

# Prevalence of self-reported rheumatic diseases in a portuguese population

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## ABSTRACT

**Objectives:** With this study we attempted to estimate the prevalence of self-reported rheumatic diseases in a Portuguese population. It was also our objective to evaluate the influence of the variables sex and age on the prevalence of these diseases.

**Patients and Methods:** The study population was comprised of 297 individuals from a total of 573 random telephone numbers selected from the city of Lisbon telephone book (landline/residents). Those 297 were the ones that agreed to answer the proposed questionnaire.

**Results:** The prevalence value of self-reported rheumatic diseases was 26.3%. A prevalence value of self-declared osteoarthritis of 21.2% was found, 7.7% for osteoporosis, 1.3% for rheumatoid arthritis and 0.3% each for gout, systemic lupus erythematosus, Behçet's disease and fibromyalgia. An association with the variables sex and age was achieved for the total of rheumatic diseases. The same association was obtained for osteoarthritis and osteoporosis.

**Conclusions:** This study emphasizes the good self-judgment that the inquired population has about their rheumatic diseases, and some of the obtained results are in agreement with the national and worldwide literature.

**Keywords:** Epidemiology; Self-report; Rheumatic diseases.

## INTRODUCTION

Musculoskeletal conditions are highly prevalent and as a high level impact. They are the most common cause of severe long-term pain and physical disability, and affect hundreds of millions of people around the world<sup>1</sup>. Approximately 33% of adults in the United States are currently affected by musculoskeletal signs or symptoms, such as swelling, limitation of motion, or pain<sup>2</sup>. In 2005 in Europe, a prevalence for musculoskeletal conditions in adult population was estimated between 20-30%<sup>3</sup>. In Portugal, in the scope of a national project for rheumatic diseases, ONDOR - Observatório Nacional das Doenças Reumáticas (National Observatory for Rheumatic Diseases) a prevalence value for rheumatic diseases of 23% was achieved<sup>4</sup>. In a study developed by the Observatório Nacional de Saúde (National Observatory of Health) regarding chronic diseases, an even higher prevalence of self-reported rheumatic diseases (24%) was acknowledged<sup>5</sup>. The high frequency and disability that are usually associated with these diseases results in a huge impact on the patient's quality of life and their families, leading to huge costs for the health-care systems and society in general. In Portugal, musculoskeletal condition was the first cause of visits to physicians, second in medication costs (but first in units), first cause of disability (temporary and permanent) and first cause of early retirement<sup>6</sup>.

Musculoskeletal conditions are a diverse group regarding pathophysiology but are linked anatomically and by their association with pain and impaired physical function<sup>1</sup>.

Despite existing accurate prevalence data for rheumatic diseases in several countries, there is no national data for Portugal. EpiReumaPt is still an ongoing study, which makes the present work a low budget and quick response tool to fill the current lack of prevalence data mentioned above. Once the EpiReumaPt results are known the comparison of both studies will allow

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understanding the magnitude of the differences between self-reported prevalence data and clinical diagnoses. It is well known that self-reported diseases may not represent the actual diagnosis, varying with population believes and education. Nonetheless, the approach undertaken in this study allowed unbiased answers, since no response options were given to respondents throughout the questionnaire. Hence, these figures are important because they truly translate patients' judgment about their health condition.

This study aimed to determine the prevalence of self-reported rheumatic diseases in a population of individuals who had a landline phone number and residence in the city of Lisbon. It was also an objective of this study to evaluate the association of the variables sex and age with all the self-declared pathologies. The self-reported pathologies will give an important contribution to one of this study's main aims, the knowledge of the respondent population's self-judgment.

## PATIENTS AND METHODS

A cross-sectional epidemiological study was developed based on a sample of 573 randomly selected registered landline numbers from Lisbon city residents' telephone book. A random numbers table was used<sup>7</sup>, and the selection was done using the two last numbers from the random table and the two last numbers of the telephone numbers. From a total of 573 phone calls, 297 residents agreed to answer the proposed questionnaire in the beginning of the call. The questionnaire began by inquiring age (immediately eliminating those under 18 years of age), gender, and whether or not suffering from a rheumatic disease "*Do you suffer from a rheumatic disease or not?*". Upon an affirmative answer, it was asked "*which disease?*". Then, specific questions were asked, in order to obtain more detailed information on the knowledge of the self-declared rheumatic disease, such as: "*when was the disease first diagnosed?*"; "*Are you being followed by a physician?*"; "*Do you know his/her specialty or his/her name?*"; and "*Do you remember the treatment/medication that you are taking?*". All phone calls took place during the working week (Monday to Friday), between 10h30 and 20h during the months of January to July 2011.

