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Sudanese children's common skin diseases

Abstract

Background: Skin diseases are a significant public health concern that affects a considerable percentage of children, causing discomfort and disabilities.

Objective: The focus of this research was to determine the most frequent skin diseases among children in the Dermatology Department of the Tropical Disease Teaching Hospital.

Methodology: This is a retrospective hospital-based research that took place from January to December **2021** at the Tropical Disease Teaching Hospital.

Results: One hundred and eighty patients, ranging in age from one to eighteen years old, were included in this study, with males accounting for 60.7 % of the total (n=68). The overwhelming majority of the patients (90.2%, n=101) were from Khartoum state. In the majority of cases (92.9 % - n=104), the patients' residential situations were a risk factor; there was no crowd in their households, and 83.9 % (94) of the participants had no animals in their homes. In terms of water supply, 85.7 % (96) of the patients used tap water. The majority of patients (90.2 % - n=101) had no seasonality skin condition, and none of the patients have any chronic disorders, according to their clinical data. Skin diseases are prevalent among the patients. Throughout study, contagious skin disease affected more than half of the patients (57.1 %, n =64). Furthermore, fungal infection was found in 62.5 % (40) of patients. The great majority of patients (96.4 %, n=108) responded well to therapy.

Conclusion: The sex distribution revealed a significant disparity between males and females, with females outweighing males. The majority of the patients were under the age of five. The preponderance of the incidents was linked to housing situations. There is no seasonal variation in the occurrence of illness. Skin disease was evident in more than half of the individuals. A statistical correlation was revealed between the type of skin condition and a family history of similar condition, as well as the duration of treatment.

Keywords: skin diseases, children, Khartoum, Sudan

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Introduction

Skin disorders have sparked a lot of awareness throughout the world over the years since they are common yet possibly preventive and manageable.[1] Skin diseases were the 18th most common cause of global disability-adjusted life years (DALYs) and the fourth most common category of non-fatal disease burden in 2013.[2] Skin disorders impact between 21 and 87 cents of African children, and account for up to a third of all outpatient visits to paediatricians and dermatologists.[3] Despite the fact that skin conditions have a lower fatality rate and consequently receive less attention than more serious medical conditions,[4,5] their contribution to total morbidity occupies a significant cost on the community, imposing a burden on the health care resources and personnel.[1]

Due to ecological variables, sanitation standards, social mores, and genetics, the pattern of skin disorders differs from nation to nation, and even from region to region within the same country.[6,7] Eczematous skin disorders are the most prevalent among children in industrialized nations,[3] whereas infections and infestations are the most common in underdeveloped countries.[4,6] Studies in Nigeria, Bangladesh, India, Brazil, Tanzania, and Egypt, for contrast, revealed diverse patterns of skin disorders among school children by nation, with infections being the most prevalent overall.[4,5,7–9] Despite the fact that skin illnesses are frequent among the populations of many poor nations, they have not been recognized as a serious problem that may benefit from public health interventions. Nevertheless, in the same nations, other less prevalent medical issues are typically given more emphasis. This viewpoint stems from the belief that skin disorders are a small annoyance that is benign rather than life-threatening, and that they do not need actions that look out of proportion to their lesser significance. Conversely, at least in some nations, patients and healthcare providers appear to be clamoring for more attention to be devoted to skin problems. This article represents thorough data on the epidemiology of common skin problems among children in tropical areas and their relevance as viable approaches for managing the problem, based on a rigorous assessment of the medical literature over the previous three decades.[1]

Dermatological presentations account for more than **30**% of all outpatient visits in pediatric facilities.[1,2] Their occurrence is influenced by ethnic, social, and environmental variables. Chronic skin illnesses including psoriasis, xeroderma pigmentosum, and neurofibromatosis are socially ostracized due to the common notion that these conditions are communicable and linked to blood particulates.[2]

Because there was insufficient documentation in Sudan, this study was conducted to determine the incidence of children with skin illnesses. Early detection and treatment of skin diseases can avoid additional consequences and transmission.

