

Influence of Personal History, Diagnosis and Health Body Strength in Fragility of Elderly

ORIGINAL

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Abstract

Objective: Verify the existence of the influence of personal history, diagnosis and health body strength in fragility of elderly.

Method: cross-sectional study with quantitative approach. Participated in 21 elderly practitioners of physical activity in the city of João Pessoa/Paraíba, Brazil. A demographic tool, scale of fragility of Lawton and Brody and Indody 720, being the data processed by the software Statistical Package for the Social Sciences 19.0, which allowed the preparation of statistical analyses with the models and techniques employed for the construction and validation of the score.

Results: The elderly have an average of 6.92 ± 65.9 years of age, and 95.2% (20) female, 57.1% (12) married. As for factors evaluated: diabetes, hypertension, tachycardia, dizziness, headache, use of medication and blurred vision, no causes significant changes in the classification of the fragility of the patient. Not realize significant changes with the Mann-Whitney tests of hypotheses or the Fisher exact, the classification of Lawton did not influence the classification of the State of the patient as to the diagnosis of health and muscle strength.

Conclusion: The fragility in the elderly in the study is not influenced by muscular strength and the diagnosis of health detected by Indody 720.

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Keywords

Fragility; Health; Elderly.

Introduction

Aging is a natural process, dynamic, progressive, slow and gradual, its effects depend on the ability of replacement and compensation of the person and the requirements of the environment. Involves genetic factors, biological, environmental, psychological, social and cultural rights [1].

Data from the Brazilian Institute of geography and statistics (IBGE) point out that the Brazilian's life expectancy at birth has become of 75.2 years in 2014 [2].

Given this population aging, growing concern with the quality of life of this age group. Yes, if there is an increase in longevity, is ideal to happen as healthy as possible, taking into account the physiological changes that happen in senile phase.

The health of the elderly is defined as the ability to manage own life or take care of yourself, being considered healthy that able to work alone, independently and autonomously, even if they have diseases, because the concept of health, established by the World Health Organization is the complete biopsychosocial-spiritual-cultural well-being and not merely the absence of disease [3].

There are factors that can influence the level of dependency and fragility in the elderly, as the personal history of previous diseases (hypertension, diabetes, coronary syndrome), falls, depressive symptoms, limitations in instrumental activities of daily living, reduction of self-efficacy, hospitalization and older age [4].

With the energy decline process brittleness includes the drop rate and metabolic strength decline, loss of muscle mass and energy expenditure of mobility, what are signs and symptoms of the syndrome or with the presence of disease, immobility, depression and medications that can initiate or accelerate the cycle [5].

Intrinsically factors linked to fragility, as low level of physical activity, fatigue, gait speed and decreased muscle strength, can be predictors of functional incapacity [6]. It should be noted that the decline in

muscle strength represents an increased risk of falls, hospitalization, dependency, institutions, worsening of quality of life and mortality [7].

It must be considered that the weakness is not only synonymous with old age, but a factor that, when treated early, can ensure autonomy and independence to the elderly, disabilities and avoiding disadvantages that may be associates or even being caused by fragility that the elderly might be showing [8].

In this sense, the syndrome of fragility in the elderly (SFI), represents an important public health problem, since it does not cause the death of the elderly, due to a rapid process of acute illness, results in the reduction of autonomy and independence. This fact can generate greater demand of health services at different levels of attention, raising the costs of health systems with treatment and rehabilitation, as well as contributing to the decline in the quality of life of these individuals [9].

The concept of physical fragility is intrinsic to quality of life, since this is "medical syndrome with multiple causes and contributions, which is characterized by decrease of strength, endurance and decreased physiological function, which makes the individual vulnerability, greater dependency and/or death" [10].

The identification of the factors that influence the fragility of the elderly can trigger measures aimed at improving the quality of life of older people and prevent adverse events, justifying the conduct of this study. To this end, it is necessary that health professionals can, also in outpatient level in your clinical practice, identifying such factors, in order to intervene before the manifestation of fragility, as well as thinking about strategies that can minimize the effects on health of the elderly, when the weakness is present, demonstrating the relevance of this investigation.

Thus wonders: the personal history, diagnosis, health body strength influence in the development of the fragility of the elderly?

