



## Disability due to rheumatic diseases in the city of Junín, Argentina

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### Abstract

The aim of the study is to analyze the characteristics of patients with rheumatic diseases applying for a Disability Certificate (DC). Every application for DC filed by patients of 16 years of age and older in the Health Secretariat of Junin, between 2012 and 2016, was analyzed regarding age, gender, rheumatic disease as the cause of disability, employment status, and health insurance coverage. Applications were examined as per two elements: inflammatory articular or systemic disease (IASD) versus degenerative diseases, regional or generalized pain syndromes (non-IASD). Based on the DCs accepted, a Disability Prevalence Rate (DPR) was estimated and the most common causes of disability were determined. Out of 400 applications, 68% belonged to women; applicants' median age was 61 years, only 27% were working, 42% were for DC renewal, and 46% were IASD. Overall, 83% of the applications submitted were accepted. Those patients with accepted DC applications were older (median age 62 vs 55;  $p < 0.001$ ), had health insurance coverage (90% vs 65%;  $p < 0.001$ ), were applying for DC renewal (49% vs 12%;  $p < 0.001$ ) and more frequently presented a IASD (52% vs 17%;  $p < 0.001$ ). 48% of accepted DC applications had osteoarthritis (OA), 36% rheumatoid arthritis (RA), 6% psoriatic arthritis (PsA), 5% systemic lupus erythematosus (SLE) and 2% ankylosing spondylitis (AS). The DPR was 0.5%. Overall, the accepted applications for DC belong to older patients with health insurance coverage, who were submitting an application for DC renewal and suffer from a IASD. OA, RA, PsA, SLE and AS were the five most common causes of disability.

**Keywords** Disability · Disability certificate · Rheumatic diseases · Osteoarthritis · Rheumatoid arthritis

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### Introduction

Rheumatic diseases are the leading cause of disability and they impose an enormous economic, social and human burden to society [1]. It has been estimated that 10% of the population suffer from these diseases, them being among the ten leading causes of total disability in the United States, Canada and Mexico [2].

The International Classification of Functioning, Disability and Health (ICF-WHO [3]) defines disability as “an umbrella term for impairments, activity limitations and participation restriction. It denotes the negative aspects of the interaction between an individual (with a ‘health condition’) and that individual’s contextual factors (environmental and personal factors)” [3].

Therefore, disability is a broad and multidimensional term, encompassing different impairments and restrictions that diseased individuals experience in their everyday lives. For this reason, it can be measured in different ways, using a wide variety of tools.

The disability certificate (DC) is a public document valid throughout Argentina that entitles the disabled to the benefits provided by Argentine law. The DC grants access to free short-distance and long-distance transportation, transportation provided by the health insurance companies and union healthcare organizations when the rehabilitation center and the patient's residence are far away, full coverage for medicines, treatments, and high complexity tests. The certificate is awarded by the disability assessment board, which certifies that a person is disabled. Obtaining a DC does not involve receiving a pension or retirement plan, thus the patient is not compelled to stop working [4].

The Argentine Ministry of Health yearly reports disability figures, which are based on the number of people that were awarded a DC, in accordance with their type of disability and place of residence. For example, in 2015 in the province of Buenos Aires (the most populated province in the country, with a population of 15 million inhabitants according to the last 2010 Census) there were 21,997 people with impaired mobility, which represented 31.65% of the disabled [5]. However, different neurologic, orthopedic and rheumatic conditions are included in impaired mobility.

Given the fact that, to the best of our knowledge, there is no nationwide information concerning disability related to rheumatic disease in our country, this research has been carried out with the aim of analyzing the characteristics of patients applying for a DC due to rheumatic diseases, and estimating disability prevalence rates due to rheumatic diseases in the City of Junín, Province of Buenos Aires, Argentina.

## Methods

All the applications for DC due to rheumatic diseases from patients aged 16 and older submitted to the Health Secretariat of Junín City Hall between January 2012 and December 2016 were analyzed.

The city of Junín is in the Province of Buenos Aires, 260 km away from the City of Buenos Aires, the capital city of Argentina. According to the 2010 Census, the population for Junín is 69,368 inhabitants aged 16 and older.

Briefly, in Junín any person applying for a DC must submit a doctor's certificate containing diagnosis, current status of the disease, treatment undergone by the patient and response to said treatment. The certificate must be issued by a specialized or treating physician within 6 months of presentation. To assess the applicants' activity and disability, they must also submit all the complementary tests available and fill in the attached forms, which are different depending on the applicant's condition (for example, for RA: Health Assessment Questionnaire, Disease Activity Score 28, radiological classification; etc.). To assess disability, the

following two classifications of the World Health Organization are used: (1) the International Statistical Classification of Diseases and Related Health Problems, 10th revision ICD-10; and (2) the International Classification of Functioning, Disability and Health (ICF). The applicant must undergo a medical examination. Upon receiving a DC, it must be renewed every 5–10 years, depending on the underlying disease [6].

