

## Epidemiological profile and associated factors of psoriasis in Yaoundé hospitals, Cameroon

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World Journal of Advanced Research and Reviews, 2024, 23(01), 829–835

Publication history: Received on 15 May 2024; revised on 05 July 2024; accepted on 08 July 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.23.1.1933>

### Abstract

**Introduction:** Psoriasis is an uncommon condition in Africa. In sub-Saharan Africa, prevalence varies depending on the country and studies.

**Objective:** The aim of this study was to determine the prevalence and search for factors associated with the most frequent clinical presentation of psoriasis in our context.

**Methodology:** It was of a retrospective analytical cross-sectional study, over a period of 10 years. We included the files of patients diagnosed with psoriasis. The clinical form of psoriasis, age and comorbidities were collected. The analyzes were carried out using SPSS 22.0 software. A p value <0.05 was considered statistically significant.

**Results:** In total, out of 16,943 consultation files, 106 cases of psoriasis were included, i.e. a prevalence of 0.7%. The average age in our population was  $38.1 \pm 21.4$  years with a male predominance, a sex ratio of 1.8. The most common clinical form was psoriasis vulgaris (69.9%). The most common comorbidities were hypertension (4.7%), followed by metabolic syndrome (3.7%), and HIV infection (3.7%). After multivariate analysis, being a pupil or student increased the risk of developing psoriasis vulgaris (7.2[1.1-6];  $p < 0.046$ ).

**Conclusion:** Psoriasis vulgaris is the most frequent clinical form in the city of Yaoundé, being a pupil or student is a factor associated with common psoriasis.

**Keywords:** Psoriasis; Associated factors; Yaoundé; Cameroon

### 1. Introduction

Psoriasis is a chronic erythematous and squamous inflammatory dermatosis. Mainly expressed on the skin and joints, it is the consequence of accelerated renewal of the epidermis, maintained by chronic inflammation [1].

Psoriasis is one of the most common skin conditions since it affects a large proportion of the population with a worldwide prevalence of between 0 and 11.8% [2]. In Europe and the United States of America, the respective prevalences in the general population are 2% [3] and 3.5 to 4.8% [4]. In sub-Saharan Africa, population prevalence differs between studies, with variations depending on geographic location and ethnicity [1]. In East Africa as well as in ethnically mixed populations of South Africa, the prevalence is higher, 3.5% in Kenya, 3% in Tanzania and 2.8% in

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Uganda [5]. In West Africa, the prevalence is lower with 0.4% in Ghana, 0.4% in Mali and 0.08 to 0.9% in Nigeria [6-8]. The diagnosis of psoriasis is mainly clinical. There are different clinical forms of psoriasis, the most common being chronic plaque psoriasis, which affects 80 to 90% of psoriasis patients. In Central Africa in general and particularly in Cameroon, there is no data on psoriasis to our knowledge. We conducted a cross-sectional study to determine the prevalence and the factors associated with the clinical presentation of psoriasis, among patients followed for psoriasis in dermatology consultations in the city of Yaoundé.

## 2. Material and Method

We conducted a retrospective analytical study carried out in Yaoundé from January 2012 to May 2022, a period of 10 years. The study took place in the dermatology consultation departments of four health facilities in the city of Yaoundé, including the Gyneco-Obstetric and Pediatric Hospital of Yaoundé, the Military Hospital of Yaoundé, the Central Hospital of Yaoundé and the Elig-Essono District Medical Center. These hospitals were chosen because of the existence of a dermatology department and their accessibility. The files retained were those of patients of all ages and of both sexes who had been diagnosed with psoriasis by a dermatologist during the period of study. Records with missing or incomplete searched data were excluded.

The data was collected consecutively and exhaustively. These were sociodemographic characteristics (age, sex, profession, marital status), personal history (consumption of tobacco, alcohol, practice of physical activity), clinical characteristics (clinical forms, comorbidities) and the treatment followed.

The data were entered and coded using Epi info version 3.5.3 software and extracted to SPSS 22.0 software. The association between categorical variables was evaluated by the p-values estimated using the Chi-square test. Variables with a p-value  $\leq 0.2$  were included in a multivariate logistic regression model to estimate adjusted odds ratios. Final p-values  $< 0.05$  were considered statistically significant.

