



Epidemiological Aspects of Short Dry Season Dermatoses in Kinshasa

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Abstract

Introduction: Dermatoses are a public health issue in developing countries. This study aims to report the epidemiological profile of the main dermatoses encountered in the dermatology department during the short dry season in Kinshasa.

Methodology: This is a descriptive study conducted on a series of patients of all ages and genders, who consulted for the first time for cutaneomucous manifestations at the dermatology service in Kinshasa. Data were collected from January 1 to March 31, 2023, and analyzed using SPSS 26 software.

Results: Out of 476 consultations, 289 were new patients. Women accounted for 62% of the series. The majority of patients were single (65.40%). A single diagnostic hypothesis was made in 76% of cases. Infectious and parasitic dermatoses were the most common (60%), among which fungal dermatoses (25.20%) were the most prevalent, followed by bacterial dermatoses (16.80%) and parasitic dermatoses (13.01%).

Discussion: This study provides a detailed overview of the epidemiological profile of dermatoses during the short dry season in Kinshasa. Infectious dermatoses predominate, particularly fungal dermatoses, which could be attributed to the climatic conditions favorable to their development. The results are consistent with other studies conducted in developing countries.

Strengths of the Study: The sample size is substantial, which increases the representativeness of the results. The use of analogical reasoning by dermatologists ensures a more accurate diagnosis.

Limitations of the Study: Diagnoses were primarily based on clinical examination, which could result in some subjectivity. Moreover, the study was conducted in a single medical center, thus limiting the generalization of the results to the entire country.

Conclusion: This study highlights the importance of infectious dermatoses as the main reason for dermatology consultations during the short dry season in Kinshasa. A better understanding of the epidemiological profiles of dermatoses can contribute to more appropriate patient care and the implementation of suitable prevention strategies.

Keywords: Dermatitis; Frequency; Short Dry Season; University Clinics of Kinshasa

Introduction

Dermatoses or disorders of the skin, its appendix and mucous membranes, whatever their causes, are a public health problem in developing countries [1-3]. Dermatoses occupy 25% of medical

consultations, are among the five main causes of morbidity and incapacity for work in Africa, and are the leading reason for medical consultation for disadvantaged people in developed countries

[4,5]. In sub-Saharan Africa, infectious skin diseases are a major public health problem, due in part to the combined effects of the environment, living conditions and cultural influences [6-8].

Several studies indicate that the frequency of dermatoses is affected by the climate. However, due to the large environmental and climatic differences in the world, the seasonality patterns of these dermatoses vary from region to region [9-11].

In the Democratic Republic of Congo, four climates are well identified: the equatorial climate, the humid and dry tropical climate, the high-altitude climate and the coastal climate with variation depending on the region. The Kinshasa region, as a tropical region, has a dry winter savannah climate according to the Köppen-Geiger classification characterized by two dry seasons, (1) a short hot and humid dry season from January to March and (2) a long cold dry season from June to September and two rainy seasons, (1) a short rainy season from April and May and a long rainy season from October to December [12,13].

Unfortunately, little data is available on the epidemiology of dermatoses in the region and according to the seasons. Faced with this lack of information, this preliminary study aims to fill this gap by providing valuable data to better understand the frequency and distribution of dermatoses in our local context.

Overall objective

To describe the epidemiological profile of the main dermatoses encountered at university clinics in Kinshasa during the short dry season.

Specific objectives

- To determine the frequency of consultations for mucocutaneous manifestations at the dermatology department of the university clinics of Kinshasa from January 1, 2023 to March 31, 2023.
- Analyze the monthly distribution of consultations to identify possible seasonal variations in the use of the service.
- To assess the distribution of patients by sex to determine whether there are significant differences in the prevalence of dermatoses between men and women.
- To examine the distribution of patients by marital status in order to understand how this socio-demographic aspect may

influence the frequency of dermatological visits.

- To determine the number of diagnostic hypotheses formulated to assess the variability of diagnoses and the effectiveness of dermatologists' clinical reasoning.
- To identify and quantify the prevalence of the main nosological entities of infectious dermatoses.

