

PREVALENCE OF RHEUMATIC DISEASES IN OLDER ADULTS

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Highlights: (1). The prevalence of rheumatic diseases ranged from 25% to 43.6% in the Brazilian older population. (2). Rheumatic diseases in the older population bring physical, mental and functional impairments. (3). Public policies must seek functionality in older adults with rheumatic diseases.

PRE-PROOF

(As accepted)

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ABSTRACT

The present study aimed to investigate the prevalence of rheumatic diseases in older Brazilians and their consequences. This is an integrative systematic review carried out in 2022, based on PRISMA recommendations, developed with articles published from 2016 to 2021 in the following electronic databases: Medline, PubMed, SciELO and Lilacs. Forty-five (45) studies were identified through the search strategy. After the initial reading, nine studies were included. According to the results found, it was observed that the prevalence of rheumatic diseases ranged from 25% to 43.6% when analyzed in older people of both sexes. Older adults with rheumatic diseases had a higher prevalence ratio for spinal disorders, occurrences of falls, lower walking speed, lower handgrip strength, disabilities for activities of daily living, general adiposity, not currently working, low education, not living alone, medical appointments in the last three months, self-perceived poor health and common mental disorder. It was possible to verify the consequences of rheumatic diseases in physical, mental and functional aspects, which can serve as a basis for the elaboration of public policies that aim to maintain functionality in the older person.

Keywords: Rheumatic diseases. Older adults. Brazil.

INTRODUCTION

Brazil, like other Latin American countries, is going through a process of rapid and intense aging. Between 2012 and 2017, the Brazilian population aged 60 and over reached 30 million people, 56% women and 44% men¹.

The aging process brings a series of changes, both morphological and functional, which decrease the individual's ability to face the demand necessary to maintain a healthy life². In Brazil, according to a household sample carried out by the national survey, it was observed that rheumatic diseases are the diseases that most affect the older person, affecting 24.2% of this population segment³⁻⁴.

Rheumatic diseases can be defined as functional alterations of the musculoskeletal system, not due to traumatic cause⁵.

They can affect various parts of the human body, affecting important structures such as joints, bones, cartilage, muscles, tendons and ligaments; but they can also reach vital

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organs such as the heart, kidneys, lung, intestine and skin⁶. In addition, it should be noted that rheumatic diseases are divided into several subtypes, including inflammatory diseases, degenerative diseases, metabolic diseases, periarticular soft tissue changes and diseases of other organs and/or systems⁵.

These diseases are capable of triggering physical limitations, reducing functionality and the ability to perform activities of daily living. Thus, patients with the diagnosis are more likely to be away from work and have early retirement⁷. Studies have shown that increasing age generates a significant reduction in functional capacity, factors that cause the older adults to become more dependent due to the decrease in their autonomy⁸.

Research with a diagnosis of rheumatic diseases is necessary, as it points out aspects of signs and symptoms, age group, sex, treatment administered and main consequences on the quality of life and functionality of these patients⁹. Given the above, the present study aimed to investigate the prevalence of rheumatic diseases in older Brazilians and their consequences.

METHODOLOGY

This is an integrative systematic review, based on PRISMA recommendations, developed with articles published from 2016 to 2021 in the following electronic databases: Medline, PubMed, SciELO and Lilacs. The following keywords were used: prevalence, *rheumatic diseases*, *older adults* and their respective synonyms, in Portuguese and English, as shown in Box 1. The guiding question for the search was: what is the prevalence of rheumatic diseases in older Brazilians?