To conduct this study, we obtained ethical clearance from the Institutional Ethics and Research Committee of the Faculty of Medicine and Biomedical Sciences of Yaoundé I, and administrative authorizations from the various hospitals.

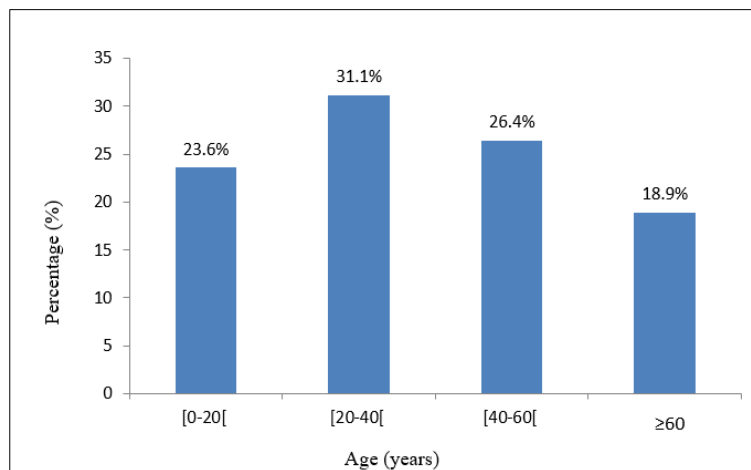
## 3. Results

### 3.1. Prevalence

In total we recorded 16,943 consultation files. The final sample consisted of 106 files of psoriatic patients, representing a prevalence of 0.7%.

### 3.2. Sociodemographic characteristics of the study population

We identified a total of 106 patients, 68 of whom (64.1%) were men, i.e. a sex ratio of 1.8. The average age was  $38.1 \pm 21.4$  years with a minimum of 5 months and a maximum of 94 years. Patients aged between 20 and 40 were the most represented, followed by the 40 to 60 year old group (figure 1).



**Figure 1** Distribution of the population according to age groups

Pupils/students were the most represented in our study population. Table 1 summarizes marital status and occupation.

**Table 1** Distribution of the population according to marital status and occupation

Variable	Frequency (N)	Percentage (%)
<b>Status matrimonial</b>		
Single	41	38.7
Married	43	40.6
Widow	4	3.8
unspecified	18	17
<b>Profession</b>		
Pupils/students	32	30.2
Housewife	7	6.6
Civil servant	28	26.4
Trader	7	6.6
unspecified	32	30.2

### 3.3. Clinical features of the study population

Psoriasis vulgaris was the clinical form most widely represented in the study population (Table 2).

**Table 2** Different clinical forms of psoriasis

Clinical forms	Frequency (N)	Percentage (%)
Psoriasis vulgaris	74	69.8
Erythrodermic Psoriasis	6	5.7
Psoriasis of glans	5	4.7
Palma Psoriasis	5	4.7
Scalp Psoriasis	4	3.8
Guttate Psoriasis	4	3.8
Reverse psoriasis	4	3.8
Diaper psoriasis	1	0.9
Pustular psoriasis	1	0.9
Nail psoriasis	1	0.9
Facial psoriasis	1	0.9

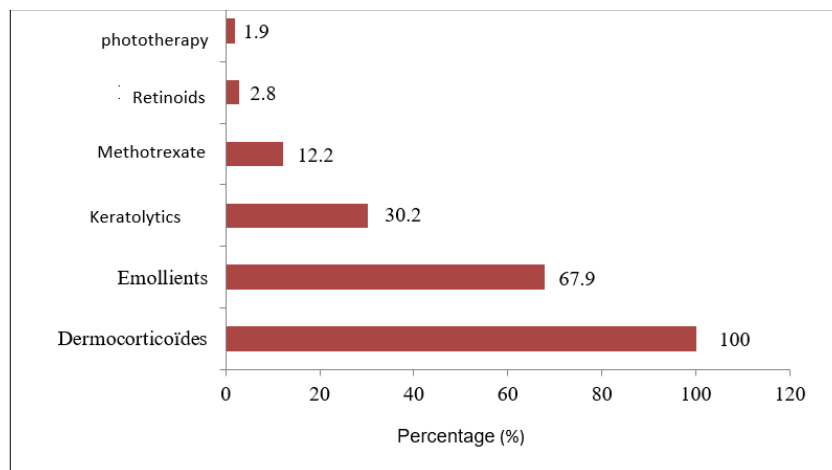
In the study group, 19 patients (17.5%) had a comorbidity. As shown in Table 3, the comorbidities most represented in the population were hypertension (HT), metabolic syndrome and HIV.

