



Original Article

Spectrum of Skin Diseases among School Aged Children in Jos North-Central Nigeria

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ABSTRACT

Skin diseases are common causes of morbidity among children in developing nations. An awareness of the types of skin morbidities seen in school children and the associated factors may enable individuals' families and government carry out or direct preventive and therapeutic measures appropriately. The aim of this study was to assess the spectrum of skin diseases among primary school children in Jos North Local Government Area. Three hundred and ninety (390) pupils were recruited from selected public and private primary schools using multistage sampling technique. Structured Interviewer administered questionnaires were used to obtain information. Key diagnostics features were used for clinical diagnosis of major skin diseases. Data collected were analyzed using SPSS version 21. There were a total of 199 males and 191 females. Age range was between 6 and 12 years. Prevalence rate of skin disease was 36.2%. A total of 28 different types of skin diseases were seen among the pupils, with infections making up the bulk (47.3%). Among the infections, Tinea (23.9%) was the most prevalent. While dermatitis accounted for 20.7%. There was no sex predilection. Skin diseases were significantly more prevalent in children between 6-7 years ($p=0.014$) and associated with lower socioeconomic class ($p=0.001$) and children from public schools ($p=0.000$). Preventive and curative health services should be provided in the school health programme especially in public schools for reduction of the prevalence of skin disorders.

Keywords: Community, Factors, Pattern, Prevalence, Primary, skin disease.

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INTRODUCTION

Diseases of the skin are among a major cause of morbidity in children especially in developing countries.¹ They are said to represent between 6% and 24% of general paediatric consultations in sub-Saharan Africa with the most frequent presentations as infectious skin diseases amongst children and adolescents.²⁻⁴ A significant number of hospital based studies on the pattern of skin disease in children with very few community based studies in Nigeria have been documented.⁵⁻⁸ These have shown relatively high prevalence of skin diseases generally among children with varying patterns between those that present in hospital and those seen in the community. While

the pattern of skin diseases seen in hospital studies may be influenced by financial and geographical accessibility, other physical and socio-demographic factors contribute to the prevalence and pattern of skin diseases seen in any community. Thus the understanding of the epidemiology of skin diseases is important for health planning towards reduction of these skin diseases.⁹ The relative lack of data on the prevalence and pattern of skin disorders among children on the Plateau may impede understanding of the epidemiology of skin diseases which is important for health planning.⁹ Our aim was to determine the prevalence and spectrum of skin disorders

among school children as well as the relation between skin disorders and some socio-demographic factors.

MATERIALS AND METHODS

A descriptive cross sectional study of 390 primary school aged (6-12years) children conducted in Jos North Local Government Area of Plateau State, Nigeria between August-October 2013. The study was approved by the Research and Ethical Committee of the Jos University Teaching Hospital Informed consent was obtained from guardian and assent from the child was sought and obtained. A multistage sampling technique was employed. Through simple random sampling technique by balloting 5 of the 20 wards in Jos North Local Government Area were selected. In each selected ward, all the schools were stratified based on ownership into public or private primary schools. One public and one private school were selected in each ward by balloting. Thus 10 schools were selected and sampled. The estimated sample of 390 was divided across the 10 different schools which gave a sample size of 39 subjects in each school. A sampling interval for each school was obtained and the subjects were selected from the sampling frame. Every arm of each class was included in the sampling frame.

Structured Interviewer administered questionnaires were used to obtain information on biodata and disease Symptomatology. Olusanya socioeconomic classification was used to classify the children into socioeconomic classes.¹⁰ A full examination of skin, hair and nails of every child was conducted checking for skin disease with the child fully exposed except for underwear under natural light. Privacy was ensured by screening of the examination area. Key diagnostics features were used for clinical diagnosis of major skin diseases. A hand lens and 12 mega pixel camera was used to view and capture lesions for detailed review.

Statistical Analysis

Completed questionnaires were collated and entered into the computer. Data obtained was analyzed using the Statistical Package for Social Sciences (SPSS) version 21. Frequency and percentage of specific disease entities were obtained and were subsequently grouped. Age as a continuous variable was converted to categorical variable and along with others (gender, ethnicity, socioeconomic class and school type) were analyzed using the Chi - square test. In all statistical tests of significance only p values of less than 0.05 were regarded as significant.