The Disability Assessment Board of Junín examines all applications submitted by people living in the district.

The following variables were analyzed in our study: applicant's age, sex, rheumatic disease causing disability, employment status and health coverage. Rejected and accepted applications were analyzed. Applications were examined as per two elements: inflammatory articular or systemic disease or IASD, such as rheumatoid arthritis, psoriatic arthritis, systemic lupus erythematosus, ankylosing spondylitis, gout or vasculitis versus degenerative diseases, regional or generalized pain syndromes or non-IASD-like osteoarthritis, cervicgia, low back pain or fibromyalgia.

Finally, based on the DCs accepted, a Disability Prevalence Rate (DPR) due to rheumatic conditions was estimated. The Disability Prevalence Rate was defined as the ratio between the total number of DCs accepted (for all rheumatic conditions) over the total number of people aged 16 and over (per 100 inhabitants).

The databases analyzed were anonymous and there was no contact with the DC applicants. This research has been authorized by the Local Office for People with Disability.

## Statistical analysis

Descriptive statistics were used for patients' characteristics and included means ( $\pm$  standard deviation), median (range 25–75%) and relative frequencies (%) as applicable. Bartlett's Test was used for Inequality of Population Variances. Means were compared using *T* student tests and medians were compared using the Mann–Whitney test. Nominal variables were compared using chi-square tests. A *p* value < 0.05 was considered as statistically significant for two-tailed tests. The statistical analysis was carried out using Microsoft Office Excel 2007 and EPI Info Version 3.5.4.

## Results

Of 400 applications analyzed, 269 (67%) were from women with a median age of 61 years. At the time of application, 109 (27%) of the applicants were working. 169 (42%) were applications for DC renewal, and the remaining were new applications. 185 (46%) of the cases analyzed belonged to IASD.

**Table 1** Characteristics of patients with accepted and rejected disability certificate (DC) applications

	Accepted applications	Rejected applications	<i>p</i>
<i>n</i> (%)	331 (83%)	69 (27%)	n/a
Women (%)	224 (68%)	45 (65%)	0.8
Median age (in years) (range 25–75%)	62 (53–72)	55 (51–62)	<0.001
Applications for DC renewal	161 (49%)	8 (12%)	<0.001
Were working	87 (26%)	22 (32%)	0.4
Had health coverage	299 (90%)	45 (65%)	<0.001
Suffered from a type of IASD	173 (52%)	12 (17%)	<0.001

**Table 2** Characteristics of patients with inflammatory articular or systemic disease (IASD) and degenerative diseases, regional or generalized pain syndromes (non-IASD) who applied for a disability certificate (DC)

	IASD	Non-IASD	<i>p</i>
<i>n</i> (%)	185 (46%)	215 (54%)	n/a
Women (%)	146 (79%)	123 (57%)	<0.001
Mean age (in years) (SD)	54 (13)	67 (12)	<0.001
Applications for DC renewal	100 (54%)	69 (32%)	<0.001
Were working	70 (38%)	39 (18%)	<0.001
Had health coverage	155 (84%)	189 (88%)	0.3
DC applications accepted	173 (94%)	158 (73%)	<0.001

The number of applications for DC increased yearly: 55 in 2012, 58 in 2013, 89 in 2014, 94 in 2015 and 104 in 2016. Overall, 83% of the applications submitted were accepted.

The characteristics of patients with accepted and rejected DC applications are shown in Table 1.

In general, patients with accepted applications for DC were older, had health insurance coverage and more frequently suffered from a type of IASD. Patients applying for DC renewal were more frequently granted the certificate. There were no differences in sex or employment status at the time of application.

The characteristics of patients with IASD and non-IASD who applied for a DC are shown in Table 2.

Diseases that triggered the application for DC in accepted and rejected applications are detailed in Table 3.

The overall Disability Prevalence Rate due to rheumatic diseases was 0.5%: 48% of accepted DC applications were for Osteoarthritis (OA), 36% rheumatoid arthritis (RA), 6% psoriatic arthritis (PsA), 5% systemic lupus erythematosus (SLE) and 2% ankylosing spondylitis (AS).

It is important to notice that regional pain syndromes (cervicalgia, low back pain and lumbosciatica) were the third cause of DC application. However, the DC was not accepted in any of these cases.

## Discussion

Rheumatic conditions are extremely common and include more than 150 different diseases and syndromes, usually characterized by pain, reduced physical function, and increased risk of mortality [7].

In Argentina, there is no official data on the prevalence of disability due to rheumatic diseases, and most research on disability is focused on work disability.

