

Research Article

## Profile of Skin Diseases in Rural Guinea

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### Abstract

**Background:** Skin diseases are diverse and constitute a major public health problem in developing countries, where they are the third most common reason for consultations. Access to dermatological care remains limited in rural communities. The proportion and type of skin pathologies vary from one country to another. The aim of this study was to determine the profile of skin diseases in Guinean communities. **Methods:** This was a descriptive and analytical cross-sectional study in June 2022, carried out in a community setting and included all patients with skin conditions residing in the study area aspiring to dermatological care and who were able to travel to the study site. **Results:** Out of a total of 615 patients consulted, 582 had a skin disease, i.e. a prevalence of 94.6%. The median age of the patients was 14 years, with a predominance of females (61.7%), mostly single (72.7%) and having attended a solar school (58.5%). Skin pathologies were dominated by infectious dermatoses (54.4%), followed by inflammatory dermatoses (23.0%). Scabies predominated, followed by ringworm, with a statistically significant difference ( $p$ -value < 0.05). **Conclusion:** The profile of skin diseases found is similar to that of Conakry University Hospital. The implementation of teledermatology remains an option for increasing the provision of dermatological care.

### Keywords

Skin Diseases, Community Setting, Guinea

## 1. Introduction

Skin diseases are diverse and constitute a major public health problem in developing countries, where they are the third most common reason for consultations. They have an impact on quality of life, productivity and mental health [1, 2].

However, in rural communities, where access to dermato-

logical care remains limited, the impact of skin pathologies is greater [2, 3]. The 2013 Global Burden of Disease (GBD) revealed that skin pathologies are the fourth (non-fatal) cause of disability worldwide [4]. On black skin, the expression of cutaneous affections may differ from that of clear skin, depending on their presentation, but also their frequency and the

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way they are felt. Certain dermatoses are favored by poor hygiene, precariousness and unfavorable weather conditions. The proportion of skin pathologies is often reported. It varies from one country to another, and is sometimes expressed in different ways [5].

In Southeast Asia, during a consultation campaign carried out in the Laotian community, immuno-allergic dermatoses (eczema) were the most common, followed by dermatophyte infections, then acne and finally scabies [2].

In Africa, inflammatory, immuno-allergic and infectious dermatoses were the most common types of dermatitis to be found in specialized consultations [6-9].

In the Guinean context, in 2017, infectious pathologies of bacterial origin predominated, followed by inflammatory diseases, drug reactions and then viral diseases in children as the reason for hospitalization in the dermatology department [3]. However, very few data are available on skin diseases in the community. The aim of this study was to analyze the profile of skin diseases in Guinea.

## 2. Methods

### 2.1. Study Site

The Prefecture of Boffa, also known as the "City of bushes" for the beauty of its landscape, is part of the Boké administrative region. It has 211,063 inhabitants and seven (7) sub-prefectures: Koba, Lisso, Mankountan, Toungnifily, Douprou, Tamita and Boffa City. It is located 150 km from Conakry and enjoys a favorable geographical position for several activities. The main activities are fishing, agriculture and livestock breeding, thanks to its great openness to the Atlantic Ocean and its favorable environmental and geological conditions. Boffa boasts several tourist sites, including a dozen seaside resorts and historical and religious sites. Boffa has one prefectural hospital, and no dermatology specialists.

### 2.2. Study Design and Population

We carried out a descriptive and analytical cross-sectional study in a community setting on patients with skin pathology during the period June 16-19, 2022 in the prefecture of Boffa. We targeted all patients with skin diseases residing in the Boffa prefecture, regardless of age, sex, profession, residence and marital status, seeking the dermatological care offered. We included all patients with skin diseases residing in the Boffa prefecture who aspired to dermatological care and who were able to travel to the study site. All patients who did not agree to participate in the study were excluded. However, these same patients benefited from free consultation and medication.

### 2.3. Data Collected

Beforehand, the people of Boffa were informed through the

press of the selected site, the free nature of the consultation and the donation of medicines.

