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## ORIGINAL ARTICLE

# Psoriasis Affects Individuals of African Descent and White Brazilians Similarly

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### KEYWORDS

Psoriasis;  
Clinical features;  
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### Abstract

**Introduction:** Cultural, socio-demographic and environmental factors such as tropical climate and exposure to sun could have an impact on the incidence or clinical course of psoriasis. Here we describe the main clinical aspects of psoriasis in Brazilian patients and also investigate whether any particular feature can distinguish the disease occurring in Brazil from that occurring in other countries.

**Material and methods:** We recorded the clinical features of 151 psoriasis patients seen in a Brazilian public dermatological care unit between 2006 and 2008.

**Results:** Males and females were similarly affected. The reported races were as follows: whites, 47 cases (41.6%), interracial individuals (mixed race), 42 cases (37.2%) and blacks, 24 cases (21.2%). Chronic plaque-type psoriasis was the most prevalent clinical form (110 cases, 72.8%) followed by palm and sole involvement (21 cases, 13.9%).

**Conclusions:** We demonstrated that psoriasis in these Brazilian subjects was similar to that observed in subjects from other countries, but interracial and black populations were affected as much as whites. Considering the high rate of interracial populations among Brazilians we cannot exclude the possibility that Afro-descendants may have inherited Caucasian genes associated with psoriasis. Poor socio-economic conditions of Afro-descendants can limit their possibilities of receiving adequate treatments, impairing their health-related quality of life.

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**PALABRAS CLAVE**

Psoriasis;  
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Población brasileña;  
Negros

## La psoriasis afecta de forma similar a los pacientes brasileños de ascendencia africana y caucásica

### Resumen

**Introducción:** Los factores culturales, sociodemográficos y ambientales tales como el clima tropical o la exposición solar pueden tener un impacto en la incidencia o el curso clínico de la psoriasis. En este artículo describimos los principales aspectos clínicos de la psoriasis en pacientes brasileños e investigamos si existe alguna característica que permita distinguir la enfermedad que ocurre en Brasil de la que se encuentra en otros países.

**Material y métodos:** Se recogieron las características clínicas de 151 pacientes con psoriasis evaluados en un centro dermatológico público de Brasil entre 2006 y 2008.

**Resultados:** Los hombres y las mujeres estaban afectados de forma similar. La frecuencia de afectación según la raza era la siguiente: blancos 47 casos (41,6%), mestizos 42 casos (37,2%) y negros 24 casos (21,2%). Las formas clínicas más prevalentes fueron la psoriasis crónica en placas (110 casos, 72,8%) seguida de la psoriasis palmoplantar (21 casos, 13,9%).

**Conclusiones:** Demostramos que la psoriasis en estos sujetos brasileños es similar a la que se observa en sujetos de otros países, pero los mestizos y los negros están afectados tanto como los blancos. Teniendo en cuenta la elevada proporción de población mestiza entre los brasileños, no podemos descartar la posibilidad de que los descendientes africanos hayan podido heredar los genes caucásicos asociados a la psoriasis. Las pobres condiciones socioeconómicas de los descendientes africanos pueden limitar sus posibilidades para recibir tratamientos adecuados, lo que altera su calidad de vida.

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## Introduction

Psoriasis is a chronic inflammatory disease that affects skin and joints.<sup>1</sup> The estimated prevalence is relatively high, varying from 0.5 to 4.6%, depending on the geographic location, with Caucasians especially affected.<sup>1,2</sup> The etiology of the disease is unknown, but genetic predisposition and environmental factors can influence its occurrence and severity.<sup>1,3,4</sup> Epidermal proliferation is a key feature of psoriasis although immune mediated mechanisms are crucial for maintaining the inflammatory lesions.<sup>5,6</sup> Plaque psoriasis is the most frequent clinical form of the disease, affecting up to 80% of patients.<sup>3,4</sup> The onset of symptoms shows 2 peaks; in teenagers (type 1) and individuals in the fifth decade of life (type 2), without any predisposition according to sex.<sup>7</sup> Most studies of epidemiological and clinical aspects of psoriasis focus on European and North American populations. However, very few reports address the epidemiological and clinical features of psoriasis in developing regions such as South America.<sup>8,9</sup> In Brazil, miscegenation, in addition to the typical tropical climate and sun exposure, can have beneficial effects such as delaying disease onset and progression of psoriatic lesions. Here we describe the main clinical features of psoriasis in Brazilian patients who attended a public dermatological outpatient care unit in the state of Rio de Janeiro. We also investigated whether any particular feature can distinguish the disease occurring among Brazilian patients from that occurring among patients from other countries.

