Presentation of Skin Disorders in Children and their Socio-demographic Indices in Lokoja, Nigeria

OYELEKE F[1] FMCPaed, **KATIBI OS**[2] FMCPaed, MMedSC Derm, **JOSEPH GA**[3] FMCP, FWACP, **BELLO AJ**[3] FMCPaed.

[1]Department of Paediatrics Federal Medical Centre Lokoja, Kogi State, Nigeria.
[2]Department of Paediatrics University of Ilorin, Kwara State, Nigeria.
[3]Department of Medicine Federal Medical Centre Lokoja, Kogi State, Nigeria.
Corresponding author: Oyeleke Feyisayo
Email address: ffeeyyii84@yahoo.com; **Phone number**: +234 8065383280

ABSTRACT

Background: Skin disorders are common in children, and their prevalence varies with location. This study was carried out to determine the prevalence and spectrum of skin disorders of primary and secondary presentation among children.

Methods: This cross-sectional study involved 2,725 participants recruited consecutively and examined for skin disorders irrespective of their reason for presentation. Socio-demographic data were collected. Skin disorders were mainly diagnosed clinically.

Results: Three hundred participants had skin disorders giving a prevalence of 11.0%. There were 305 skin diagnoses made. Skin disorders occurred more among males 176 (58.7%) and children less than two years, 102 (34.0%). Skin infections and infestations were the predominant category and seen in 134 (43.9%), with fungal dermatoses being the most common, occurring in 62 (47.6%). Common specific skin conditions were tinea capitis 47 (1.7%), seborrheic dermatitis 26 (1.0%), papular urticaria 23 (0.8%) and chicken pox 17 (0.6%). Among the 305 skin disorders, over a third, 99 (32.5%), were of secondary presentation, with fungal skin infections 26 (26.2%) being the most common. Secondary presentation was more common among males (p=0.005), and there was a reduced prevalence among those of upper social status (p=0.034).

Conclusion: Skin disorders occurred in about 1in 10 children seen at the general outpatient clinic, with a predominance of infective skin disorders. In about a third of the children, the skin disorders were not the main reason for presentation, with fungal dermatoses being the most common. This emphasizes the need to improve identification among health care practitioners to aid prompt and adequate treatment of skin disorders in children.

Keywords: Skin disorders, children, spectrum

Présentation des Troubles Cutanés chez les Enfants et leurs Indices Socio-démographiques à Lokoja, Nigeria.

ABSTRAIT

Contexte: Les troubles cutanés sont fréquents chez les enfants et leur prévalence varie selon le lieu. Cette étude a été réalisée pour déterminer la prévalence et le spectre des troubles cutanés de présentation primaire et secondaire chez les enfants.

Méthodes: Cette étude transversale a impliqué 2,725 participants recrutés consécutivement et examinés pour des troubles cutanés, quel que soit leur raison de présentation. Des données sociodémographiques ont été recueillies. Les affections cutanées étaient principalement diagnostiquées cliniquement.

Résultats: Trois cents participants avaient des troubles cutanés donnant une prévalence de 11.0%. 305 diagnostics de peau ont été posés. Les troubles cutanés sont plus fréquents chez les hommes 176 (58.7%) et les enfants de moins de deux ans, 102 (34.0%). Les infections cutanées et les infestations étaient la catégorie prédominante et observées chez 134 (43.9%), les dermatoses fongiques étant les plus courantes, survenant chez 62 (47.6%). Les affections cutanées spécifiques courantes étaient la teigne du cuir chevelu 47 (1.7%), la dermatite séborrhéique 26

(1,0 %), l'urticaire papuleuse 23 (0.8%) et la varicelle 17 (0.6%). Parmi les 305 affections cutanées, plus d'un tiers, 99 (32.5%), étaient de présentation secondaire, les mycoses cutanées 26 (26.2%) étant les plus courantes. La présentation secondaire était plus fréquente chez les hommes (p = 0.005), et il y avait une prévalence réduite chez ceux de statut social supérieur (p = 0.034).

Conclusion: Des troubles cutanés sont survenus chez environ 1 enfant sur 10 vus en Clinique externe generale, avec une prédominance de troubles cutanés infectieux. Chez environ un tiers des enfants, les troubles cutanés n'étaient pas le principal motif de présentation, les dermatoses fongiques étant les plus courantes. Cela souligne la nécessité d'améliorer l'identification parmi les professionnels de la santé pour faciliter un traitement rapide et adéquat des troubles cutanés chez les enfants.

Mots-clés: Troubles cutanés, enfants, spectre

Introduction

Skin disorders are diseases that affect the human skin or appendages due to pathological changes that may be inflammatory, infective, neoplastic, hormonal, traumatic, hereditary and degenerative processes.[1] Globally, it affects 30-70% of individuals and remains the 18th leading cause of health burden worldwide.[2] It accounts for 15-20% of visits to general practitioners in the western world and 12.3 – 73.0% of visits to the primary health care facilities in developing countries.[3] The prevalence and spectrum of skin disorders are influenced by numerous socio-demographic factors like ethnicity, climate, socioeconomic status, access to health care, age group, gender, and the study type and location.[4–9] Dermatological problems could negatively impact the well-being of the child and family by causing psychological distress, days absent from school and additional expenditure on treatment.[1,10,11] Also, some disorders associated with pruritus can result in poor sleep, which may affect school performance.[12] Despite these possible challenges, skin disorders are often ignored or considered part of life because they are rarely life-threatening.[13] Epidemiological studies are therefore important in identifying disease burden and associated risk factors to aid the planning of prevention strategies.

Various prevalence rates and spectrum have been reported in Nigeria. A study in Lagos by Akinkugbe et al.,[5] found the prevalence of skin disorders to be 25.2% among children aged 2 to 18 years. Tinea capitis, dermatitis, and acne vulgaris were the common skin disorders identified. Henshaw et al.,[6] studied dermatologic conditions among a subset of adolescents aged 13-19 years in secondary schools in Port-Harcourt and reported a prevalence of 64.2%. Acne vulgaris, pityriasis versicolor and nevi were the most common skin disorders identified. Ogunbiyi et al.,[14] in Ibadan and Adah et al.,[15] in Jos found infectious skin disorders to be the most predominant dermatoses among school-aged children, with tinea infections being the most common. Oyedepo et al.,[16] in Ilorin reported a prevalence of 66.5% among secondary school adolescents aged 10-19 years, with acne vulgaris, pityriasis versicolor and tinea capitis being the common dermatoses. These studies were limited to school-aged children and adolescents. Studies in specialized clinics by Okoro,[17] in Jos and Altraide,[18] in Calabar found that children constituted 6.7% and 21.4% of those with skin disorders in dermatology clinics. Dermatitis, reflecting more debilitating skin disorders, was the most common category identified, with atopic dermatitis being the most prevalent. Azubogu,[19] studied the prevalence and type of skin diseases among 370 children attending the paediatric outpatient clinic. The prevalence was 23.7%, and the most common aetiologic category was infective. Common specific dermatoses found were impetigo, scabies and atopic dermatitis.[19] Emodi et al.,[20] in Enugu carried out a retrospective study on the pattern of skin diseases among children aged one week to 16 years attending the outpatient clinic over ten years. Skin diseases comprised 1.3% of all cases seen. Most of the mentioned studies above only reported primary skin-related complaints, limiting the spectrum and true burden of skin disorders as secondary cases were not identified.