Box 1 - Search strategy

	"Prevalence"[Mesh] OR "Prevalences" OR "Period Prevalence" OR "Period Prevalences" OR "Prevalence, Period" OR "Point Prevalence" OR "Point Prevalences" OR "Prevalence, Point"
AND	"Rheumatic Diseases"[Mesh] OR "Disease, Rheumatic" OR "Diseases, Rheumatic" OR "Rheumatic Disease" OR "Rheumatism"
AND	"Aged"[Mesh] OR "Older adults"
AND	"Brazil"[Mesh]

Source: Made by the author (2022)

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The articles identified by the search strategy were evaluated by researchers independently, starting with the selection of articles, the reading of titles and abstracts. Inclusion criteria were: studies that had as population people aged 60 years or older, living in Brazil, who presented data on the prevalence of rheumatic diseases and that were published in Portuguese, English or Spanish. As for the exclusion criteria, repeated articles were established; studies published more than five years ago; with therapeutic intervention; narrative review articles and with hospitalized or institutionalized older population.

After the first selection and exclusion of duplicate articles, the researchers read the articles in full for data extraction and methodological quality analysis. When there was divergence in the selection, the evaluators discussed until reaching consensus. In extracting data from the articles, the search for the following information was emphasized: objective of the study, type of study, sample and its characteristics, place where the research was carried out, prevalence of rheumatic diseases and analysis of the main results presented.

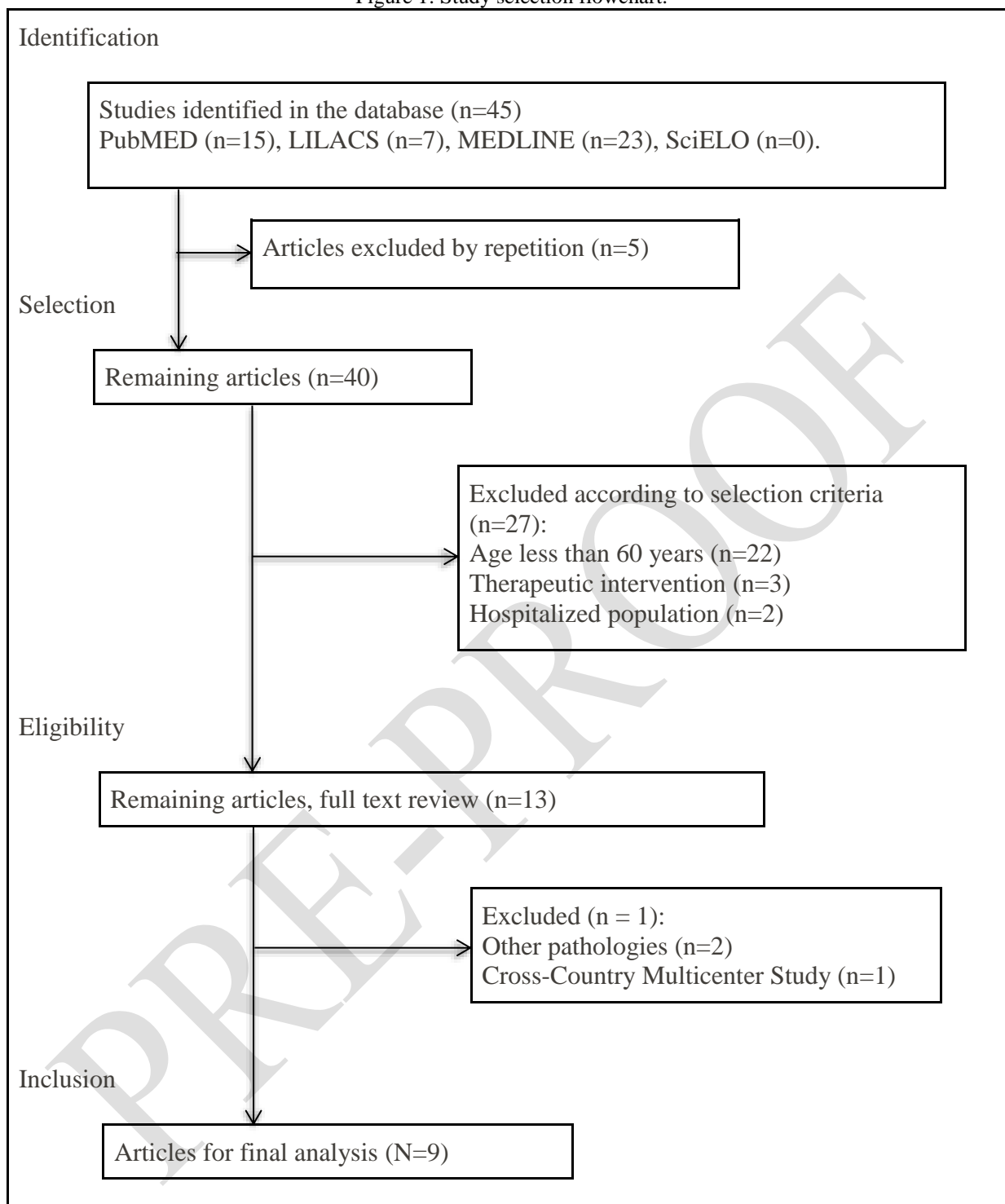
Regarding methodological quality, the included articles were evaluated using the scale by Loney *et al.*¹⁰, used for cross-sectional studies. This scale evaluates aspects related to the validity of the method, interpretation and applicability of the results and has a maximum score of eight points, with higher values meaning higher methodological quality.