Quantitative variables were expressed as mean and standard deviation and categorical variables in frequencies. According to the obtained distribution, quantitative variables were evaluated with a *t* test. Ca-

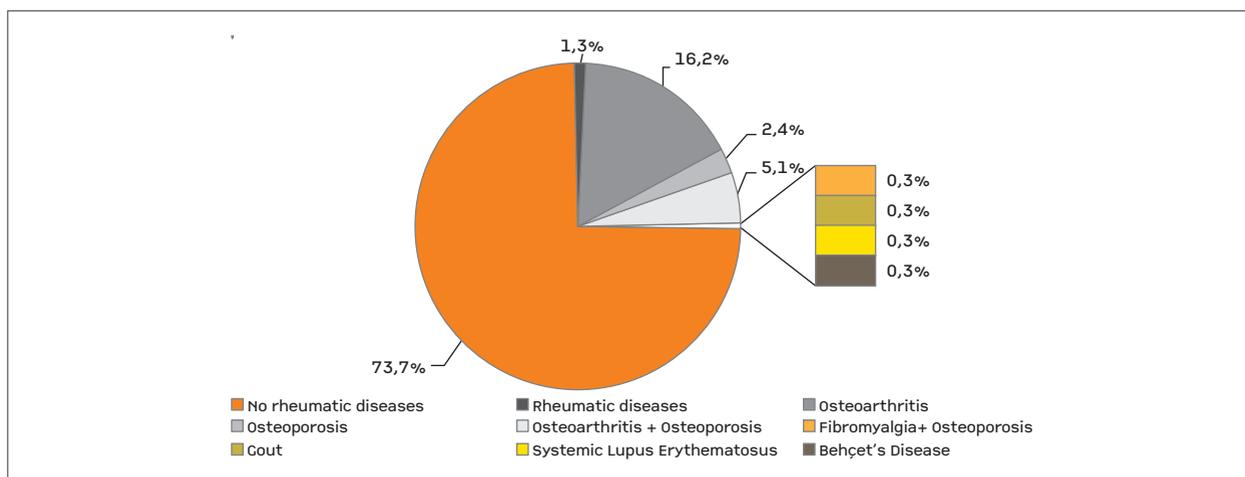
tegorical variables were compared with a chi-square test ( $\chi^2$ ). The association between the analyzed pathologies and the considered variables (sex and age) was also tested recurring to logistical analysis, where odds ratio values and the confidence interval of 95% were taken. For the prevalence values were also determined the 95% confidence interval based on the Wilson Score Method<sup>8</sup>. A significance level of 5% was considered in all the statistical analysis undertaken. Statistical analyses were carried out with IBM, SPSS, Statistics 20<sup>9</sup>.