Therefore, the objective of this study is to verify the existence of the influence of personal history, diagnosis and health body strength in fragility.

Methods

This is a cross-sectional study of a quantitative approach. Participated in the study 21 elderly practitioners of physical activity na modalidade hidroginástica, correspondendo a 100% da população de praticantes do local de coleta de dados. The data were collected from May to June the year 2015, in the city of João Pessoa/Paraíba, Brazil. Como critérios de inclusão, os idosos deveriam realizar atividade física na modalidade hidroginástica no mínimo três meses antes do dia da coleta de dados e não possuir estrutura metálica no corpo que impede a medida através do equipamento bioimpedância octopolar InBody 720. Vale ressaltar que foram considerados nesse estudo idosos conforme o Estatuto do Idoso regulamentado pela Lei 10.741/2003, aqueles com idade superior a sessenta anos, justificando o critério de inclusão [11]. For data collection a demographic tool, scale of fragility of Lawton and Brody and Indody 720.

Lawton and Brody have developed this instrument in 1969, to assess the level of independence of elderly person with regard to the implementation of the activities (AIVD) comprising eight tasks using phone, shopping, food preparation, housework, laundry, use of transport, prepare medication and manage the money, by assigning a score according to the ability of the subject evaluated to perform these activities [12].

The scale of Lawton, in relation to dependence is classified in total, severe, moderate, mild and independent. For women the score of 0-1 means full dependence; 2-3 severe dependence; 4-5 moderate dependence; 6-7 and 8 independent dependencies. In the case of men, it is classified in the same way, however, the score 0 is equivalent to dependence; 1 severe dependence; 2-3 moderate dependence;

4 and 5 independent dependencies. For men shall disregard meals, housekeeping and laundry.

The assessment of body composition in appliance *InBody 720* (Biospace, Korea) must be performed in compliance with the procedures in the respective manual. Prior evaluation through bioimpedance, is important to compliance with the following conditions of pre-test, 1:() be fasting, (2) don't consume alcohol 48 before the test, (3) don't perform moderate to high intensity exercise in the 12 hours before evaluating, (4) does not make the examination before the presence of a febrile State or dehydration; (5) do not use metallic jewelry or dental implants with metal; (6) do not ingest coffee and; (7) conduct the evaluation with a bathing suit or undergarments. Heyward (2002) shows that the fulfilment of the pre-test assumptions above presented allows for a greater control of the variations in the values of hydration, allowing greater accuracy in the values obtained [13].

For correct assessment of body composition in order to obtain reliable data, followed all the rules of use of bioimpedance tetrapolar as referred to in the manual of use of *Biospace InBody 720* (2005) [13].

The data observed in this research were transposed to a spreadsheet in Excel and then converted to a file compatible with the statistical package *Statistical Package for the Social Sciences* (SPSS) 19.0 which allowed the preparation of statistical analyses with the models and techniques employed for the construction and validation of the scoring. We performed descriptive statistics, it means, standard deviation of the mean. The Mann-Whitney test and Fisher exact were applied to evaluate the factors associated with frailty. It was considered significant $p < 0.05$. Also took the cluster analysis to distinguish the fragility and the association with diagnosis of health, edema, lifestyle and body strength.

The study was approved by the ethics and Research Committee of the Centro Universitário de João Pessoa – UNIPÊ, CAEE/ZIP CODE: 38840214.7.0000.5176. all participants were asked

to sign the informed consent (TFCC) in accordance with resolution 466/2012 National Health Council that governs the survey among human beings.

Results

The information regarding socio-demographic data are given in **Table 1**.

Table 2 shows the association between the factors listed in the study (diabetes, hypertension, tachycardia, dizziness, headache, use of medication and blurred vision) and the fragility in the elderly.

You can see in **Table 2** that none of the evaluated factors causes changes in the classification of signifiers fragility of the patient, according to Lawton's range.

Table 3 explains the fragility, health diagnosis and body strength.

It can be observed in **Table 3** that none of the evaluated factors causes changes in the classification of signifiers fragility of the patient according to the scale Lawton.

Table 1. Information on sex, educational level, marital status and age. João Pessoa/PB, 2016. N = 21.

