

**Perception of the level of physical activity of university professors during the isolation of COVID-19**

**Percepção do nível de atividade física dos professores universitários durante o isolamento da COVID-19**

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**ABSTRACT**

COVID-19 is characterized by a severe acute respiratory syndrome (SARS), caused by the SARS-CoV-2 coronavirus, which started in China, in Wuhan, spreading throughout the world in an advanced way and has become a global health emergency, affecting 216 countries. The most recent number of confirmed cases of COVID-19 is > 23.3 million worldwide, including > 806.4 confirmed deaths, as well as having forced > 4 billion people to be confined to their homes. In Brazil, more than 3.5 million people have been infected, with a total of more than 114,250 confirmed deaths today. On January 30, 2020, WHO notified COVID-19 as the sixth international public health emergency. The uncertainty of not knowing when the pandemic will end can affect people's physical health and can lead to other associated symptoms. The objective of the study was to investigate the consequences that social isolation can cause in aspects of physical activity in teachers of all undergraduate courses at the Centro Universitário Escritor Osman da Costa Lins - UNIFACOL, in Vitória de Santo Antão-PE. A cross-sectional study was carried out. Data collection took place through online questionnaires containing sociodemographic information and levels of physical activity. There were 115 participants, of which 57.4% were male and 42.6% female. Regarding the level of physical activity, there was a statistically significant difference between the sexes in moderate-intensity and walking. And during the pandemic, there were more active women and more sedentary men.

**Keywords:** COVID-19, Social isolation, Physical activity, University Professors.

**RESUMO**

A COVID-19 é caracterizada por uma síndrome respiratória aguda grave (SARS), causada pelo coronavírus SARS-CoV-2, que começou na China, em Wuhan, espalhando-se pelo mundo de forma avançada e tornou-se uma emergência sanitária global, afetando 216 países. O número mais recente de casos confirmados de COVID-19 é > 23,3 milhões em todo o mundo, incluindo > 806,4 mortes confirmadas, além de ter forçado > 4 bilhões de pessoas a ficarem confinadas às suas casas. No Brasil, mais de 3,5 milhões de pessoas foram infectadas, com um total de mais de 114.250 mortes confirmadas hoje. Em 30 de janeiro de 2020, a OMS notificou a COVID-19 como a sexta emergência internacional de saúde pública. A incerteza de não saber quando a pandemia vai acabar pode afetar a saúde física das pessoas e pode levar a outros sintomas associados. O objetivo do estudo foi investigar as conseqüências que o isolamento social pode causar em aspectos da atividade física em professores de todos os cursos de graduação do Centro Universitário Escritor Osman da Costa Lins - UNIFACOL, em Vitória de Santo Antão-PE. Foi realizado um estudo de corte transversal. A coleta de dados foi realizada através de questionários on-line contendo informações sociodemográficas e níveis de atividade física. Havia 115 participantes, dos quais 57,4% eram homens e 42,6% mulheres. Com relação ao nível de atividade física, houve uma diferença estatisticamente significativa entre os sexos em intensidade moderada e a caminhada. E durante a pandemia, houve mais mulheres ativas e mais homens sedentários.

**Palavras-chave:** COVID-19, Isolamento social, Atividade física, Professores universitários.

## 1 INTRODUCTION

COVID-19, characterized by a severe acute respiratory syndrome (SARS) caused by the SARS-CoV-2 coronavirus, has been reaching large proportions of the population in a pandemic manner since December, 2019 [1]. The most recent number of confirmed cases of COVID-

19 is > 23.3 million worldwide, including > 806,4 confirmed deaths, as well as having forced > 4 billion people to be confined to their homes. In Brazil, more than 3.5 million people have been infected, with a total of more than 114,250 confirmed deaths today [2].

Around the world, health authorities converged to place cities in confinement, and among the sectors that had to adapt to social isolation were the educational networks [3]. For this reason, teachers and students from all over the world had to adapt to teaching and learning using digital platforms, where teachers needed to develop their activities remotely, which can result in an excessive workload.