RESULTS

Forty-five (45) studies were identified through the search strategy. After the initial reading, nine studies were included. The processes carried out in the selection of articles and the reasons for exclusion are shown in Figure 1.

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Figure 1: Study selection flowchart.



Source: Made by the author (2022)

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Box 2 shows the articles selected for this study and their main characteristics. The methodological quality was also presented in this box, and it was possible to observe that most of the selected articles scored above mean, which represents a good methodological quality of scientific evidence level.

Box 2 – Main characteristics of the selected studies

Article Authors	Objective	Type of Study	Number	Research Site	Characterization of the sample	Methodological quality
(SAES et al., 2021a)	To estimate the prevalence of spinal disorders in older adults and analyze potential associated factors	Cross-sectional study	1593 individuals of both sexes	Bagé - RS	63% female sex 31.2% aged 75 years or older 78.6% white skin color, 54.6% with 1 to 7 years of study, 51.2% were married or living with a partner, 38.4% belonged to economic classification C and 34.0% to D/E	6/8
(PIMENTEL et al., 2018)	To determine the prevalence and factors associated with falls in a representative national sample of the older population living in urban areas	Cross-sectional study	4,174 individuals of both sexes	70 municipalities located in all Brazilian regions	56.6% female. The mean age was 70.2 years. 42.3% with 1-4 years of schooling	5/8
(ASSUMPTIÃO et al., 2018)	To estimate the prevalence of underweight in the older adults according to demographic, socioeconomic, health-related behaviors, morbidities and health status variables	Cross-sectional study	3,478 individuals of both sexes	Campinas (SP), Belém (PA), Poços de Caldas (MG), Ermelino Matarazzo (SP), Campina Grande (PB), Parnaíba (PI), Ivoti (RS)	67.65% were women, 65.05% were 65 to 74 years old, 52.26% were white, 52.00% did not have a partner, 49.22% had 1 to 4 years of schooling. 49.41% had an income of 1 to 3 minimum wages	5/8
(SILVA et al., 2018)	To estimate the prevalence and factors associated with Common Mental Disorders (CMD) in the resident older population in a Municipality in Brazil.	Cross-sectional study	310 individuals of both sexes	Ibiciuí (BA)	56.5% female, 83.9% aged between 60 and 79 years, 51% living without a partner, 93.2% with a monthly income of one minimum wage or less, 56.1% literate	5/8

(To be continued)

