

# Prevalence of Comorbidities in Patients with Psoriasis in Brazil: Preliminary Results of the Pharmacoepidemiological Study Pso.BRA

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## ABSTRACT

Psoriasis is a chronic inflammatory skin disease with multisystem involvement and associated with multiple comorbidities. It is estimated that the disease affects up to 11.4% of adults. Several factors contribute to the development and worsening of psoriasis and the identification of these factors is important to individualize therapy and achieve better therapeutic results and the quality of life for these patients. However, epidemiological data are scarce, especially in Brazil, making clinical management difficult. The aim of the Pso.BRA study is to trace the pharmacoepidemiological profile of patients with psoriasis in Brazil. The pilot project included 97 patients over 18 years of age, of both sexes, with psoriasis diagnosed at any level of severity treated at two outpatient psoriasis services located in Curitiba (Paraná, Brazil). Regarding sociodemographic data, the mean age of patients was 55.93, with predominance of males and Caucasian. The mean age of psoriasis onset in the participants was 37, and about half of the patients reported having a family member with psoriasis. The mean number of attacks per year was 1.51, and the psoriasis severity rating was 4.33. Around 23.7% reported dissatisfaction with treatment. Pruritus was highlighted as the greatest discomfort among patients. There was a predominance of obesity, sedentary lifestyle, and altered abdominal circumference, as well as arterial hypertension, diabetes, and high cholesterol, when compared to data from the general Brazilian population. All these associated factors bring an extra cardiovascular risk to patients and these conditions must be analyzed individually in search of control of psoriasis and comorbidities. The continuity of the study will bring data that will determine the pharmacoepidemiological profile of Brazilian patients, significantly impacting decision-making for the treatment and control of both psoriasis and associated comorbidities.

**Keywords:** Psoriasis; Comorbidities; Pharmacoepidemiology

## INTRODUCTION

Psoriasis is a chronic, immune-mediated inflammatory skin disease. Reviews indicate that psoriasis affects between 0.5 and 11.4% of adults and 0 to 1.4% of children, with no defined susceptibility to sex. It can start at any age, but the intervals for psoriasis onset are between 30 and 39 years old and between 50 and 69 years old. The increased incidence of this disease has been documented through population studies around the world [1-3].

Smoking, alcohol use, obesity and other comorbidities are factors that can contribute to the development and worsening of psoriasis. Identifying risk factors is essential to individualize therapy to improve not only skin lesions but also the onset or progression of associated comorbidities [4]. Although the last decade has

experienced the incorporation of new therapies for the treatment of psoriasis, patient satisfaction with the treatment remains modest [5].

The disease has a significant impact on the patient's quality of life that can lead to these risk factors that can both trigger and worsen psoriasis. Eighty-one percent of countries lack information about the epidemiology of psoriasis [3,6]. In Brazil, there is practically no robust information available. The largest study performed to date was APISSOT, which assessed the severity of psoriasis in a population-based, multicenter, cross-sectional study [7]. The World Health Organization (WHO) emphasizes the importance and need for more information on the incidence and prevalence of psoriasis in the world to ensure a higher level of effectiveness and safety of currently recommended treatments [8].

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This study aimed to describe the sociodemographic and clinical characteristics related to comorbidities of patients with psoriasis in our pilot pharmacoepidemiological study (Pso.BRA) in Curitiba, Paraná, Brazil.

## METHODOLOGY

A prospective, cross-sectional study was carried out with data from voluntary patients, over 18 years of age, of both sexes, who had psoriasis at any level of activity, diagnosed by standardized clinical criteria and/or laboratory report confirming the pathology.

The pilot study sample consisted of 97 patients who agreed to participate and signed the Free and Informed Consent Term (FICT).

Data were collected by resident physicians after a routine consultation using the collection instrument created in Google Forms in the offices of the Department of Dermatology of the Santa Casa de Curitiba Hospital and of the Dermatology Service of the Mackenzie Evangelical University Hospital in the period of March 2021 to January 2022. The Institutional Ethics Committee approved the study.

The results were analyzed using descriptive statistical analysis using the WPS Office 11.2.0.11156 software.

## RESULTS

Table 1 displays the sociodemographic characteristics of the participants. The mean age of the 97 patients included in the

pilot study was 55.93 years (SD 12.65). There was a small male predominance. Among total participants, 4.1% were pregnant, and 61.9% declared themselves to be Caucasian. 41.2% of participants presented upper secondary level of education, and family income of two Brazilian minimum wages (US\$ 466), corresponding to 32%.

Table 2 describes the characteristics related to the history of the disease. The mean age at disease onset was 37 years ( $\pm$  14.9). The average number of care services that these participants went through was 3.2 ( $\pm$  1.86), ranging from 1 to more than 10 services. Dermatologists were responsible for 78.4% of diagnoses, and 49.5% of participants describe other family members with psoriasis.

