CHAPTER 94

Comparison between osteomuscular symptoms in active and sedentary elderly

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ABSTRACT
With aging, diseases related to the musculoskeletal system tend to appear more frequently: arthritis, osteoarthritis, sarcopenia that result from changes in Activities of Daily Living (ADLs), complications in locomotion to death due to falls. According to DATASUS, hospitalizations and deaths in the elderly aged 60 years and over, in the period from January / 2008 - February / 2016, due to external causes of morbidity and mortality totaled 5,290, burdening public health costs and directly affecting the quality of life of individuals.

1 INTRODUCTION

With aging, diseases related to the musculoskeletal system tend to appear more frequently: arthritis, osteoarthritis, sarcopenia that result from changes in Activities of Daily Living (ADLs), complications in locomotion to death due to falls. According to DATASUS, hospitalizations and deaths in the elderly aged 60 years and over, in the period from January / 2008 - February / 2016, due to external causes of morbidity and mortality totaled 5,290, burdening public health costs and directly affecting the quality of life of individuals.

The elderly emerges from the moment when the organism enters the aging process, which is when physiological, morphological, and biochemical changes appear, also considering psychological changes when the human being adapts to new life situations (SANTOS, 2010).

Conceptualizing the elderly, we can have different points of view considering the location of where they are, whether in developed or developing countries. Thus, the United Nations (UN) conceptualizes the elderly, in Brazil, as being those who are 60 years old or more.

Quantifying in numbers, according to the Brazilian Institute of Geography and Statistics (IBGE, 2008) and considering the concept of elderly people by the UN, 11.3% of the Brazilian population is elderly, a number that according to statistics has tended to grow since 1999 to date the number has grown by more than 2%. Also, according to IBGE, the number of elderly women who have mobility problems (ability to walk 100 meters) is higher than that of elderly people, 15.9% against 10.9%, in compensation the life expectancy of elderly women is higher, 77 years against 69 of the elderly, which makes elderly women more susceptible to inability to move.

The practice of physical exercises can interfere with secondary aging factors, leading to healthy aging, with the advancement of technologies in the health area and the awareness of “good aging”, the elderly

population has been growing in the country, see data cited in the topic above, along with life expectancy, which leads to the need to be physically more active, to have greater independence in ADLs, and other daily activities, such as shopping, taking a walk, going to a doctor, among others (NEGRÃO; BARRETTO, 2010).

According to Moreira and Borges (2009), the regular practice of physical activities and the maintenance or acquisition of a good level of autonomy for the performance of activities of daily living, have an important relationship. They conclude that an active lifestyle can delay the impacts generated by the aging process. Keeping the elderly more independent in their daily activities

Recommendations for levels of physical activity according to the World Health Organization (WHO) for this public are 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity, which can also be a combination of moderate and vigorous activities.

Of the most prevalent musculoskeletal pathologies in the elderly:

a) Musculoskeletal degenerative

According to Da Silva (2008), The concept of degenerative osteoarticular disease presupposes an abnormality in the hyaline cartilage, which determines symptoms of variable intensity and impaired function. The clinical picture is called arthrosis, osteoarthritis or, as it is currently preferred, osteoarthritis (OA). Still according to the author above, the main clinical manifestations are pain, joint stiffness and muscle edema. As for the place of manifestation, it differs between the sexes: among men it is more common in the hip region, in women it presents more frequently on hands, knees and feet.

b) Metabolic and musculoskeletal

Coelho (2009) reports that this pathological alteration affects the connective, muscular and bone tissues, generating several manifestations in the osteoarticular system. Among the cases of pain, the causes may not be exclusively due to wear and tear on the tissues that make up these joints and muscles, these can be triggered by systemic diseases (diseases that affect more than one organ or tissue) that manifest with osteoarticular symptoms. Among the metabolic ones that is most associated with the elderly is Diabetes Mellitus, considering the number of elderly people who have the disease.

c) Rheumatic musculoskeletal

Cecil (2011) points out that even though rheumatological diseases have quite different origins, the causes pointed out are frequent immunological disorders leading to local and systemic inflammation. According to Biasoli& Machado (2006), in rheumatological diseases, most complications occur in the joints, the primary joint injuries caused by rheumatism or secondary dysfunctions resulting from an abnormal effort in other structures can cause joint deformities, tendonitis, bursitis, etc. Among the most frequent pathologies, whether they are primary or secondary causes, are spinal dysfunction, osteoarthritis, osteoporosis, fibromyalgia, spondylitis syndromes, rheumatoid arthritis. In that regard

objective of the present study was to compare the prevalence of musculoskeletal symptoms between active and sedentary elderly women.