Furthermore, another aspect to be observed, which involves health, is that outdoor activities were not allowed, including physical exercise. It is worth mentioning the importance of the benefits of immunomodulation induced by regular exercise, all the while taking the necessary precautions, since sedentary behaviors such as long periods of sitting and the use of smartphones are associated with a greater risk for the development of obesity, high blood pressure and type 2 diabetes mellitus. This is an important issue, considering that at hospital admission, most patients with COVID-19 presented comorbidities such as diabetes (10-20%), arterial hypertension (16.9%) and other metabolic diseases, including obesity and chronic inflammation (53.7%) [4].

Translational and clinical studies have shown that regular exercise performed at moderate intensity (duration of 45 to 60 minutes and 70% of VO<sub>2</sub>max), at least three times a week, is beneficial for the host's immune defense, especially in the elderly and people with chronic diseases [5]. However, if the individuals accustomed or not to practicing moderate intensity exercises experience less serious complications associated with COVID-19, this deserves further investigation.

Research has verified the presence of changes in the health of students (1) as well as the health professionals [6] during the COVID-19 pandemic; however, little is known about university professors. The objective of this cross-sectional study was to compare the consequences that social isolation can cause on the levels of physical activity between the sexes in the professors of all undergraduate courses at the Centro Universitário Escritor Osman da Costa Lins - UNIFACOL, in Vitória de Santo Antão, PE - Brazil.

## 2 MATERIALS AND METHODS

Professors of all the UNIFACOL face-to-face higher education courses (n = 200), of both sexes, without age limit, who accepted to participate in the research (n = 115) were included in the study. All participants were working from a remote classroom system. For data collection, the digital platform google forms<sup>®</sup> was used, composed of a sociodemographic questionnaire and the International Physical Activity Questionnaire (IPAQ) short version, containing 8 questions related to physical activities performed in a normal week, with a minimum duration of 10 minutes, and light, moderate, and vigorous intensities that classify individuals as very active, active, irregularly active a and b and sedentary. The research was conducted between June 4 and 15, 2020. The research was approved by the Human Studies Ethics Committee of the Federal University of Pernambuco (Opinion No. 4,066,034) in accordance with the ethical standards of the 1964 Declaration of Helsinki.

## 3 RESULTS AND DISCUSSION

Table 1: Sociodemographic characteristics of university professors (n = 115).

| Variables          |                                  | Participants<br>n | %    |
|--------------------|----------------------------------|-------------------|------|
| Gender             | Male                             | 66                | 57,4 |
|                    | Feminine                         | 49                | 42,6 |
| Age                | 25 to 35 years                   | 34                | 29,6 |
|                    | 35 to 45 years                   | 43                | 37,4 |
|                    | 45 to 55 years                   | 24                | 20,9 |
|                    | Above 55 years                   | 14                | 12,2 |
| Marital status     | Single                           | 31                | 27   |
|                    | Married or living with a partner | 71                | 61,7 |
|                    | Separated or divorced            | 12                | 10,4 |
|                    | Widower                          | 1                 | 0,9  |
| Race               | Black                            | 8                 | 7    |
|                    | White                            | 61                | 53   |
|                    | Brown                            | 45                | 39,1 |
|                    | Mixed race                       | 1                 | 0,9  |
| Occupation area    | Health                           | 57                | 49,6 |
|                    | Exact sciences                   | 14                | 12,2 |
|                    | Human                            | 51                | 44,3 |
| Number of children | None                             | 27                | 33,9 |
|                    | One                              | 39                | 23,5 |
|                    | Two or more                      | 49                | 42,6 |

|                                       |                    |    |      |
|---------------------------------------|--------------------|----|------|
| How long have you<br>been a professor | 1-2 years          | 20 | 17,4 |
|                                       | 3-5 years          | 22 | 19,1 |
|                                       | 6-10 years         | 27 | 23,5 |
|                                       | Over 10 years      | 46 | 40   |
| Daily working hours                   | 3-6 hours          | 37 | 32,2 |
|                                       | 6-8 hours          | 26 | 22,6 |
|                                       | 8-10 hours         | 24 | 20,9 |
|                                       | More than 10 hours | 28 | 24,3 |

