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ORIGINAL ARTICLE

A STUDY OF DERMATOLOGICAL DISORDERS IN RELATION TO PERSONAL HYGIENE AND NUTRITIONAL INDICATORS AMONG GOVT. HIGH SCHOOL CHILDREN OF AGE GROUP 11-16 YRS

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ABSTRACT: **BACKGROUND:** Skin disorders affect 20-30% of the general population at any one time. Personal hygiene, nutrition and Socio demographic factors play pivotal roles in determining the pattern of skin disease. Very few studies provide information on the prevalence and determinants of skin disease among children of school going age group in India There are hardly any studies focusing on children of Hyderabad. Hence, the following study was carried out to determine the prevalence of dermatological disorders among school children of age group 11-16 yrs**. AIMS AND OBJECTIVES:** To assess the prevalence of dermatological disorders among Govt. high school children in relation with personal hygiene, nutritional status and socio demographic indicators. **MATERIALS AND METHODS:** A cross-sectional study was conducted and the study subjects included students of Govt. high school located at Musheerabad, belonging to class VI to IX. A total of 100 students have been studied and the study period was from 19th Nov to 25th Nov 2011.the sample size was calculated from prevalence shown in various studies (50% skin disorders), with an allowable error of 20% of P. Data collection included personal hygiene questionnaire, clinical examination, magnifying lens, measuring tape and a weighing machine. Prevalence of common skin diseases was calculated and statistical analysis was done. **RESULTS:** The proportion of skin disorders is seen to be 77% of the total study. The proportion of skin disorders is higher in females ($p<0.05$), mid adolescent age ($p<0.05$), fathers being heavy workers and working mothers, hostel residence ($p<0.05$) and infrequent head bath. The proportion of skin disorders is not seen to be influenced by BMI-for-age and bathing frequency. Common dermatological disorders elicited were Pytiriasis simplex capillitii (27%), Acne vulgaris (22%), Pediculosis capitis (18%), Pytiriasis alba (14%) and Scabies (11%). **CONCLUSION**: Skin disease constitutes a public health problem in this population and is not given due attention. Thus appropriate interventions are needed.

KEYWORDS: School children, dermatological disorders, personal hygiene and nutrition.

INTRODUCTION: Skin disorders affect 20-30% of the general population at any one time. The overall prevalence of skin disease was 70.5% in 5-11 yrs old children. Socio demographic factors, personal hygiene and nutritional status play pivotal roles in determining the pattern of skin disease. [1]

Information gathered from school children can provide insight into the community prevalence in this age group.

School surveys are useful indicators of prevalence of various skin diseases and status of health and hygiene of the society. All the children have atleast one or more skin disease.[2]

Skin of a child is more susceptible for skin diseases; dermatoses being one of the major causes of morbidities. It has been neglected by both by the community and health personnels in India.[3]

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A survey of school children for skin diseases provides information regarding the epidemiology of diseases like pyodermas, leprosy, infestations and acne vulgaris that are particularly common in that age group. It also results in the early detection of diseases like leprosy.[4]

The prevalence of skin disease of public health importance, scabies has been estimated as 11.4% in a study conducted in Chandigarh.[5]

Indian school health programs focuses on determinants of health like sanitation, hygiene, nutrition, safe drinking water, gender and social concern. The School Health Programme intends to cover 12,88,750 Government and private aided schools covering around 22 Crore students all over India; yet the health of school children is still lagging behind. [6]

AIMS AND OBJECTIVES:

1. To find out the prevalence of dermatological disorders among the high school children.
2. To enumerate the socio-demographic determinants of dermatological disorders.
3. To elicit the relationship of personal hygiene and nutritional status with dermatological disorders.

MATERIALS AND METHODS: A health check-up program for govt. high school children studying in class VI to IX was organized by the researcher over a period of 1 week (19th to 25th Nov 2013) after taking permission from principal at the Musheerabad Govt. School. Health checkup was conducted in the free periods without disturbing the regular classes. The school is a co-education school with English, Telugu and Urdu media, where children from neighboring slum and urban-slum locality study including children from SC and BC hostel near-by. Because of the board exams, students of class X were excluded. The age of study participants ranged from 11-16 yrs. A total of 124 students were enrolled from 4 sections (2 English medium and 2 Urdu medium), of which there were 24 absentees. Thus, a total of 100 students participated in the study.