Methods

- **Study type:** This was a descriptive cross-sectional study.
- **Study population:** The study population included patients of all ages and genders who had first consulted for mucocutaneous manifestations at the dermatology department of the university clinics in Kinshasa.
- **Study period:** The study ran from January 1 to March 31, 2023.
- **Study Setting:** The study was conducted at the dermatology department of the University Clinics of Kinshasa.

Selection criteria: Are divided into inclusion criteria and exclusion criteria.

Inclusion criteria

To participate in this study, patients had to have consulted for the first time for mucocutaneous manifestations during the period from January 1 to March 31, 2023 and have complete and sufficiently documented records to allow adequate clinical analysis.

Exclusion criteria

Excluded from the study were patients who had been consulted for reasons other than mucocutaneous manifestations during the study period; patients whose records were incomplete, incomplete, or insufficiently documented; and those who had already been included in the study at a previous visit during the study period, in order to avoid duplication in the data.

Study variables: Among the data that caught our attention, we selected two types:

- **Sociodemographic:** Sex and marital status.
- **Clinical:** Diagnostic hypothesis and the dermatoses encountered.

Data collection and analysis

Data were collected in a documentary manner using a pre-designed Excel sheet and were imported into SPSS 26 for descriptive analysis. This analysis included measures of central tendency, dispersion, and frequency analyses. The results have been presented in the form of tables and graphs.

Operational definitions

- **Sex:** Biological characteristics that define individuals as male or female.
- **Marital status:** The legal status of individuals in terms of marriage, which can be single, married, widowed, divorced, or common-law.
- **Dermatosis:** Pathological changes in the skin, mucous membranes or their appendages, regardless of the cause.
- **Infectious dermatosis:** A condition of the skin, mucous membranes or their appendages caused or aggravated by infectious agents (bacterial, viral, fungal or parasitic).
- **New Consultation:** The patient’s first visit during which the initial elements of the patient-doctor contact were recorded, without consideration for follow-ups at subsequent appointments.

Ethical considerations

Prior to the start of the study, we obtained ethics approval from the Institutional Ethics Committee of the University Clinics of Kinshasa. All information collected during this study was processed anonymously, and the data was stored securely to preserve the privacy of the participants. All stages of the study were conducted in accordance with international ethical principles, including the Declaration of Helsinki.

Results

Frequency

Out of 476 consultations, 289 (60.71%) took place for the first time. The monthly incidence of cases is shown in Figure 1.

Figure 1 Monthly breakdown of the number of patients consulted.

In January, 84 patients visited the dermatology department with tension, while 100 and 105 consulted in February and March, respectively.

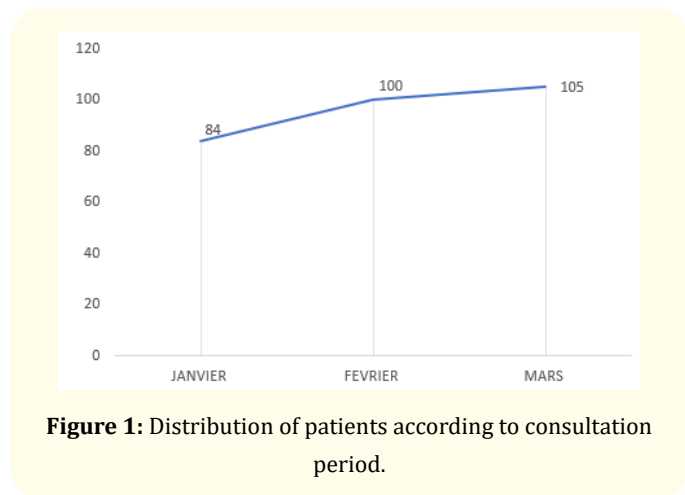


Figure 1: Distribution of patients according to consultation period.