## RESULTS

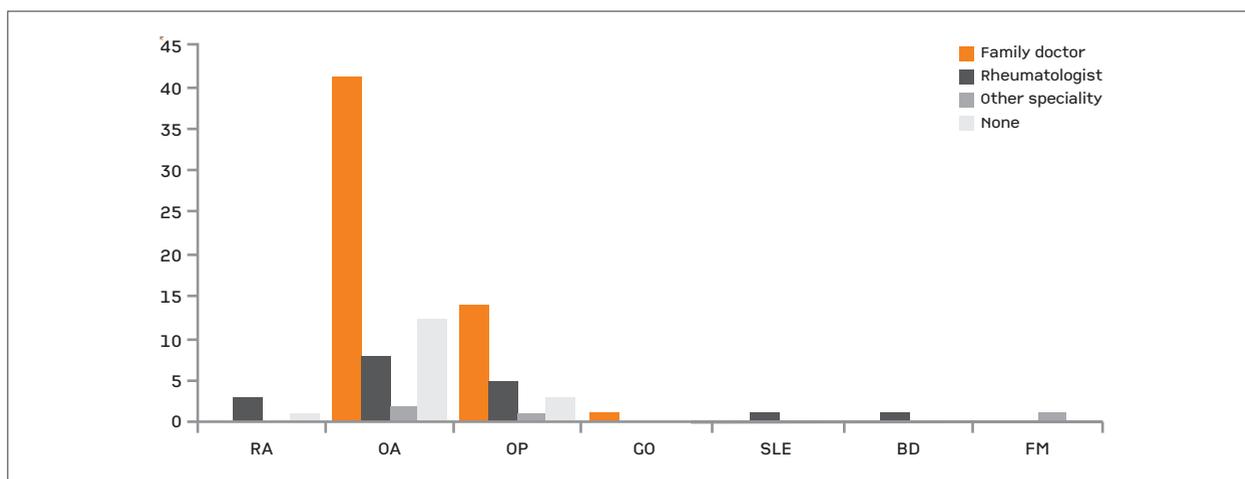
Two hundred and ninety seven (297) individuals were inquired with a mean age (SD) of 64.7 (14.4) years, being 211 (71%) women with a mean age of 65.1 (14.2) and 86 (29%) men with a mean age of 63.7 (15.0). Of the total sample, 78 individuals have self-declared suffering from rheumatic disease 26.3% (95% CI: 21.4% - 31.7%). Of these, 63 suffered from osteoarthritis (OA) 21.2% (95% CI: 16.8% - 26.8%), 23 from osteoporosis (OP) 7.7% (95% CI: 5.1% - 11.5%) and 4 from rheumatoid arthritis (RA) 1.3% (95% CI: 0.4% - 3.7%); gout (GO), fibromyalgia (FM), systemic lupus erythematosus (SLE), and Behçet's disease (BD) were declared as a condition by one individual each 0.3% (95% CI: 0.0% - 2.2%); fifteen individuals declared suffering from OA and OP simultaneously 5.1% (95% CI: 3.0% - 8.4%) and one from FM and OP 0.3% (95% CI: 0.0% - 2.2%) simultaneously (Figure 1).

Of the individuals who self-declared suffer from RA, the medication taken coincided with the type of medication used in these pathologies (i.e. non steroidal anti-inflammatory drugs, corticosteroids, methotrexate, infliximab, etanercept and adalimumab). Only one claimed not to remember the name of his physician and medication. Rheumatoid arthritis was the third most representative self-reported disease with a prevalence value of 1.3%. Unfortunately most patients did not remember the medication they were taking or they simply were not taking any medication at all.

From the total of 78 individuals who declared suffering from rheumatic diseases, 46 (59%) were being followed by their family doctor, 15 (19.2%) by a rheumatologist, 3 (3.8%) by a physician from other specialty that they couldn't specify, and 14 (17.9%) were not being followed at the time the questionnaire was applied. The distribution of the physicians that were following the individuals who self-declared suffering



**FIGURE 1.** Frequencies of self-reported rheumatic diseases in the study population



**FIGURE 2.** Absolute and relative frequencies for the physician specialty by which patients are being followed per disease (RA – rheumatoid arthritis; OA – osteoarthritis; OP – osteoporosis; GO – gout; SLE – systemic lupus erythematosus; BD – Behçet's disease; FM – fibromyalgia).

from rheumatic diseases, is displayed on Figure 2, per disease.

A statistically significant association was found between self-declared rheumatic diseases and both age and female gender ( $p < 0.001$ ). Self-declared rheumatic disease frequency was higher in women than men. Concerning the age groups, the ones who achieved statistical significant values for rheumatic diseases were the groups [45-55] and [+75], both with a p-value of 0.001. The highest odds ratio value obtained for age groups was for the [+75] group (Table I).

For OA there was a higher occurrence for women than men. In a total of 63 (21.2%) individuals that declared suffering from OA, 5 (5.8%) were men and 58

(27.8%) were women. Statistically significant values were obtained for age and sex ( $p < 0.001$ ) with an odds ratio value of (OR: 1.1; 95% CI: 1.0-1.1) for age and an odds ratio value of (OR: 6.5; 95% CI: 2.4-17.1) for female gender.