The general out-patient clinic (GOPD) is where patients presenting to the hospital are first seen. Skin disorders captured at the GOPD thus represent common dermatoses in the community that are of significant morbidity to the patient and caregivers.

Unlike school-based studies, a wider age range can be captured, including preschool-age children. In addition, some previous hospital-based studies were done in specialized skin clinics where the spectrum of skin disorders was skewed towards dermatoses that are difficult to treat or require expert care. Skin disorders of secondary presentation have not been frequently reported. These disorders may not be appreciated or concerning to the caregiver but could be important in the holistic care of the child as some may be pointers to systemic disorders and require prompt evaluation. Documenting skin disorders of secondary presentation gives a broader view of the overall burden of skin disorders and thus the dermatological needs of children in the community.

This study seeks to determine the prevalence and spectrum of skin problems and the relationship of the mode of presentation with socio-demographic indices among children seen at the general out-patient clinic, which is an entry point for various non-emergency illnesses presenting to the tertiary health facility.

Materials and methods

This study was a descriptive cross-sectional one carried out in the general outpatient department (GOPD) of the Federal Medical Centre (FMC), Lokoja. The study subjects were children 18 years and below recruited consecutively over 6months from September 2018 to April 2019. Ethical clearance was obtained from the Ethical Review Committee of the Federal Medical Centre, Lokoja (Ethical review number FMC/MED/115/II/250b). Patients were examined for skin disorders by the researcher irrespective of their primary reason for presentation after obtaining consent from the caregiver/parents and assent for those seven years and above. Participants were examined in a private well-lit room, and a gender-appropriate chaperone was used while examining older subjects, especially those in the adolescent age group. Subjects with complaints of skin disorders as the reason for hospital presentation were considered as 'primary presentation', and those with other reasons for presentation but were found to have skin disorders on examination were considered as 'secondary presentation'. A semi-structured interviewer-administered proforma was used to obtain socio-demographic data and history of skin disorders. Children with skin disorders were classified into four groups based on their age: < 2years, 2 – 5 years, and ≥ 6 - 9 years, 10 years and above.[21] Social class of the subject was determined using the Oyedeji classification.[22] Diagnosis was mainly clinical, with laboratory investigations carried out as indicated. According to the 10th Revision of the International Statistical Classification for Diseases (ICD-10), skin disorders were classified into various categories.[23] Several photographs of identified skin lesions were taken, and a photo album was created for their storage.

Data was analyzed using Statistical Package for the Social Sciences IBM SPSS statistics version 22.0 (IBM statistics for Windows, Armonk, NY, 2013)[24] spreadsheet and software. Socio-demographic data were represented using descriptive statistics. Pearson's Chi-square test was used to compare relationships between categorical variables. Fisher's exact test was used where criteria for using Chi-square were not met.[25] Multiple logistic regression was used to determine the predictors of skin disorders. Statistical significance was established where $p < 0.05$.

Results

A total of 2,725 children were examined over a study period of 6 months; 300 had skin disorders with a prevalence of 11.0%. Children aged one week to 18 years were studied with a median age of 3 years. The socio-demographic characteristics of the study population are highlighted in Table 1. Three hundred and five diagnoses were made. Skin disorders occurred mostly among males 176 (58.7%) and children less than two years, 102 (34.0%).

Infections and infestations were the predominant categories of skin disorders 134 (43.9%), and fungal dermatoses were the most common skin infection 62 (47.6%). The most common specific skin conditions were tinea capitis 47 (15.7%), seborrheic dermatitis 26 (8.7%), papular urticaria 23 (7.7%) and chicken pox 17 (5.7%). Table II documents these findings.

Of the 305 skin disorders diagnosed, 206 (67.5%) presented because of skin disorders (primary), while the remaining 99 (32.5%) were secondary

presentations. Fungal skin infections were the most common skin disorder of secondary presentation, constituting almost a third; 26 (26.2 %), with tinea capitis being the most common. (Table II and Fig 1)

Seborrheic dermatitis (22.5%) and furunculosis (14.7%) were the most common disorders among children less than two years of life. Tinea capitis was predominant among older children aged six years and above. (Table III)

Most children presenting primarily for skin disorders were in the preschool age (73.3%), while the largest proportion of secondary presentation was seen among the adolescents (41.9%); this was, however, not significant. The majority of females (77.4%) and those of upper social status (74.8%) presented primarily for skin disorders; this was statistically significant, p = 0.005 and p = 0.034. The female gender was associated with primary presentation p = 0.008; CI = 1.209 – 3.494. (Table IV and Table V)

Discussion

This study describes the prevalence and the spectrum of skin disorders among children seen at the general outpatient clinic over six months.

The prevalence of skin disorders in this study was 11.0% which is higher than the prevalence of 6.7% documented by Okoro et al.,[17] in Jos and 1.3% by Emodi et al.,[20] in Enugu. This study identified skin disorders among children prospectively, irrespective of the primary reason for presentation, while Emodi et al.,[20] carried out a retrospective study focused on common primary skin diseases among children over ten years. Thus, other uncommon skin disorders associated with systemic illnesses or secondary complaints of skin disorder may not have been reported. On the other hand, Okoro et al.,[17] investigated children with skin disorders in a newly established specialized dermatology clinic over a one-year period. It is possible that most disorders easily amenable to treatment did not get to the dermatology clinic, resulting in a lower prevalence. The prevalence of skin disorders in this study is lower than in the community-based studies of Oyedepo et al.,[16] Henshaw et al.,[6] Ogunbiyi et al.,[14] Adah et al.[15] and Amoran et al.,[26] who reported much higher prevalences of 66.5%, 64.2%, 35.2%, 36.2% and 39.6% respectively. Ogunbiyi et al.,[14] Adah et al.[15] and Amoran et al.,[26] looked at skin disorders in school-aged children in public primary schools, while Henshaw et al.,[6] and Oyedepo et al.,[16] studied skin disorders among adolescents. The higher prevalence among adolescents reported by Oyedepo et al.,[16] and Henshaw et al.,[6] may be due to the abundance of skin disorders associated with hormonal changes in this age group.[27] Acne vulgaris was of a lower prevalence but was seen exclusively among adolescents in this study. Including all age groups of children may have resulted in the lower prevalence varying from the two previous studies that focused only on the adolescents. The effect of androgens on the sebaceous glands that results in increased sebum production during adolescence is implicated in the aetio-pathogenesis of disorders like acne vulgaris and pityriasis versicolor, which were the predominant skin disorders reported in both studies.[6,16]

