

A CROSS-SECTIONAL PROSPECTIVE STUDY ON CUTANEOUS DISEASES IN PAEDIATRIC PATIENTS BELONGING TO LOW INCOME GROUP FAMILIES ATTENDING PRIMARY HEALTH CENTRES AT BANGALORE RURAL, SOUTH

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ABSTRACT

BACKGROUND

The incidence and the spectrum of paediatric dermatological diseases vary from one part of the world to another.¹ Skin diseases, though very common in many developing countries are not often regarded as a significant health problem.² Majority of the skin diseases tend to occur in children under the age of 5 years. This high prevalence could be due to the lower immunity or higher frequency of hospital visits by infants due to greater parental care.

The aim of the study is to compare the present spectrum of cutaneous disorders between two age groups of children less than 5 years and 5-14 years old and their correlation with socioeconomic status attending primary health centre, Bangalore rural, south.

MATERIALS AND METHODS

A prospective cross-sectional study was conducted from March 22 to November 22, 2017, in children with skin disorders under 14 years old who attended primary health centre at Bangarappanagar and Uttarahalli in Bangalore.

RESULTS

A total of 522 children with skin diseases, 486 children were included in the study and they were divided into two groups of those less than 5 years with the sex ratio (M:F) 1.5:1 and 5-14 years old with the sex ratio (M:F) 1.3:1. The most common dermatological disease among less than 5 years age group was infections, eczema, infestations and pigmentary disorders and the most common dermatological diseases between 5-14 years was infections, scabies, eczema and acne.

CONCLUSION

Skin problems mainly scabies, tinea, impetigo and eczema were common in children who attended the primary health centres at Bangalore rural. There is a high prevalence of communicable diseases among children belonging to parents of low socioeconomic status. Community health education regarding personal hygiene coupled with that of the surrounding environment can help in controlling these diseases in the long run.

KEYWORDS

Cutaneous Diseases, Paediatric Age Group, Socioeconomic Status.

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BACKGROUND

The incidence and the spectrum of paediatric dermatological diseases vary from one part of the world to another.¹ Skin diseases though very common in many developing countries are not often regarded as a significant health problem.² Majority of the skin diseases tend to occur in children under the age of 5 years. This high prevalence could be due to the

lower immunity or higher frequency of hospital visits by infants due to greater parental care.

Eczema has been reported to be the predominant skin disease in developed countries, whereas infections and infestations are predominant in developing countries.³ Similar studies have been carried out previously; however, studies on paediatric dermatological diseases and its correlation with socioeconomic status in primary health centres are fewer, therefore necessitating the need for this study. Earlier literatures have indicated that the infective disorders mainly pyoderma and scabies are major causes for visit to primary healthcare facility in developing countries.⁴ Community studies have shown the high burden of dermatophytosis among school children in both urban and rural areas.^{5,6} The ready accessibility of drugs across the counter in this country also lends to self-medication and decreases the attendance of the patient to a healthcare

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facility. Here, we seek to find out the present spectrum of skin diseases in paediatric patients visiting primary health centre in rapidly budding metropolitan city, Bangalore with the enduring economic disparities.

MATERIALS AND METHODS

This was a cross-sectional, prospective study conducted at two primary health centres, Bangarappanagar and Uttarahalli in Bangalore, rural.

All children younger than 14 years who came to the clinic with new skin disorders were assessed clinically over a period of 8 months between March 22, 2017, to November 22, 2017.

The clinical note of every child meeting the inclusion criteria comprising of the age, sex, medical and family history, aggregate family income were noted. Thorough physical examination was carried out in the presence of parents/guardian and a paramedical staff. The diagnosis was primarily done clinically, however, relevant laboratory investigations or histopathology was done in cases with indistinct presentation. The data thus obtained was analysed using SPSS version 16 and summary statistics. The socioeconomic status was calculated using modified B.G. Prasad Socioeconomic Classification Scale 2017.