Lesions are mainly prevalent on the skin of the legs, scalp and abdomen/chest/back, totaling 73.2%. The mean number of attacks/worsening per year was 1.5 ( $\pm$  1.7), and 8.2% of participants stated that they were hospitalized because of psoriasis. Itching was reported as a major nuisance in psoriasis by 34% of patients and, using the Visual Analogue Scale (VAS) from 0 to 10 to rate the intensity of pruritus, the mean was 4.9 ( $\pm$  3.8) as shown in Table 3. The average score, from very mild to very severe (0 to 10), given by the patient for his skin psoriasis was 4.3 ( $\pm$  3.2). Dissatisfaction with treatment was reported by 23.7% of patients

The average Body Mass Index indicated a predominance of obesity in patients (30.2 kg/m<sup>2</sup>), and the mean abdominal circumference was 96.7 cm ( $\pm$  14.62 cm). Regarding the consumption of alcoholic beverages, 33% reported active consumption. Physical inactivity was reported by 61.9% of patients. Active daily smoking was reported by 14.4% of patients, and 34% had smoked in the past.

**Table 1:** Sociodemographic characteristics of patients with psoriasis.

Patient-related characteristics (%) (n=97)		
Age (years)		55.9 (12.6) <sup>a</sup>
Sex	Male	58.8% (57)
	Non-pregnant female	37.1% (36)
	Pregnant female	4.1% (4)
Color/race	Caucasian	61.9% (60)
	Brown ("parda")	30.9% (30)
	Black	7.2% (7)
Education	Primary Course	4.1% (4)
	Gym or Gym course	4.1% (4)
	1 <sup>st</sup> Grade, Elementary or 1 <sup>st</sup> Grade Supplementary	30.9% (30)
	2 <sup>nd</sup> Grade, College, Technical, Normal, Scientific, High School or 2 <sup>nd</sup> Grade Supplementary	41.2% (40)
	3 <sup>rd</sup> Degree or Higher Course	13.4% (13)
	Postgraduate: specialization, master's, doctorate	2.1% (2)
	Never studied	2.1% (2)
Family income	Did not know how to answer	2.1% (2)
	Less than 1 minimum wage	2.1% (2)
	1 minimum wage <sup>b</sup>	22.7% (22)
	2 minimum wages	32% (31)
	3 minimum wages	17.5% (17)
	4 minimum wages	9.3% (9)
	5 to 10 minimum wages	9.3% (9)
Did not answer	7.2% (7)	

**Note:** <sup>a</sup>Mean ( $\pm$  standard deviation), <sup>b</sup>The Brazilian official minimum wage corresponded to US\$ 233,43 during at the time of the study.

**Table 2:** Disease history of Patients.

Characteristics related to disease history (%) (n=97)		
Age of disease onset	37 (14.9) <sup>a</sup>	
Number of services (clinics, offices, outpatient clinics) that have already passed to receive care	3.2 (1.9) <sup>a</sup>	
Professional who performed the diagnosis	Dermatologist	78.4% (76)
	General practitioner	15.5% (15)
	Family doctor	3.1% (3)
	Rheumatologist	1% (1)
	Pediatrician	1% (1)
	Urologist	1% (1)
	Yes	49.5% (48)
Family members with psoriasis	No	48.5% (47)
	Did not answer	2.1% (2)

Note: <sup>a</sup>Mean ( $\pm$  standard deviation).

**Table 3:** General characteristics of psoriasis.

General characteristics of psoriasis (%) (n=97)		
Crises/worsening per year	1.5 (1.7) <sup>a</sup>	
Hospitalization cases due to psoriasis	8.2% (8)	
Psoriasis location	Skin	73.2% (71)
	Joints	16.5% (16)
	Nails	22.7% (22)
	Scalp	39.2% (38)
	Genital	10.3% (10)
	Palmoplantar	15.5% (15)
	No injury due to treatment	12.4% (12)
	No skin psoriasis	2.1% (2)
	Itching	34% (33)
	Descamation	2.1% (2)
Major discomfort in skin psoriasis	Pain	18.6% (18)
	Insomnia	2.1% (2)
	Location or size of the psoriasis plaque	2.1% (2)
	Burning, stinging	3.1% (3)
	Bleeding	3.1% (3)
	Redness	1% (1)
	Fear of bonding with a partner or starting new relationships	1% (1)
Itch classification (0 to 10 through the Visual Analog Scale)	Suffer prejudice	19.6% (19)
	Nothing bothers	10.3% (10)
	Very satisfied	38.1% (37)
	Satisfied	36.1% (35)
	Not satisfied	23.7% (23)
Satisfaction with the treatment	Did not answer	2.1% (2)

Note: <sup>a</sup>Mean ( $\pm$  standard deviation).