## Methodology

We carried out a retrospective analysis of selected records of 151 patients who have been seen at the

public dermatological outpatient care unit of the Hospital Gaffrée-Guinle/UNIRIO between April 2006 and September 2008. Demographic data such as age, sex, race, and geographic origin were considered. Patients underwent a dermatological examination, and clinical aspects such as duration of illness before diagnosis and lesion features (clinical form, distribution, and shape of lesions) were also investigated. All patients fulfilled the inclusion criteria for the diagnosis of psoriasis, which were based on established clinical parameters<sup>1</sup> and histopathological criteria.<sup>6</sup> The severity of psoriasis was assessed. To measure the activity and severity of psoriasis we used the Physician Global Assessment (PGA). The PGA is one of the most commonly used tools for assessing psoriasis activity and for following clinical response to treatment. There are 2 main forms of assessment completed by a physician: a static and a dynamic one. In the dynamic assessment, the physician assesses the global improvement compared to baseline but the approach has poor reproducibility and is based on the observer's memory. As a result the static assessment has generally been used to assess overall psoriasis severity using a scale from 0 and 6 (0=clear [no signs of psoriasis], 1=almost clear [minimal], 2=mild [slight plaque elevation, scaling and/or erythema], 3=mild to moderate [intermediate between mild and moderate], 4=moderate [moderate plaque elevation, scaling and/or erythema], 5=moderate to severe [marked plaque elevation, scaling and/or erythema], and 6=severe [very marked plaque elevation, scaling and/or erythema]).<sup>10-18</sup> In this period, the new dermatological outpatients were evaluated to estimate the prevalence of psoriasis in the Department of Dermatology. Prevalence is generally defined as the proportion of individuals in a given population with a disease in a specified time period. This study was approved by the Ethical Committee of the Escola de Medicina e Cirurgia (UNIRIO, MEC, Brazil).

## Results

The new dermatological outpatients in the general clinic were analyzed for skin color, with the following results: interracial individuals (mixed race), 61.2%; whites, 37%; and blacks. Overall, 78.2% of the patients were from Rio de Janeiro state. Psoriasis was responsible for 5.2% (95% confidence interval, 3.1-7.6%) of consultations at the Department of Dermatology in this 17-month period. Among the 151 psoriatic patients selected for the study, the disease was equally distributed between males (71 cases, 46.3%) and females (80 cases, 53.6%). The mean (SD) age was 42.1 (20.9) years (median 44 years; range, 3 to 83 years) for males and 35.8 (20.8) years (median 36 years; range, 3 to 80 years) for females. Patients aged between 51 and 60 years (19.9%), 41 and 50 years (17.6%), and 31 and 40 years (14%) accounted for the majority of cases, followed by patients aged between 0 and 10 years (16.2%). They tended to consult sooner after onset of symptoms than men (3.6 [5.4] years; median 1 year; range, 1 month to 25 years) than for men (4.7 [6.9] years; median 2 years; range, 2 months to 33 years). One hundred thirteen patients were analyzed for skin color, with the following results: whites, 47 patients (41.6%); interracial individuals (mixed race), 42 patients (37.2%); and blacks, 24 patients (21.2%). No significant difference in terms of race was observed among males and females (Table). The most frequent clinical forms of psoriasis were recorded (Table 1), but chronic plaque psoriasis was the most prevalent (110 cases, 72.8%). Indeed, palm and sole involvement accounted for 13.9% of cases. The mean age of chronic plaque patients at the onset of symptoms was 39.8 (20.6) years, with no sex differences. The majority of patients were also interracial individuals or blacks (66 cases). Patients usually had solitary lesions (46 in 133 cases), but 2 (30 in 133 cases) or 3 lesions (20 in 133 cases) were also very common. The affected body regions were primarily the scalp (28 cases, 21%), elbows (25 cases, 18.8%), and knees (21 cases, 15.8%). Other locations such as the nails, face, back, abdomen, and chest were reported in less than 1% of cases. Only 2 cases of psoriatic arthritis and no cases of inverse psoriasis or generalized pustular psoriasis were found. One hundred twenty two cases were analyzed for the PGA score, with the following results: 0 out of 122

