Relation of Sociodemographics and Personal Hygiene on Different Childhood Dermatoses

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Citation

Gauchan E, Kumar A, BK G, Thapa P, Pun J. Relation of Sociodemographics and Personal Hygiene on Different Childhood Dermatoses. *Kathmandu Univ Med J* 2015;49(1):29-33.

ABSTRACT

Background

Skin diseases in children contribute to significant morbidity and psychological distress. Infective dermatoses are one of the major dermatoses in children. Low socioeconomic status, overcrowding and poor personal hygiene has been linked to skin diseases.

Objective

To find out the prevalence of infectious skin disease in children, rate of transmissible skin disease and association of sociodemographic factors and personal hygiene on infective childhood dermatoses.

Method

This was a cross-sectional study conducted in the Pediatric and Dermatology Department, Manipal Teaching Hospital, Pokhara, Nepal. A total of 226 patients were examined over a period of one year. Relation of sociodemographics, crowding and personal hygiene on skin disease were assessed.

Result

The most common category was Infections and Infestations (51.3%) followed by Dermatitis (27.9%) . Transmissible skin disease was seen in 49.6%. Low socioeconomic status and overcrowding were associated with increased risk for infective dermatoses.

Conclusion

Skin disease in children constitutes a public health problem. Improving the socioeconomic status and personal hygiene can help to reduce the incidence of skin disease in children.

KEY WORDS

Infections and infestations, personal hygiene, sociodemographics

INTRODUCTION

Skin diseases are a common cause of hospital visits world-wide, occurring in both rural and urban populations, affecting both young and old. The type of disease can, however vary according to the regions; eczemas are the commonest skin problems in developed countries while infections and infestations are common in the developing world.[1]

According to the annual report of Ministry of Health and Populations in Nepal, skin diseases are a major cause of morbidity, with ~2,700,000 and 2,680,000 outpatient visits for skin diseases in 2009 and 2010.[2,3] In Western Nepal, the prevalence of skin disease in children was found to be 13.46%.[4] Several studies conducted in India have quoted a prevalence of skin disease of 15.4%-20.2%.[5,6] Skin infections are common during school-going age due to constant exposure to subclinical infectious cases by intermingling with each other.[7] Lower socioeconomic status, overcrowding, poor personal hygiene, lack of parental education, poor awareness have all been linked to increased incidence of skin infections in children.[1]

The aim of this study was to find the commonest skin disease in children in our part of the world, rate of transmissible skin disease and its' relation to sociodemographics and personal hygiene.

METHODS

This was a descriptive, cross-sectional study conducted in the Pediatric and Dermatology Outpatient Department, Manipal Teaching Hospital, Pokhara, Nepal during January 2013 to December 2013. The study was passed through the Hospital Ethical Review Committee. Children between the ages of one month to 15 years who attended the Outpatient Department for skin problems were included in the study after taking informed consent from the attendants. Infants less than one month of age and who had skin lesions present from the time of birth were excluded. All cases were referred to Dermatology OPD and were diagnosed by a Consultant Dermatologist. History and clinical findings were noted in a pre-designed proforma.

The patients were then divided into two groups on the basis of their diagnosis.

Group I: Patients having "Infections and Infestations".

Group II: Patients with "Other dermatoses".

Sociodemographic data included age and sex, educational status and occupation of the parents, gross monthly income, family size, type of house, number of rooms, birth order, month of presentation, pets ownership, similar family history, area of residence, socioeconomic status, crowding index, bathing frequency, use of soap for bathing, towel sharing, frequency of changing underwear and nail trimming. Socioeconomic status (SES) was categorized according to Kuppuswamy's scale modified in the context of Nepal into Upper Class (I), Upper Middle Class (II), Lower Middle Class (III), Upper Lower Class (IV) and Lower Class (V).[8] Overcrowding was defined if two or more people had to share a bedroom in a ratio of 2:1 or more.[9,10]

Statistical analysis: Data were analyzed using SPSS version 19. Data were presented in frequencies and percentages. Statistical methods used were Chi-square test, Kendall Tau and Pearson's co-relation co-efficient, where required. A p-value of <0.05 was considered as significant.

RESULTS

There were a total of 226 patients who visited the Pediatric and Dermatology Outpatient Department during the period of study. The most common age for presentation was one to five years (n= 107, 47.3%) followed by more than five years of age (n=88, 38.9%). The mean age was 62.1 months (range 1.5-180 months). Male: female ratio was 1.53:1. Fig. 1 shows the age and sex distribution of skin disease in children.