Materials and methods

The Khartoum Dermatology Teaching Hospital and the Khartoum Tropical Disease Teaching Hospital, which are the country's largest, most specialized, and reference dermatological hospitals, undertook a retrospective, hospital-based study. At the dermatological outpatient referral clinics, all children with skin disorders are treated by the medical team. In addition, the institution offers inpatient and other dermatological consulting services. Dermatology consultations are planned for children who have skin concerns. Clinical diagnosis

are made in the majority of cases, however suitable laboratory or histopathological studies are accomplished out if needed. Since there is no designated clinic for pediatric patients, the hospital treats patients of all ages. Pediatric general outpatient clinics, wards, and children's emergency departments at other hospitals often refer patients.

Sudan has two distinct seasons: wet and dry. The wet season lasts from the end of April to the end of November, and is followed by the dry season. The study took place from January to December of 2021. Children's records were presented in the research area based on the following criteria: Children aged 0 to 18 years old were included, but those with incomplete medical information were omitted. The focus of the research was to determine the most frequent skin illnesses among children in the Dermatology Department of the Tropical Disease Teaching Hospital. As a result, all eligible patients presented throughout the research period were recruited in the study. A total of 112 patients were included. Children's demographic factors (age, gender, domicile, weight, risk factor, source of water supply, season relationship, personal cleanliness, and related chronic illnesses) as well as infectious and non-infectious skin disorders are among the research variables.

Secondary information was gathered using a data sheet that covered age, sex, and sanitary conditions, as well as bathing frequency, soap usage, garment washing and ironing, and bed sharing. The results of the dermatological examination and the dietary evaluation were also noted. The results of tissue processing for histological diagnosis, as well as medical personal and family history, were merged into the data sheet. The information gathered was double-checked, coded, and put into the Statistical Package for Social Sciences (SPSS version 16). Tables and figures were used to present the findings. Chi-square trend test was applied to examine variation in trends. A p - value <0.05 was considered statistically significant.

Ethical considerations

The Sudan Medical Specialization Board's Council of Pediatric, the Khartoum State Ministry of Health Research Department, and hospitals all gave their authorization for the study.

Results

This study enlisted the participation of 112 children. Males made up 60.7 % of the children (n=68), while girls made up 39.3 % (44).44.6 % (50) of the children were under the age of five, and 28% (28) were between the ages of ten and eighteen. The bulk of the patients (90.2%, n=101) were from Khartoum state, with 11 (8.8%) from outside the city (Table 1).In the group of patients with non-infectious skin illnesses, 50 % (24) had allergic skin diseases, 10.4% (5) had papulo-squamous condition, and 8.3% (4) had hair disorders. In our study, 57.1 % (n = 64) of the patients had infectious skin illness, whereas 42.9 % (48) had non-infectious skin disease. Furthermore, fungal infection was found in 62.5 % (40) of patients with infectious skin illnesses, 12.5 % (8) had bacterial infection, 17.2% (11) had viral infection, and 7.8 % (5) had parasitic infection. 90.2 % (n=101) of individuals with skin illness had no seasonal connection (Table 2 & 3).The non-infectious condition and the patient's age had a significant relationship (p=0.01). Furthermore, there was no significant link between the infectious condition and the patient's age (p=0. 60) (Table 4). Non-infectious illness had a marginally significant link with gender (p=0.07). In addition, the number of men affected by non-infectious diseases has grown. Furthermore, there was no significant link between the infectious condition and the patient's gender (p=0.80) (Table 5). There was no correlation between the non-infectious condition and the patient's location (p=0.09).However, there was a statistically significant link between the infectious illness and the patient's location (0.0001) (Table 6). There was no link between non-infectious and infectious illness and the patient's living situation (p=0.6 and p=0.3, respectively) (Table 7). There was no correlation between non-infectious illness and the patient's water source (p=0.99).When infectious illness and water source were compared, there was a significant correlation (p=0.003) (Table 8). There was no evidence of a connection between non-infectious and infectious disease seasonality (p=0.080) or (p=0.680), respectively (Table 9). There was no correlation between the presence of animals in the house and the non-infectious and infectious diseases (p=0.533) and (p=0.109), respectively (Table 10). Non-infectious, infectious illness, and a family history of comparable disease were shown to have a statistical relationship (p=.003) and (p=0.001), respectively (Table 11).

