

**Objectives:** To verify the correlation between WHODAS questionnaire score and physical activity levels in people with COPD.

**Methods:** This is a cross-sectional study, which assessed 35 patients with COPD, aged over 50 years (21 males,  $69 \pm 8$  years,  $FEV_1/FVC$   $56 \pm 13\%$ ,  $FEV_1$  post-Bronchodilator  $50 \pm 13\%$ ). This study was approved by the Research Ethics Committee of the Federal University of São Carlos (UFSCar), under number 85901318.0.0000.55.04. To evaluate functionality, the WHODAS 2.0 questionnaire, with 36 items was applied in the interview format. The level of physical activity was assessed by the actigraph activPAL3TM (Pal Technologies Ltd., Glasgow, United Kingdom), for 7 consecutive days, by time spent sitting, standing and walking; number of steps and time spent at certain exercise intensities (sedentary, if  $MET < 1.5$  and low intensity exercise, if  $MET > 1.5$ , but  $< 3$ ). Participants who could not perform the proposed tests and/or had difficulty understanding the questionnaire were excluded. For data analysis and correlation, the statistical software SPSS version 21 (2012) was used, with significance established at a p value  $< 0.05$ .

**Results:** Significant correlation were found only between the mobility domain of WHODAS 2.0 and number of steps ( $r = -0.490$ ;  $p = 0.003$ ), sitting time ( $r = 0.472$ ;  $p = 0.004$ ), standing time ( $r = -0.366$ ;  $p = 0.031$ ), walking time ( $r = -0.510$ ;  $p = 0.002$ ), time during  $MET < 1.5$  ( $r = 0.426$ ;  $p = 0.011$ ) and time during  $MET > 1.5$ , but  $< 3$  ( $r = -0.428$ ;  $p = 0.010$ ).

**Conclusion:** The WHODAS 2.0 mobility domain showed association with the variables that reflect the level of physical activity and sedentary time in COPD patients, thus the instrument may be effective to track physical inactivity in this population.

**Implications:** This study shows that the WHODAS 2.0 questionnaire is an effective tool for tracking the level of physical activity in COPD patients and can be used as a clinical outcome before and after physical therapy intervention.

**Keywords:** Functionality, Sedentary Behavior, Physiotherapy

**Conflict of interest:** The authors declare no conflict of interest.

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**Ethics committee approval:** Research Ethics Committee of the Federal University of São Carlos (UFSCar), under number 85901318.0.0000.55.04.

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## FRAGILITY PROFILE OF ELDERLY PEOPLE WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE RESIDENTS IN THE COMMUNITY

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**Background:** In Chronic Obstructive Pulmonary Disease (COPD), symptoms of chronic and progressive dyspnea, cough and sputum production impact exercise tolerance and functionality. Being mostly elderly, the risk for frailty also has a great clinical impact. However, it is not routinely investigated in people with COPD, which may lead to less impact of functional dependence prevention strategies. Thus, the stratification of elderly people with COPD into frailty profiles can provide important prognostic information, enabling the development of prevention, promotion, and rehabilitation actions in health.

**Objectives:** Stratify the frailty profiles of community-dwelling elderly with Chronic Obstructive Pulmonary Disease.

**Methods:** 25 community-dwelling elderly ( $68.9 \pm 6.54$ ) with a diagnosis of COPD who answered the Vulnerable Elders Survey -13 (VES-13) questionnaire, present in the elderly person's health booklet, were included to stratify the vulnerability profile. The categories of the Comprehensive International Classification of Functioning (ICF) Core Set for COPD to detail functional limitations and disabilities were evaluated based on the response to the VES-13.