RESULTS

Among the 390 subjects 199 (51%) were males and 191 (49%) were females, Male to female ratio was 1.04:1. Mean age of 9.7+1.92. Children from the middle socioeconomic class accounted for 48.7%. Majority of the respondents belonged to Plateau indigenous tribes (32.8%). Christians accounted for about 76% of the pupils. Half of the respondents (195) in this study were from 5 different public schools, while the other half were from 5 private schools. Skin diseases were found among 141 pupils with a prevalence of 36.2%

Table1 depicts the frequency and prevalence of different skin diseases in the pupils. A sum of 28 different skin diseases was observed among the 141 pupils who had skin diseases. The total number of occurrences of skin diseases was 184, with 40 pupils having multiple skin diseases.

Table I: Frequency and Case Prevalence of the Different Skin Diseases Seen in the Respondents.

Skin disease	Frequency (n= 184)	Percentage%
A. INFECTIONS		
i. Fungal		
Tinea	44	23.9
Pityriasis versicolor	2	1.1
ii. Bacterial		
Folliculitis	13	7.1
Furuncles	11	6.0
Impetigo	2	1.1
Ecthyma	2	1.1
iii. Viral		
Mol. contagiosum.	3	1.6
Warts	2	1.1
Herpes simplex	4	2.2
iv. Ectoparasitoses		
Scabies	3	1.6
Pedunculosiscapitis	1	0.5
Sub-total	87	47.3
B. DERMATITIS		
Seborrheic dermatitis	19	10.3
Atopic dermatitis	9	4.9
Contact dermatitis	3	1.6
Unspecified	7	3.8
Sub-total	38	20.7
C. URTICARIA		
Papularurticaria	10	5.4
Acute urticaria	1	0.5
Sub-total	11	6.0
D. PAPULOSQUAMOUS		
Lichen nitidus	1	0.5
E. PIGMENTATION		
Post Inflammatory Hyperpigmentation	10	5.4
F. DISORDER OF APPENDAGES		
Alopecia	5	2.7
Hypertrichosis	2	1.1
Onchogryphosis	3	1.6
Sub-total	10	5.4
.ACNE		
	11	6.0
H. SCARS		
	11	6.0
I. OTHERS		
corns, striae-distensiae, cheilitis, icthyosis, Pruritic-		
Papular-Eruptions.-1 each	5	2.5
Total	184	100

The relationship of skin diseases with demographic characteristics is shown in table II. The percentage of pupils in the lower socioeconomic class who had skin diseases were 47.7% ,while 36.6% of middle class pupils and only 22% of those from the upper class had skin disease and this was statistically significant ($p=0.001$). Twice as many pupils in public schools were affected by skin diseases when compared with pupils from private schools ($p=0.000$). Children of younger ages had lower proportion of those with skin diseases than the older ages though this was not statistically significant.

Table II: Relationship between Socio-demographic characteristics and skin disease (n = 390)

Variable	Skin disease		χ^2	df	P
	Present (%)	Absent (%)			
Gender					
Male	77(38.7)	122(61.3)	1.135	1	0.287
Female	64(33.5)	127(66.5)			
Age					
6-7	24(25.5)	70(74.5)	8.472	2	0.014*
8-9	40(33.6)	79(66.4)			
>9	76(42.9)	101(57.1)			
Ethnicity					
Igbo	24(34.8)	45(65.2)	8.364	4	0.079
Yoruba	6(18.8)	26(81.3)			
Hausa/Fulani	29(47.5)	32(52.5)			
Plateau (Indigenous)	49(38.3)	79(61.7)			
Others	33(33.0)	67(67.0)			
Socio-economic class					
Low	52(47.7)	57(52.3)	14.227	1	0.001*
Middle	69(36.3)	121(63.7)			
High	20(22.0)	71(78.0)			
School type					
Private	46(23.6)	149(76.4)	26.671	1	0.000*
Public	95(48.7)	100(51.3)			

*Statistically significant

DISCUSSION

The prevalence of skin diseases of 36.2% in this study is high and is comparable with previous works that showed a rate of 35% among primary school children in Ibadan and 39.6% in Sagamu.^{7,8} The homogeneity in socioeconomic conditions across the regions in Nigeria may account for such close prevalence rates. However the observed rate is still much lower when compared to the findings obtained in other countries such as Tanzania (57.3%), Ethiopia (49.2%) and in Turkey (77%).¹¹⁻¹³ A large proportion of skin diseases seen in this study were mainly infectious skin diseases making up 47.3% of all dermatological condition, close to the 40.4% prevalence rate of skin infections and infestations observed by Oyedjeji *et al.*

among primary school children in the south western town of Ijesha.¹⁴ The poor environmental sanitation along with lower standard of living in developing countries in general, may be responsible for the relatively higher prevalence rate of infectious skin diseases than in more developed countries.^{7,11}