2 MATERIAL AND METHODS

2.1 STUDY SUBJECTS

The research was carried out with two groups of elderly women, one group composed of active women and the other composed of sedentary women. Both groups of elderly women are in the municipality of Feira de Santana - BA.

The selection criteria were:

a) Be elderly;

b) Female sex;

The option for the female sex was since most of the members of projects aimed at this age group are elderly. The age group used in the survey was 60 (sixty) years old or more, with reference to Law No. 10,741, of October 1, 2003, which in Article 1 establishes the Elderly Statute, aimed at regulating the rights of people aged equal to or greater than 60 (sixty) years.

Active elderly women

The active elderly women who took part in the research participated in a water aerobics group with a frequency of two weekly classes, with 60 minutes and should perform any other exercise of at least 30 minutes. In order to comply with the recommendations of the World Health Organization, which provides for 150 minutes of moderate aerobic activity.

Sedentary elderly women

We considered sedentary elderly women who did not comply with the minimum amount of weekly exercise recommended by WHO, which is 150 minutes / week of moderate aerobic exercise or 75 minutes / week of vigorous exercise. These were in an asylum, in which the observed activities were linked to ADLs or recreational activities such as sewing and reading.

Study location

The research was carried out in the municipality of Feira de Santana, Bahia. The questionnaire was applied to a group of elderly women participating in a community water aerobics project (Active Group) and elderly women in an asylum (Sedentary Group) in the city.

Data collect

A Nordic Musculoskeletal Questionnaire (QNSO) questionnaire was applied, a questionnaire that indicates where the individual felt pain or some type of discomfort (tingling, numbness).

Data analysis

Statistical analysis.

Data analysis was performed using descriptive statistics (mean ± SD), the level of significance was $p < 0.05$ and the statistical package was Stata 10.0.

Ethical aspects

This project complied with Resolution 466/12 of the National Health Council. These data were collected after each volunteer signed a free and informed consent form and approval by the Ethics and Research Committee of the Brazilian College of Systemic Studies (CBES), protocol number 640. CAAE: 0249.0.402.000-09.

3 RESULTS

After data collection in the field, 19 eligible individuals were interviewed according to the inclusion criteria of the research. In the physically active group (n = 9) and in the sedentary group (n = 10).

Table 1 -Prevalence of pain, numbness, musculoskeletal tingling

Anatomical Region	Musculoskeletal Symptoms							
	Sedentary Group				Active Group			
	Last 12 months		Last 7 days		Last 12 months		Last 7 days	
	N	%	N	%	N	%	N	%
Neck	2	20	1	10	1	11	0	0
Shoulders	3	30	2	20	2	22	0	0
Upper back	5	50	3	30	4	44	3	33
Elbow	2	20	1	10	3	33	2	22
Fists/Hands	3	30	2	20	4	44	0	0
Lower back	4	40	2	20	2	22	1	11
Hip/Thighs	3	30	0	0	2	22	2	22
Knees	9	90	4	40	2	22	1	11
Ankles/Foot	0	0	0	0	1	11	0	0

Source: Own elaboration.

In table number 1, we can observe, among sedentary elderly women, that there is a significant number of elderly women who answered yes to pain, numbness or tingling in the last 12 months, with almost all of them showing some kind of discomfort in the knee, in contrast to elbows and neck were the ones that showed less signs of pain prevalence. The only anatomical region that when asked, there was no sign of musculoskeletal symptoms, was the ankle.

Among active elderly women, data for the last 12 months indicate that none of the anatomical regions exceeded 50%, but all of them were flagged with an indication of musculoskeletal symptoms. The greatest sign of pain, numbness or tingling was in the wrist / hand region and in the upper back with 44%.