**Table 3** Comorbidities

Comorbidities	Fréquence (N)	Pourcentage (%)
HT	5	4.7
Metabolic Syndrome	4	3.8
HIV	4	3.8
Diabetes	1	0.9
Stroke	1	0.9
Obesity	1	0.9
Dermatophytia	1	0.9
Eczema	1	0.9
Lichen	1	0.9

**3.4. Therapeutic data**

In our study population only 32 patients (30.2%) had received therapeutic education regarding their disease. Topical corticosteroids were prescribed in all patients, and methotrexate in 13 cases (12.2%). Phototherapy was the least used therapeutic modality. Figure 2 summarizes the therapeutic modalities.



**Figure 2** Prescribed treatments

**3.5. Associated factors**

After bivariate analysis, an age between 0 and 20 years, an age greater than or equal to 60 years, were all statistically associated with psoriasis vulgaris. After multivariate analysis, only the fact of being a pupil or student was statistically associated with psoriasis vulgaris (Table 4).

**Table 4** Multivariate analysis

Variable		Psoriasis vulgaris		ORa [IC 95%]	p-value
		No	Yes		
		N(%)	N(%)		
[0-20[years	No	20 (24.4)	62 (75.6)	0.4 [0.04-3.2]	0.413
	Yes	12 (50)	12 (50)		
≥60 years	No	30 (34.9)	56 (65.1)	7.5 [0.1-17.2]	0.096

	Yes	2 (10)	18 (90)		
single	No	16 (24.6)	49 (75.4)	0.9 [0.1-5.7]	0.949
	Yes	16 (39)	25 (61)		
Married	No	25 (39.7)	38 (60.3)	4 [0.5-3.2]	0.173
	Yes	7 (16.3)	36 (83.7)		
Other profession	No	28 (34.6)	53 (65.4)	2.4 [0.5-13.5]	0.279
	Yes	4 (16)	21 (84)		
Pupil/student	No	19 (25.7)	55 (74.3)	7.2 [1.1-6]	0.046
	Yes	13 (40.6)	19 (59.4)		

#### 4. Discussion

The prevalence found during this study was 0.7%. This prevalence is similar to that of Traore *et al.* in Ouagadougou in Burkina Faso [9] and that of Ly [10] in Dakar which respectively found hospital prevalences of 0.5% and 0.6%. It is slightly higher than that of Haidara in Mali [8] and that of Kaloga *et al.* in Ivory Coast [5] which all found a prevalence of 0.4%.

These results tell us that the prevalence of psoriasis is low in sub-Saharan Africa and lower than that of Western countries. Indeed, in a systematic review, Parisi *et al.* demonstrated that psoriasis is unevenly distributed across geographic regions and is more common in high-income countries and regions with older populations [11]. The study population was dominated by men with a sex ratio of 1.8. This result is similar to those of Kaloga *et al.* in Ivory Coast Traore *et al.* in Burkina Faso, and Dioussé *et al.* in Senegal [5,12,13] which all found a male predominance with a sex ratio of 2.9;1.4 respectively; and 1.3. On the other hand, Ammar *et al.* [14] in their study in Maghreb found a female predominance with a sex ratio of 0.6. The male predominance noted in our series was contradictory to the literature data which indicates an equal distribution in both sexes [2]. These figures could be explained by the great tendency of black women to use very strong topical corticosteroids for aesthetic purposes. This aesthetic practice could mask psoriasis lesions. Moreover, Kouotou *et al.* in Cameroon in their study on voluntary depigmentation showed that depigmentation is frequent and topical corticosteroids represent 25.8% of the most used depigmentants [9].