Infective skin disorders were the most common category in this study, constituting 43.9% of all skin disorders. This agrees with the reports of Mridula et al.,[28] in India and Elfaituri[29] in Libya. Azubogu[19] and Yahya[30] in Nigeria also reported a preponderance of infective dermatoses. On the other hand, Vakirlis et al.,[21] in Greece and Katibi et al.,[31] in South Africa found dermatitis and eczema to be the predominating category of skin disorders contrasting with this study. The differences in temperature, humidity and hygienic practices in the latter studies may contribute to the contrast in the findings.[21,31] The latter studies involved cases referred for expert care in which atopic dermatitis poses a common reason for seeking dermatologic consultations due to its enormous burden on the patient and caregivers. On the contrary, this study carried out at the general outpatient clinic involved a variety of conditions common in childhood that may be having first contact with the health care facility.

Fungal dermatoses were the leading infective skin lesions in this study. This observation is in tandem with the reports of Ogunbiyi et al.,[14] in Ibadan, Amoran et al.,[26] in Sagamu and Otike-Odibi[32] in Port Harcourt. The high humidity and temperature in this environment, which is favourable to fungal dermatoses, may explain the predominance of this

infection among the study population. Kelbore et al.,[33] in Ethiopia, Balai et al.,[34] in India and Emodi et al.,[20] in Nigeria, on the other hand, reported bacterial dermatoses as the most frequent infective skin problems in children. Their study populations were younger, with Balai et al.,[34] studying children under five years, while over 70% of the population retrospectively studied by Emodi et al.,[20] were children five years and below. This younger population are more likely to be predisposed to bacterial skin infections because of their less competent immune system.[35,36] Also, frequent skin integrity breaks occurring during physical activities may contribute to bacterial skin infections in this age group.

Tinea capitis (TC) was the most common dermatosis, accounting for over 70% of fungal skin infections. This predominance of tinea capitis is similar to the report of Ogunbiyi et al.,[14] Yahya[30] and Komba.[37] TC is a superficial dermatophyte infection prevalent among children in our environment where predisposing factors such as hot and humid climate, poor sanitary conditions, and overcrowding with increased interpersonal contacts abound.[38] TC could present with grey patches on the scalp and scarring alopecia.[38] In this study, grey scaly lesions on the scalp were the most common presentation form. This is similar to Olarinoye et al.,[39] who studied TC among children in Ilorin. They reported a grey patch (44.4%) to be the most common variant of TC, followed by a black dot (34.3%) and diffuse scaling (19.3%).[39] In contrast to the findings in this study, Amin et al.,[40] in Saudi Arabia reported tinea pedis as the predominant fungal infection. Their study involved only school-age children who are more likely to wear occlusive footwear for longer durations[40] Prolonged wearing of shoes, particularly in a hot climate, has been reported to promote moisture and heat predisposing to tinea pedis.[41]

The low prevalence of pityriasis versicolor (PV), 0.2%, was similar to the documentation of Okafor et al.,9 who did not report any case among children admitted to the paediatric wards. This is in sharp contrast to the findings from Ilorin, Calabar, Ibadan and Lagos,[6,16,41,42] which recorded a much higher prevalence of 23.6%, 27.9%, 22.0% and 3.7%, respectively. PV is more common in older children and adolescents, as seen in earlier studies with older subjects. This observation is attributed to the proliferation of Malassezia species, the causative organisms predominantly in areas of sebaceous gland activity that increases in adolescence and adulthood.[43] The pathogenicity of the causative organism could be fueled by other host and environmental factors which may have been responsible for the observed difference. Pityriasis versicolor, though a common tropical skin disorder that occurs in hot and humid areas, can also be influenced by varying individual genetic susceptibility, immunosuppression, stress and hyperhidrosis.[44,45]

Impetigo 10 (3.3%) and furunculosis 8 (2.7%) were the most common bacterial disorders. Furunculosis frequently affects the scalp, hairline, face and neck regions. Reports by Nnoruka in Enugu[46] and Kalu et al.,[8] similarly documented impetigo as the most frequent bacterial skin disorder. Disorders like impetigo are quite contagious, and with frequent mingling among younger children, it tends to be more common.[47] Emodi et al.[20] documented a much higher prevalence of pyoderma (29.8%) among children. The specific types of pyodermas seen in that study were not reported, and they looked at retrospective data of about ten years duration during which clustering of cases of very infectious pyodermas like impetigo could have been seen multiple times, leading to a higher prevalence. Hot and humid weather also causes a favourable environment for increased proliferation of bacteria over the skin surface and could be a predisposing factor in this study.[36,48]

Unlike many studies, chicken pox was the most prevalent viral skin infection found in this study. Other studies[18,29,42,49] reported viral warts, a more chronic infection, as the predominant viral infection. However, they were mostly conducted in dermatology clinics where skin disorders less amenable to treatment are referred. Studies in the community reported viral warts less commonly.[8,15,26] This study was conducted in general outpatient clinics where acute viral illnesses are more likely to be seen. Kiprono et al.,[49] reported a higher prevalence of viral warts, 28.6%, in children with HIV infections in a specialized dermatology clinic. Children with HIV

infection were few in this study and may have accounted for the lower prevalence of viral warts (2.7%).

Two children with scabies infestation were seen with a prevalence of 0.07%, which is lower than that documented by other studies in Nigeria.[14,20,26] The variation may result from the difference in location of study. Many of these cases are likely to be seen in the community with presentation to health care facilities due to unresolved symptoms or in the presence of complications which may necessitate presentation directly to the pediatricians or dermatologists. Another parasitic infestation seen was cutaneous larva migrans. This is an endemic tropical zoonotic disease caused by hookworm larvae of cats and dogs whose transmission depends on favourable climates such as soil moisture and atmospheric humidity. Crawling around or walking barefoot may have predisposed the subjects to this condition because risk factors such as poverty, walking barefoot, poor hygiene and contact with animal feces have been implicated in its transmission.[50] They commonly present as elevated linear or serpiginous tracks mostly on the lower limbs with or without pruritus, erythema and evidence of superinfection.[50]

Seborrheic dermatitis was the most common non-infective skin disorder among the study population, with a prevalence of 1.0%. Adah et al.,[15] reported seborrheic dermatitis as the predominant dermatitis among school children. On the contrary, Afsar[51] in Turkey and Altraide[18] in Nigeria documented atopic dermatitis as being more common in dermatology clinics. Seborrheic dermatitis is a self-limiting condition that presents as erythematous, sharply defined, scaly lesions on the face, trunk and intertriginous regions. The infantile type, which was the most common, usually has mild symptoms and is not associated with itching.[52] It resolves over time and may not warrant referral to specialist clinic.[53] Seborrheic dermatitis is less of a morbidity compared to atopic dermatitis which causes significant discomfort and is more chronic in children, hence the predominance of the latter skin disorder in dermatology clinics while the former is more common in the community and general outpatient clinic as reported in the present study.