According to estimations by WHO Group on the Burden of Musculoskeletal Conditions in 2003, 40% of people over the age of 70 suffered from osteoarthritis of the knee, 80% of patients with osteoarthritis had some degree of limitation of movement, and 25% could not perform their major daily activities of life. Regarding RA, the report

**Table 3** Main rheumatic diseases that triggered disability certificate applications and patients' characteristics

	<i>N</i>	Average age (in years)	Years of disease evolution (average)	Health coverage (%)	Working (%)	Accepted DCs (%)	Rejected DCs (%)
Osteoarthritis	184	69	10	90	16	158 (86%)	26 (14%)
Rheumatoid arthritis	126	55	10	81	36	119 (94%)	7 (6%)
Cervicalgia/low back pain, lumbosciatica	27	52	7	81	30	0 (0%)	27 (100%)
Psoriatic arthritis	19	51	10	95	58	19 (100%)	0 (0%)
Systemic lupus erythematosus	17	48	15	88	29	16 (94%)	1 (6%)
Ankylosing spondylitis	6	48	7	100	43	5 (83%)	1 (17%)
Other	21	56	7	71	33	14 (67%)	7 (33%)

estimated that between 51 and 59% of patients ceased their employments a decade after its onset [8].

In THE Quest RA study data from 32 countries, including Argentina, were analyzed. At the time of first symptoms, 100% of men and 64% of women under 65 years old were working. More than one-third of these patients reported subsequent work disability because of RA [9].

Work disability caused by SLE has been estimated at 32.5%, according to a systematic review of 9,000 patients [10]. In an observational and cross-sectional study published in 2018 and carried out by Pisoni et al., from the Argentine Society of Rheumatology SLE Study group, 419 SLE patients with an average age of 38.7 and an average disease course of 8.9 years were assessed. In this study, the prevalence of work disability was estimated at 24.3% [11].

It should be noted that in our study we report the percentage of patients with SLE and disability who still work, so the average age of our population was older than the average age considered by Pisoni et al. and the course of the disease was longer as well. For example, Garris et al. [12] analyzed a sample from the Medicare patient database (which includes, in general, 65-year-old people or older, or people younger than 65 with some disability) and reported that in the United States, 49% of patients with SLE received disability benefits.

A study carried out in Italy between January and March, 2013, including 770 patients (mostly AS and PsA) reported that 49% of the patients showed disability, and 34% of them were already receiving disability benefits [13]. A study published in 2005 that analyzed the standardized employment ratios for different rheumatic diseases in Germany showed that, whereas SLE, RA, Wegener's granulomatosis and systemic sclerosis had the lowest employment rates, AS and PsA had the highest employment rates: 0.94 and 0.92 respectively, considering the general population (employment rate: 1.00) as reference [14]. In our study, although PsA and AS were rated among the five main causes of disability, they showed higher employment levels than the other conditions.

This study has the following limitations: the number of DC applications almost doubled between 2012 and 2015. A similar pattern has been observed throughout the country for every disability condition: whereas in 2012 277,291 DCs were issued, in 2015 the number amounted to 731,745. This growth is due to the fact that Disability Assessment Boards have been created throughout the country in the recent years. However, this increase has reached a plateau in the last years: whereas in 2011 the interannual variation was 90.12%; in 2012 it was 62.19%; in 2013, 25.48%; and in 2014, 4.81% [15].

The universe under this study is individuals who have applied for DC, which is not representative of the entire universe of the disabled. As mentioned in Methods, DCs are renewed every 5–10 years, depending on the condition. For

this reason, in these first data, underreporting of people with disability is to be expected.

The data were anonymous, and access to the patients' medical charts or complementary tests available (for example Health Assessment Questionnaire, Disease Activity Score 28, radiological classification; etc) was not granted, so it was feasible neither to corroborate the diagnosis nor applicants' activity and disability.

DC benefits include 100% coverage of drugs and high complexity tests. Therefore, taking into account that patients with RA, PsA, AS and SLE take highly expensive prescription drugs, it is reasonable to rate these conditions among the five most frequent causes of disability. Even so, the most common cause of disability was OA, with a number of accepted DCs similar to the other conditions together.

As a strength of this study, it is to be highlighted that the Disability Assessment Board examines all applications submitted by people living in the district, and it is governed by specific regulations within the framework of Argentine Law. Therefore, the criteria to determine the existence, or not, of disability is uniform throughout the territory. For this reason, although the data presented in this study are local, they provide a reliable source of information which may be helpful when analyzing similar data from other parts of our country.

In summary, 0.5% of the population in Junin who obtained a DC had a rheumatic condition. The accepted applications for DC generally belong to older patients with health coverage, who are submitting an application for DC renewal. Patients with IASD are more likely to be granted a DC. OA, RA, PsA, SLE and AS were the five most common causes of disability.

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## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

**Ethical approval** The information encompassed in the database analyzed by the authors is anonymous and it identifies applications submitted between January 2012 and December 2016. Consequently, ethical consent was not obtained. This research has been authorized by the Local Office for People with Disability.

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