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ORIGINAL ARTICLE

Exercise practice and physical function in a group of older people practicing physical activity during the COVID 19 pandemic in the interior of Amazonas state

Prática de exercício físico e função física em grupo de idosos durante a pandemia por COVID19 no interior do Amazonas

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Abstract

Objective: To describe the presence of physical exercise and physical function in a group of elderly during the COVID19 pandemic in the interior of Amazonas state, Brazil. *Methods*: This cross-sectional study was conducted with active elderly who exercised at least three times a week for 50 minutes in the interior of Amazonas state, Brazil. The practice of physical exercise before and during the pandemic was evaluated and two investigative questions regarding COVID-19 were applied. The Short Physical Performance Battery (SPPB) was used to assess functional and physical capacity. *Results*: The sample included 63 active older people from the community. Of these, 31.8% (21) were illiterate, 74.2% (49) were retired, and 75.8% (50) with low income. In the SPPB, 27.3% (18) had a total of 10 points and 14.29% (9) of the elderly performed physical exercise above the minutes recommended by the World Health Organization

(WHO). *Conclusion*: In this study, no factor during the pandemic interfered with the practice of physical exercise or the functional capacity of the elderly residing in the interior of Amazonas.
Keywords: Aged; COVID-19; exercise; working population.

Resumo

Objetivo: Descrever a presença da prática de exercício físico e de função física em um grupo de idosos durante a pandemia por COVID-19 no interior do Amazonas. *Métodos*: Trata-se de um estudo transversal realizado com idosos ativos que realizavam exercício físico por pelo menos 3 vezes na semana por 50 minutos no interior do Amazonas. Avaliou-se a prática de exercício físico antes e durante a pandemia e aplicaram-se duas questões investigativas referente a COVID-19. Para avaliar a capacidade funcional e física aplicou-se o *Short Physical Performance Battery* (SPPB). *Resultados*: A amostra foi composta por 63 idosos ativos da comunidade. Destes, 31,8% (21) eram analfabetos, 74,2% (49) aposentados e 75,8 % (50) de baixa renda. No SPPB 27,3% (18) apresentaram total de 10 pontos e 14,29% (9) dos idosos realizam exercício físico acima dos minutos recomendados pela Organização Mundial da Saúde (OMS). *Conclusão*: Neste estudo nenhum fator durante a pandemia interferiu na prática de exercício físico e nem na capacidade funcional dos idosos que residem no interior do Amazonas.
Palavras-chave: idoso; COVID-19; exercício físico; população ativa.

Introduction

Statistical projections for 2050 indicate that Brazil will have the sixth largest elderly population globally, with more than 32 million individuals characterizing 16% of the Brazilian people, varying in its different regions [1].

In Amazonas, the percentage of the elderly population has grown during ten years by 3.5% and has already surpassed the population growth of adults and children. In Manaus, the elderly population is ten times larger than in the last 40 years [2]. Already in the city of Coari, located in the interior of Amazonas, at a distance of 363 km from the capital of Manaus, lives in constant migration of the elderly from rural to urban areas, one of the reasons that provide this process is the shortages in health services medical resources [3].

Since the first cases of COVID-19, the elderly have been part of the high-risk groups [4]; people over 60 are the most vulnerable to the disease, so the high mortality rates have been associated with elderly patients or the presence of comorbidities, which

has caused various impacts and sequelae, such as loss of functionality and reduced physical ability to return to activities of daily living [4,5].

Exercise is considered one of the strategies to prevent the impacts caused by COVID-19 in the elderly because it enhances immune response, improves respiratory capacity, and may decrease the risk of infections [6-8]. Regular exercise enhances immune function and physical-functional ability [9,10].

We described the presence of exercise and physical function in a group of active community elders during the COVID-19 pandemic in the interior of Amazonas state.