Demographic characteristics

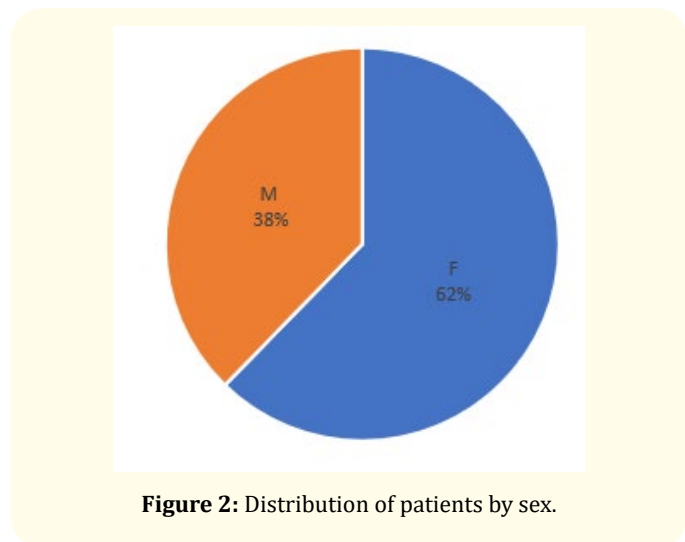


Figure 2: Distribution of patients by sex.

Of the 289 patients in the study, 62% were female.

Marital status	Actual	Percentage
Bachelor	189	65,40
Married	89	30,80
Widower	7	2,42
Divorced	4	1,38
Total	289	100,00

Table 1: Distribution of patients by marital status.

Single people accounted for 65.4% of new consultations, followed by married people in 30.8% of cases, widowers in 2.42% of cases and only 1.38% were divorced.

Clinical features

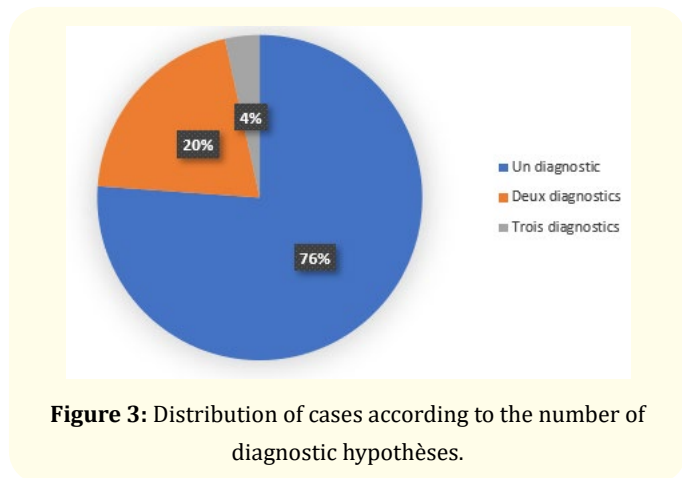


Figure 3: Distribution of cases according to the number of diagnostic hypotheses.

A single diagnostic hypothesis was made in 76% of cases, while 20% of cases had two diagnoses and only 4% had three diagnostic hypotheses.

Fungal dermatoses accounted for 41.70% of infectious dermatoses, Bacterial and parasitic dermatoses accounted for 27.80% and 21.52% of cases, respectively, and viral dermatoses accounted for only 8.97% of cases.

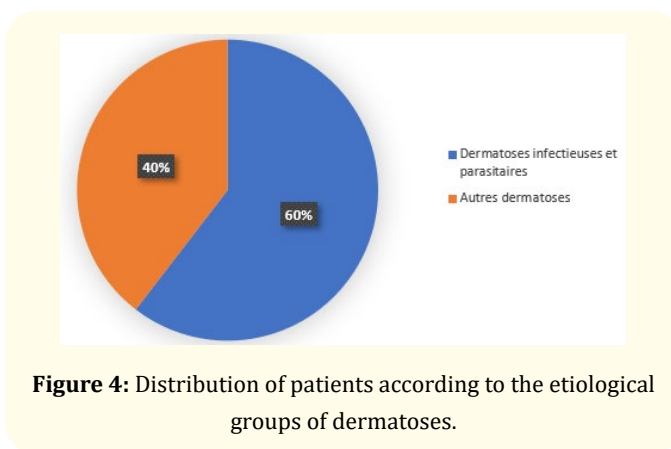


Figure 4: Distribution of patients according to the etiological groups of dermatoses.

Infectious and parasitic dermatoses were diagnosed in 60% of cases, while other dermatoses accounted for 40%.