Revised Modified BG Prasad Socioeconomic Classification Scale, 2017

Socioeconomic Class	Per Capita Monthly Income
Upper class	≥ Rs. 6254
Upper middle class	Rs. 3127-6253
Middle class	Rs 1876-3126
Lower middle class	Rs. 938-1875
Lower class	Rs. <938

Inclusion Criteria- All paediatric patients with cutaneous disorders aged less than 14 years visiting primary health centre, Bangalore, rural.

Exclusion Criteria- Patients came with other systemic diseases and having skin disorders secondary to it. Patients not fulfilling the criteria under BG Prasad’s socioeconomic classification were excluded.

RESULTS

A total of 486 children less than 14 years with dermatological problems were included in the study and among them 304 were less than 5 years old and remaining 182 were between 5-14 years old.

Among 304 patients with less than 5 (<5) years (mean age 3.2) 184 were males and 120 were females with a male:female ratio of 1.5:1 and among 182 patients between 5-14 years (mean age 9.6) 104 were males and 78 were females with a male:female ratio of 1.3:1.

Skin infections were the most common group of skin diseases for less than 5 years (51.6%, n=157) and between 5-14 years (52.1%, n=95). Skin infestations are common for 5-14 years patients (n=41, 22.5%) compared to less than 5 years (5%, n=15). Other common groups shown in Table 1 are eczema (n=63, 20.6%), pigmentary disorders (n=33, 10.8%) and disorders of adnexa (n=12, 4%).

Among the skin infections, bacterial (n=82) and viral (n=41) are common compared to fungal (n=34) infections in children less than 5 years, whereas fungal (tinea) (n=28) infections are more common in children between 6-14 years age.

From Table 2, it is found that infectious communicable disorders like bacterial infections (n=56) in 0-5 years patients and scabies (n=44) and tinea (n=14) in 5-14 years patients are more common in lower socioeconomic groups, whereas atopic cases (n=32) more in patients with higher socioeconomic groups.

Dermatological Disorders	Total Number of Cases	
	0-5 Years (n=157), 51.6%	5-14 Years (n=95), 52.1%
Infections-		
1. Bacterial.		
• Impetigo.	38	15
• Furuncles.	21	8
• Folliculitis.	23	7
2. Viral.		
• Warts.	2	6
• Molluscum contagiosum.	6	6
• Herpes simplex.	17	4
• Varicella.	10	12
• Measles.	6	1
3. Fungal.		
• Tinea capitis.	9	16
• Tinea faciei.	0	3
• Tinea corporis.	0	4
• Tinea cruris.	0	5
• Candidal intertrigo	25	0

Infestation- • Scabies. • Pediculosis capitis. • Papular urticaria.	(n=15), 5% 1 0 14	(n=41), 22.5% 26 5 10
Eczematous dermatitis- • Atopic dermatitis. • Contact dermatitis. • Seborrheic dermatitis. • Nummular eczema. • Diaper dermatitis.	(n=63), 20.6% 35 3 16 1 8	(n=12), 6.5% 7 4 0 1 0
Disorders of skin adnexa- • Acne. • Miliaria.	(n=12), 4% 1 11	(n=12), 6.5% 6 6
Pigmentary disorders- • Vitiligo. • Pityriasis alba. • Nevi.	(n=33), 10.8% 3 22 8	(n=12), 6.5% 5 5 2
Papulosquamous disorders- • Pityriasis rosea. • Psoriasis. • Lichen planus.	(n=15), 5% 13 1 1	(n=6), 3.2% 4 1 1
Genodermatosis- • Albinism. • Xeroderma pigmentosa. • Ichthyosis.	(n=9), 3% 8 0 1	(n=4), 2.1% 2 1 1