Papular urticaria was the next predominant non-infective skin disorder (0.8%). A higher prevalence was reported by Ayanlowo et al.[42] in Lagos (10.2%), Oninla et al.[54] in Ile-Ife (6.7%) and Altraide in Port-Harcourt (10.35%). The observed difference may be due to variation in seasonal factors such as rainfall that promotes the breeding of insect,[41,42,54] in addition to poor environmental hygiene.[51]

About a third of the children with skin disorders presented for other reasons (secondary presentation). Among the 62 subjects with fungal dermatoses, 26 (41.9%) were of secondary presentation. Of the six subjects with acne vulgaris in this study, only one (16.7%) was seen primarily for the disorder. Emodi et al.,[20] who only reported disorders of primary presentation, did not find acne vulgaris among their study subjects in children's outpatient clinics. This may be reflective of poor awareness of these disorders among caregivers. These dermatoses run a chronic course and may have a tremendous impact on the quality of life of the affected children subsequently.[6] This highlights the need to identify skin disorders irrespective of the reason for presentation to achieve holistic care.

In this study, skin disorders were more common in the preschool age group, similar to the reports from Enugu[20] and India.[28] In contrast, Ayanlowo et al.[42] in Lagos found them more common in school-age children. The preponderance of skin disorders in the younger age group has been widely reported, and some of the reasons cited include an interplay of climatic factors, evolving host immunity, interpersonal transmission, and environmental and socioeconomic factors.[36,48,49,55]

Seborrheic dermatitis (22.5%) was the most prevalent skin disorder among children aged less than two years. This age group constituted about a quarter of children with skin disorders. This age coincides with the initial peak incidence of seborrheic dermatitis, which occurs in early infancy. This is adduced to the effect of maternal androgens on the sebaceous gland, which causes an increase in sebum production that aids the proliferation of Malassezia. This organism degrades fatty acids on the skin resulting in inflammation.[52] Foley et al.[53] and Vakirlis et al.[21] also described a higher prevalence in infancy with a

tendency to decline as they grow older with a subsequent rise at puberty.

On the other hand, atopic dermatitis (AD) has been reported to predominantly occur in this age group in studies carried out in specialized clinics by Afsar[51] and Katibi et al.,[56]. There were two participants with atopic dermatitis in this research carried out in the outpatient clinic. More reports of AD in Nigeria,[19,42,57] are found in specialized clinics where such chronic dermatoses are referred. The occurrence of atopic dermatitis is an interplay between environmental and immunologic factors on a background of genetic susceptibility. Variation in these environmental factors may contribute to the expression of symptoms in susceptible individuals. Increased humidity and exposure to ultra-violet rays are associated with less severe lesions with worsening symptoms in lower environmental temperatures. Variation in industrialization and exposure to microbes early in childhood are other factors that could influence the occurrence of atopic dermatitis.[58]

Papular urticaria was the prevalent skin condition in preschool-age children. This observation is similar to the report of Amadi et al.[59] in Port Harcourt, who reported that papular urticaria was the most common dermatoses among under-fives in a specialized clinic over a 10-year period. This inflammatory condition which results from an exaggerated response to insect bites, improves with age due to a reduction in the immunologic response to insect bites following multiple exposures over time.[60,61] It is a common condition among children in urban and peri-urban regions. Its occurrence is influenced by environmental factors such as poor environmental sanitation, inadequate drainage systems in urban slums, and unweeded and overgrown lawns or bushes that breed insects. The preschool age group coincides with increased environmental interaction, predisposing them to insect bites.

Tinea capitis was the most common infective disorder in the older age groups. A similar trend was reported by Ayanlowo et al.,[42] and Olarinoye et al.,[39] Predominance in the school-age group may reflect less supervision of personal grooming by parents or caregivers and increased interaction with peers that may promote the transfer of infective spores. Tinea capitis tends to be less common from adolescence to adulthood due to increased production of sebum which appears to have fungistatic properties against dermatophytes.[39] This also explains why it is rare in infants who may still have increased sebum from exposure to maternal androgens.

Acne vulgaris (0.2%) was another dermatosis encountered only among adolescents and corroborated by Ayanlowo et al.,[42] who documented a higher prevalence of 3.5% among adolescents seen at a specialized clinic. Acne vulgaris is often seen as a cosmetic disorder treated with over-the-counter medication, hence the lower prevalence in the general outpatient clinic. When they become difficult to manage, as seen in several cases, they present to or are referred to skin clinics. The occurrence of the disorder mostly among adolescents supports the involvement of higher production of sebum and androgens in the pathogenesis of this disorder,[6,27] among other factors like genetics and diet.

Adolescents (58.1%) were the least age group with primary presentation. This observation may reflect increased independence and easy access to over-the-counter medications compared to younger children. A higher proportion of females presented primarily for skin disorders. This study, being hospital-based, is influenced by individuals' affordability and accessibility to health care. Most participants with primary presentation belonged to the upper and middle socioeconomic class. Increased education and improved occupation may have positively impacted health-seeking behaviour. With improvement in educational status, parents are more likely to utilize the knowledge on health promotion resulting in a positive effect on their children's health. There is a need to create awareness of skin disorders and the need for hospital presentation.

Conclusion

About 1 in every 10 children seen was diagnosed with a skin disorder, with tinea capitis being the predominant dermatoses. Other common disorders were seborrheic dermatitis, papular urticaria and chicken pox. About a third of those with skin disorders were of secondary presentation. Tinea capitis was the most predominant skin disorder of secondary presentation. Knowledge from this study

could help plan educational programs aimed at improving the ability of healthcare practitioners to identify and treat common skin diseases in children irrespective of their primary reason for presentation. Considering that a significant number of these skin disorders were picked up from examination and were not the main reason for presentation, it suggests that attention should be paid to the skin when seeing children.

Limitations

1. The limited study period may have led to inadequate capturing of skin conditions associated with seasonal variation.
2. The skewed representation of the different age groups in the study population led to fewer subjects in some sub-groups, limiting some of the information that could be gathered.
3. The study was carried out before the publication of the recently revised socioeconomic classification tool, which would have been more explicit about the social status of those with skin disorders.

