



# Infectious Skin Disorders Encountered in Children Attending the Dermatology Clinic in a Tertiary Care Hospital in Southern Nigeria

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## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

## Article Information

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## ABSTRACT

**Aims:** To determine the prevalence and types of ISDs seen among children attending the Dermatology clinic in University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Nigeria.

**Study Design:** A retrospective study design was used.

**Place and Duration of Study:** The Dermatology clinic in UPTH over a three (3) year period (January 2016 –December 2018).

**Methodology:** Relevant data were extracted from the medical files of all the children who attended the dermatology clinic within the period under review using a data collection proforma. These included age, gender, history of skin diseases and type of skin disease diagnosed. Diagnosis of skin diseases in the clinic were made by trained dermatologists. The diagnosis were mainly clinical but laboratory confirmation was done where necessary.

**Results:** A total of 486 children aged 1 month to 17 years were seen in the Dermatology clinic over the 3 year period. ISDs were diagnosed in 212 (43.6%) of these children. The mean age of children with ISDs was 7.49±5.8 years with a male to female ratio of 1.2:1. Fungal skin infections were seen in 95 (44.8%) patients. Parasitic skin infections were diagnosed in 62 (29.2%) patients. Viral and Bacterial skin infections were observed in 33 (15.6%) and 22 (10.4%) children respectively. With

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respect to specific diagnosis, the most frequent ISDs were: Scabies in 62 (29.2%), Tinea corporis in 24 (11.3%), Verruca Vulgaris in 24 (11.3%) and Impetigo in 9 (4.2%). Age and gender were not associated with occurrence of ISDs.

**Conclusion:** The prevalence of Infectious Skin Disorders is high among children attending the Dermatology clinic in UPTH with Scabies being the most common ISD. Greater efforts should be geared towards the prevention, early diagnosis and prompt treatment of these ISDs to limit the morbidity associated with them.

*Keywords: Infectious skin disorders; children; prevalence.*

## 1. INTRODUCTION

Infectious skin disorders (ISDs) are common in children and constitute an important cause of morbidity in affected children [1]. The prevalence of ISDs in children is reported to range from 27.2% to 51% from studies done in Asia [2,3]. Studies done in Europe have reported prevalence rates of 12.5% to 24.62% [4,5], while prevalence rates of 6.62% to 67.9% were reported in South America [6,7]. In Africa, the prevalence rates of ISDs in children were reported to range from 14.7% to 57.6% [8-10].

The aetiologic agents of ISDs are broadly categorized into bacterial, fungal, viral and parasitic or infestations [7,11]. Common ISDs seen in children include the following: impetigo, dermatophytosis, scabies, varicella e.t.c [7,9]. The prevalence and type of ISDs seen in children however varies in different regions of the world. It is often influenced by factors such as environmental differences, socioeconomic factors, cultural variations and hygiene practices [3,12].

Unidentified and untreated ISDs may result in physical pain, disfigurement, loss of school attendance and negative psychosocial consequences such as low self-esteem and depression [13]. Furthermore, seemingly benign conditions such as impetigo may result in life-threatening complications such Acute Glomerulonephritis (AGN) [11].

Despite the high burden of certain skin diseases in developing countries and the attendant morbidity, they often do not receive sufficient attention in the development of public health policies [1]. This is often due to the erroneous perception that these disease conditions are a minor nuisance and non-life-threatening [1].

The aim of this study was to determine the prevalence and types of ISDs seen among children attending our Dermatology clinic over a

3 year period. It is hoped that the findings from this study will help in the development of policies towards prevention, control and treatment of these skin diseases among children in our locality.