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(TORRES; CASTRO; LUSTOSA, 2019)	To evaluate the association between the permanence of the older person in the labor market and the presence of chronic conditions, in a random sample of older adults residents in Belo Horizonte - MG	Cross-sectional study	597 individuals of both sexes.	Belo Horizonte (MG)	66% females The mean age was 74.3 years, 69% with less than 8 years of schooling, 74.4% retired	5/8
(SAES et al., 2021b)	To calculate prevalence and identify factors associated with rheumatic diseases in the older adults of the urban area of a municipality in southern Brazil	Cross-sectional study	1593 individuals of both sexes	Bagé - RS	62.7% female, 53.2%, aged 60 to 70 years and 78.6% white race/color. 51.2% were married or living with a partner; 17.6% lived alone 54.5% with 1 to 7 years of study and 27.1% belonged to economic class D/E	5/8
(GUIMARAES et al., 2020)	To evaluate the prevalence and factors associated with general and central adiposity in older adults of Palmas (TO)	Cross-sectional study	449 older adults of both sexes.	Palmas - TO	50.6% female. The mean age was 68.28 years. 56.8% aged between 60 and 69 years. 57% with 1-4 years of schooling and 21.6% with an income below one minimum wage	5/8
(GUEDES et al., 2019)	To identify adverse health outcomes related to declining gait speed in community-dwelling older adults	Cross-sectional study	5501 older adults of both sexes	Different cities located in all Brazilian regions	66.20% female. The mean age was 43.36 years.	6/8
(CONFORTIN et al., 2018)	To investigate the association between chronic diseases and handgrip strength (HGS) in the older adults of Florianópolis, SC	Cross-sectional study	599 older adults of both sexes.	Florianópolis (SC).	65% of females The mean age was 72.4 years. 35% male The mean age was 72.1 years.	4/8

Source: Made by the author (2022)

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Box 3 presents the main results of each selected study, with greater relevance for those statistically significant data. We sought to emphasize the prevalence of rheumatic diseases, as well as relationships found with other conditions or risk factors.

Box 3 – Results of the selected studies

Authors (year)	Results		
	Prevalence	Relationships	OR/PR (95% CI)
(SAES et al., 2021a)	27.2% of the older adults had a medical diagnosis of rheumatism/arthritis/arthrosis	X	Older adults with rheumatic diseases were more likely to have a spinal disorder when compared to those without these diseases. Model adjusted for self-perceived health, history of fractures in the last year, systemic arterial hypertension, diabetes mellitus and cognitive deficit PR: 1.67; 95% CI 1.46-1.91 p<0.001
(PIMENTEL et al., 2018)	25.0% of the older adults had a medical diagnosis of arthritis or rheumatism	X	Older adults with rheumatic diseases were more likely to fall. Model adjusted for sex and age PR: 1.39; 95% CI 1.23-1.57
(ASSUMPÇÃO et al., 2018)	43.60% of the older adults had a medical diagnosis of rheumatism	X	Older adults with rheumatic diseases had a lower prevalence of low weight when compared to older adults without rheumatic disease. Model adjusted for sex, age group, hypertension, diabetes, loss of appetite, smoking, frailty PR 0.58; (0.45, 0.76) p<0.001