Conflicts of interest: None

Financial disclosures: Nil

REFERENCES

1. Villa LK, Grishna K. Epidemiology and prevalence of dermatological diseases among school children of Medak district, Telangana - a clinical survey. Int J Med Sci pub Health. 2016;5:1475-8.
2. Karimkhani C, Dellavalle RP, Luc EC. Global Skin Disease Morbidity and Mortality. An Update from the Global Burden of Diseases 2013. JAMA Dermatol. 2017;153:406-12.
3. Mahé A, Libreville G, Hay RJ. Epidemiology and management of common skin diseases in children in developing countries. Geneva World Health Organization. 2005;20:1-15.
4. Uludag A, Kilic SO, Isik S, Haydar Ertekin Y, Tekin M, Cevizci S et al. Prevalence of skin disorders in primary and secondary school age children in Canakkale, Turkey: a community-based survey. Adv Dermatol Allergol. 2016;33:176-81.
5. Akinkugbe AO, Amira OC, Ozoh OB, Fasanmade O, Bandele E. Pattern of skin disorders in a rural community in Lagos State, Nigeria. Niger Health J. 2016;26:1-14
6. Henshaw EB, Olasode OA, Ogedegbe EE, Euk I. Dermatological conditions in teenage adolescents in Nigeria. Adolesc Health Med Ther. 2014;5:79-87.
7. Anthony J, Celine T. A study on pattern of diseases of skin and subcutaneous tissue. Afr J Med Health Sci. 2014;13:34-8.
8. Kalu EI, Wagbatsoma V, Ogbaini-Emovon E, Nwadike VU, Ojide CK. Age and sex prevalence of infectious dermatoses among primary school children in a rural South-Eastern Nigerian community. Pan Afr Med J. 2015;20:182-7.
9. Okafor OO, Akinbami FO, Orimadegun AE, Okafor CM, Ogunbiyi A. Prevalence of dermatological lesions in hospitalized children at University College Hospital, Ibadan, Nigeria. Niger J Clincal Pract. 2011;14:287-92.
10. Jawade SA, Chugh VS, Gohil SK, Mistry AS, Umrigar DD. A Clinico-etiological study of dermatoses in pediatric age group in tertiary health care centre in South Gujarat region. Indian J Dermatol. 2015;60:635-7.
11. Barankin B. DeKowven J. Psychosocial effect of common skin diseases. Can Fam Physician. 2002;48:712-6.
12. Chamlin SL, Frieden IJ, Williams ML, Chren MM. Effects of Atopic Dermatitis on Young American Children and their Families. Am Acad Pediatr. 2004;114:607-11.
13. Yotsu RR, Comoe CC, Ainyakou GT, Konan N, Akpa A, Yao A et al. Impact of common skin diseases on children in rural Cote d'Ivoire with leprosy and Buruli ulcer co-endemicity: A mixed methods study. PLoS Negl Trop Dis. 2020;14:5:e008291
14. Ogunbiyi AO, Owoaje E, Ndahi A. Prevalence of skin disorders in school children in Ibadan. Pediatr Dermatol. 2005;22:6-10.
15. Adah R, Adah G, Abdu H, John C, Okolo S. Spectrum of skin diseases among school-aged children in Jos North Central Nigeria. J B Med Res Clin Pract [Internet]. 2019 [cited 2021 Aug 3];2:102-6. Available from: https://www.jbrcp.net/index.php/jbrcp/article/view/108
16. Oyedepo JT, Katibi OS, Adedoyin OT. Cutaneous

disorders of adolescence among Nigerian secondary school students. Pan Afr Med J. 2020;36:1-10.

17. Okoro OE, Sani H. Pattern of skin diseases at the Dermatology clinic of Jos University Teaching Hospital, Jos Plateau State, Nigeria. Jos J Med. 2014;8:15-21.
18. Altraide D, Akpa MR, George IO. The pattern of skin disorders in a Nigerian tertiary hospital. J. Public Health Epidemiol. 2011;3:177-81.
19. Azubogu US, Ojule I. Prevalence and types of skin diseases seen among children attending the children's outpatient clinic in a tertiary care hospital. Int J Trop Dis. 2021;42:39-46.
20. Emodi IJ, Ikefuna NA, Uchendu UU, Duru A. Skin diseases among children attending the out-patient clinic of University Teaching Hospital Enugu. Afr Health sci. 2010;10:362-6.
21. Vakirilis E, Theodosiou G, Apalla Z, Arabatzis M, Lazaridou E, Sotiriou E, et al. A retrospective epidemiological study of skin diseases among pediatric population attending a tertiary dermatology referral centre in Northern Greece. Clin Cosmet Investig Dermatol. 2017;10:99-104.
22. Oyedeji G. Socio-economic and cultural background of hospitalized children in Ilesha. Niger J Paediatr. 1985;12:111–7.
23. World Health Organization. International statistical classification of diseases (ICD) and related health problems - 10th revision [Internet]. World Health Organization; 2016 [updated 2016; cited 2017 Jun 10]. Available from: https://www.who.int/classification/icd/en/.
24. IBM SPSS Statistics for Windows, version 22.0. Armonk NIC. IBM Corp. Released 2013.
25. Available from:https://ezspss.com. [Cited 2019 Mar 03].
26. Amoran OE, Runsewe-Abiodun OO, Mautin AO, Amoran IO. Determinants of dermatological disorders among school children in Sagamu, Nigeria. Educ Res. 2011;2:1743-8.
27. Jindal R. The ages of children and their dermatosis. iMed Pub Journals. 2015;1:2-4.
28. Mridula AM, Pushpalatha K, Girish M. Clinical Spectrum of Primary skin disorders in children less than 10 years. J Evid based Med Health care. 2015;2:505-12.
29. Elfaituri SS. Paediatric dermatoses in Benghazi, Libya. Indian J Paediatr Dermatol. 2015;16:64-71.
30. Yahya A. Pattern of paediatric skin disorders in Murtala Muhammad Specialist Hospital Kano, Nigeria. Acta Biomed. 2020;91:1-7.
31. Katibi OS, Dlova NC, Chateau AV, Mosam A. The prevalence of paediatric skin conditions at a dermatology clinic in KwaZulu-Natal Province over a 3-month period. Afr J online. 2016;10:121-5.
32. Otike-Odibi B, Azubogu US. Infectious Skin Disorders encountered in children attending the Dermatology Clinic in a Tertiary care Hospital in Southern Nigeria. Asian J Res Dermatol Sci. 2021;4:1-6.
33. Kelbore AG, Owih P, Reid AJ, Bogino EA, Wonderwosen L, Dessu BK. Pattern of skin diseases in children attending Dermatology Clinic in a referral Hospital in Wolaita Sodo, South Ethiopia. BMC Dermatol. 2019;19:5-9.
34. Balai M, Khare AK, Gupta LK, Mittal A, Kuldeep CM. Pattern of Paediatric Dermatoses in a Tertiary Care Centre of South West Rajasthan. Indian J Dermatol. 2012;57:275-8.
35. Tunnessen WW. A survey of Skin Disorders seen in Pediatric General and Dermatology Clinics. Paediatr Dermatol. 1984;1:219-22
36. Palle AS, Mancini AJ. Bacterial, mycobacterial and protozoal skin infection. In: Hurwitz Clinical Pediatric Dermatology. 5th ed. Canada Elsevier; 2016; pp334-59.
37. Komba VE, Mgonda YM. The spectrum of dermatological disorders among primary school children in Dar es Saalam. BMC Public Health [Internet]. 2010 [cited 2017 Mar 03];10:765. Available from: https://doi.org/10.1186/1471-2458-10-765.
38. Oke OO, Onayemi O, Olasode OA, Omisore AG, Oninla OA. The prevalence and pattern of Superficial Fungal Infections among school children in Ile-Ife, South-Western Nigeria. Dermatol Res Pract [internet]. 2014 [cited 2020 Jun 01];1:1-7. Available from: http://dx.doi.org/10.1155/2014/842917
39. Olarinoye GM, Katibi OS, Ilesanmi ON, Fayemiwo SA, Ogunbiyi AO, George A.Trichoscopic features of tinea capitis among primary school children in North Central Nigeria. Int J Dermatol. 2020;59:1346-52.