The highest difference between sexes was observed in OP, with a frequency of 22 (10.4%) reported cases for women and only one (1.2%) man, totaling 23 individuals (7.7%). The latter, a man with 86 years of age, has also reported osteoarthritis besides osteoporosis. For the osteoporosis and the variable sex a p-value of 0.030 was achieved, with an odds ratio value of (OR: 9.5; 95% CI: 1.2-72.1). For the variable age, a p-value of 0.001 was achieved, with an odds ratio of

**TABLE I. FREQUENCY OF SELF-REPORTED RHEUMATIC DISEASE BY SEX AND AGE GROUPS**

	n	%	Odds ratio	p-level
Sex				< 0.001
Female	72	34.1	7.5	
Male	6	7.0		
Total	77	26.3		
Age groups (years)				< 0.001
18-24	0	0	---	---
25-34	0	0	---	---
35-44	1	1.3	0.2	0.120
45-54	2	2.6	0.1	0.001
55-65	13	16.9	0.9	0.686
65-74	28	36.4	1.3	0.432
+75	33	42.9	2.7	0.001

**TABLE II. FREQUENCY OF REPORTED DISEASES (OA, OP) BY SEX AND AGE**

Rheumatic disease	n	%	Odds ratio	p-level
OA				
Sex				
Female	58	27.5	6.5	< 0.001
Male	5	5.8		
Total	63	21.2		
Age			1.1	< 0.001
OP				
Sex				
Female	22	10.4	9.5	0.030
Male	1	1.2		
Total	23	7.7		
Age			1.1	0.001

OA – Osteoarthritis; OP – Osteoporosis

(OR: 1.1; 95% CI: 1.0-1.1) (Table II).

Considering RA, differences between genders were found, since only women reported suffering from the disease. Within women, those reporting suffering from RA did not differ statistically from the ones without the disease concerning age.

To SLE, FM, BD and GO, the association with the variables age and sex wasn't tested due to the reduced number of individuals who reported suffering from these diseases. Only GO was reported by man, SLE, FM and BD were reported only by women.

This study obtained a prevalence of self-declared rheumatic diseases of (26.3%) quite similar to the one calculated by the Observatório Nacional de Saúde (ONSA) (National Observatory of Health) in 2005<sup>5</sup> (24%). In the ONSA study, the frequency of self-declared rheumatic diseases was higher in women (29.1%) than in men (18.3%)<sup>5</sup>. Nevertheless, the difference between genders in this study was even higher, with a frequency of 34.1% in women and 7.0% in men. The higher values obtained in the present work may have been influenced by the increased mean age of the study sample as well as the increased life expectancy of women over men<sup>10</sup>, which in turn explains the fact that the number of inquired women significantly exceeded the men. An increase in the frequency of reported pathologies was associated with age, which is in accordance to other data from Europe<sup>11</sup> and a study developed in Portugal, where the frequencies always increased with age and the highest values were always

obtained in the female gender<sup>3</sup>.

Regarding follow-up, the majority of the inquired were being followed by their family doctor (59%). On the other hand, 18% didn't have any type of guiding. However that wasn't the case of those reportedly suffering from systemic diseases like RA, BD and SLE. The great majority of those (83%), were being followed by a rheumatologist.

Osteoarthritis was the most reported disease in this study (21.2%). According to data from the World Health Organization (WHO), an estimated 9.6% of men and 18% of women, aged  $\geq 60$  years, suffer from symptomatic osteoarthritis<sup>1</sup>. A study of self-declared osteoarthritis developed in Portugal presents a prevalence value lower<sup>12</sup> than the value obtained in this study, probably due to the increased mean age of the study population. The prevalence value achieved in Spain (10.2%)<sup>13</sup> and Greece (17.8%)<sup>14</sup> were also lower than the one calculated in this study. This pathology is highly associated to increased age and the female gender<sup>11</sup>, as found in the present study. In a study developed in the USA, the prevalence of OA increased with age and affected the hands and knees of women more frequently than men, especially in persons aged  $\geq 50$ <sup>15</sup>.

In this study, the prevalence value obtained for self-declared osteoporosis in both sexes was 7.7%, quite similar to the one obtained in previous studies<sup>12</sup>. Actually, some of them were developed in a medical environment.