Table 1 General characteristic of the study group

Variable		Frequency	Percent%
Age (in years)	Less than 5	50	44.6
	5-9	34	30.4
	10-18	28	25
	Total	112	100
Gender	Male	68	60.7
	Female	44	39.3
Resident	Khartoum	101	90.2
	Out-side Khartoum	11	8.8

Table 2 Distribution of demographic and clinical data in the study groups

Variable	Characteristics	Frequency	Percent
The presence of the animal	Dogs	1	0.9
	Goats	15	13.4
	Birds	2	1.8
	No animals	94	83.9
Residential conditions	Crowded	104	92.9
	No crowed	8	7.1
Source of water supply	Tap water	96	85.7
	Underground wells	7	6.3
	River water	9	8
Type of skin disease	Infectious disease	64	57.1
	Non-infectious disease	48	42.9
Infectious diseases	Bacterial infection	8	12.5
	Fungal infection	40	62.5
	Viral infection	11	17.2
	Parasitic infection	5	7.8
Non-infectious diseases	Allergic skin disease	24	50
	Sweat gland disorders	1	2.1
	Papulo-squamous disorder	5	10.4
	Hair disorder	4	8.3
	Pigmentary disorder	1	2.1
	Follicular disorder	1	2.1
	Other	12	25

Citation: Bala SAB, Adeeel FOA, Ahmed MAI, et al. Sudanese children's common skin diseases. *J Pediatr Neonatal Care*. 2022;12(2):89–94. DOI: 10.15406/jpnc.2022.12.00462

Table 3 Distribution of diagnosed skin disease in the study group

Diagnosis	Frequency	Percent	Diagnosis	Frequency	Percent
Atopic dermatitis	7	6.3	Dandruff + folliculitis	2	1.8
Dermatitis	1	0.9	Larva migrans	4	3.6
Hair fall	2	1.8	Lichen nitidus	1	0.9
Scabies	11	9.8	Cutaneous leishmaniases	1	0.9
Pityriasis rubra pilaris	1	0.9	Pityriasis rosea	3	2.7
Alopecia areata	1	0.9	Dandruff + tinea alba	1	0.9
Seborrheic dermatitis	11	9.8	Morphea	1	0.9
Tinea incognito	2	1.8	Contact dermatitis	3	2.7
Lichen planus	2	1.8	chronic bullous disease of childhood	1	0.9
Pyogenic granuloma	2	1.8	Seborrheic dermatitis + fungal infection	1	0.9
HPV	3	2.7	Miliaria	1	0.9
Folliculitis	5	4.5	Pityriasis rubra pilaris + Fungal	2	1.8
impetigo contagiosa	1	0.9	Umbilical granuloma	1	0.9
Eczema	4	3.6	Infected acne	1	0.9
Seborrheic dermatitis+tineaalba	2	1.8	Tinea alba	1	0.9
Tinea capitis	8	7.1	Impetigo	4	3.6
Molluscum contagiosum	7	6.3	Urticaria	4	3.6
Left foot infantile hemangioma	1	0.9	Hyperpigmentation due to B12 disease	1	0.9
Tinea versicolor	1	0.9	Tinea pedis	1	0.9
Bullous impetigo	2	1.8			
Infected eczema	4	3.6	Total	112	100

Table 4 Association between non-infectious, infectious disease and Age\Year

	Disease	Less than 5	5-9	10-18	p-value
Non-infectious disease	Allergic skin disease	12	5	7	
	Sweat gland disorders	0	1	0	
	Papulsquamous disorder	1	4	0	
	Hair disorder	0	0	4	**0.019**
	Pigmentary disorder	0	0	1	
	Follicular disorder	0	1	0	
	Other	6	3	3	
	Total	19(39.58%)	14(29.17%)	15(31.25%)	
Infectious disease	Bacterial infection	3	2	3	
	Fungal infection	21	12	7	
	Viral infection	6	4	1	**0.6**
	Parasitic infection	1	2	2	
	Total	31(48.44%)	20(31.25%)	13(20.31)	

