of Geography and Statistics census shows that 10.8% of the population is considered elderly and estimates that in 2025, it will be 14% (RODRIGUES *et al*, 2017). This aging process causes alterations in the locomotor system, as reduction of muscle size and strength what promote muscle weakening and impact in the lower-limb occasioning functional consequences as compromised ability to realize daily tasks (BENAVENT-CABALLER *et al*, 2016). Independence can be considered the ability of realize instrumental activities of daily living that interact with the

environment and its loss lead to the need for support of family, caregivers and health care services affecting the quality of life and the limitation in the performance of these activities has been considered a strong predictor for mortality and hospital admission (OPPEWAL *et al*, 2015). The Lawton Instrumental Activities of Daily Living Scale has been considered a reliable way to assess the functional capacity to performance the instrumental activities through the evaluation of eight tasks and can be answered by interview in ten to fifteen minutes by the elderly or his caregiver (KADAR *et al*, 2018). Physical activity is an important health behavior and prevent many age-related problems being associated with successful aging (NAWROCKA *et al*, 2019). Loss of muscle and bone mass causes changes in the musculoskeletal and neuromotor function what predispose the older to a functional decline increasing the risk of disability what can be avoid with the physical activity because of the benefits on neuromuscular

adaptations that leads to positive increment in functional capacity (TOMAS *et al.*, 2018). Sedentary lifestyle is commonly prevalent in older people and attention is needed to the participation of older in physical activity due to the beneficial effects that its promote in functional ability reducing the risk of limitations what helps to maintain independence and self-reliance, two important items to quality of life (THRALLS; LEVY, 2018; NAWROCKA, MYNARSKI, 2017). Due to the deleterious effect of sedentarism and physical inactivity in the health and their association with non communicable diseases, both are considered an important public health challenge (TAJIMA *et al.*, 2018). Thus the objective of the present study is to identify the physical activity practice and funcional capacity in elderly resident in the city of Vitoria da Conquista, Bahia, Brazil aiming to assist in the elaboration of strategies and interventions that can increase this practice due its benefits to the older health as the mainnatace of independence and autonomy.

## MATERIAL AND METHODS

This is a transversal, quantitative and descriptive study realized in Vitoria da Conquista, Bahia, Brazil, (latitude de 14° 51' 58", longitude de -40° 50' 22") que, according the Statistic and Geography Brazilian Institute (2010), with nearly 320.129 population. This study is part of a larger project "Epidemiological Profile of obesity in the city from Vitoria da Conquista - Bahia". It was selected 80 older adults of both gender, with range of age from 60 to 90 years to participate from this study answering the questionnaires. It was included the older that responded the Mini Mental Exam to ensure the good cognitive capacity and good physical mobility. Older bedridden, inmates, with low or no mobility, small cognitive capacity, or with noncommunicable disease as Parkinson and Alzheimer were excluded. The International Physical Activity Questionnaire was used to assess the physical activity practice in the short form that was developed to facilitate the monitoring of physical activity in global pattern basis, widely utilized in epidemiological researches for be easily applicable and low cost, validated in 12 countries, including Brazil with reliability largely accepted. The short-form of IPAQ has seven questions to identify the physical activity practice and the classification used was in "active" or "no active" (DAVID *et al.*, 2018). The Lawton Instrumental Activities of Daily Living scale was used to assess the functional capacity of subjects. It was applied for trained people objecting to reduce the evaluation vies. This scale has been widely used in research and assess eight areas of function: ability to use telephone, shopping, cooking, housekeeping, laundry, transportation, responsibility for own medication and ability to control the finances. It can be answered in 10 to 15 minutes for direct interview with the older or the caregivers (KADAR *et al.*, 2018). There is three options of answers "independent", "partial need of help" and "incapacity to realize the task". The score ranges from 1 to 3 for each item being the independence the higher. When the subject is completely independent, the score is 21 (DAVID *et al.*, 2019).

The data was treated and analyzed in Excel program and posted in the statistic program SPSS® 25.0 to access the association between the studied variables and the Pearson Qui-square test was used. The statistical analysis was performed considering the significance level of  $p < 0,05$ . The participants was advised about the methods that were used in the research and all of the assined the informed consent form attending the

Resolution 466/12 that regulate the human being research. The present study was approved by the Ethic Committee of Independent Northeast College with number 1.859.545.

## RESULTS AND DISCUSSION

The sample was composed by 80 elderly from both gender, 80% was female, 50% married and 50% from E social class. The majority of older referred not work, 45% had no education and those who had schooling, the majority (50%) studied in public school.

**Table 1. Sample Characterization**

		Absolut Frequency	Relative Frequency
Gender	Female	64	80,0
	Male	16	20,0
Marital Status	Single	8	10,0
	Married	40	50,0
	Divorced	12	15,0
Social Class	Widower	20	25,0
	C	4	5,0
	D	36	45,0
Work	E	40	50,0
	Yes	8	10,0
	No	72	90,0
Education	Incomplete Elementary	28	35,0
	Complete Elementary	4	5,0
	Complete High School	12	15,0
	None	36	45,0
Teaching Type	Public	40	50,0
	Private	4	5,0
IPAQ	None	36	45,0
	Active	68	85,0
	No Active	12	15,0
Lawton Scale	Independent	32	40,0
	Dependent	48	60,0

The majority of sample (60%) was classified as dependent in Lawton Scale, similar value to the 65,9% demonstrated by Tavares *et al.* (2016) in 1.691 seniors of Uberaba, Minas Gerais, Brazil, higher than found by Nunes *et al.* (2017) of 34,2% in 1.593 elderly from Bage, Rio Grande do Sul, Brazil and lower than showed by Queiroz *et al.* (2016) of 82,5% in a sample with 60 seniors with predominance of female from Jequié, Bahia, Brazil. This high number of dependent older can be explained by the mean age once the age is an important risk factor for the decrease of functional ability in older adults because of the deterioration related with advanced age that occur in the various physiological systems involved in the ability to do tasks (TAVARES *et al.*, 2016).