The data collection team was made up of all 10 dermatologists, spread over eight (8) consultation offices and one drug dispensing point, accompanied by dermatology residents from the capital. For each patient, a pre-designed data collection form was filled in after consent had been obtained.

Data were collected using a structured questionnaire, administered to all patients meeting our selection criteria. Data included qualitative and quantitative variables relating to epidemiological and clinical data. Cases of common dermatoses were managed on site. Other dermatoses requiring further investigation were referred to hospital staff for transfer to the Donka National Hospital, which houses the only dermatology department. Interviews were conducted mainly in the local language (Soussou), with a few in French. A toll-free number was made available to patients and staff living in the Boffa prefecture for follow-up.

### 2.4. Statistical Analyses

Data were collected on a pre-established survey form and analyzed using R software. Descriptive analyses were performed on a sample of the population. Descriptive analyses included respondent frequencies for age, gender, marital status, occupation, mean duration of evolution of skin lesions. Pearson's chi-square was also used to determine the relationship between patient characteristics and the occurrence of dermatoses of infectious origin in community areas. Probability values  $p < 0.05$  were considered statistically significant.

### 2.5. Ethical Considerations

After validation of the study protocol by the institutional committee of the Faculty of Health Sciences and Techniques (N° 055/CHDMITR/23), we proceeded to collect data anonymously. To comply with ethical principles, verbal informed consent was obtained from each patient. For children under the age of 18, we supplemented consent with the assent of a parent or legal guardian. Confidentiality of data collected from participants was ensured during and after the survey.

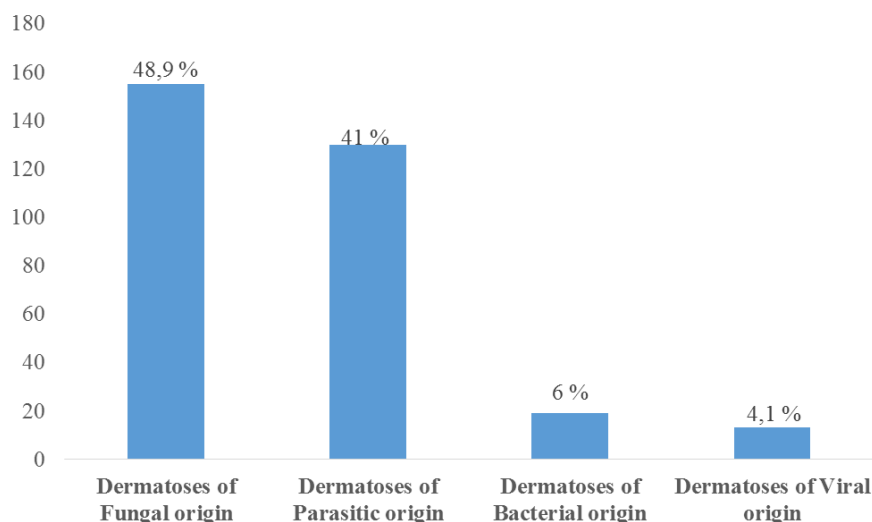
## 3. Results

A total of 615 patients were registered during the consultation, of whom 582 were with skin diseases, representing a frequency of 94.6%. Skin pathologies were dominated by infectious dermatoses (54.4%), followed by inflammatory dermatoses (23.0%), immuno-allergic dermatoses (14.9%), genodermatoses (0.7%), systemic diseases (0.2%), and a few cases of drug-induced skin reactions (0.2%), as well as complications linked to voluntary cosmetic depigmentation (5.3%) and benign tumors (0.7%).

The median age of the patients was 14 years, with a predominance of females in 359 cases (61.7%), mostly single

(72.7%), living mainly in the urban center (93.3%) and having attended a solar school (58.5%). Previous treatment was used by 214 patients (36.76%), and 88 patients (15.1%) had been using cosmetic depigmenting products for a median of 12 months.

Among the infectious dermatoses diagnosed, we noted a predominance of dermatoses of fungal origin, 26.6%, followed by dermatoses of parasitic origin in 22.3%, dermatoses of bacterial origin in 3.3% and finally dermatoses of viral origin in 2.2% (Figure 1).