Comorbidities such as hypertension, diabetes and dyslipidemia were reported by 47.7%, 23.7% and 58.8%,

respectively. Illnesses such as depression, thyroid and respiratory tract disorders were also reported as described in Table 4.

**Table 4:** Statistical output for independent T-test for equality of the means.

Comorbidities and risk factors in patients with psoriasis (%) (n=97)		
Body Mass Index (BMI)		30.2 kg/m <sup>2</sup>
Abdominal circumference (cm)		96.7 (14.6)
History of alcohol consumption	Consume or have ever consumed any alcoholic beverage	33% (32)
	Never consumed alcohol	36.1% (35)
	Not currently, but ingested a lot in the past	26.8% (26)
	Socially	2.1% (2)
Smoking history	Occasionally	1% (1)
	Not currently, but had little in the past	1% (1)
	Smoke daily	14.4% (14)
Hypertension	Have smoked in the past	34% (33)
	Never smoked	51.5% (50)
Diabetes	Diagnosed	47.4% (46)
	Pre-diabetes	23.7% (23)
Dyslipidemias		7.2% (7)
Depression		58.8% (57)
Thyroid disorders		13.4% (13)
Respiratory disorders		12.4% (12)
		15.5% (15)

## DISCUSSION

The association of psoriasis and cardiovascular diseases, diabetes mellitus, psychiatric diseases, among others, has been recently described in several epidemiological studies [9].

The most important guidelines that guide clinical practices in the treatment of psoriasis already highlight comorbidities as fundamental factors to be considered in the therapeutic choice for the treatment of these patients and control of psoriasis. Among the highlights are psoriatic arthritis, cardiovascular diseases, metabolic syndrome, diseases related to patients' mental health, lifestyle, inflammatory bowel disease, malignancy, renal disease, sleep apnea, chronic obstructive pulmonary disease, uveitis and hepatic disease [10,11]. The occurrence of the association between psoriasis and comorbidities in the Brazilian population has not been previously established through studies focused on comorbidities.

The APPISOT study, which evaluated patients from 11 Brazilian states, showed that the severity of psoriasis was directly associated with the presence of physical inactivity and pain, anxiety and depression. In addition, it was evidenced that health-related quality of life and work productivity were inversely proportional to the severity of psoriasis. That is, the more severe the psoriasis, the lower the patient's quality of life [7]. In another study, carried out in a quaternary referral hospital in Rio de Janeiro, a significant association was found between psoriasis and psoriatic arthritis with higher cardiovascular risk using the Framingham Risk Score (FRS) [11]. Despite these results, it is still not possible to determine which comorbidities are the most prevalent and what is the clinical and humanistic impact of these comorbidities in Brazilian psoriatic patients.

The prevalence of cardiovascular, respiratory and psychiatric comorbidities in the participants was high compared to the general prevalence of the Brazilian population [12]. Comparing

the results of the psoriatic patients in the study with data from the latest National Health Survey (PNS, 2019) [13] indicates 1.98 times higher of arterial hypertension in patients with psoriasis (47.4% vs. 23.9%). Diabetes mellitus were 3 times higher (23.7% × 7.7%) in comparison to general population, while the elevated cholesterol level was 4 times higher (58.8% × 14.6%) in psoriatic participants. Among psoriatic patients, respiratory diseases exhibited a 2.5-fold increased incidence (15.5% vs. 6.1%). Depression, the most frequently reported psychiatric comorbidity, showed a 1.3-fold greater association in patients with psoriasis (13.4% vs. 10.2%).

In addition to these comorbidities, recent publications also call attention to the need for special attention to other comorbidities, including those associated with the cutaneous, reproductive, oral and ocular systems, and that although we do not know clearly all the mechanisms linking psoriasis with comorbidities, epidemiological studies are the initial step towards clarifying these relationships [14].

A higher prevalence of obesity, physical inactivity, alcohol and tobacco consumption were evidenced in patients with psoriasis in this study. The coexistence of psoriasis with hypertension, diabetes, dyslipidemias, among other comorbidities adds to the other behavioral and lifestyle factors an extra cardiovascular risk for patients with psoriasis [15].

## CONCLUSION

It is important to emphasize that the screening and control of comorbidities highlighted in this and other epidemiological studies already carried out around the world should be part of the clinical routine of care and follow-up of patients with psoriasis, as they can have a significant impact on the severity of psoriasis and consequently in patients' quality of life.

On the other hand the individual conditions of each patient must be analyzed in search of the safest and most not

only for the control of lesions, but also for the comorbidities involved with psoriasis. The progression of this study will bring important results to determine the profile of the Brazilian patient with psoriasis, including the consideration of comorbidities, to guide decision-making directed to Brazilian patients with psoriasis.

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