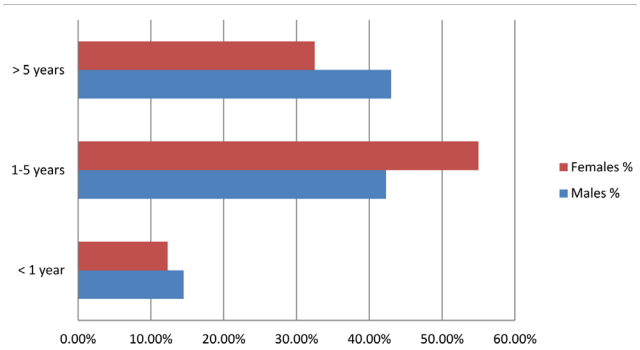

Figure 1. Age and sex distribution of patients with skin disease

Similar kind of skin disease in the past was found in 25.2% of the children and 21.2% had received medical treatment for the condition. Most number of visits were during January (n=41, 18.1%) and July (n=39, 17.3%).The commonest disease in January was contact dermatitis (n=5/41, 12.1%) and in July was impetigo (n=7/39, 17.9%). Among the 226 patients, 60.6% were first-born children; the risk for skin disease showed a progressive decline with increased order of birth (Table 1).

Infections and infestations were the most common diagnosis (n=116; 51.3%) followed by dermatitis (n=63, 27.9%). In children less than one year of age, the most common diagnoses were contact dermatitis (n=4; 12.9%), seborrheic dermatitis (n=4; 12.9%) and miliria rubra (n=4; 12.9%) followed by impetigo (n=3; 9.7%) and tinea capitis (n=3; 9.7%). In children 1-5 years of age, commonest diagnosis was contact dermatitis (n=16; 15%) followed by scabies (n=13; 12.1%) and impetigo (n=13; 12.1%). Above 5 years of age, the commonest diagnosis was impetigo (n=9; 10.2%) followed by tinea capitis (n=6; 6.8%) , P. versicolor (n=6; 6.8%) and wart (n=6; 6.8%). The commonest

Table 1. Sociodemographics and hygiene profile of children with skin disease

Characteristics	N	Group I N (%)	Group II N (%)	p-value
Birth Order				
1st	136	72 (52.9)	64 (47)	
2nd	75	36 (48)	39 (52)	0.779
Subsequent	15	8 (53.3)	7 (46.6)	
Father's educational status				
< Class VI	30	18 (60)	12 (40)	0.307
>Class VI	196	98 (50)	98 (50)	
Mother's educational status				
< Class VI	46	28 (60)	18 (40)	0.147
>Class VI	180	88 (49)	92 (51)	
Father's occupation				
Business	50	23 (46)	27 (54)	
Service	42	21 (50)	21 (50)	
Working abroad	60	28 (46.7)	32 (53.3)	
Farming/ Labour	34	21 (61.7)	13 (38.2)	0.326
Others	29	15 (51.8)	14 (48.2)	
Student	1	0	1 (100)	
Unemployed	10	8 (80)	2 (20)	
Mother's occupation				
Housewife	169	95 (56.2)	74 (43.7)	
Working outside the house	53	19 (36)	34 (64)	**0.035**
Student	4	2 (50)	2 (50)	
Monthly income				
Refused to say	6	5 (83.3)	1 (16.6)	
< 10,000	35	22 (62.8)	13 (37.1)	
10,000-30,000	114	53 (46.4)	61 (53.5)	0.151
30,000-60,000	64	31 (48.4)	33 (51.5)	
>60,000	7	5 (71.4)	2 (28.5)	
Type of house				
Kutcha	42	22 (52.3)	20 (47.6)	0.88
Pucca	184	94 (51.1)	90 (48.9)	
Overcrowding				
Yes	45	27 (60)	18 (40)	**0.030**
No	181	89 (49.1)	92 (50.8)	
Residence				
Urban	136	72 (52.9)	64 (47.1)	0.55
Rural	90	44 (48.8)	46 (51.1)	
Family size				
≤ 5 members	181	99 (54.6)	82 (45.3)	**0.020**
>5 members	45	17 (37.7)	28 (62.2)	
Socioeconomic status				
Upper class (I)	6	3 (50)	3 (50)	
Upper middle class (II)	72	31 (43)	41 (56.9)	
Lower middle class (III)	96	49 (51)	47 (49)	**0.030**
Upper lower class (IV)	44	27 (61.3)	17 (38.6)	
Lower class (V)	8	6 (75)	2 (25)	
Frequency of bathing				
Everyday	6	2 (33.3)	4 (66.6)	
>Once per week	92	46 (50)	46 (50)	
Once per week	112	63 (56.2)	49 (43.7)	0.211
Less frequently	16	5 (31.2)	11 (68.7)	
Frequency of changing underwear				
Daily	53	25 (47.1)	28 (52.8)	
>Once per week	91	47 (51.6)	44 (48.3)	0.906
Once a week	80	43 (53.7)	37 (46.2)	
Less frequently	2	1 (50)	1 (50)	
Use of soap for bathing				
Yes	222	114 (51.3)	108 (48.6)	0.957
No	4	2 (50)	2 (50)	
Towel sharing				
Yes	171	87 (50.8)	84 (49.2)	0.811
No	55	29 (52.7)	26 (47.2)	
Nail trimming				
>Once per week	185	91 (49.1)	94 (50.8)	
Once a week	18	10 (55.5)	8 (44.4)	0.326
Less frequently	23	15 (12.9)	8 (7.2)	