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Silva et al.	31.6% of the older adults reported having rheumatism	Among the older adults with rheumatic diseases, 75.5% had Common Mental Disorders, while among the older adults without rheumatic disease the prevalence was 46.7%, $p < 0.001$	Older adults with rheumatic diseases were more likely to have Common Mental Disorders Single model PR 1.61; 95% CI 1.50-3.15
(TORRES; DE CASTRO; LUSTOSA, 2019)	26.6% of the older adults had a medical diagnosis of arthritis	Among the older adults who do not currently work, 90.6% have rheumatism, while among the older adults who work the prevalence was 9.4%, $p < 0.01$	People, 65 years of age or older, with arthritis are less likely to be currently working. Model adjusted for sex, age, education, retirement, BMI, hypertension, depression, heart disease, diabetes and frailty PR 0.54; 95% CI 0.35-0.85
(SAES et al., 2021b)	27.3% of the older adults had a medical diagnosis of arthritis, arthrosis or rheumatism	X	Females (PR=2.86; 95% CI 2.28-3.59; $p \leq 0.001$), without education (PR=1.24; 95% CI 1.0-1.58; $p=0.047$), do not live alone (PR=1.29; 95% CI 1.03-1.61; $p=0.024$), self-perceived poor health (PR=1.54; 95% CI 1.63-2.02; $p=0.001$), spinal problems (PR=1.96; 95% CI 1.67-2.31; $p \leq 0.001$), fall in the last year (PR=1.22; 95% CI 1.04-1.43; $p=0.013$), presence of disability for instrumental activities of daily living (PR=1.20; 95% CI 1.02-1.41; $p=0.028$) and medical consultation in the last 3 months (PR=1.20; 95% CI 1.01-1.42; $p=0.035$) were associated with the presence of rheumatic diseases. Model adjusted for demographic and socioeconomic variables, behavioral, health perception, health status, functionality and use of health services
GUIMA-RÃES et al., 2020)	36.3% of the older adults reported having rheumatism	Among the older adults with rheumatic diseases, 54.6% had general adiposity, while among the older adults without rheumatic disease the prevalence was 42.3%. $p=0.012$	X

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(GUEDES et al., 2019)	31.60% of the older adults reported having rheumatism	Among the older adults with gait speed less than 0.8 m/s 45.20% had rheumatic diseases, while among the older adults with gait speed equal to or greater than 0.8 m/s the prevalence was 24.50% (p<0.01)	Older adults with rheumatic disease are more likely to have a walking speed of less than 0.8m/s OR 2.16 95% CI 1.79-2.52; p < 0.01
(CONFOR-TIN et al., 2018)	43% of older women and 23.4% of older men reported having arthritis, arthrosis or rheumatism	X	Women with rheumatic diseases had lower Hand Grip Strength. Model adjusted for age, education, family arrangement, smoking, physical activity, body mass index (BMI), cognitive status, functional disability and chronic health conditions. β :-1.37; 95% CI:-2.55;-0.20; p = 0.022 There was no difference between men with and without rheumatic disease

Source: Made by the author (2022)

DISCUSSION

Prevalences of rheumatic diseases ranging from 25% to 43.6% were found when analyzed in the older adults of both sexes. The articles that analyzed populations from different regions of Brazil¹¹⁻¹²⁻¹³ did not make comparisons regarding the prevalence of these diseases. In the comparison by sex, only one article made this distinction¹³, in which the prevalence of rheumatic disease was 43% in women and 23.4% in men. However, another study¹² found a prevalence ratio of rheumatic disease 2.86 times higher in females when compared to males.

The prevalence of rheumatic diseases among women may be associated with biological causes, including hormonal disorders arising from puberty and climacteric¹⁴⁻¹⁵. In women, puberty begins earlier when compared to males, thus, they have a greater tendency to develop rheumatic diseases such as osteopenia and osteoporosis¹⁶. Behavioral differences and pregnancy may also be associated with a higher prevalence of these diseases in females¹⁶.

When associated with rheumatic diseases with physical changes, it was noticed that people with rheumatic diseases had a higher prevalence ratio for spinal disorders¹¹⁻¹², occurrences of falls¹⁷⁻¹², lower walking speed¹⁸, lower handgrip strength¹³ and disabilities for

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activities of daily living¹². Thus, rheumatic diseases significantly impair the quality of life of the older population, interfering with the independence of activities of daily living due to their progressive and chronic character. In addition, these impairments can also generate functional disabilities, social withdrawal and depression¹⁹. These disabilities occur due to joint damage, causing stiffness and movement restriction, which affects ambulation and increases the likelihood of falls²⁰⁻¹⁷.

Muscle weakness in the lower limbs is related to reduced functionality and slowed gait in older adults with rheumatism, resulting in a decrease in the size of the stride²¹⁻²². The reduction in handgrip strength in these individuals, on the other hand, occurs due to the atrophy caused by the lack of use of the limb and the pain generated by the disease²³.