Table 1. Cutaneous Disorders in Relation to Age Group

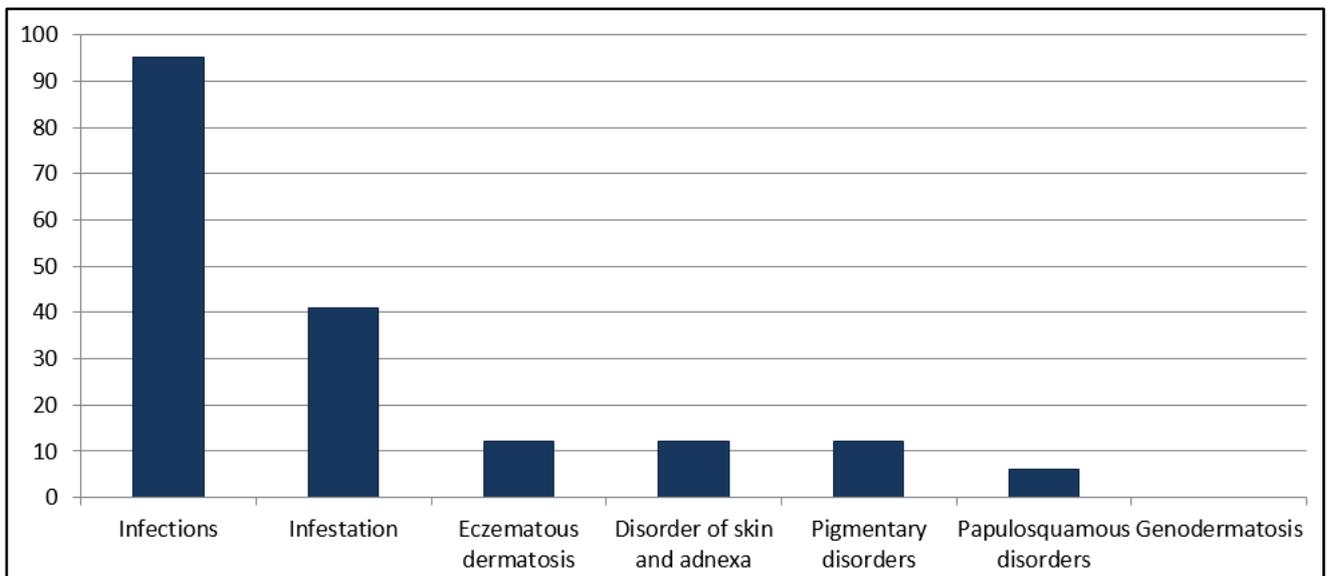
Socioeconomic Class	Common Cutaneous Diseases (0-5 Years)	Common Cutaneous Diseases (5-14 Years)
Upper class	Nil	Nil
Upper middle class	Atopic dermatitis (4) Candida intertrigo(2)	Atopic dermatitis (4) Warts (2) Acne (2)
Middle class	Atopic dermatitis (13) Bacterial infections (8) Candida intertrigo (4)	Atopic dermatitis (12) Pityriasis alba (5) Impetigo (5)
Lower middle class	Bacterial infections (22) Miliaria (9) Pityriasis alba (7)	Infestations (15) Impetigo (10) Tinea capitis (10)
Lower class	Bacterial infections (34) Pityriasis alba (15)	Infestations (26) Varicella (10) Miliaria (9)

Table 2. Dermatological Problems with Respect to Socioeconomic Status According to BG Prasad Classification 2017