Table 5 Association between non-infectious, infectious disease and gender

		Gender		p-value
	Disease	Male	Female	
Non-infectious disease	Allergic skin disease	18	6	
	Sweat gland disorders	1	0	
	Papulsquamous disorder	1	4	
	Hair disorder	1	3	
	Pigmentary disorder	0	1	0.07
	Follicular disorder	0	1	
	Other	8	4	
	Total	29(60.41)	19(39.58%)	
Infectious disease	Bacterial infection	5	3	
	Fungal infection	24	16	
	Viral infection	6	5	0.8
	Parasitic infection	4	1	
	Total	39(60.94%)	25(39.1)	

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Table 6 Association between non-infectious, infectious disease and resident

	Disease	Resident		p-value
		Khartoum	Outside Khartoum	
Non-infectious disease	Allergic skin disease	22	2	
	Sweat gland disorders	1	0	
	Papulsquamous disorder	5	0	**0.09**
	Hair disorder	4	0	
	Pigmentary disorder	1	0	
	Follicular disorder	1	0	
	Other	12	0	
	Total	46(95.83%)	2(4.2%)	
Infectious disease	Bacterial infection	6	2	
	Fungal infection	38	2	
	Viral infection	10	1	**<0.0001**
	Parasitic infection	1	4	
	Total	55(85.93%)	9(14.1%)	

Table 7 Association between non-infectious, infectious disease and residential conditions

	Disease	Residential conditions		p-value
		Overcrowded	No crowd	
Non-infectious disease	Allergic skin disease	2	22	
	Sweat gland disorders	0	1	
	Papulsquamous disorder	0	5	0.68
	Hair disorder	1	3	
	Pigmentary disorder	0	1	
	Follicular disorder	0	1	
	Other	0	12	
	Total	3(6.25%)	45(93.75%)	
Infectious disease	Bacterial infection	0	8	
	Fungal infection	5	35	
	Viral infection	0	11	0.35
	Parasitic infection	0	5	
	Total	5(7.81%)	59(92.19%)	

Table 8 Association between non-infectious, infectious disease and Source of water supply

		Source of water supply			p-value
	Disease	Tap water	Underground wells	River water	
Non-infectious disease	Allergic skin disease	22	1	1	
	Sweat gland disorders	1	0	0	
	Papulsquamous disorder	5	0	0	
	Hair disorder	4	0	0	
	Pigmentary disorder	1	0	0	**0.99**
	Follicular disorder	1	0	0	
	Other	11	0	1	
	Total	45(93.75%)	1(2.83%)	2(4.17%)	
Infectious disease	Bacterial infection	6	2	0	
	Fungal infection	33	3	4	
	Viral infection	11	0	0	**0.003**
	Parasitic infection	1	1	3	
	Total	51(79.68%)	6(9.38%)	7(10.94%)	

Table 9 Association between non-infectious, infectious disease and relation to any season

	Disease	Relation to any season		p-value
		Yes	No	
Non-infectious disease	Allergic skin disease	3	21	
	Sweat gland disorders	1	0	0.08
	Papulsquamous disorder	1	4	
	Hair disorder	0	4	
	Pigmentary disorder	0	1	
	Follicular disorder	0	1	
	Other	0	12	
	Total	5(10.42%)	43(89.58%)	

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Table Continued...

	Disease	Relation to any season		p-value
		Yes	No	
Infectious disease	Bacterial infection	0	8	
	Fungal infection	4	36	
	Viral infection	1	10	
	Parasitic infection	1	4	0.68
	Total	6(9.37%)	58(90.63%)	

Table 10 Association between non-infectious, infectious disease and the presence of the animal at house

		Presence of the animal at house			p-value
	Disease	Dogs	Goats	No animals	
Non-infectious disease	Allergic skin disease	1	2	21	
	Sweat gland disorders	0	0	1	
	Papulsquamous disorder	0	1	4	
	Hair disorder	0	0	4	0.533
	Pigmentary disorder	0	1	0	
	Follicular disorder	0	0	1	
	Other	0	1	11	
	Total	1(2.83%)	5(10.42%)	42(87.50%)	
Infectious disease	Bacterial infection	2	0	6	
	Fungal infection	5	0	35	
	Viral infection	3	1	7	0.109
	Parasitic infection	0	1	4	
	Total	10(15.63%)	2(3.13%)	52(81.25%)	

Table 11 Association between non-infectious, infectious disease and history of family member affected by the same disease