Bringing the results of both groups for the last 7 days we can observe a drop in the indicative of musculoskeletal symptoms in both populations, however among the active ones we noticed a reduction of the indicated areas, having no indication of symptoms for neck, shoulders, wrists / hands and ankle. Among the sedentary ones, the mentioned areas remain, when compared to symptoms in the last 12 months, presenting only a reduction in the indicative if musculoskeletal symptoms.

When asked if in the past 12 months they consulted a health professional because of the musculoskeletal symptom indicated in the questionnaire, the index remains above 50%, when correlating the reported symptom and going to the doctor/physiotherapist, in the sedentary group. When we make the same correlation in the active group, we realize that the index is not significant.

Table 2 - Visited the doctor/physiotherapist in the last 12 months due to musculoskeletal symptoms

Anatomical Region	Visited the doctor/physiotherapist			
	Sedentary Group		Active Group	
	N	%	N	%
Neck	0	0	0	0
Shoulders	3	30	2	20
Upper back	4	40	2	20
Elbow	1	10	0	0
Fists/Hands	2	20	1	10
Lowerback	3	30	1	10
Hip/Thighs	3	30	0	0
Knees	7	70	0	0
Ankles/Foot	0	0	0	0

Source: Own elaboration.

When asked about the inability to develop activities of daily living due to the musculoskeletal symptoms indicated in the questionnaire, the number was quite small, being present only among the elderly women belonging to the sedentary group.

Table 3 - Prevention of performing ADLs due to musculoskeletal problems

Anatomical Region	Impediments for doing ADLs			
	Sedentary Group		Active Group	
	N	%	N	%
Neck	0	0	0	0
Shoulders	0	0	0	0
Upper back	1	10	0	0
Elbow	0	0	0	0
Fists /Hands	0	0	0	0
Lower back	1	10	0	0
Hip/Thighs	1	10	0	0
Knees	1	10	0	0
Ankles/Foot	0	0	0	0

Source: Own elaboration.

4 DISCUSSION

Musculoskeletal and connective tissue diseases affect more than 520 thousand people over the age of 60, generating an expenditure of approximately R $ 733,000 (seven hundred and thirty-three thousand BRL), remaining on average of 8 days hospitalized, according to Datasus (2012). With the growing elderly population, costs tend to increase and facilities that are already insufficient to cover the entire population will become even scarcer. We can thus observe that the current model is inefficient and very expensive, as stated by Da Silveira et al (2013).

Despite not being a direct object of the research, costs with musculoskeletal diseases, in table 2 the sedentary group expresses results that are in line with what is presented in the literature, more than half of the elderly in this group, who indicated musculoskeletal symptoms, sought the service with complaints regarding these symptoms. According to Matsudo (2009), physically active elderly people have improved or maintained muscle mass, muscle strength and bone density, reduced risk of falls and injuries caused by falls and in therapeutic effects, exercise is effective in the treatment of osteoarthritis and in pain management, thus justifying the lower demand for doctors / physiotherapists by the active group.

Even being unable to diagnose the cause of the musculoskeletal symptoms indicated in the applied questionnaire, we found a study that approximates the result obtained in relation to the most affected area, Felipe and Zimmermann (2011) in their study demonstrate that the incidence of osteoarthritis in the knee was 50 %, in our study the incidence among sedentary women was 90% and 22% in the active group. Which also shows conformity with Da Silva (2008), where he mentions that the most affected parts in women are the hands, knees and feet, which can be associated with the type of physical and labor activity practiced.

The study by Campos et al (2012) is in line with the results obtained, even though the research had a younger population of both sexes, the most affected anatomical part was the hip and lower limbs in the sedentary group, which is possible to notice when we saw that the knees were the anatomical part that most indicated symptoms. Another finding made in the research by Campos et al (2012) is that the active group indicated a lower prevalence of musculoskeletal symptoms, in our study it was also observed that in all questions answered by both groups the indication of musculoskeletal symptoms, consultation with physiotherapists / doctors as a result of these symptoms and the suspension of daily activities was lower in active elderly women.