Variable	n	%
Sex		
Female	20	95.2
Male	1	4.8
Schooling		
Illiterate	1	4.8
Elementary School	2	9.5
High school	10	47.6
Higher Education	8	38.1
Marital status		
Married	12	57.1
Single	3	14.3
A widower	5	23.8
Divorced	1	4.8
Age (Mean ± SD)	65.9 ± 6.92	
SD: standard deviation.		

Not realize significant changes with the Mann-Whitney tests of hypotheses or the Fisher exact, but can assess the influence of health and muscle strength using a cluster analysis to distinguish patients in terms of these diagnoses. Figures 1a and 1b represent dendrograms (tree diagrams) which

Table 2. Comparison of ranking factors by testing Lawton of Mann-Whitney. João Pessoa/PB, 2016. N = 21.

Factor	Situation	Average	DP	P-value
Diabetes	This	1.00	0.00	0.998
	Absent	1.10	0.91	
Hypertension	This	1.29	1.11	0.585
	Absent	1.00	1.78	
Tachycardia	This	1.50	0.71	0.467
	Absent	1.05	0.91	
Dizziness	This	1.00	0.82	0.913
	Absent	1.14	0.95	
Headache	This	1.40	0.55	0.257
	Absent	1.00	0.97	
Use of medicine	This	1.14	1.07	0.971
	Absent	1.07	0.83	
Blurred vision	This	1.67	1.15	0.356
	Absent	1.00	1.84	

Table 3. Comparison of classification by factor by the Lawton Fisher exact test. João Pessoa/PB, 2016. N = 21.

Factor	Situation	Freq.	%	P-value
Health and edema	0	13	38.1	0.927
	1	8	61.9	
	1	5	23.8	
Health and lifestyle	2	10	47.6	0.678
	3	5	23.8	
	4	1	4.8	
Upper body strength	0	21	100.0	-
	1	0	0.0	
Lower body strength	0	6	28.6	0.191
	1	15	71.4	
Body muscular strength	0	4	19.0	0.458
	1	17	81.0	

considered the classification of Lawton and health Diagnosis (Edema and lifestyle) which is presented in **Figure 1a** and **1b** presents the dendrogram considering classifying Lawton and muscular body strength. Applied the method of hierarchical grouping of the

link with average Euclidean distance between objects (patients).

It can be observed in **Figure 1a** the Group $G_1 = \{8, 16, 7, 9, 12, 15\}$ and Figure 1b the Group $G_2 = \{8, 16, 7, 9, 12\}$. It is observed that the two groups are equal except for the presence of the patient 15. Therefore, the classification of Lawton is not influencing the State's classification of the patient as to the diagnosis of health and muscle strength. This result can be better reviewed in a larger sample size.

Figure 1a: Dendrogram for patients considering classification Lawton and diagnosis of swelling health and lifestyle. João Pessoa/PB, 2016. N = 21.

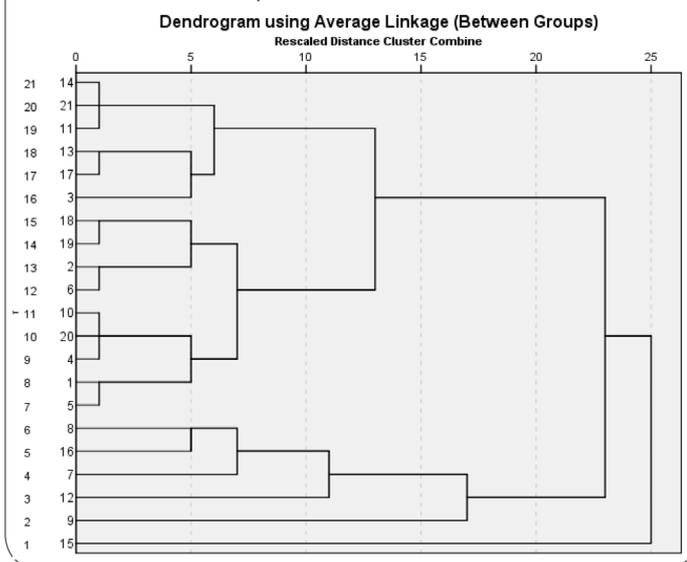
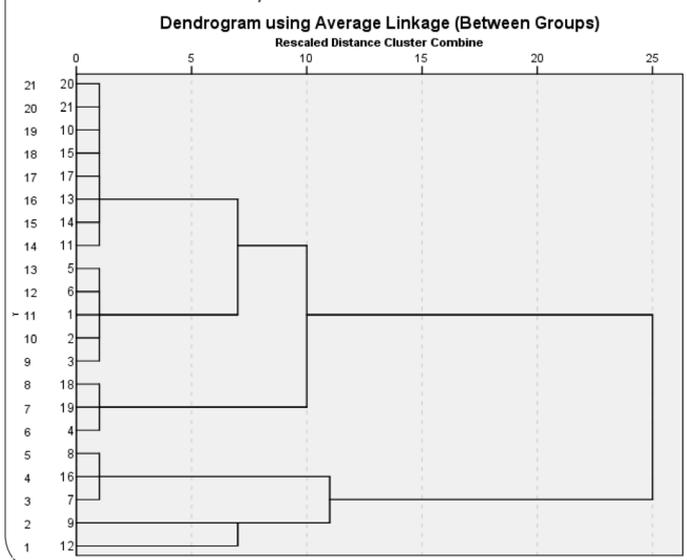