Etiological Groups	Number of employees (369)	Number of employees (223)
Fungal	93(25,20%)	93 (41,70%)
Bacterial	62(16,80%)	62(27,80%)
Parasitic	48(13,01%)	48(21,52%)
Viral	20(5,42%)	20(8,97%)

Table 2: Distribution of infectious dermatoses according to nosological entities.

Nosologic Entities	Dermatoses	Staff (369)	Staff (223)	
Parasitic	Scabiosis	43(11,65%)	43(19,28%)	89,58
	Myiase	2(0,54%)	2(0,90%)	4,17
	Pediculosis	2(0,54%)	2(0,90%)	4,17
	View of cayor	1(0,27%)	1(0,45%)	2,08
	Total	48(13,01%)	48(21,52%)	100,00
Fungal	Pityriasis Versicolor	33(8,94%)	33(14,80%)	35,48
	Fungal Intertrigo	26(7,05%)	26(11,66%)	27,96
	Dermatophytia	15(4,07%)	15(6,73%)	16,13
	Seborrheic dermatitis	7(1,90%)	7(3,14%)	7,53
	Athletic foot	5(1,36%)	5(2,24%)	5,38
	Onychomycosis	4(1,08%)	4(1,79%)	4,30
	Microsporic ringworm	3(0,81%)	3(1,35%)	3,23
	Total	93(25,20%)	93(41,70%)	100,00

Bacterial	Acne	38(10,30%)	38(17,04%)	61,29
	Impetigo	10(2,71%)	10(4,48%)	16,13
	Folliculitis and boil	9(2,44%)	9(4,04%)	14,52
	IS	2(0,54%)	2(0,90%)	3,23
	Erysipelas	1(0,27%)	1(0,45%)	1,61
	Botriomycome	1(0,27%)	1(0,45%)	1,61
	Leprosy	1(0,27%)	1(0,45%)	1,61
	Total	62(16,80%)	62(27,80%)	100,00
	Condylome	8(2,17%)	8(3,59%)	40,00
	Seborrheic wart	3(0,81%)	3(1,35%)	15,00
Viral	Herpès labial	2(0,54%)	2(0,90%)	10,00
	PRG	2(0,54%)	2(0,90%)	10,00
	Zone	2(0,54%)	2(0,90%)	10,00
	Plantar wart	1(0,27%)	1(0,45%)	5,00
	Molluscum Contagiosum	1(0,27%)	1(0,45%)	5,00
	Pox virus	1(0,27%)	1(0,45%)	5,00
	Total	20(5,42%)	20(8,97%)	100,00
TOTAL		223(60,43%)	223(100%)	

Table 3: Distribution of infectious dermatoses according to diagnosis.

Scabiosis was the most common parasitic dermatosis in 89.58%, Pityriasis Versicolor accounted for 35.48% of fungal dermatoses, Acne accounted for 61.29% of cases of bacterial dermatoses and Condyloma accounted for 40.00% of viral dermatoses.

Dermatoses	Staff (369)	Percentage
Hives	26	7,05
Eczema	16	4,34
Pathological scar	13	3,52
Ochronose	13	3,52
Prurigo	12	3,25
Lichen	10	2,71
Sudamin	5	1,36
Submucosal or cutaneous mass	4	1,08
Toxirmia	4	1,08
Alopecia	3	0,81
Psoriasis	3	0,81
Stretch marks	3	0,81
Vitiligo	3	0,81
Cutaneous xerosis	3	0,81
Post-eelgrass algia	2	0,54

Papular dermatosis nigricans	2	0,54
Diaper dermatitis	2	0,54
Lymphedema of two lower limbs	2	0,54
Neurofibromatosis	2	0,54
Burns	1	0,27
Carcinoma	1	0,27
Irritative dermatitis	1	0,27
Erythrasma	1	0,27
Maculopapular exanthema of the face	1	0,27
Hemangioma	1	0,27
Lupus erythematosus	1	0,27
Sequel hyperchromic macules	1	0,27
Kertinocytic epidermal nevus	1	0,27
Diabetic neuropathy	1	0,27
Pelade	1	0,27
Scleroderma	1	0,27
Syringome	1	0,27
Telangiectasia	1	0,27
Xanthelasma	1	0,27

Table 4: Distribution of non-infectious dermatoses.