	Disease	History of family member affected by the same disease		p-value
		Yes	No	
Non-infectious disease	Allergic skin disease	1	23	
	Sweat gland disorders	1	0	
	Papulsquamous disorder	2	3	0.003
	Hair disorder	0	4	
	Pigmentary disorder	0	1	
	Follicular disorder	0	1	
	Other	0	12	
	Total	4(8.33%)	44(91.67)	
Infectious disease	Bacterial infection	3	5	
	Fungal infection	4	36	
	Viral infection	7	4	0.001
	Parasitic infection	3	2	
	Total	17(26.56%)	47(73.44%)	

Discussion

The majority of patients (90.2%, n = 101) were from Khartoum state, and 11 were from outside. The most affected age group (44.6%) was those who were under 5 years old, followed by those who were between 10 and 18 years old. In our study, the majority of patients had a large family (67 %), and their houses were not crowded (92.9 %). In contrast, A. O. Ogunbiy et al.[10] reported that the most common family size is larger (67 %) and family inhabits presenting. Furthermore, 83.9% of the patients do not have any animals in their residences, whereas 13.4 % have goats. This might be attributable to the sociodemographic characteristics of the subjects. In terms of water supply, tap water was used by 85.7% of the patients, underground wells were used by 6.3%, and river water was used by 8% of the patients. This shows that the water is not properly filtered, which is an issue that all underdeveloped countries confront. The majority of the patients have no seasonal ties and none of them have any chronic illnesses. These findings might be explained by the tropical environment, which is characterized by excessive humidity and an abundance of insects. Only 18.8% of patients had a family member who had been diagnosed with the same condition. In our study, 57.1 % had infectious skin illness, whereas 42.9 % had non-infectious skin disease. This finding might be attributed to seasonal fluctuations in the pattern of skin disorders. During the fall and winter seasons, eczema, bacterial, and fungal infections were all on the rise. 50.0% (24) of the patients (75.0% female, 25% male) had allergic skin disorders, 10.4% (5) had papulo-squamous disorders, and 8.3% (4) had hair problems (P = 004). These findings might be related to the fact that they have been linked to a number of hereditary illnesses.

The short-duration group received treatment for 7 (7–8) days, whereas the long-duration group received treatment for 14 (10–15) days. This is in contrast to the findings of Christensen KL, Holman RC, Steiner CA, and others.[11] A total of 49 % (23.7%) had a short antibiotic course, while 76.3% received a lengthy course. The vast majority of patients (96.4%) responded favorably to therapy. Antifungals, antibiotics, and steroids were found in 44.6 % of them, 31.3 % of antibiotics, and 10.7 % of steroids. There was no association identified between the kind of skin illness and the age of the patient. Despite the fact that there was no correlation between the kind of skin condition

and the patient's residency (p =112), 81.8 % of those from outside Khartoum had infectious disorders, compared to 54.5 % of those from inside the city. This shows that, due to the loss of privacy in the use of personal possessions, crowding is a major factor in the transmission of infectious diseases. There was no correlation observed between the kind of skin condition and its seasonality. Infectious illness was reported by 54.5% of respondents who said their sickness was exhibited seasonally. The most plausible explanation is that bacterial and fungal illnesses proliferate in locations with a tropical environment in the autumn. Of those with infectious illness, 81% had a family history of a comparable condition, compared to 51.6% of those who did not have a family history. There was no relationship established between the kind of skin illness and the treatment effectiveness. The results might be attributed to the disease's type and prognosis.

Study limitations

There seem to be a lot of inconsistencies in this study. To commence with, this was a research that looked back at previous statistics. As is generally known, hospital recording systems have a number of faults, and a considerable measure of basic information is lost as a result. Second, it was done in two hospitals; yet, this study has several advantages, including the big sample size and appropriate length.

Conclusion

The sex distribution revealed a significant disparity between males and females, with females outnumbering males. The majority of the patients were under the age of five. The bulk of the incidents were linked to housing circumstances. There is no seasonal change in the occurrence of illness. Skin disease was evident in more than half of the individuals. There was a statistical link discovered between the kind of skin illness and a family history of a comparable ailment.

Acknowledgments

None.

Conflicts of interest

The authors declare that they have no competing interests.

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