Table 2. Showing distribution of skin diseases encountered:

Infections & Infestations	N (%)	Other dermatoses	N (%)	
a. Bacterial infections		**Dermatitis**		
Impetigo	25(11)	Contact dermatitis	25 (11)	
Folliculitis	1(0.4)	Seborrheic dermatitis	8 (3.5)	
Cellulitis	2(0.8)	Seborrheic capitis	7 (3.0)	
Kerion	2(0.8)	Atopic dermatitis	5 (2.2)	
Echthyma	1(0.4)	PMLE	3 (1.3)	
		Chilblains	3 (1.3)	
		Pompholyx	3 (1.3)	
		Others	9 (3.9)	
b. Viral infections		**Hypersensitivity skin reactions**		
Varicella	7(3.0)			
Molluscum contagiosum	7(3.0)	Acute urticaria	8 (3.5)	
Wart	8(3.5)	Insect bite reaction	5 (2.2)	
Hand-Foot-Mouth disease	1(0.4)	Drug rash	2 (0.8)	
Gianotti-Crosti syndrome	2(0.8)	Papular urticaria	1 (0.4)	
Viral exanthema (other)	3(1.3)	Others	2 (0.8)	
c. Fungal infections		**Dermatoses due to physical factors**		
T. capitis	14(6.1)			
T. corporis	6(2.6)	Miliaria rubra	7 (3.0)	3
T. unguim	2(0.8)	Milia	1 (0.4)	0.4
T. cruris	1(0.4)	Others	1 (0.4)	0.4
P. versicolor	7(3.0)			
Canidiasis	5(2.2)			
d. Parasitic infestations		**Non-infective & Autoimmune dermatoses**		
Scabies	22(9.6)			
		Vitiligo	3 (1.3)	1.3
		Alopecia areata	1 (0.4)	0.4
		Genodermatoses		
		Ichthyosis	1(0..4)	
		Epidermal naevus	1 (0.4)	
		Melanocytic naevus	1 (0.4)	
		Papulosquamous disease		
		Psoriasis	1 (0.4)	
		Lichen planus	1 (0.4)	
		Pityriasis rubra pilaris	1 (0.4)	
		Miscellaneous		
		Generalised pruritus	4 (1.7)	
		Acne	1 (0.4)	
		Others	5 (2.2)	

diagnosis in Group I was impetigo (n=25; 11%) followed by scabies (n= 22; 9.6%) while in Group II contact dermatitis (n=25;11%) followed by seborrheic dermatitis (n=8; 3.5%) (Table 2).Transmissible skin disease was seen in (n=112) 49.6 % cases with most cases (n=55, 49.1%) occurring in the 1-5 years age group.

Relation of sociodemographics on infections and infestations:

In mothers who had lower education (< Class 6), 60.9 % of the children had infections and infestations while 39.1 % had other dermatoses (p=0.147). Similarly, in fathers who had lesser education, infections and infestations occurred in 60 % as compared to 40% of other dermatoses (p=0.307). However, this finding was not statistically significant. Infections and infestations were seen to occur more in mothers who were housewives rather than in working mothers (p=0.035). The relation of father's occupation

to infectious skin disease in children was not statistically significant. In children who lived in overcrowded homes, infections and infestations (n=27, 60 %) were more common than other dermatoses (n=18, 40%); (p=0.030). Children whose homes were not overcrowded had other dermatoses (n=92, 50.8%), which occurred slightly more frequently than infectious disease. Infections and infestations were positively co-related to family size, with increased risk of infections with increase in household population (p=0.02).

In contrast, infections and infestations were inversely correlated with increasing SES (p=0.03) showing that with decrease in SES there was increased chances for infections and infestations. Similarly, the risk for infections and infestations correlated inversely with the number of rooms shared by the household members (p=0.026) with increased risk for infections and infestations seen in households having lesser number of rooms.