## 2. MATERIALS AND METHODS

We conducted a retrospective study that included all children aged less than 18 years who were seen at the dermatology clinic of the University of Port Harcourt Teaching Hospital Port Harcourt over a 3 year period (January 2016 –December 2018). The University of Port Harcourt Teaching Hospital is a 790 bed space tertiary hospital offering different specialist services one of which is Dermatology. All children who attended the clinic within the period under review were included in the study. Relevant data were extracted from their medical files using a data collection proforma and these included age, gender, history of skin diseases and type of skin disease diagnosed. Diagnosis of skin diseases in the clinic were made by trained dermatologists. The diagnoses were mainly clinical but laboratory confirmation was done where necessary.

The infectious skin diseases diagnosed were categorized into bacterial, fungal, viral disorders and infestations.

Data collected were coded and entered into Microsoft excel before analysis using the IBM SPSS Statistics version 22.0. Descriptive statistics were reported using frequency tables and charts. Discreet variables were compared using Chi-square test. Statistical significance was set at 95% confidence interval with p-value<0.05.

## 3. RESULTS AND DISCUSSION

### 3.1 Results

#### 3.1.1 Demographics

A total of 486 children aged 1month to 17 years were seen in the Dermatology clinic over the 3

year period. The mean age of children with ISDs was 7.49±5.8 years with a male to female ratio of 1.2:1.

**3.1.2 Prevalence of ISDs**

ISDs were diagnosed in 212 (43.6%) of these children

**3.1.3 Types of ISDs**

Fungal skin infections were seen in 95 (44.8%) patients. Parasitic skin infections were diagnosed

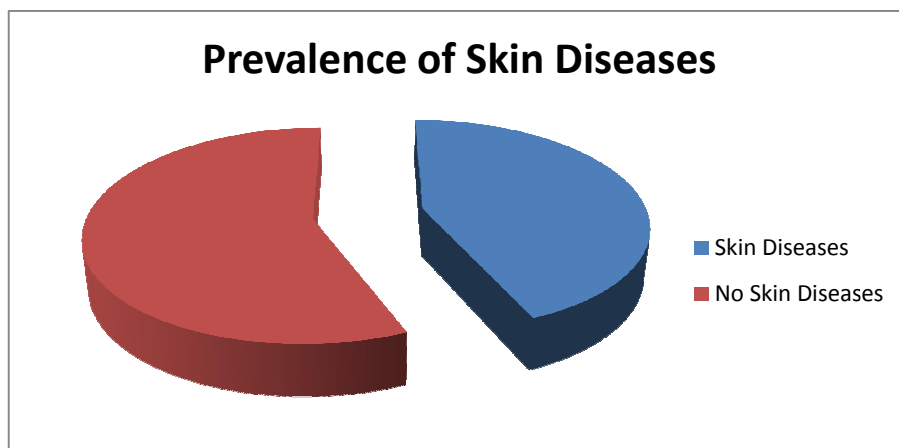
in 62 (29.2%) patients. Viral and Bacterial skin infections were observed in 33 (15.6%) and 22 (10.4%) children respectively. The most frequent ISDs according to aetiologic group were: Scabies in 62 (29.2%), Verruca Vulgaris in 24 (11.3%), Tinea corporis in 24 (11.3%) and Impetigo in 9 (4.2%).

**3.1.4 Relationship of age and gender with the occurrence of ISDs**

Age and Gender showed no significant association with the occurrence of skin diseases.

**Table 1. Types of ISDs and gender distribution**

Type of skin disease	Male n=115	Female n=97	Total N=212(%)
Infestations	39	23	6(29.2)
Scabies	39	23	62 (29.2)
Fungal	43	52	95 (44.8)
Tinea Corporis	15	9	24 (11.3)
Seborrheic Dermatitis	3	17	20(9.4)
Pityriasis Versicolor	8	7	15 (7.1)
Tinea Capitis	8	1	9 (4.2)
Tinea manum	4	4	8 (3.8)
Tinea Pedis	1	6	7 (3.3)
Diaper Candidiasis	1	5	6 (2.8)
Tinea Unguim	2	2	4 (1.9)
Tinea Cruris	1	1	2 (0.9)
Viral	21	12	33 (15.6)
Verruca Vulgaris	14	10	24 (11.3)
Molluscum Contagiosum	6	2	8 (3.8)
Varicella	1	0	1(0.5)
Bacterial	12	10	22 (10.4)
Impetigo	4	5	9 (4.2)
Folliculitis	4	4	8 (3.8)
Furunculosis	4	0	4 (1.9)
Cellulitis	0	1	1 (0.5)