Methods

This cross-sectional study analyzes a single collection time point (M1). The M1 was conducted in the second half of 2021 (after vaccination – COVID-19) until February 2022. The study population consists of older people who live in the municipality of Coari in the interior of Amazonas and who practice group exercise. The sample comprised 66 more senior people, 60 years or older, of both genders. The study did not allow the participation of older people with cardiovascular diseases, sedentary older people, and older people with a cognitive inability to answer the evaluation battery. Recruitment occurred in some specific locations in the city of Coari, such as sports squares, the elderly center, the airport road, and places where the elderly performed physical exercises. To participate in the study, the elderly should have one hour and a half available for the evaluation.

For the characterization of the elderly, a sociodemographic questionnaire was applied, and questions were also asked about the use of medications and perception of vision and hearing.

The practice of physical exercise was evaluated through a questionnaire designed by the researchers. This instrument was composed of a total of 8 questions, 6 of which were related to physical activity before and during the pandemic and 2 to COVID-19.

To evaluate the functional and physical capacity, the Short Physical Performance Battery (SPPB) was applied through the following domains: gait speed at a habitual pace, static balance in the orthostatic position, resistance, and strength of the lower limbs by observing whether the elderly can get up and sit down from a chair [11].

The collected data were organized in a spreadsheet in Excel 2020 software for further analysis, and each elderly received an identification code to ensure the confidentiality of the information. A descriptive analysis was performed using absolute and relative frequency for sociodemographic characterization and information on

medications, vision, and hearing. The normality of the data was verified using the Shapiro-Wilk test. The analyses were performed in the statistical software IBM/Stata MP version 14.0.

This study was approved by the Research Ethics Committee of the Federal University of Amazonas (UFAM) under registration number CAEE: 08021419.2.0000.5020. All participants received the information and evaluation process of the study and signed the Informed Consent Form (ICF) that guaranteed the confidentiality of the information collected.

In the context of the pandemic, data collection was performed following all biosafety protocols stipulated by the World Health Organization (WHO) to protect the elderly and the interviewer. At the time of the evaluation, all the elderly had already received at least one dose of the COVID-19 vaccine.

Results

The group was initially composed of 66 elders, but three elders were lost due to death by COVID-19. Most of the elderly in this study are female, were born in the interior of Amazonas, are retired, and live on a monthly income of up to one minimum wage (Table I).

Table I – *Sociodemographic data of the elderly who practiced physical activity (n = 63)*

Sociodemographic data	%	n
Age		
60-69	45,5	30
70-79	34,8	23
80-89	10,6	7
>90	4,5	3
Sex		
Woman	71,2	47
Men	24,2	16
Schooling		
Illiterate	31,8	21
Primary complete	19,7	13
Primary incomplete	12,1	8
Superior complete	9,1	6
Years of schooling		
5-10 years	0,3	20
Up to 5 years	27,3	18
10-15 years	15,2	10
0 years	6,1	4
Naturality		
Interior of the State of Amazonas	92,4	61
Occupation		
Pensioner	74,2	49
Autonomous	10,6	7
Housewife	6,1	4
Monthly income		
Less than one salary	75,8	50
One salary	15,2	10
No rent	4,5	3
Housing		
Does not live alone	86,4	57
Lives alone	7,6	5
Live with		
Spouse	37,9	25
Children	30,3	20
Alone	12,1	8
Medication		
Use two to four medications a day	51,5	54
Use a medication	21,2	14
Most reported medications		
Antihypertensive	72,7	48
Other	22,7	15
Uses a walking aid		
No	95,5	63
Hearing perception		
Good	47,0	31
Regular	28,8	19
Vision perception		
Bad	36,4	24
Regular	34,8	23

The main findings on the physical evaluation (balance, walking speed, strength) are described in table II.

Table II – *Results of the Short Physical Performance Test and Battery (SPPB) by the elderly who practiced physical activity before and during the pandemic (n = 63)*

sPPB	Punctuation	(%)	(n)
Balance test	4	100	63
Gait speed test	2	39,4	26
Stand-up test	4	37,9	25

The number of minutes per day of physical exercise performed by the elderly in this study was also calculated. To calculate the average during the week, the following factors were considered: 1) The minimum number of alternatives calculated the frequency of the week; for example, 1 and 2 days, one day was considered, and so on. The accumulation of modalities was considered a vigorous activity. Then, the number of minutes of physical activity performed per week by the group of regular active elderly was stipulated.