**Figure 1.** Distribution of patients with infectious dermatosis seen in mobile clinics in the Boffa Prefecture in June 2022 (n=317).

In our series, patients with dermatoses of infectious origin were predominantly (65.6%) children under 15 years of age, female (56.1%) with a statistically significant difference (p-value < 0.05). Patients who were single (60.5%) and had

attended a school (54.8%) were the most likely to be found with a statistically significant association (p-value < 0.001) with the occurrence of dermatoses of infectious origin (Table 1).

**Table 1.** Characteristics of patients with a skin diseases seen in mobile clinics in the Boffa Prefecture in June 2022 (n=582).

Characteristics	TYPE OF SKIN DISEASE		p-value
	Infectious dermatoses, N = 317 (%)	Non-infectious dermatoses N = 265 (%)	
Age (year)			<0.001
≤15	208 (65.8)	108 (34.2)	
16-30	71 (42.0)	98 (58.0)	
>30	38 (39.2)	59 (60.8)	
Sex			0.003
Female	178 (49.6)	181 (50.4)	
Male	139 (62.3)	84 (37.7)	
Marital status			<0.001
Bachelor	256 (60.5)	167 (39.5)	
married)	61 (38.4)	98 (61.6)	
Type of residence			0.200
Urban center	300 (55.2)	243 (44.8)	
Periphery	17 (43.6)	22 (56.4)	

Characteristics	TYPE OF SKIN DISEASE		p-value
	Infectious dermatoses, N = 317 (%)	Non-infectious dermatoses N = 265 (%)	
Level of study			<0.001
Did not attend school	143 (59.3%)	98 (40.7)	
Primary	126 (58.9%)	88 (41.1)	
Secondary or higher	48 (37.8%)	79 (62.2)	
Occupation			<0.001
Official	34 (43.6)	44 (56.4)	
Pupil/Student	132 (56.7)	101 (43.3)	
Housewife	28 (41.8%)	39 (58.2)	
Merchant/Trader	34 (45.3%)	41 (54.7)	
Unemployed	89 (69.0%)	40 (31.0)	
Previous treatment			0.032
No	188 (51.1%)	180 (48.9)	
Yes	129 (60.3%)	85 (39.7)	
Use of depigmenting products			<0.001
No	284 (57.5%)	210 (42.5)	
Yes	33 (37.5%)	55 (62.5)	
Pearson's Chi-squared test			

Users of depigmenting products for aesthetic purposes (10.4%) were significantly associated with the occurrence of infectious dermatosis ( $p < 0.001$ ).

Among infectious dermatoses, we noted a predominance of

scabies (40.4%) then ringworm (34.7%), dermatophytia (13.2%), folliculitis (3.2%) and finally molluscum contagiosum (1.6%) (Table 2).

**Table 2.** Distribution of patients with a skin disease of infectious origin seen in mobile clinics in the Boffa prefecture in June 2022.

Characteristics	Number (N = 317)	Proportion (%)
Fungal dermatoses		
Ringworm	110	34.7
Dermatophytia	42	13.2
Onychomycosis	3	0.9
Parasitic dermatoses		
Scabies	128	40.4
Pediculosis	2	0.6
Bacterial dermatoses		
Folliculitis	10	3.2
Impetigo	6	1.9
Boil	2	0.6

Characteristics	Number (N = 317)	Proportion (%)
Erysipelas	1	0.3
Viral dermatoses		
Molluscum contagiosum	5	1.6
Varicella	4	1.3
Warts	2	0.6
Shingles	1	0.3
Herpes	1	0.3

Inflammatory dermatoses consisted of acne (19.2%), palmoplantar keratoderma (2.0%), lichen planus (0.8%), psoriasis (0.5%) and hypodermatitis (0.3%). Concerning immunoallergic dermatoses we found: contact eczema (6.7%), prurigo (3.4%), atopic dermatitis (3.1%) and urticaria (1.7%).