Among the skin infections fungal infections formed the bulk of all the types of skin diseases seen. This pattern has also been observed in many other studies of primary school children in Africa.^{7,11,13} Of all fungal skin infection, Tinea infection has remained a major cause of skin morbidity in Nigerian children one main reason is that the causative organism flourishes in warm moist environments as seen in the tropics. It is also very contagious, spreading through the close prolonged physical contact which children have at school and at play, facilitating transmission of infections.¹⁵ The prevalence of Tinea infection found in this study is higher than that found in a study in 1985 by Ogbonna *et al.*, among school children in Jos which showed a much lower rate of 3.4%.¹⁶ The increase in prevalence could be attributed to the increased transmission in crowded homes and classes as a result of the dynamic population growth and the accompanying deterioration in social amenities with hygienic and sanitary conditions in Jos.

The contribution of the yeast infection, Pityriasis Versicolor to the fungal group was virtually negligible. This relatively lower point prevalence of Pityriasis Versicolor in this study is similar to observations by others who also found this infection to be relatively uncommon in primary school aged children.^{11,14,17} The pattern showing much higher Tinea prevalence than Pityriasis Versicolor is also reported in many other school based studies.; In Ibadan (15.2%;vs 4.7%), Sagamu (51.3%vs 19%) and Abakiliki (51.8% vs 4.6%),^{7,8,18} Pityriasis Versicolor is less commonly seen in school aged children because the sebaceous glands only become more active at about puberty.¹² Folliculitis and furuncles were the commonest bacterial infections seen in this study differing from similar studies where impetigo has been reported to be the commonest.^{11,21} Though this may be explained by the exclusion of children less than five years who are more prone to impetigo. In addition, the trauma from hair plaiting or shaving in school children may be an underlying factor for folliculitis.

Viral infections were not a common finding when compared to other transmissible diseases. This, is consistent with other reports from studies in Africa.^{7,8,12} The low prevalence of scabies (0.8%) in this study is comparable to the finding of Amoran *et al.* in Sagamu⁸ However, this is in contrast to an earlier study by Okoronkwo in Jos North LGA that showed a

higher prevalence of between 2.5-25% among children in a police barrack, military barrack and children in Mado village in Jos.²⁰ This lower prevalence may not be unconnected with the differences in crowding levels and socioeconomic levels of population in barracks and the community studied. It could also indicate increase in awareness from sensitization and treatment of scabies over the years resulting in the decrease prevalence in the general population.

Pedunculosis capitis (head lice) was a rare finding as only one child in a public school had evidence of head lice infestation. The comparatively better basic social amenities such as water supply for hygienic and sanitary practices in an urban setting like Jos north LGA as compared to a more rural area may account for the relatively lower prevalence.

Although many specific forms of dermatitis were relatively uncommon, together as a group, dermatitis formed the second largest group after infections. Seborrheic dermatitis, Atopic dermatitis and Papular urticaria were the commonest form of dermatitis which is in consonant with some hospital based studies showing them in varying degrees as being common forms dermatitis.^{22,23} In general the finding show that children in Jos while still contending with skin infections and infestations, also have a growing burden from non-infectious skin diseases such as dermatitis as seen in this study.

Children above 9 years had the greatest proportion of dermatologic conditions. The finding is similar to those from studies in primary school children in Nigeria, and India,^{8,18, 23} This could be as a result of the decreasing parental involvement in hygienic and grooming activities such as bathing of children as the child grows older ; thus the growing child's effort may be insufficient in maintaining skin hygiene increasing their risk of acquiring skin diseases.¹⁸ The inverse relationship between socioeconomic status and skin diseases observed in this study has also been reported in other studies in developing Nations^{8,9,23} It is well known that Poverty is an underlying factor for many diseases and skin disease is no exception. This is also the likely reason for pupils in public schools with more pupils from the lower socioeconomic class having high prevalence rates of skin diseases when compared to those in private schools.

CONCLUSION

In conclusion, a high prevalence with a wide range of skin diseases were found among school aged children in Jos North LGA. The most common conditions found were Infectious skin diseases, though there was a significant prevalence of Non-

infectious diseases, particularly dermatitis. Factors associated with skin diseases were younger ages, those of lower socioeconomic class and being in public schools.

RECOMMENDATIONS

There is a need to strengthen the school health programme particularly the routine health checks for early diagnosis, treatment and referral of skin diseases. Health education programmes targeting school children, their teachers and parents to provide awareness of common skin diseases and effective personal hygiene as a way of preventing them.

Limitation

Being a cross sectional study the full spectrum of skin diseases may not have been captured. There may be some variation in skin disease pattern if a prospective approach was carried out.

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Conflict of Interest

None declared.

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