Relation of Personal hygiene on infectious dermatoses:

Infections and infestations occurred in 52.8% children who took a bath at least once a week as compared to 31.2% of children who had bath less frequently. Among the children who shared a common towel with other family members, 50.8% had infections and infestations. Out of 222 children who used soap for bathing, 51.3% of them had infections and infestations while the rest had non-infective dermatoses. However, in children who trimmed their nails once a week, infections and infestations were less common (49%) than non-infective dermatoses while in children who trimmed their nails less frequently, infections were seen in 65% cases as compared to non-infective cases. All these findings were found to be of no significance statistically.

DISCUSSION

Skin diseases are a common cause for hospital visits in childhood. Different skin diseases affect children, but the presentation depends on several factors like age, sex, sociodemographic factors, overcrowding, personal hygiene, etc.[11-12] There have been few studies which demonstrate the influence of sociodemographic factors and personal hygiene on skin disease in Nepal.[13-15]

The commonest age for presentation was between 1-5 years. Similar finding was found in others studies.[6,16] At this age, children are intermingling with their infectious contacts and are constantly exposed to new infections in their neighbourhood due to their lack of awareness. The next common age group was after five years. These children are exposed to a wider variety of infectious etiologies as they are entering into schools at about this time. Infants were seen to be least affected, most probably because they are confined to their homes and are less in contact with infections in the community. Several studies have found infections and infestations to be more common in children coming from rural areas.[6,13,17] However, in our study it occurred more in the urban population (n=136, 60.2%) whereas in the rural population it was seen to be less (n=90, 39.8%). The reason could be that our hospital being a non-governmental institute is favored more by the urban population, while the rural population still prefers the regional hospital. The most common diagnosis was infections and infestations (n=116, 51.3%) followed by dermatitis (n=63, 27.8%); which was also found in other studies.[6,16,18] Impetigo (n=25, 11%) was found to be the commonest among the infectious cause as in other studies.[6,11,13,16,18-19] Memon et al found scabies to be the commonest amongst the infectious disease (45.5%).[17] However in our study scabies was seen in (n=22) 9.6% cases only. Negi et al has found Pediculosis capitis as the commonest infection in their study.[20] However we did not find any case of pediculosis. This could indicate the improved hair hygiene in children in our region. Among the non-infective dermatoses, the commonest was contact dermatitis (n=25, 11%). This constitutes (25/63) 39.6% of the dermatitis group. In our study, there were only five cases (7.9%) of atopic dermatitis. Balai et al has found atopic dermatitis to be commonest among the dermatitis (55.31%).[18] Several studies have shown increased prevalence of skin infections and infestations associated with lower parental education and occupation.[12,21] In our study, 20.4% of mothers and 13.3% of fathers had lower educational achievement (<Class VI). Among these groups of parents, 60% of the children had infections and infestations while 40% had non-infective dermatoses. While in the group where the parental education was higher (>Class VI), non-infective dermatoses occurred slightly more (51.1%) as compared to infections and infestations (48.9%). Although this finding was not found to be statistically significant, it still shows a greater predisposition of infections and infestations in children whose parents have lower educational background. There was a positive correlation between infective dermatoses and maternal occupation, with infective dermatoses occurring more in children whose mothers were housewives. This could be because the literacy rate of housewives mothers are lower than the working mothers so they have less knowledge of hygienic practices, also mothers working outside the house bring in an additional source of income which helps in uplifting the economic status of the family thereby improving the socioeconomic state. There was an inverse relation of SES on infective dermatoses, with increase in SES associated with less chance of infective dermatoses. Similar finding has been quoted in other studies.[12,17,21] Infections and infestations were seen to occur more where the number of rooms in the house were less, indicating overcrowding. Family size correlated positively with infections and infestations, showing that risk for infections and infestations increases with increase in the household population, which also correlates with overcrowding.[12,16,17]

Among the hygiene practices, sharing a common towel has been associated as a risk factor for infective dermatoses.[22] However, our study failed to prove the same. Similarly, the

frequency of bathing, changing underwear, nail trimming and use of soap for bathing did not show a significant association with infections and infestations in children.

CONCLUSION

Skin infections and infestations are a major source of morbidity in children. Socioeconomic status, parental education and maternal occupation play a significant role in childhood skin disease. Education and empowerment of women can be a strong forward step to reduce infectious skin disease in children which will reduce the public health burden of the country.

ACKNOWLEDGEMENT

We would like to thank Dr. Kalpana K. Malla for her guidance in writing this article.

Strength of the study

This is one of the few studies in Nepal which has tried to identify the association of SES and personal hygiene on childhood skin disease.

Limitations of the study:

Nepal is a predominantly rural country. According to data from Nepal Population Report 2011, urban population comprises only 13.9% of the population.[23] It is difficult to comment on the true prevalence of skin disease in children in our country, as this was a hospital based study and the subset of patients were mostly from urban community. This study was not able to identify the extent of problem in the rural population. In order to identify the prevalence of skin disease in children, a larger, community based study should be conducted.

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