Table 2: Classification of the level of physical activity of university professors in females and males (n = 112).

| Physical activity level | Male n (%) | Feminine (%) |
|-------------------------|------------|--------------|
| Very active             | 7 (11,11)  | 11 (22,44)   |
| Active                  | 16 (25,39) | 16 (32,65)   |
| Irregularly active a    | 4 (6,34)   | 4 (8,16)     |
| Irregularly active b    | 25 (39,68) | 12 (24,48)   |
| Sedentary               | 11 (17,40) | 6 (12,24)    |

Table 3: Answers to the physical activity questionnaire recorded during the social isolation of COVID-19 in males and females.

|                           |              | Male              | Female            | $\Delta$ ( $\Delta\%$ ) | P value |
|---------------------------|--------------|-------------------|-------------------|-------------------------|---------|
| <b>Vigorous intensity</b> | Days/week    | 1,01 $\pm$ 1,58   | 1,65 $\pm$ 2,36   | 0,64 (63,3%)            | 0,18    |
|                           | Minutes/week | 14,44 $\pm$ 24,99 | 23,49 $\pm$ 37,36 | 9,05 (62,67%)           | 0,17    |
| <b>Moderate intensity</b> | Days/week    | 2,03 $\pm$ 2,02   | 3,29 $\pm$ 2,43   | 1,26 (62,06%)           | 0,006 a |
|                           | Minutes/week | 24,68 $\pm$ 25,49 | 43,67 $\pm$ 43,53 | 18,99 (76,94%)          | 0,007 a |
| <b>Walking</b>            | Days/week    | 2,30 $\pm$ 2,08   | 1,78 $\pm$ 2,22   | 0,52 (29,21%)           | 0,07    |
|                           | Minutes/week | 24,40 $\pm$ 21,52 | 13,67 $\pm$ 16,28 | 10,73 (78,49%)          | 0,01 b  |

Note: Data are presented as mean  $\pm$  standard deviation for all variables. n = 63 male; n = 49 female. Mann Whitney test; statistical significance (P < 0.01), b statistical significance (P < 0.05).

In men, there was a higher frequency of sedentary and irregularly active individuals. Regarding the intensity of physical activity, there was a difference in the level of moderate intensity, in which women presented greater intensity both on the days of the week and the minutes per week. Regarding walking, men reported having done more times a week of this activity. This result may be associated with genetic, environmental and behavioral issues, related to the time of the pandemic. Physical exercise concomitant with physical training (aerobic

resistance training) seems to improve macrophage phagocytosis and decrease oxidative stress levels, increase the percentage of TCD4 lymphocytes and reduce circulating

TNF- $\alpha$  and IL-6 levels, followed by an increase in IL-1 [7]. Whether such changes in the immune system, induced by exercise, would be protective against SARS-CoV-2 infection in these populations is unknown and further studies are needed. However, it is interesting to consider that exercise can play a role in neutralizing the negative effects of stress during isolation and confinement in the immune competence in this population. These data suggest the importance of developing intervention strategies on the part of higher education institutions for the promotion of professors' physical health.

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#### **Conflict of Interest Statement**

The authors declare that there are no conflicts of interest.

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### **AUTHOR CONTRIBUTIONS**

WMAB, VONS had substantial contributions to the design, acquisition, analysis and interpretation of data for the job; WMAB, MRMS, APSS, DJSO, ECSB, ABJS, SCP, ISS, TSP, SCZ wrote and critically reviewed the work for important intellectual content; VONS and AC approved the final version to be published; VONS agrees to be responsible for all aspects of the work, ensuring that problems related to the accuracy or integrity of any part of the work are properly investigated and resolved.

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