As for body composition, one study showed a relationship between rheumatic disease and general adiposity²⁴, while another found that the older adults with rheumatic diseases had a lower prevalence of low weight when compared to the older adults without rheumatic disease²⁵. In the aging process, it is possible to identify greater distribution and accumulation of body fat, especially in the abdominal region. In men, this event occurs earlier, around midlife, and in women after menopause²⁶.

The increase in obesity generates greater chances of developing arthrosis, due to the accumulation of body fat causing overload in the joints, leading to cartilage degeneration²⁷. Some studies address the advantages of weight reduction in reducing joint impacts and inflammatory biomarkers such as IL-6 and CRP²⁸. In addition, patients with rheumatic diseases are more sedentary when compared to the rest of the population²⁹⁻³⁰. Through a study in which individuals with rheumatoid arthritis were selected, it was observed that they were less likely to start or stay in physical activities³¹.

As for sociodemographic variables, it was found that the older adults with rheumatic disease had a higher prevalence ratio for not currently working³², low education¹² and not living alone¹². The probability of an older person developing some rheumatic disease is associated with less learning during the school period, which leads to work with greater physical effort and musculoskeletal overload throughout life³³. Consequently, when they reach older age groups, they need greater assistance to carry out their daily activities, making it impossible for them to live alone³⁴.

In our study, there was also a higher prevalence ratio for medical visits in the last 3 months and poor self-perception of health¹². The individuals' perception of their own health is an indicator that takes into account physical, emotional and cognitive aspects³⁵⁻³⁶.

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Furthermore, rheumatic diseases influence the health status of their sufferers, affecting their quality of life and their daily activities³⁵⁻³⁶, consequently damaging their self-perception of health.

Finally, our results found a higher prevalence ratio for common mental disorder in patients with rheumatic disease³⁷. This condition manifests itself from a set of somatic symptoms, anxiety and depression³⁸. Depression is present in 15 to 50% of patients with rheumatism, probably due to the presence of disability, a condition of dependence and social isolation³⁹⁻⁴⁰. It is observed that symptoms of anxiety and depression in patients with systemic lupus erythematosus are present in 93% of cases⁴¹. On the other hand, people diagnosed with rheumatoid arthritis have an approximately threefold higher incidence of depression and anxiety⁴².

Another hypothesis for the greater development of depressive symptoms is the relationship with the pain generated by rheumatic diseases. Studies show that people with chronic musculoskeletal diseases have a degree of pain between 7 and 8, according to the numeric pain scale⁴³. The study by Monti and Caporali⁴⁴, on the other hand, showed that 25% of the participants interviewed with rheumatic diseases commented that they had musculoskeletal and joint pain at some period of life.

This study found limitations such as the lack of research with comparative data between the different regions of the country, as well as more in-depth research on the impact of rheumatic disease on the older population, since most studies address the population segment with a younger age group. Even so, it was possible to verify the consequences of rheumatic diseases in physical, mental and functional aspects, which can serve as a basis for the elaboration of public policies that aim to maintain functionality in the older adults.

CONCLUSION

According to the results found in the studies, it was observed that the prevalence of rheumatic diseases ranged from 25% to 43.6% when analyzed in the older adults of both sexes. It was also possible to observe that rheumatic diseases are more prevalent in females.

Regarding the consequences of rheumatic diseases in the older population, there were changes in physical, mental and functional aspects. Older adults with rheumatic diseases had a higher prevalence ratio for spinal disorders, occurrences of falls, lower walking speed, lower handgrip strength, disabilities for activities of daily living, general adiposity, not

currently working, low education, not living alone, medical appointments in the last 3 months, self-perceived poor health and common mental disorder. It is suggested that this information can serve as a basis for the elaboration of public policies that aim to maintain physical and cognitive functionality in the older adults with rheumatic diseases, contributing to a better quality of life for this population.

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