**Fig. 1. Prevalence of skin diseases**

**Table 2. Relationship of age and gender with the occurrence of ISDs**

<b>Variables</b>	<b>ISDs n=212(%)</b>	<b>No ISDs n=274(%)</b>	<b>Total N=486(%)</b>	<b>Chi-Square</b>	<b>P value</b>
<b>Age</b>					
<5	83(45.4)	100(54.6)	183(100.0)	0.6452	0.72
5-10	59(41.0)	85(59.0)	144(100.0)		
>10	70(44.0)	89(56.0)	159(100.0)		
<b>Gender</b>					
Male	115(46.9)	130(53.1)	245(100.0)	2.2109	0.14
Female	97(40.2)	144(59.8)	241(100.0)		

### 3.2 DISCUSSION

The overall prevalence of ISDs in this study was 43.6%. This is higher than the prevalence rates of 26.1% reported by Ayanlowo et al. [9], in Lagos, Nigeria, 24.62% reported by Ozcelik et al. [5], in Turkey and 27.2% reported is a study done in Saudi Arabia [2]. It is however lower than the prevalence rates of between 51% and 72.3% reported in some studies done in Nigeria [10,14], and Nepal [3]. The disparity in prevalence rates between our study and the other studies in comparison may reflect variations in contributory factors to ISDs such as hygiene practices, cultural differences and socioeconomic status among the participants in the different studies.

With regards to the aetiologic categories of ISDs, fungal disorders were the most common lesions noted in our study and they accounted for 44.8% of all the ISDs seen. A similar finding was reported by Yotsu et al. [15], in Cote d'Ivoire. In contrast, Vakiriis et al. [4], reported viral infections as the most common aetiologic category of ISDs among the children studied in Greece. The prevailing temperate climate in their environment may have been favorable to viral agents as against the tropical African climate. Furthermore, two studies done in Ethiopia reported infestations and bacterial infections as the most common aetiologic categories of ISDs seen in their respective studies [16,17].

Concerning specific ISDs, scabies was the most common disorder seen in the present study. This is a neglected tropical disease which has shown a resurgence in recent years due to the prevailing poor sanitary conditions and overcrowding in our society. On the contrary, several other authors reported tinea capitis as the leading ISDs found among the children they studied [8,14,18]. These studies in comparison were however done among school children unlike the present study which was conducted in

a tertiary dermatology clinic. Additionally, studies done in Nigeria, Ethiopia and India all reported impetigo as the predominant ISD seen among children in their study [16,17,19-21].

Age and Gender showed no significant association with the occurrence of ISDs in our study. These findings have been corroborated by previous authors [16,22]. Conversely, other authors have reported factors significantly associated with skin diseases to be age less than 10 years [14], and male gender [14,15]. The reason for this contrast from our study is unknown. It may however be related to the reduced capacity of the younger children below 10 years to maintain optimal personal hygiene without adult assistance and to the sometimes more adventurous nature of male children which brings them into closer contact with the aetiologic agents of these ISDs.

### 4. CONCLUSION

ISDs are common in children attending the dermatology clinic at the University of Port Harcourt Teaching Hospital with a prevalence of 43.6%. Fungal ISDs were the most common aetiologic category seen while scabies was the leading ISDs in our study. Age and gender showed no significant association with the occurrence of ISDs among the children studied. It is hoped that findings from this study will be useful in the formulation of policies towards the prevention and control of these ISDs.

### CONSENT

It is not applicable.

### ETHICAL APPROVAL

Approval was from The University of Port Harcourt Teaching Hospital.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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