40. Amin TT, Ali A, Kaliyadan F. Skin disorders among male primary school children in Al Hassa, Saudi Arabia: prevalence and socio-demographic correlates - a comparison of urban and rural populations. Rural Remote Health. 2011;11:1-15.
41. Ogunbiyi OA, Omigbodun Y, Owoaje E. Prevalence of skin disorders in secondary school children in Ibadan, Nigeria. Int J Adolesc Med Health. 2009;21:235-41.
42. Ayanlowo O, Puddicombe O, Gold-Olufadi S. Pattern of skin diseases amongst children attending a dermatology clinic in Lagos, Nigeria 1. Pan African Med Journal. 2018; 29:162.
43. Sugita T, Boekhout T, Velegraki A, Guillot J, Hadina S, Cabanes FJ. Epidermiology of Malassezia furfur. 65-120.
44. Miro EM, Sanchez NP. Cutaneous manifestations of infectious diseases. In: Sanchez N. (eds) Atlas of Dermatology in Internal Medicine[Internet]. Springer, New York, NY. 2012; pp 77-119. Available from: https://doi.org/10.1007/9781-4614-0688-4_7.
45. Mellen LA, Vallee J, Feldman SR, Fleischer AB. Treatment of pityriasis versicolor in the United States. J Dermatol Treat. 2004;15:189-92.
46. Nnoruka EN. Perspective, Skin diseases in south-east Nigeria: A current ROUNDS, Skin diseases in south-east Nigeria. Int J Dermatol. 2005;44:29-33.
47. Hazarika N. A clinico-epidemiological study of pyoderma in children. Nat J Res Com Med. 2012;1:178-41.
48. Hedrick J. Acute bacterial skin infections in pediatric medicine. Current issues in presentation and treatment. Paeditr Drugs. 2003;5:35-46.
49. Kiprono SK, Muchunu JW, Masenga JE. Skin diseases in pediatric patients attending a tertiary dermatology hospital in Northern Tanzania: A cross-sectional study. BMC Dermatol [Internet]. 2015, [cited 2017 April 03];15:16. doi: http://doi.org/10.1186/s/12895-015-0035-9.
50. Reichert F, Pilger D, Schuster A, Lesshafft H, Guedes de Oliveira S, Ignatius R, et al. Prevalence and risk factors of hookworm-related cutaneous larva migrans (HrCLM) in a resource-poor community in Manaus, Brazil. PLoS Negl Trop Dis. 2016;1-13
51. Afsar FS. Pediatric Dermatology in practice: spectrum of skin diseases and approach to patients at a Turkish pediatric dermatology center. Cutan Ocul Technol. 2011;1-9.
52. Leung AK, Barankin B. Seborrheic Dermatitis. Int J Paediatr Heal Care Adv. 2015;2:4-6.
53. Foley P, Zuo Y, Plunkett A, Merlin K, Marks R.. The frequency of common Skin Conditions in Preschool-aged Children in Australia. Seborrheic Dermatitis and Pityriasis Capitis (Cradle Cap). Arch Dermatol. 2003;139:318-22.
54. Oninla OA, Oninla SO, Onayemi O, Olasode OA. Pattern of paediatric dermatoses at dermatology clinics in Ile-Ife and Ilesha, Nigeria. Paediatr Int Child Health. 2015;13:1-10.
55. World Health Organization. Epidermiology and management of common skin diseases in children in developing countries. 2005 [cited 2019 Jun 6]. Available from: WHO_FCH_CAH_05.12_eng.pdf.
56. Katibi OS, Dlova NC, Chateau AV, Mosam A. Atopic dermatitis in South African children: Experience from a tertiary-care centre. S Afr J Child Heathl. 2020;14:208-11.
57. Altraide DD, Alex-Hart B. Prevalence and pattern of skin diseases among school age children at the University of Portharcourt teaching hospital, Nigeria: A Hospital-based study. Asian J Res Infect Dis. 2020;3:29-36.
58. Schachtel A, Dyer JA, BM. Climate change and pediatric skin health. Int J Women's Dermatol. 2021;7:85-90.
59. Amadi ES, Maduagwu MC, Long-John D. An overview of skin disorders in under-fives over a ten-year period in a Tertiary institution in South-south, Nigeria. Int J Res Dermatol. 2021;7:359-63.
60. Thomas J, Ravi D. Papular Urticaria: A known early indicator of atopic dermatitis. ARC J Dermatol. 2017;2:16-7.
61. Halpert E, Borrero E, Ibanez-Pinilla M, Chaparro p, Molina J, Torres M et al. Prevalence of papular urticaria caused by flea bites and associated factors in children 1-6 years of age in Bogota, D.C. World Allergy Org J. 2017;10:36.