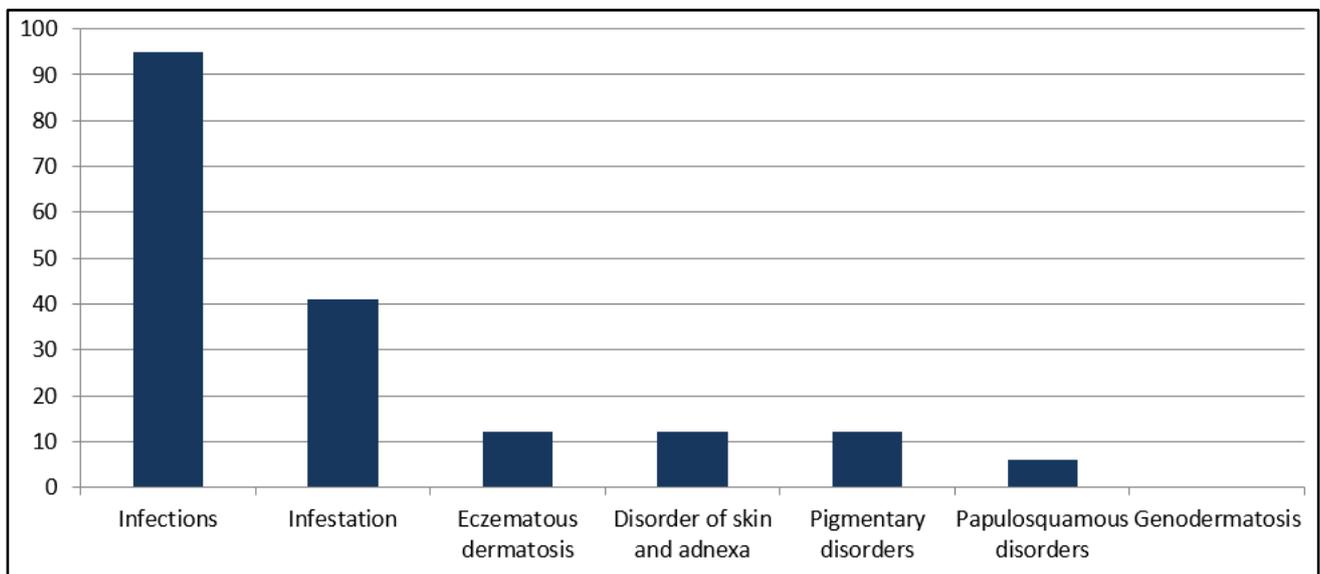
Socioeconomic Class	Total Number of Patients (0-5 Years)	Total Number of Patients (5-14 Years)
Upper class	Nil	Nil
Upper middle class	6	8
Middle class	25	22
Lower middle class	102	62
Lower class	165	90

Table 3. Dermatological Problems with Respect to Socioeconomic Status

Table 3 showing total number of patients visiting primary health centre are belongs to lower socioeconomic group.



Graph 1. Showing Number of Cases and Skin Disorders in Patients with Below 5 Years Age Group



Graph 2. Showing Number of Cases and Skin Disorders in Patients between 6-14 Years Age Group

DISCUSSION

The high prevalence of infections and infestations in the developing countries has been attributed to low socioeconomic status, favourable tropical weather, neglect and poor hygiene.⁶ In addition, Amoran et al⁷ has reported that school children sought low level of medical care due to the assumption that skin diseases are not important and not merit any treatment.

In a study on the clinical profile of cutaneous infections and infestations in the paediatric age group by Sharma et al, parasitic infestations (53.66%) were the most common cutaneous disorder, followed by bacterial (34.66%), fungal (8.42%) and viral infections (3.85%). Among infestations, scabies was the leading offender (86.91%) followed by papular urticaria (7.49%) and pediculosis capitis (5.58%).⁸

In our study, the infestation (52.1%) were the most common compared to infestations (22.5%), scabies (26), papular urticaria (5) and pediculosis capitis (10); and these infestations were found in age group of 6-14 years compared to fewer cases in less than 5 years age. There was history

of frequent sharing of the combs among the family members and the frequency of bathing was limited to once in 8 to 10 days in most of the cases. As most of our patients had straight hair, the difference between the curly hairs was not assessed here. In a study by Mansour Nazari et al⁹, there was a statistically significant association between curly hair and pediculosis capitis.

Fungal infections and especially tinea capitis are the most prevalent infections in all ages. Both candidal intertrigo and diaper dermatitis were common in children of less than 5 years age. Less frequent change in the diaper cloth following soiling were linked with these cases. Among the diaper dermatitis cases, most of the patients used the diaper occasionally, while travelling, however, the frequency of the change in the diapers were limited to a maximum of twice daily. In both these cases, most of the parents were unaware of importance of keeping the area dry. Application of local remedies like turmeric and castor oil could have played a significant role as trigger.

In an epidemiological study of skin diseases among school children in north India, incidence of bacterial pyoderma (impetigo, folliculitis and infected bite reactions) was found to be 64.4%.¹⁰

In a retrospective study on skin disorders among children (<12 years of age) conducted at New Delhi by Sardana K et al, bacterial infections were recorded among 58.09% of the children.