The average age of patients in our series was  $38.1 \pm 21.4$  years. This result is similar to that of Kaloga *et al.* [5] and Traore *et al.* [12] who respectively found an average age of 36.7 years and 34.5 years. The age group of [20 – 40[ years was the most represented (31%), which is consistent with the study by Traore *et al.* [12] who found an age range of [21 – 40[ years in 44% but differs from that of Kaloga where the majority of patients were between 30 and 49 years old. Pupils/students represented 30.2% of our patients. This result is similar to that observed in the Traore series [12] which reports that the most represented populations after housewives were pupils/students. This could be explained by the fact that these are young, active adults and therefore exposed to stress which constitutes a triggering factor for the disease [15].

Psoriasis vulgaris was found in 69.9% of our cases. This figure is similar to those of Haidara in Mali and Kaloga which reported 72% and 78%, but it is higher than that of Komenan in Ivory Coast [16] which reported 51%. Psoriasis vulgaris or plaque psoriasis is the most represented and most described clinical form of psoriasis in all series combined [2]. In South Korea, in a large national study, Song *et al.* found 85% of cases of psoriasis vulgaris [17]. The comorbidities most encountered in our patients were High blood pressure (4.7%), metabolic syndrome (3.7%) and HIV (3.7%). This result is lower than that of Dioussé *et al.* who found hypertension in 6.58% of patients. It is much lower than that of Haidara *et al.* who found 22% hypertension and that of Aounallah *et al.* [18] in North Africa who found 22.3% hypertension and 37.4% metabolic syndrome. This large difference with the last two studies could be explained by the fact that, unlike our study, these studies were all prospective studies where these comorbidities were systematically sought. Indeed, the association between psoriasis and high blood pressure is known [11]. Many studies suggest that psoriasis is often associated with metabolic syndrome, to the extent that some have suggested that psoriasis could be one of the components of the metabolic syndrome [17]. The physiopathological links between psoriasis and metabolic syndrome are essentially based on the pro-inflammatory mechanism common to both pathologies resulting from TNF, IL6 and numerous adipokines, including leptin [5].

HIV infection was present in 3.7% of our patients. This result is close to that of kaloga *et al.* who found HIV in 4% of psoriatic patients [5]. It is higher than those of Haidara in Mali and Dioussé in Senegal which found HIV infection in 1.8% and 1.3% of psoriatic patients. On the other hand, our result is lower than that of Traore *et al.* in Burkina Faso which found HIV in 9.5% of patients.

Therapeutically, local treatments were widely used. Topical corticosteroids were prescribed in all patients, emollients were associated in 67.9% of cases, methotrexate in 12.2% cases and in a small proportion (1.8%) phototherapy. This result is similar to that of Moutaki in Morocco [19] who in 2017 found a use of 82.9% of topical corticosteroids and 17.1% of methotrexate. Ndiaye *et al.* [20] in their study in Senegal found a similar use of topical corticosteroids and emollients; however, they found a greater use of methotrexate (55%). This difference could be explained by the fact that their study focused exclusively on severe forms. Song *et al.* [17] for their own in Korea found in their series the use of topical agents in 93.6% of cases, systemic treatment in 61.2% of cases, phototherapy in 50.8% of cases and biotherapies in 5.7% of cases. This significant use of phototherapy is also reported by Moutaki in Morocco with 25.7% of cases. The low use of phototherapy in our series could be explained by the fact that being in a sunny area, where patients are already exposed to the sun, phototherapy is not widely used. Biotherapies, are not easily accessible and are expensive in our context.

After multivariate analysis, being a student was statistically associated with psoriasis vulgaris ( $p$  0.046). This result could be explained by the fact that these were mainly young, active adults who were therefore exposed to stress, which constitutes a triggering factor for the disease [15].

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## 5. Conclusion

We found a prevalence of psoriasis of 0.7%. This result is consistent with that of other sub-Saharan studies. The most common clinical form is psoriasis vulgaris as described in the literature. The most common comorbidities are high blood pressure, metabolic syndrome and HIV infection. These prevalence data in subsaharan Africa raise serious questions about the existence of factors specific to black skin that could explain its low prevalence compared to the West.

### *Study limitations*

- The files had missing data.
- Follow-up was not always reported
- Reported diagnoses were only clinical

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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