TABLE I: Socio-demographic characteristics of children with skin disorders among the study population

Socio-demographic indices	Frequency (n=300)	Percentages (%)
Age-group (years)		
< 2	102	34.0
2 - 5	101	33.7
6 - 9	54	18.0
10 - 18	43	14.3
Median age (IQR)*		
3 years (1-7) years		
Gender		
Male	176	58.7
Female	124	41.3
Major tribes		
Igala	113	37.7
Okun	49	16.3
Ebira	42	14.0
Ebirakoto	10	3.3
Takanda	9	3.0
Bassange	9	3.0
Others	68	22.7
Religion		
Christianity	177	59.0
Islam	123	41.0
Social class		
Upper	123	41.0
Middle	136	46.0
Lower	39	13.0

***IQR = Interquartile Range**

TABLE II: Spectrum, prevalence and mode of presentation of specific skin disorders seen among the study population

Classification	Primary n=206	Secondary n=99	Frequency	Percentages (n=300)	Prevalence (%) (n=2,725)
Infective					
Fungal	**36 (58.1)**	**26 (41.9)**	**62 (100.0)**	**20.7**	**2.30**
Tinea capitis	26 (55.3)	21 (44.7)	47 (100.0)	15.7	1.70
Tinea corporis	4 (57.1)	3 (42.9)	7 (100.0)	2.3	0.30
Tinea pedis	4 (100.0)	0 (0.0)	4 (100.0)	1.3	0.15
Pityriasis versicolor	2 (50.0)	2 (50.0)	4 (100.0)	1.3	0.15
Bacterial	**23 (95.8)**	**1 (4.2)**	**24 (100.0)**	**8.0**	**0.90**
Impetigo	9 (90.0)	1 (10.0)	10 (100.0)	3.3	0.40
Furunculosis	8 (100.0)	0 (0.0)	8 (100.0)	2.7	0.30
Abscess	2 (100.0)	0 (0.0)	2(100.0)	0.7	0.07
Carbuncle	2 (100.0)	0 (0.0)	2 (100.0)	0.7	0.07
Folliculitis	2 (100.0)	0 (0.0)	2 (100.0)	0.7	0.07
Viral	**37 (84.1)**	**7 (15.9)**	**44 (100.0)**	**14.7**	**1.60**
Chicken pox	17 (100.0)	0 (0.0)	17 (100.0)	5.7	0.60
Hand-foot-mouth disease	10 (100.0)	0 (0.0)	10 (100.0)	3.3	0.40
Viral warts	3 (37.5)	5 (62.5)	8 (100.0)	2.7	0.30
Measles	6 (100.0)	0 (0.0)	6 (100.0)	2.0	0.20
Exanthem subitum	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Herpes simplex	0 (0.0)	1 (100.0)	1 (100.0)	0.3	0.04
Molloscum contagiosum	0 (0.0)	1 (100.0)	1 (100.0)	0.3	0.04
Parasitic	**4 (100.0)**	**0 (0.0)**	**4 (100.0)**	**1.3**	**0.15**
Scabies	2 (100.0)	0 (0.0)	2 (100.0)	0.7	0.07
Cutaneous larva migrans	2 (100.0)	0 (0.0)	2 (100.0)	0.7	0.07
Non-infective					
Appendages	**15 (65.2)**	**8 (34.8)**	**23 (100.0)**	**7.6**	**0.80**
Miliaria	9 (75.0)	3 (25.0)	12 (100.0)	4.0	0.40
Acne	1 (16.7)	5 (83.3)	6 (100.0)	2.0	0.20
Traction alopecia	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Hidradenitis supurativa	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Milia	3 (100.0)	0 (0.0)	3 (100.0)	1.0	0.10
Dermatitis/eczema	**33 (68.8)**	**15 (31.2)**	**48 (100.0)**	**16.0**	**1.80**
Seborrheic dermatitis	17 (65.4)	9 (34.6)	26 (100.0)	8.7	1.00
Contact dermatitis	7 (87.5)	1 (12.5)	8 (100.0)	2.7	0.30
Pityriasis alba	4 (57.1)	3 (42.9)	7 (100.0)	2.3	0.30
Nappy dermatitis	1 (33.3)	2 (66.7)	3 (100.0)	1.0	0.10
Atopic dermatitis	2 (100.0)	0 (0.0)	2 (100.0)	0.7	0.07
Nummular dermatitis	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Perioral dermatitis	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04

Drug reactions	**4 (100.0)**	**0 (0.0)**	**4 (100.0)**	**1.3**	**0.15**
Fixed drug eruptions	3 (100.0)	0 (0.0)	3 (100.0)	1.0	0.10
Others	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Inflammatory	**24 (80.0)**	**6 (20.0)**	**30 (100.0)**	**10.0**	**1.10**
Papular urticaria	17 (73.9)	6 (26.1)	23 (100.0)	7.7	0.80
Intertrigo	5 (100.0)	0 (0.0)	5 (100.0)	1.7	0.20
Cheilitis	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Pityriasis capitis simplex	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Granulomatous	**3 (100.0)**	**0 (0.0)**	**3 (100.0)**	**1.0**	**0.10**
Granuloma annulare	3 (100.0)	0 (0.0)	3 (100.0)	1.0	0.10
Nevi	**4 (40.0)**	**6 (60.0)**	**10 (100.0)**	**3.3**	**0.40**
Epidermal nevus	1 (33.3)	2 (66.7)	3 (100.0)	1.0	0.10
Congenital melanocytic nevi	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Others	2 (33.3)	4 (66.7)	6 (100.0)	2.0	0.22
Nutritional Dermatosis	**2 (100.0)**	**0 (0.0)**	**2 (100.0)**	**0.7**	**0.07**
Papulosqamous	**7 (100.0)**	**0 (0.0)**	**7 (100.0)**	**2.3**	**0.30**
Lichen niti dus	3 (100.0)	0 (0.0)	3 (100.0)	1.0	0.10
Pityriasis rosea	2 (100.0)	0 (0.0)	2 (100.0)	0.7	0.07
Lichen striatus	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
PLC	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Pigmentary	**3 (14.3)**	**18 (85.7)**	**21 (100.0)**	**7.0**	**0.80**
Mongolian sp ots	0 (0.0)	8 (100.0)	8 (100.0)	2.7	0.30
Café-au-lait	0 (0.0)	6 (100.0)	6 (100.0)	2.0	0.22
Post-inflammatory hyperpigmentation	2 (33.3)	4 (66.7)	6 (100.0)	2.0	0.22
Post-inflammatory hypopigmentation	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Urticaria	**3 (100.0)**	**0 (0.0)**	**3 (100.0)**	**1.0**	**0.10**
Acute urticaria	3 (100.0)	0 (0.0)	3 (100.0)	1.0	0.10
Vascular	**4 (100.0)**	**0 (0.0)**	**4 (100.0)**	**1.3**	**0.15**
Pyogenic granuloma	2 (100.0)	0 (0.0)	2 (100.0)	0.7	0.07
Hemangioma	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Salmon patch	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04
Others	**4 (25.0)**	**12 (75.0)**	**16 (100.0)**	**5.3**	**0.60**
Scarification	0 (0.0)	10 (100.0)	10 (100.0)	3.3	0.40
Xerosis	3 (60.0)	2 (40.0)	5 (100.0)	1.7	0.20
Keratoderma	1 (100.0)	0 (0.0)	1 (100.0)	0.3	0.04

Percentages do not add up due to participants with 2 skin disorders; PLC: Pityriasis lichenoides chronica