This study also showed that infectious disorders like impetigo and warts are more common in lower socioeconomic groups, whereas atopic cases more in patients with higher socioeconomic groups. Cutaneous warts are caused by infection with Human Papillomavirus (HPV), which is transmitted by direct contact with contaminated skin or indirectly via objects carrying the virus. Increased exposure to HPV theoretically increases the risk of developing warts. In this study, there was no relation with gender, but older age group were associated with increased occurrence of warts. The degree of HPV exposure in the family and in schools contribute to the development of warts. Preventive recommendations to limiting HPV transmission in the form of not to walking barefoot as wet floors are assumed to be HPV reservoirs¹¹ and wearing plaster around the affected area before using public places like swimming pools were advised. Although, transmission patterns may differ to some extent owing to local customs. The ways of HPV exposure are probably comparable in western countries.¹²

Community-based studies showed that the prevalence of transmissible diseases to be as high as 84%, while the current study shows that infections and infestations are still the most common group of skin diseases.

The limiting factors of this study were the small sample size. These findings may not be generalised to other hospitals as patients attending these centres may not belong to the low-income group. It may not represent the true spectrum of the diseases in the community as most of the cases go unattended due to apathy towards skin ailments.

CONCLUSION

Skin problems mainly scabies, tinea, impetigo and eczema were common in children who attended a primary health centre at Bangalore rural. Community health education regarding personal hygiene coupled with that of the surrounding environment can help in controlling these diseases in the long run. In addition to rendering treatment,

awareness can be put across in the form of counselling, street play, workshops and field trips. The high prevalence of communicable diseases among children belonging to parents of low socioeconomic status emphasises on the role of dermatologists in the inclusion of the urban poor in the inclusive growth module of a state.

REFERENCES

- [1] WHO. Discussion papers in Child Health Epidemiology and management of common skin diseases in children in developing countries. Geneva: World Health Organization 2005. WHO/FCH/CAH/05.12.
- [2] Growing awareness of skin diseases starts flurry of initiatives. Bull of WHO 2005;83(12):881-968.
- [3] Sardana K, Mahajan S, Sarkar R. Spectrum of skin diseases among Indian children. *Pediatr Dermatol* 2009;26(1):6-13.
- [4] Oduoko OM, Onayemi O, Oyedeji GA. A prevalence survey of skin diseases in Nigerian children. *Niger J Med* 2001;10(2):64-67.
- [5] Ogunbiyi AO, Owoaje E, Ndahi A. Prevalence of skin diseases in school children in Ibadan, Nigeria. *Pediatric Dermatology* 2005;22(1):6-10.
- [6] Oyedeji OA, Onayemi O, Oyedeji GA, et al. Prevalence and pattern of skin infections and infestations among primary school pupils in Ijesha Land. *Nig J Paed* 2006;33(1):13-17.
- [7] Amoran OE, Runsewe-Abiodun OO, Mautin AO, et al. Determinants of dermatological disorders among school children in Sagamu, Nigeria. *Educ Res* 2011;2(12):1743-1748.
- [8] Sharma RC, Mendiratta V. Clinical profile of cutaneous infections and infestations in the paediatric age group. *Indian J Dermatol* 1999;44(4):174-178.
- [9] Nazari M, Goudarztalejerdi R, Payman MA. Pediculosis capitis among primary and middle school children in Asadabad, Iran: an epidemiological study. *Asian Pacific Journal of Tropical Biomedicine* 2016;6(4):367-370.
- [10] Dogra S, Kumar B. Epidemiology of skin diseases in school children: a study from northern India. *Pediatr Dermatol* 2003;20(6):470-473.
- [11] Johnson LW. Communal showers and the risk of plantar warts. *J Fam Pract* 1995;40(2):136-138.
- [12] Bruggink SC, Eekhof JAH, Egberts PF, et al. Warts transmitted in families and schools: a prospective cohort. *Pediatrics* 2013;131(5):928-934.