Figure 1b: Dendrogram for patients considering classification Lawton and diagnosis of swelling health and lifestyle. João Pessoa/PB, 2016. N = 21.



Discussion

The results found in this study showed that the variables did not influence the fragility of the elderly. These data are positive with regard to age with health, and may be related to the fact that the subject practice physical activity.

Studies have shown the benefits to the practice of physical activity provides the health of the elderly person, showing to be an important factor in preventing diseases, besides contributing in improving the quality of life, and promote the elderly independence [14].

Population study on fragility, performed with the elderly of 65 years or more, identified that the elderly sedentary or that had a low calorie expenditure showed differentiation between fatigue, grip strength and gait speed disadvantaged when compared to active seniors and young people [15].

In another investigation, identified that sedentary elderly people, has a greater chance of developing weakness when compared to elderly practitioners of physical activities [16].

In this context, the physical exercise contributes a lot to the protection of the individual, and the fragile fragility one of the most important conditions for the practice of physical activity [17].

The science concludes that the practice of physical activity and disease control must be the focus of strategies to prevent and/or delay the frailty syndrome [18].

Because aging is characterized by a continuous process that raises inevitable and irreversible physiological changes that lead to functional changes, and that in the elderly becomes a limitation, reducing the functional capacity [19].

Besides the fragility and chronic diseases are on the trajectory of modulators health of an individual, suggesting that the understanding of the presence or absence of these conditions may favor the physiological reserves in the old age [20].

Considering the above, it is necessary the monitoring of elderly to detect possible changes in the physical and functional capacity, in order to adopt early prevention strategies to avoid further damage to health, thus contributing to the much-needed monitoring with the increase in the elderly population in the world.

As for the use of such medicines used by the elderly, study [21]. carried out in the year 2014, in the urban area of the city of Uberaba, Brazil has shown that factors such as the use of medication, especially those who make use of five or more medicines may cause a dependency in the elderly bringing pre-frailty conditions or fragility, however the current study revealed no influence of this factor, and can be seen in table 2, such an outcome might be associated with the low use of medicines because the minority of elderly of the present study showed previous diseases.

Conclusion

The results of this study showed that there was no influence of personal history, diagnosis and health body strength in fragility. These data are important in relation to the healthy ageing of the older population, suggesting that these positive results can be related to the practice of physical activity, factor that influences considerably on condition of fragility prevention during senescence.

The importance of these data for the implementation of strategies aimed at the prevention of frailty

in the elderly population, such as the physical activity exerts influence as the abovementioned condition.

The data presented in deal, even though they represent just the tip of the iceberg can arouse the interest of health policies to invest in actions aimed at the prevention of fragility, in order to improve the quality of life and promote healthy ageing. In addition to instigate other researchers to conduct major research on the theme exposed.

Overlapped, the study had limitations with regard to the size of the sample, taking into account the number of elderly people practicing physical activities from the study. In this sense, it is suggested that studies with larger samples are carried out.

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