Bobbo et al (2018) in a study with elderly practitioners of Lian Gong and using the QNSO, it was found a very close number of pain reports between sedentary and active, however the active elderly showed a lesser commitment to perform ADLs as well as the reduction in daily use of medicines and a better perception of their own health. Andrade et al (2018) evaluated elderly people who practiced walking and an outdoor gym and found results that go in line with those we found, realizing that all participants obtained a high SF36 score as well as a positive perception of their health status.

When we report on ADLs and quality of life, we perceive a direct relationship with pain, as found by Dellaroza and Pimenta (2012) when 50% of the elderly who reported that pain interfered in their daily

life in a moderate or intense way which makes us correlate with results presented above, where only elderly women in GA presented impossibility to perform ADLs.

The importance of regular physical exercise is not limited to musculoskeletal symptoms, but to the health status of the elderly person in full Cosme et al (2008) states that elderly people submitted to physical exercise programs, in addition to improving physical capacities, mitigates physical losses aging process and improving the age x time of ADL execution, which was shown in Table 3, where we notice that the sedentary group appears with indications of interruption of ADLs due to musculoskeletal symptoms. Borges & Moreira (2009) affirm that there is a decline in functional capacity in active elderly people, but in a slower and less intense way, since in their studies there were no cases of dependence in ADLs.

The benefits brought by regular physical exercise are notorious, Matsudo (2009) lists five categories: anthropometric effects, metabolic effects, cognitive and psychosocial effects, effect on falls and therapeutic effect, all of which bring beneficial qualities to the health of the elderly individual. Esain (2018) observed the negative impacts of physical inactivity after 3 months in elderly people aged 65-90 years, demonstrating negative physical and psychological numbers, reaffirming the importance of physical exercise in physical functions and its impact on ADLs.

Taking into accountaction the data from the National household sample survey continues (PNAD continues) (2017), we noticed an increase in the elderly population exceeding 30 million, when observing the data from VIGITEL (2018) we can see that most of these elderly people, around 60 % of those over 65 years old, are in the overweight range, which can lead to overload and joint pain, reduced performance of ADLs and demand for health services, directly impacting quality of life. Lopes MA et al (2016) demonstrates the various causes that directly impact the adherence or not of physical activities, among them is over-protection of the family, carrying out daily activities and physical limitations due to illnesses.

Da Silveira (2013) indicates that health promotion, health education actions, disease prevention and retardation of diseases and weaknesses and the maintenance of independence and autonomy will enable a higher quality of life for the elderly. Due to the low number of active elderly women found to participate in the research and the difficulty in finding regular physical exercise groups for the elderly in the city where the research was carried out, there is a much more culture of treatment than prevention and promotion of health, which directly inferred from the results obtained, where we observed that when there is the presence of a preventive factor, the numbers of treatment or impediment to daily activities are reduced.

De Souza (2011), in his study, warns of diseases of the musculoskeletal system and connective tissue that appears as the second cause that most bothers the elderly, among those cited by the elderly are arthrosis, arthritis, rheumatism and spine disease, it is still A warning was raised about the growing of these diseases, becoming a public health problem. As the results show that the sedentary group has a higher prevalence of musculoskeletal symptoms, when compared to the group that is associated with physical exercise.

The National Health Promotion Policy (PNPS) of 2018, visualizing the importance of physical exercise and body practices, in article 10 defines priority themes for health promotion actions and in item III is:

III- bodily practices and physical activities, which includes promoting actions, counseling and dissemination of bodily practices and physical activities, encouraging the improvement of the conditions of public spaces, considering the local culture and incorporating games, games, popular dances, among other practices

Thus, compacting with what was observed in the result of the study, which points out that physical exercise is a variable to be considered in improving the quality of life and health levels, which ends up having an impact when we compare the difference in musculoskeletal symptoms indicated in the active group. and sedentary.

5 CONCLUSION

We conclude that the present study is in agreement with the existing literature, demonstrating that the practice of regular physical exercise is an important variable to be considered in the context of the prevalence of musculoskeletal symptoms in elderly women in a more general way should be taken into account as an accessible factor and low cost for health promotion and prevention, especially in groups at risk, and thus can also be used as a policy to reduce public spending on health.

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