patients with score 0, 9 with score 1, 32 with score 2, 33 with score 3, 21 with score 4, 13 with score 5, and 14 with score 6. Concurrent diseases reported were hypertension (9 patients), atopy (7 patients), human immunodeficiency virus/AIDS (2 patients), hepatitis (2 patients), diabetes mellitus (3 patients), and hyperthyroidism (1 patient). Only 5 patients reported a family history of psoriasis.

## Discussion

Psoriasis affects people throughout the world<sup>1-3</sup>; however, cultural, sociodemographic, and environmental factors could have an impact on the incidence or clinical course of the disease in some geographic regions. Here we analyzed psoriasis cases from an outpatient care unit located in Rio de Janeiro, Brazil. We demonstrated that the clinical form of the disease was similar to that observed in other countries, but interracial and black populations were affected as much as whites. No difference regarding gender was observed in the present study, even after taking into account different races. According to the age of onset of symptoms, our patients were equally distributed into type I and type II.<sup>7</sup> As expected, chronic plaque psoriasis was the most common clinical presentation with no difference for gender or skin color. Conversely, psoriatic arthritis was rarely reported, probably because these patients were mainly seen by rheumatology services. Interracial and black subjects did not present a more severe clinical form of the disease, as has been suggested by previous authors.<sup>19</sup> The low intensity and severity of psoriasis in this sample (PGA score 5 [13 in 122 cases] and 6 [14 in 122 cases]) could be attributed to the tropical climate in Brazil, a country lying close to the equator. The country is exposed to high levels of ultraviolet radiation from intense sunlight throughout the year, which leads to a much better disease prognosis.<sup>20,21</sup> In a Colombian study, 18.6% of 86 patients presented severe psoriasis.<sup>22</sup>

In our study, blacks comprised 18% of patients seen in our care unit, and our results indicate that psoriasis also affects individuals of African descent. This percentage is high considering that, according to official data, the Brazilian population consists of 38.2% of interracial individuals and 5.9% of blacks,<sup>23</sup> including individuals of African descent.

**Table** Main Demographic Characteristics Related to Clinical Forms of Psoriasis Observed in a Brazilian Population

Clinical Forms of Psoriasis	Frequency of Cases	Age, y <sup>a</sup>	Sex±M/F)	Disease Duration <sup>a</sup>	Race <sup>b</sup>		
					White	Interracial	Black
Chronic plaque	110 (72.8%)	39.8±20.6	55/55	4.2±6.0	34	30	14
Palm and sole	21 (13.9%)	24.7±20.4	6/15	2.1±3.0	7	7	4
Erythrodermic	8 (5.3%)	61.0±13.1	5/3	4.7±8.6	2	2	2
Pustular	7 (4.6%)	42.3±9.1	2/5	4.8±7.1	1	2	4
Psoriatic arthritis	3 (2.0%)	56.3±10.2	2/1	12.3±11.2	1	1	0
Guttata	2 (1.3%)	28.5±3.5	1/1	2.2±2.6	2	0	0

Abbreviations: F, female; M, male.

<sup>a</sup>Results are expressed as mean±SD).

<sup>b</sup>Data were not available for 38 patients.