**Table 2. Pearson Qui-square test for association between physical activity and functional capacity**

		Physical Activity (IPAQ)		
		Active	No Active	p-value
Gender	Female	56	8	-
	Male	12	4	
	Total	68	12	
Lawton Scale	Independent	32	0	0,001
	Dependent	36	12	
	Total	68	12	

Functional ability decrease with age and is more evident in females (TOMAS *et al.*, 2018). Besides that, there is a decline in motor performance with advanced age, which involves weakness, slowness, power loss, and increase in fatigue of muscles of lower-extremity what reduce the strength and

compromise the functional performance leading to disability (HUNTER; PEREIRA; KEENAN, 2016).

## REFERENCES

- Benavent-Caballer, V. *et al.* Physical factors underlying the Timed “Up and Go” test in older adults, *Geriatric Nursing*, 1-6, 2015
- David, I. R. *et al.* Identifying cardiovascular risk in adults and elderly using the framingham risk score. *International Journal of Current Research*, v. 10, n. 10, p. 2016–2019, 2018.
- DAVID, R. *et al.* Research update article - center for extension, research and study on chronic diseases (NEPEdc). *International Journal of Development Research*, v. 09, n. 03, p. 26515–26526, 2019.
- DEVI, J. The scales of functional assessment of Activities of Daily Living in geriatrics, *Age and Ageing*, 47(4):500-502, 2018
- FARIÁS- ANTUNES, S; LIMA, N.P; BIERHALS, I.O; GOMES, A.P; VIEIRA, L.S; TOMASI, E. Disability related to basic and instrumental activities of daily living: a population-based study with elderly in Pelotas, Rio Grande do Sul, 2014, *Epidemiol. Serv. Saude*, 27(2):1-14, 2018
- KADAR, M; IBRAHIM, S; RAZAOB, N.A; CHAI, S.C; HARUN, D. Validity and reability of a Malay version of the Lawton instrumental activities of daily living scale among the Malay speaking elderly in Malaysia, *Australian Occupational Therapy*, 1-6, 2018
- NAWROCKA, A; MYNARSKI, W. Objective Assessment of Adherence to Global Recommendations on Physical Activity for Health in Relation to Spirometric Values in Nonsmoker Women Aged 60–75 Years. *J. Aging Phys. Act.* 2017, 25, 123–127
- NAWROCKA, A; POLECHONSKI, J; GARBACIAK, W; MYNARSKI, W. Functional fitness and quality of life among women over 60 years of age depending on their level of objectively measured physical activity, *International Journal of Environmental Research and Public Health*, 16(972):1-9, 2019
- NUNES, J.D. *et al.* Indicadores de incapacidade funcional e fatores associados em idosos: estudo de base populacional em Bagé, Rio Grande do Sul, *Epidemiol. Serv. Saude*, 26(2):295-304, 2017
- OLIVEIRA, D.V. *et al.* Practice of physical activity by elderly frequenters of basic health units, *Geriatr Gerontol*, 11(3):116-123, 2017
- OPPEWAL, A; HILGENKAMP, T.I.M; WIJCK, R; SCHOUFOUR, J.D; EVENHUIS, H.M. Physical fitness is predictive for a decline in the ability to perform instrumental activities of daily living in older adults with intellectual disabilities: results of the HA-ID study, *Research in Developmental Disabilities*, 41(42):76-85, 2015
- Physical Activity Research, 1(1):9-14, 2016
- QUEIROZ, D.B; ARAÚJO, C.M; OLIVEIRA, L.C; NOVAIS, M.M; ANDRADE, L.A; REIS, L.A. Funcionalidade, aptidão motora e condições de saúde em idosos longevos residentes em domicílio, *Arq. Cienc. Saúde*, 23(2):47-53, 2016
- RIBEIRO, R.M. *et al.* Barreiras no engajamento de idosos em serviços públicos de promoção de atividade física, *Ciencia e Saude Coletiva*, 20(3):739-749, 2015
- RODRIGUES, M. M. P. *et al.* Time Up and Go risk predictor of falls in elderly people residing in the community? *International Archives of Medicine*, 10(146):1-6
- SHAHEEN, M; PURI, S; TANDON, N. Physical activity measurement in elderly: the Indian scenario, *Journal of STATISTIC AND GEOGRAPHY BRAZILIAN INSTITUTE*, Censo 2010, available in <https://cidades.ibge.gov.br/> accessed in December, 2<sup>nd</sup>, 2019 at 19:30 p.m.
- TAJIMA, T. *et al.* Awareness of physical activity promotion, physical activity and sedentary behavior in elderly Japanese, *J Phys Fitness Sports Med*, 7(2):113-119, 2019
- TAVARES, D.M.S; PELIZARO, P.B; PEGORARI, M.S; PAIVA, M.M; MARCHIORI, G.F. Functional disability and associated factors in urban elderly: a population-based study, *Rev Bras Cineantropom Desempenho Hum*, 18(5):499-508, 2016
- THRALLS, K.J; LEVY, S.S. The Association Between Self-Reported Adherence to Physical Activity Recommendations and Criteria for Maintaining Physical Independence of Older Adults. *J. Aging Phys. Act.* 2018, 26, 171–176
- TOMÁS, M.T; GALÁN-MERCANT, A; CARNERO, E.A; FERNANDES, B. Functional capacity and levels of physical activity in aging: a 3-year follow-up, *Frontiers in Medicine*, 4(244):1-8, 2018