Table III – *Result of the calculation of minutes of activities performed per day by the group of elderly physical activity practitioners from the interior of Amazonas (n = 63)*

Minutes per day	% (n)
60 minutes	19,05 (12)
90 minutes	28,57 (18)
120 min	22,22 (14)
150 min	3,17 (2)
180 min	14,29 (9)

Discussion

The results of this study show that the elderly presented low education, illiteracy, and low income, most of whom were retired. Expressive participation of older women was observed, as found in other studies; aging is female [3,11-13].

Low schooling is a reality in the countryside of Amazonas; many times in the childhood of these elders, the study was seen as unnecessary, most of the time prioritizing manual labor for the survival of their families; these elders did not have the opportunity to study for a long time (or never learned), many of them married and started a family very early [2].

Most of the elderly are retired and live with someone and are often the only support of these families [12,14,15]. The elderly in this study perform daily household activities alone, often care for their grandchildren, and see this as an ordinary and functional activity [14].

Most of the elderly use two to four medications daily, antihypertensive the most used, as found in another study conducted in the interior of Amazonas [16,17]. Here it is worth noting that health conditions such as hypertension, followed by cardiovascular diseases, and respiratory diseases, are severe factors for complications of COVID-19. When associated with a sedentary lifestyle, obesity can worsen even more [10].

In this study group, regular physical exercise was observed; the WHO recommends that the elderly perform 150 to 300 minutes of moderate-intensity aerobic physical activity per week and at least two muscle-strengthening workouts for health benefits [19].

In addition, WHO made recommendations for the elderly and their family members to stay healthy even during the time of confinement, reinforcing that regular exercise benefits the body and mind. It can reduce high blood pressure, help control weight, and reduce the risk of heart disease, stroke, type 2 diabetes, and various types of cancer, all of which can increase susceptibility to COVID-19 [19].

The type of exercise most performed by the elderly in this study was vigorous walking, also indicated as a preference in another study [20]. It is noteworthy that before the pandemic, these elderly already practiced weekly physical exercise. With COVID-19, they continued to perform their activities at home and resumed outside after the vaccination.

Practicing physical activity and exercise regularly and with intensity ranging from moderate to vigorous significantly improves immune responses to infections, is a factor that decreases chronic low-grade inflammation, and improves inflammatory and immunological markers for various diseases such as cancer, impaired cognitive ability, and obesity [10].

The elderly in this study seem to have no problems with balance; however, the same did not happen with the lower limb strength test; a survey conducted with 73 physically active elderly who use the Third Age Academies in the city of Maringa/PR also showed lower limb muscle strength classified as very weak or weak [21].

The low muscle strength of the lower limbs influences the functional capabilities of the elderly, such as walking, climbing stairs, sitting, and standing up, among other daily activities, which may reflect on the functionality and quality of life of this population [22]. These balance alterations, modifications in the gait pattern, and the reduction of muscle strength in the lower limbs are tendencies for a greater risk of falling [22].

Finally, a study of older people who practiced physical activity before the pandemic in the interior of Amazonas showed that they also had low education with cognitive deficits and were hypertensive but had low physical performance in the SPPB.

However, this was not a limiting factor for them to perform physical activity and feel useful in life [12].

Conclusion

Most of the elderly in this study have been physically active for a period within the WHO recommendations. The active elderly in the interior of Amazonas have low education and income, are retired, and most use medication for hypertension. Yet, amid the restrictions imposed by COVID-19, they practiced physical activity and exercised regularly; before vaccination, they kept the practice at home, and after vaccination, they returned to the community.

Conflict of interest
The authors report no conflicts of interest.

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Author's contribution
Data collection and manuscript writing: Silva TA, Braga JAC, Oliveira AC, Dantas EM; *Statistical analysis*: Quialheiro A; *Critical review of the manuscript for important intellectual content*: Prestes YA, Leon EB, Quialheiro A, Campos HLM

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