Figure 1*: Spectrum of skin disorders of secondary presentation*

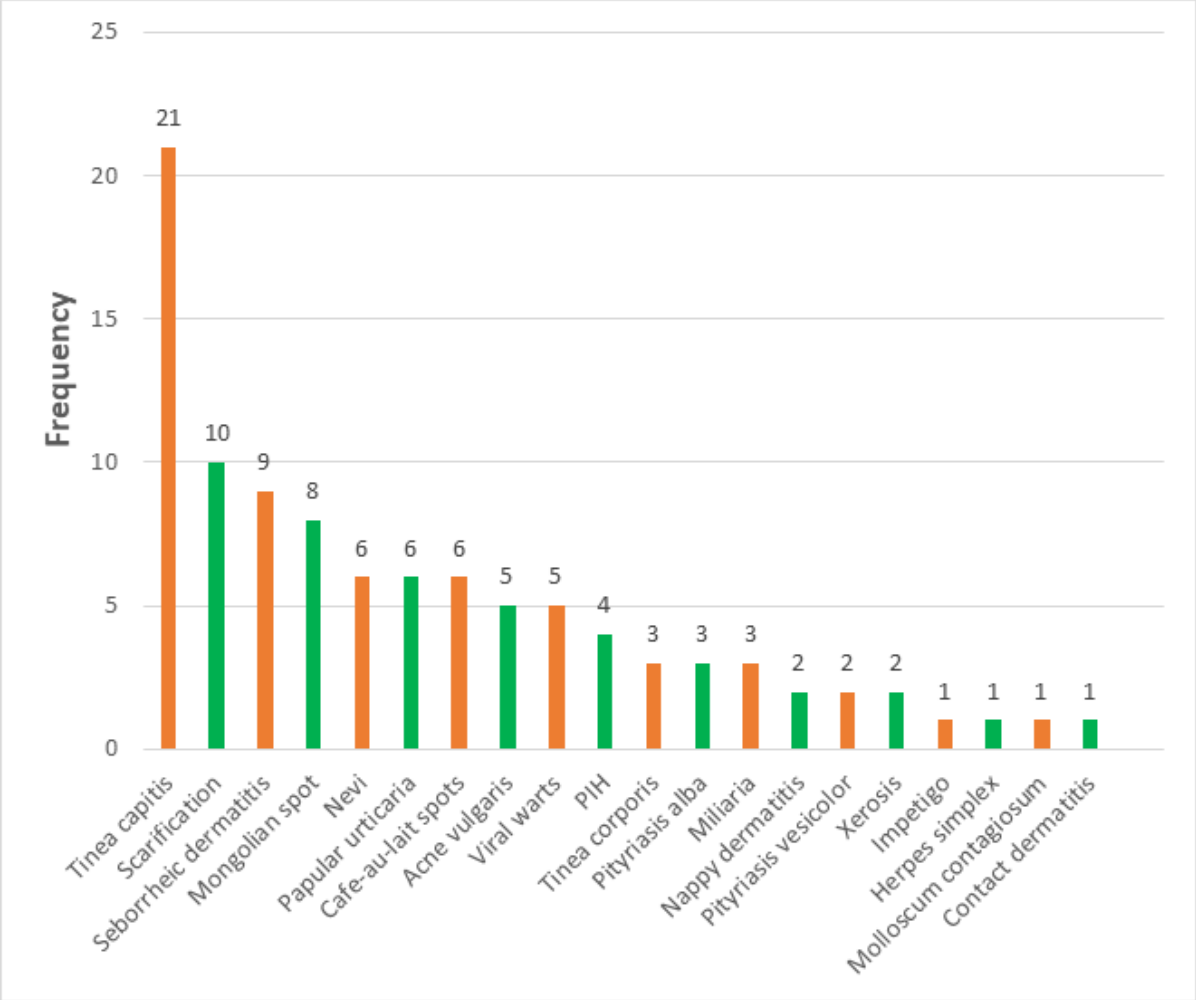

Table III: Spectrum of common skin disorders among the various age groups of subjects studied.

Age-groups	Skin disorders	Frequency	Prevalence (%) within the group
Infants/toddlers (< 2 years)	Seborrheic dermatitis	23	22.5
n=102	Furunculosis	15	14.7
	Contact dermatitis	8	7.8
	Papular urticaria	6	5.9
	Mongolian spot	5	4.9
Pre-school (2-5 years)	Papular urticaria	14	13.9
n=101	Tinea capitis	14	13.9
	Furunculosis	9	8.9
	Impetigo	7	6.9
	Hand-foot-mouth disease	7	6.9
School-age (6-9 years)	Tinea capitis	24	44.4
n=54	Chicken pox	5	9.3
	Furunculosis	3	5.6
	Papular urticaria	3	5.6
	Pityriasisalba	2	3.7
Adolescents (≥ 10 years)	Tinea capitis	8	18.6
n=43	Acne vulgaris	6	14.0
	Warts	4	9.3
	Chicken pox	3	7.0
	Lichen nitidus	2	4.7

Table IV: Socio-demographic indices and their association with mode of presentation among the 300 subjects studied

Variable	Skin Disorder					
	Primary n (%)	**Secondary n (%)**	**Total n (%)**	χ^2	***df***	***P***
Infants	69 (67.6)	33 (32.4)	102 (100.0)			
Preschool	74 (73.3)	27 (26.7)	101 (100.0)	3.224	3	0.360
School-age	37 (68.5)	17 (31.5)	54 (100.0)			
Adolescent	25 (58.1)	18 (41.9)	43 (100.0)			
Gender						
Male	109 (61.9)	67 (38.1)	176 (100.0)	8.064	1	0.005
Female	96 (77.4)	28 (22.6)	124 (100.0)			
Social class						
Upper	92 (74.8)	31 (25.2)	123 (100.0)			
Middle	90 (65.2)	48 (34.8)	138 (100.0)	4.572	2	0.102
Lower	23 (59.0)	16 (41.0)	39 (100.0)	4.476*		0.034*

=linear by linear association

Table V: Multiple logistic regression on socio-demographic factors and mode of presentation among the subjects studied

Variables		*p* value	Adj OR	95% CI of OR	
				Lower	Higher
Age-group					
Adolescent*					
Infant	0.291	0.450	1.338	0.629	2.844
Pre-school	0.670	0.088	1.954	0.906	4.213
School age	0.457	0.294	1.579	0.672	3.706
Gender					
Male*					
Female	0.720	0.008**	2.055	1.209	3.494
Social class					
Lower*					
Upper	0.632	0.109	1.880	0.869	4.071
Middle	0.193	0.610	1.213	0.577	2.551

=Reference category, **=statistically significant, Adj OR=Adjusted odds ratio, B=co-efficient

Pictures of common skin disorders among the study population

Tinea capitis with superimposed bacterial infection

Scabies

Impetigo

Chicken pox

Pyogenic granuloma

Granuloma annulare