These data are surprising as psoriasis is traditionally associated with Caucasians, affecting less than 0.1% of Asians and being considered rare among Africans.<sup>1-3,24</sup> Note that 2 Latin American studies yielded different findings. Gonzalez et al<sup>22</sup> analyzed 86 patients and reported the following racial distribution: interracial individuals, 85%; whites, 14%; and blacks, 1%. Trujillo et al<sup>20</sup> analyzed 200 patients and reported the following distribution: interracial individuals, 10.5%; whites, 85.5%; blacks, 3.5%; and unknown (0.5%). However, population-based studies have shown that psoriasis affects a significant proportion of African-Americans, albeit with a prevalence 52% lower than in Caucasians.<sup>19</sup>

In contrast, whites predominated in a previous Brazilian study, though it also included patients seen in a private dermatology practice.<sup>9</sup> In this study, we hypothesize that blacks may have inherited Caucasian genes associated with psoriasis because of the large interracial population in Brazil.<sup>25</sup> In fact, this hypothesis is consistent with the literature. Green<sup>26</sup> reported that psoriasis among indigenous Australians of “full-blood” descent may be rare or nonexistent; minimal cases have been reported among Aborigines, and psoriasis was diagnosed in Aboriginal individuals of mixed descent. Further research indicated that the condition appeared to be relatively uncommon among Nigerians and Mongolians, and more common among Kenyans and individuals from the Faroe Islands.<sup>27-29</sup> It is worth noting that the different methodology employed in research design, such as population-based research compared with hospital-based research, makes it difficult to conclude whether these differences were indeed a result of racial variation.<sup>30</sup>

Indeed, other factors such as behavior and environmental conditions can also influence the development of the disease.<sup>24,31</sup> Perhaps a major component of regional variation in the frequency, severity, and morbidity of psoriasis is differences in climate. A population-based study reported a seasonal variation in psoriasis diagnoses, in which over 65% of the cases were diagnosed in winter and spring, as opposed to approximately 30% of cases diagnosed in summer and autumn.<sup>32</sup> Farber and Nail reported that almost 90% of the respondents indicated that cold weather made their psoriasis worse, approximately 80% claimed that hot weather made their psoriasis better, and 80% stated that sunlight made their psoriasis better.<sup>33</sup> With respect to geographical or climatic features, one study recorded the highest prevalence level of the disease in the central area of Spain, whose weather is drier and colder than in the northern and southern/Mediterranean regions of Spain.<sup>34</sup>

In country-specific studies, the estimated prevalence of psoriasis ranged from 0% in Australian Aborigines and Andean Indians to 11.8% in the inhabitants of Kazakhstan (an Arctic region of the Soviet Union).<sup>35</sup> More comprehensive studies reported that the prevalence of psoriasis was 1.4% in Spain,<sup>34</sup> 1.5% in the United Kingdom,<sup>36</sup> and 2.9% in South Africa<sup>37</sup> and Italy.<sup>38</sup> The present study analyzed the epidemiology of psoriasis, but the prevalence of psoriasis (5.2%) was estimated for new dermatological outpatients in a limited clinical setting, with a small population. Therefore, it does not reflect the true prevalence of this specific disease in the Brazilian population. We believe that

larger population-based studies should provide a broader picture of the incidence and/or prevalence of psoriasis in Brazil. Trujillo et al<sup>20</sup> reported that psoriasis accounts for 6% of the dermatologic consultations in Cuba. This large number can be explained by the health system in Cuba,<sup>20</sup> which, as in Brazil,<sup>39</sup> is free, allowing easy access to data concerning the entire population.

Although this study was not designed to estimate the race prevalence of psoriasis, our results suggest that this disease is common in African descendants among the Brazilian population. Different ethnic backgrounds can mirror the health-related quality of life, and African-Brazilians are more likely to have a low social status compared to that of Caucasians.<sup>40</sup> Indeed, poor socioeconomic factors can limit African-Brazilian patients' possibilities of receiving adequate treatments, and such factors can have an effect on those patients' health-related quality of life. Accordingly, these results should be considered in health-care policy making in Brazil, particularly when developing policies in public health programs for psoriasis patients.

## Conflict of interest

Authors declare no conflicts of interest.

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