A prevalence value of self-declared RA for the Lisbon landline telephone numbers population of 1.3% was found. By comparison with other study developed in Portugal in the scope of ONDOR project, which presents a prevalence of self-declared value of 1.6%<sup>3,4</sup>, this study presented a closer value to the literature<sup>1,11,16</sup>. Similar results were achieved in Southern Europe although, when compared with other countries including the ones from Southern Europe. Rheumatoid arthritis seems to have a favorable clinical evolution in the Mediterranean countries and in South America, probably associated to the lowest incidence of the antigen HLA-DR4<sup>17</sup>. Rheumatoid arthritis has a relatively low incidence but a long duration and so the prevalence is relatively high<sup>18</sup>. In Portugal, data from the program CINDI<sup>19</sup> suggests a prevalence value of 0.4% on the district of Setúbal. Portugal seems to have a higher predominance from the female gender (80%, 4:1)<sup>17</sup>. This fact also occurs in this study, with all respondents who claimed suffering from RA being from the female gender. However, and because the study population was mostly from the female gender, there was no statistically significant differences in women with or without RA. In the present study RA was the third most reported rheumatic disease, being the first systemic rheumatic disease, which is in line with other epidemiologic studies developed in Portugal and worldwide<sup>3,20</sup>.

Only one man reported suffering from GO. This result agrees with bibliography, being the prevalence value in men almost three times higher than in women<sup>21</sup>. The prevalence value obtained in this study (0.3%) was lower than expected, since the prevalence value previously calculated for Portugal was 1.5%<sup>19</sup> in the scope of the CINDI program, with 1381 supposedly healthy individuals. Similar results were also obtained for other countries<sup>14,16</sup>.

In spite of the prevalence value for fibromyalgia in the general population of Portugal (3.7%)<sup>22</sup> and other countries like Spain (2.4%)<sup>13</sup> being above 2%, in this study the obtained value was only 0.3%, a value that can probably be attributed to reduced sample size and to the mean age of the studied population.

Other systemic rheumatic diseases like SLE and BD presented lower prevalence values. Being the obtained values in accordance with other studies<sup>12,14</sup>. Although these systemic diseases present low prevalence values, especially BD, in this study one individual was found for each condition. As so, a prevalence value of 0.3% for each pathology was determined in this Portuguese

population, a value quite similar to the one found in previous studies in Portugal<sup>23,24</sup>.

One limitation that can bias the obtained prevalence values of all the self-reported diseases in the present study is the reduced sample size and the sample was composed by 211 women (71%). Also the increased mean age of the sample may have influenced the results. The choice of the Lisbon resident's landline ensured that our study population was only from the city of Lisbon. It was a secondary objective of these study to confirm the prevalence of the self-declared values by a rheumatologist, but that was not possible to accomplish because most of the individuals refused the opportunity of being observed, despite informed that the medical consultation would be free of charge. Mobile phones are the most used devices of communication, but the landline was chosen to ensure that we were only contacting residents from the city of Lisbon.

The time of contact (10h30 – 20h) may also have influenced the sample size, which was small, and the sample mean age. At these times of the day, the majority of the active population is not at home. Most probably the majority of individuals, with a landline and at home during the contact window, were retired persons. Nonetheless, calculations based on census data provided by Instituto Nacional de Estatística (Statistics Portugal) the mean age of the city of Lisbon population is a little higher (44.9 years) than the general Portuguese population (42.3 years)<sup>10</sup>.

Although the age of beginning of illness and which medication they were taking was questioned to all individuals who self-declared to suffer from a rheumatic disease, the majority did not remember, which may be a result of the relatively advanced age of the study population. Because of this, these variables could not be evaluated.

Despite all limitations, this study offers, in our opinion, a good contribution to important aspects of the study of rheumatic diseases because it was possible to understand the importance and self-knowledge of these pathologies to the public in general. In our opinion, the fact that this questionnaire was not conducted in a clinical environment, has enabled a better understanding of the respondents' perception to this topic. This work reinforces the importance of broader studies, at national level, such as EpiReumaPt, considering the prevalence values determined in a relatively small sample of individuals, as was the case of the present study population. The results obtained, although being anonymously self-declared, are quite similar to

the ones obtained in a medical environment. It is important to enhance the fact that it was not suggested a list of rheumatic diseases for answer, but simply asked if the respondents suffered from a rheumatic disease, and if so, which one. This can suggest that the study population has a good knowledge of his/her health condition and reinforces their real importance to the public in general.

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