The table reveals a diversity of diagnoses among non-infectious dermatoses, with a higher prevalence of urticaria (7.05%) and eczema (4.34%). Other conditions such as pathological scars and Ochronosis have similar prevalence rates, followed by prurigo and lichen.

Discussion

The aim of this study was to report the epidemiological profile of the main dermatoses encountered in consultation at the dermatology department of the university clinics of Kinshasa during the short dry season.

The female predominance reported during this study is similar to the results reported by Kandil, *et al.* in Marrakech and Seudjip, *et al.* in Kinshasa; while contradicting the results of Dhiraj, *et al.* in India. The female predominance reported in this study may be related to women's increasing attention to skin aesthetics [14,15].

Regarding diagnostic hypotheses, only one hypothesis was made in the majority of cases (76%). This could be explained by the analogical reasoning adopted by dermatologists when making diagnoses.

The incidence of infectious dermatoses (60%) reported in this study is much higher than some previous studies conducted in Africa, namely those by Seudjip, *et al.* (9.8%) in Kinshasa and Teclessou J, *et al.* (23,6%) in Lomé, which took place over several years, but is similar to the observations made by Fofana Y, *et al.* in Bamako during a dermatosis screening caravan [14,16,17].

This predominance could be explained by the precariousness in which most households live in sub-Saharan Africa in general and in Kinshasa in particular; but also, by the environmental and climatic conditions (short dry season which is hot and humid) conducive to the development of infectious diseases.

The predominance of fungal dermatoses is consistent with the results of Mahé A., *et al.* au Mali and Tounkara TM., *et al.* in Donka on the other hand, it is much higher than the results of OSMANE S., *et al.* In Tan Tan, Baghestani S., *et al.* in Iran, by Doe PT., *et al.* in the United Kingdom [2,7,18-20].

These results can be explained by the fact that this study was carried out during the short dry season, a period when heat and humidity promote the development and maintenance of fungal dermatoses [21].

Bacterial dermatoses were the second most common category among infectious dermatoses. Acne was the most common bacterial dermatosis. This could be related to our study population which was young and single.

Conclusion

The present study showed a higher frequency of infectious and parasitic dermatoses in our local context compared to some studies conducted in other regions. Several factors could explain these observed differences, including environment and climate, level of hygiene and socio-cultural behaviours of the community.

Strengths of the Study

- **Representativeness of the sample:** The study was conducted in the dermatology department of the university clinics of Kinshasa, thus offering a representativeness of the patients consulting in this establishment.
- **Relevant study period:** The three-month period (January 1 to March 31, 2023) chosen for the study provides seasonal data and a better understanding of potential epidemiological variations.
- **Rigorous data collection:** The data was collected using a specially designed Excel sheet, which facilitates standardization and quality of the information collected.
- **Appropriate statistical analysis:** The use of SPSS 26.0 software for data analysis allows for a comprehensive descriptive approach, using central tendency and dispersion measurements as well as frequency analyses.
- **Identification of infectious diseases:** The study highlighted infectious dermatoses, which is important because these conditions have a significant impact on public health in tropical regions.

Limitations of the study

- **Single-center study:** The study was conducted only within university clinics in Kinshasa, which may limit the generalization of the results to other health facilities in the region or nationally.
- **Selection bias:** Because the study relies on visits to the dermatology department, it may underestimate some less severe dermatoses that could be treated in other departments or on an outpatient basis.

- **Descriptive study:** The study is descriptive in nature and does not allow causal relationships to be established between the factors studied and the dermatoses observed. Additional analytical studies would be needed to further explore potential associations.
- **Lack of complete information:** Some relevant variables may be missing from medical records, which could limit the accuracy of the results.
- **Impact of seasonality:** While the study period is relevant, it may not cover all seasonal variations in dermatoses, as some conditions may be more common at other times of the year.

Considering these strengths and limitations when interpreting and applying study results is critical to improving patient care and public health policies. Future studies could be undertaken to strengthen the findings and address some of the limitations mentioned.

Conclusion

This study described the epidemiological profile of the main dermatoses encountered in consultation at the dermatology department of the university clinics of Kinshasa during the short dry season and highlighted the predominance of infectious dermatoses. Infectious dermatoses, especially fungal dermatoses, were the most common among patients consulting in this department.