**Results:** The study included 25 elderly people with COPD, with a mean age of 68.9 years. As for vulnerability classification, 12 (48%) volunteers had a robust elderly profile, 8 (32%) elderly people had a pre-frailty profile, and 5 (20%) volunteers had a frail profile. No significant correlation was found between VES-13 and age, BMI, calf circumference,  $FEV_1/FVC$ , physical activity, falls, unintentional weight loss. Regarding the ICF Core Set for COPD, the relevance of the categories found in the present study is highlighted, with difficulty or inability to perform household tasks, to walk, and difficulty or inability to make basic changes in body position, more specifically difficulty or inability to crouch.

**Conclusion:** Elderly people with COPD who live in the community have a higher prevalence of pre-frailty and affection. However, this parameter was not presented with other parameters that impact functional independence. Thus, the tracing of traffic in people with COPD residing in the community still needs to be deepened considering the different mobility conditions of this population.

**Implications:** The findings may guide the development of interventions that can lead to better management of frailty in this population. In addition to facilitating the implementation of interventions capable of preventing functional independence.

**Keywords:** Functional Status, Fragility, Elderly

**Conflict of interest:** The authors declare no conflict of interest.

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**Ethics committee approval:** João de Barros Barreto University Hospital of the Federal University of Pará. Opinion N° 5.309.843.

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## TRANSITION FROM THE BIOMEDICAL TO THE BIOPSYCHOSOCIAL MODEL IN EXERCISE INTERVENTIONS FOR OLDER ADULTS WITH LOW BACK PAIN: AN INSTRUMENTAL ANALYSIS

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**Background:** Chronic low back pain (CLBP) is the second most common complaint in Brazilian elderly and the 4th most disabling musculoskeletal disorder in the world, affecting different areas of the lives of people with this condition. The International Classification of Functioning, Disability and Health (ICF) guides an approach that integrates in the care model the domains of structure and function, activities/participation, personal and environmental aspects. Therefore, an approach following the biopsychosocial model (BPS) becomes more adequate when compared to the biomedical model, based on the ICF recommendations.

**Objectives:** To analyze the transition from the biomedical to the BPS model in exercise interventions for older adults with CLBP.

**Methods:** A search was conducted in June 2022, without date restriction, in 3 databases (PubMed/MEDLINE, PEDro and Scielo) using the descriptors "chronic low back pain", "elderly", "exercise",

"disability" and synonyms. The articles were selected in two stages. First, there was selection by means of titles and abstracts based on the objective. The studies were read in the second phase and selected using the eligibility criteria: clinical trials, elderly with CLBP, and exercise. Each item of the measurement instruments was analyzed according to the first level of the CIEZA flowchart (CIEZA et al., 2019), which considers the ICF domains in its composition. Transition to the BPS model was considered if the measurement instruments of the studies had items that assessed body structure and functions with at least one more of the ICF domains described in level 1 of the flowchart. And the biomedical approach when the instrument represented only body structure and functions. The search and selection of the studies were developed by two independent reviewers (D, V), as well as the extraction and analysis of the data (descriptive).

**Results:** 515 studies were identified, 15 included, with publication year ranging from 2000 to 2020. The primary outcomes of the studies included: pain (intensity, catastrophizing, and perception), kinesiophobia, disability, quality of life, self-efficacy, self-care, physical activity and fear. The secondary ones were fall efficacy, sleep, general health, mobility. Thirty-one instruments were extracted, 23 (74.19%) evaluated concepts linked to the structure and function domain, 18 (58.06%) personal factors, 11 (35.48%) activity and participation, and 4 (12.9%) environmental factors. The distribution of the items of the instruments evaluated according to the CIEZA flowchart indicated that 100% of the studies were making the transition to the BPS model.

**Conclusion:** There is a transition from the biomedical model to the BPS model in all the studies including elderly people with CLBP. However, there is a predominance of the evaluation of the body structure and function domain, compared to the other ICF domains, in the measurement instruments.

**Implications:** Although there has been a transition to the BPS model, we suggest using more tools that involve activity and participation domains, environmental factors, and personal factors as outcome measures for exercise studies conducted with older adults with CLBP.

**Keywords:** Chronic low back pain, Elderly, Disability

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**Ethics committee approval:** Not applicable.