In the category of genodermatoses, we recorded 3 cases of nevus (0.5%) and 1 case of congenital ichthyosis (0.1%).

## 4. Discussion

This study aimed to determine the proportion of demand for dermatological care in Guinean community areas, and to describe the types of skin disease encountered, with a view to implementing corrective measures to meet demand in the various localities. The study was carried out in June 2022 in a locality 150 km from the capital.

Our results showed that more than nine out of ten participants consulted during the campaign had a skin pathology. Similar results were reported by two studies carried out in rural areas of Morocco and Togo in 2016 and 2020 respectively [6-8]. These results suggest the high demand for dermatological care in Guinean community settings. These results could be explained by poor socio-economic conditions and the lack of qualified human resources to provide dermatological care in the community, which is responsible for inadequate management. It should be noted that inappropriate treatment of skin lesions could lead to complications such as impetiginization and profusion of lesions.

More than half of the patients who expressed a desire for dermatological care during this mobile clinic were children, which is identical to the findings of studies carried out in urban settings in Mali in 2016 and Cameroon in 2015; in contrast to a Turkish series where adolescents predominated and the Moroccan series where the 0-9 age group was less represented, with only 5% of consultants [6, 10-12]. This could be explained by the fact that this youth group often shares clothes and other personal items.

In our study, the predominance of infectious dermatoses was identical to that of the Conakry and Bamako Dermatology Departments. In contrast, in the studies carried out in

Togo and Tanzania, immuno-allergic and inflammatory dermatoses predominated [3, 7, 8, 12, 13]. Raising awareness and improving the socio-economic conditions of the population could reduce the frequency of infectious skin diseases.

Among infectious dermatoses, scabies was the most common, followed by ringworm. Similar results have been reported in the literature [8, 11, 13, 14]. Our results could be explained by the poverty in this locality, the promiscuity, the precariousness, the sharing of bedding and beds, the exchange of personal objects (clothes, hairdressing equipment) thus favoring the contagion of the participants.

Among immuno-allergic dermatoses, contact dermatitis, prurigo and atopic dermatitis were the most common. Our results contrast with those reported in the literature [12, 15-17]. Rapid urbanization and confined habitats could explain this profile of immuno-allergic diseases.

The use of depigmenting products over many years and over a large surface area exposes the skin to major dermatological complications such as trophic disorders, acne, infectious dermatoses and neoplasia [18-20]. In our series, we recorded cases of exogenous ochronosis and stretch marks, often associated. The majority of these participants had infectious dermatoses. This result could be explained by the disruption of cutaneous flora and the local immune deficiency.

A health promotion program in the Guinean community will be needed to encourage the population to adopt attitudes conducive to early detection and management of skin diseases. In our study, the diagnosis was based on a combination of anamnestic and clinical arguments. However, some patients were referred to the university hospital center for further investigations, in particular skin biopsies, and for the diagnosis of reperussions.

## 5. Conclusion

Skin diseases are still common in sub-Saharan Africa. Our study shows that the profile of skin diseases in the Guinean community is similar to that of the university hospital of Conakry. Scabies and ringworm were the two most common

skin diseases. Raising awareness of preventive measures and teledermatology remain an option for reducing the incidence of skin diseases in remote areas.

## Abbreviations

GBD Global Burden of Disease

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## Author Contributions

**Mamadou Diouldé Kanté**: Conceptualization, Data retention, Formal analysis, Software, Monitoring, Writing – original draft, Writing – review and editing

**Moussa Savane**: Conceptualization, Validation, Writing – review and editing

**Mariam Toure**: Conceptualization, Monitoring, Validation, Writing – original draft

**Fatoumata Biro Diallo**: Conceptualization, Monitoring, Validation, Writing – review and editing

**Salifou Talassone Bangoura**: Formal analysis, Software, Monitoring, Validation, Writing – review and editing

**Kade Fofana**: Data retention, Software, Writing – original draft, Writing – review and editing

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**Mohamed Cisse**: Writing – original draft, Writing – review and editing

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## Conflicts of Interest

The authors declare no conflicts of interest.

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