These results underline the importance for dermatologists to deepen their knowledge of the infectious dermatoses clinic and to develop appropriate management strategies. A better understanding of the epidemiology of dermatoses in this region according to the season could help improve the prevention, diagnosis and treatment of these skin conditions.

Recommendations

Based on the results obtained in this epidemiological study of dermatoses, we make the following recommendations:

- **Awareness and education:** It is essential to have awareness and education programs on skin conditions, especially infectious dermatoses, for the general public. This could include information campaigns on symptoms, modes of transmission, prevention measures, and the importance of seeing a dermatologist as soon as symptoms appear.

- **Continuing education of dermatologists:** Dermatologists should continue to educate themselves and keep up to date with the latest advances in dermatology and the management of infectious dermatoses. Seminars, workshops and conferences can be organised to promote this continuing education.
- **Strengthening medical infrastructure:** There is a need to strengthen medical infrastructure, especially in areas where resources are limited. This could lead to better management of patients with dermatoses, ensuring timely access to appropriate care, diagnostic tests and treatments.
- **Awareness of hygiene measures:** Awareness campaigns should also include information on basic hygiene measures to prevent infectious dermatoses. It is essential to teach people the importance of hand washing, using clean clothes, disinfecting shared items, and other simple preventative measures.
- **Access to medicines:** Ensuring adequate access to the medicines needed for the treatment of infectious dermatoses is essential. This may include appropriate antifungal, antibiotic, and antiviral medications. Efforts must be made to make these medicines affordable and available in health facilities.
- **Research:** Encourage research in the field of dermatology to better understand risk factors, transmission mechanisms, and effective treatments for infectious dermatoses. Thorough research can contribute to the development of better prevention and treatment strategies.
- **Epidemiological surveillance:** Establishing an epidemiological surveillance system will allow for continuous monitoring of the incidence and prevalence of dermatoses, particularly infectious dermatoses. This can help detect possible outbreaks, identify emerging trends, and take appropriate preventive measures.
- **Interdisciplinary collaboration:** Encouraging collaboration between dermatologists and other health care specialists can be beneficial for the overall management of patients with dermatoses. A multidisciplinary approach can improve treatment outcomes and patients' quality of life.

By implementing these recommendations, it is possible to improve the management of dermatoses, reduce the prevalence of

infectious dermatoses, and improve the overall skin health of the population. These efforts will help reduce the impact of dermatoses on public health and improve the quality of life of affected patients.

Summary

Introduction: Dermatoses are a public health problem in developing countries. This study aims to report the epidemiological profile of the main dermatoses encountered in the dermatology department during the short dry season in Kinshasa.

Methodology: This is a descriptive study conducted on a series of patients of all ages and sexes, who consulted for the first time for mucocutaneous manifestations at the dermatology department of Kinshasa. Data were collected from January 1, 2023 to March 31, 2023 and analyzed using SPSS 26 software.

Results: Of the 476 consultations, 289 were new patients. Women made up 62% of the series. The majority of patients were single (65.40%). A single diagnostic hypothesis was made in 76% of cases. Infectious and parasitic dermatoses were the most common (60%), among which fungal dermatoses (25.20%) were the most prevalent, followed by bacterial dermatoses (16.80%) and parasitic dermatoses (13.01%).

Discussion: This study provides a detailed overview of the epidemiological profile of dermatoses during the short dry season in Kinshasa. Infectious dermatoses predominate, especially fungal dermatoses, which could be attributed to the climatic conditions favourable to their development. The results are consistent with other studies conducted in developing countries.

Study Strengths: The sample size is considerable, which increases the representativeness of the results. The use of analogical reasoning by dermatologists ensures a more accurate diagnosis.

Study Limitations: Diagnoses were based primarily on physical examination, which could lead to some subjectivity. In addition, the study was conducted in a single medical center, thus limiting the generalizability of the results to the entire country.

Conclusion: This study highlights the importance of infectious dermatoses as the main reason for dermatology consultations during the short dry season in Kinshasa. A better knowledge of the epidemiological profiles of dermatoses can contribute to the appropriate management of patients and the implementation of appropriate prevention strategies.

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