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## CARDIAC AUTONOMIC FUNCTION AND FUNCTIONAL CAPACITY IN POST-COVID-19 INDIVIDUALS WITH SYSTEMIC ARTERIAL HYPERTENSION

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**Background:** The COVID-19 is a recent and highly contagious disease. Individuals diagnosed with systemic arterial hypertension (SAH) are considered risk groups and may have a stronger association with higher level of COVID-19 severity and increased mortality. Furthermore, individuals infected with COVID-19 may also have cardiac autonomic dysfunction (CAD), as well as reduced functional capacity (FC) in the recovery period of disease. However, it is unclear whether individuals infected with COVID-19 have impaired CAD, as well as a greater reduction in FC compared to individuals with SAH not infected to COVID-19.

**Objectives:** We assessed if cardiac autonomic function and FC differ in SAH patients with post-COVID-19 compared to SAH individuals without COVID-19 infection.

**Methods:** Methods: We evaluated 40 individuals (31 to 80 years old, both sexes) diagnosed with SAH who had or did not have COVID-19. Volunteers were divided into 2 groups: Group 1 (G1), individuals with SAH and COVID-19 and Group 2 (G2), individuals with SAH. Cardiac autonomic function was assessed with heart rate variability (HRV) method. R-R intervals from ECG were recorded at rest in the supine position for 10 minutes. Stable sequences of 256 R-R intervals were chosen and was analyzed using symbolic analysis (SA) as follows: 0V% (patterns with no variation - sympathetic modulation), 1V% (patterns with one variation, - sympathetic and parasympathetic modulation), 2LV% (patterns with two like variations - parasympathetic modulation) and 2UV% (patterns with two unlike variations - parasympathetic modulation) indices. The FC assessment was performed by 6-minute walk test (6MWT). Student t-test or Mann-Whitney test was performed to compare groups. Furthermore, the correlation between SA indices and the 6MWT was tested by Pearson or Spearman correlation test).

**Results:** The G1 was composed of 21 individuals (53±13 years; 57% female) and G2 was composed of 19 individuals (53±11 years; 32% female). The groups were similar in terms of age, anthropometric data, clinical status and medication. The SA did not show significant differences between groups. Regarding the distance covered in meters in 6MWT, G2 showed higher values when compared to G1 (G1: 464.70±59.41 vs. G2: 522.21±77.6, p<0.05). There was a positive and moderate correlation between the 6MWT and the 2LV% index only in G2 (r=0.58; p<0.05). The other variables did not show any significant correlations for both groups.

**Conclusion:** Individuals with SAH who had COVID-19 walked a shorter distance demonstrating that there was a greater impact on the functional capacity of this population. The SAH together with COVID-19 did not show a worsening in cardiac autonomic function when compared to the SAH group without infection to COVID-19.

**Implications:** The results of our study can contribute to the clinical applicability of several health professionals, with the aim of guiding rehabilitation programs for these individuals and thus improving their physical capacity.

**Keywords:** COVID-19, Arterial hypertension, Functional capacity

**Conflict of interest:** The authors declare no conflict of interest.

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**Ethics committee approval:** University of Pernambuco Ethics Committee CAAE - 48683521.8.0000.5191

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## PLASTICITY OF SKELETAL MUSCLE AFTER PARTIAL INJURY OF THE ACHILLES TENDON IN RATS

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**Background:** Skeletal muscle is one of the most dynamic tissues in the human body. Among many adaptations, skeletal muscle plasticity may be related to its extensive structural and metabolic remodeling. However, there are some gaps in the literature on the adaptive response of skeletal muscle to tendon injury.

**Objectives:** To evaluate the effects of partial injury of the Achilles tendon (CT) on remodeling and plasticity of the gastrocnemius muscle (GM) after partial injury of the Achilles tendon using a mouse model.

**Methods:** The study was performed on Wistar rats that were divided randomly into five experimental groups (Project Ceua Approved