The tools included a pre-designed questionnaire, weighing machine, measuring tape, magnifying lens. General physical examination of the students was conducted. The children were also interviewed about personal hygiene practices like regular brushing and bathing, regular head bath, hand washing before eating and after using toilet, bowel movements, physical exercise. The nutritional status of the children was assessed using BMI-for-age charts designed by World Health Organization.

Studies from India reveal wide variations in prevalence of skin disease among children ranging from 38.8% to 76.65%.[1,3,6,7,8]

After reviewing the literature, prevalence(P) of skin diseases among children was taken as 55% for estimation of minimum sample size using the formula, $n= 4PQ/L^2$ (where, P=55%, Q=100-P, L (allowable error) = 20% of P). Thus, the minimum sample size estimated was 82.[9]

Any dermatological morbidity (skin, hair and nails) suffered by the students at the time of study was recorded. The data thus collected was subjected to statistical analysis using proportions and chi-square test with the help of MS Excel 2007 and EpiInfo version 3.2.

RESULTS AND DISCUSSION: Out of 100 students, 77 students are suffering from at least one dermatological disorder. Therefore, the overall prevalence of skin disease is 77% which is almost similar to the studies conducted by Dr. Libu GK in Kerala (70.5%) and S. Gatha Rao and et al study (76.65%).[1]

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The study included 13 boys and 87 girls, majority of the participants were aged between 14-16 yrs.

The common skin morbidities among the children in the present study were Pytiriasis simplex capilliti (27%), acne vulgaris (22%), Pediculosis capitis (18%), Pytiriasis alba (14%), scabies (11%), mosquito bite allergy (3%), phrynoderma (1%), Tinea versicolor (1%).

However, the prevalence of P. simplex in the present study(27%) was comparable to the study (33.3%) conducted by NL Sharma and etal in Himachal Pradesh; while the prevalence of P. capitis in the present study was much lower (18%) when compared to 74% in Himachal Pradesh study and 52.6% in Kerala study.[1,2]

The prevalence of scabies in the present study was 11% which is coinciding with the study conducted by Dogra. S and et al in Chandigarh (11.4%).[5]

P. alba was elicited in 14% of the children in the present study as compared to 12% in Varanasi study (Valia RA and etal), 11.9% in Kerala study. [1]

(Table 1) AGE: Among the total no. of students suffering from dermatological disorder 57 students (85%) belong to 14-16 yrs age group while 20 students (60.6%) belong to 11-13 yrs age group. A higher proportion of dermatological disorders were observed in mid adolescent age group and this difference is statistically significant. (Chi-square= 7.47, $p<0.05$). This difference may be attributed to the fact that they get exposed to newer risk factors as they grow older; elder children become more independent and parental care also decreases, hence hygienic practices by the child may be insufficient especially in girls with long hair and the boys become more negligent in maintaining their personal hygiene. [1]

Age Group	DD+ *	DD- #	Total
11-13 Yrs	20(60.6%)	13(39.4%)	33
14-16 Yrs	57(85%)	10(15%)	67
Total	77	23	100

TABLE 1

Chi-square=7.47, P = 0.006 (<0.05), significant

*Dermatological disorder Present

#Dermatological disorder Absent

GENDER (Table 2): Among the total males (13), 7(53.9%) were suffering from dermatological disorder. Among the total females (87), 70(80.5%) were suffering from dermatological disorder. This was comparable with Kerala study conducted by Dr. Libu and et al (78.9% in girls and 65.9% in boys).[1] A higher female proportion is suffering from skin disease when compared to males. This difference is statistically significant (Chi-square=4.52, $p<0.05$)). This may be due to difficulty in managing their long hair and adolescent age group leading to higher prevalence of P. simplex and Acne vulgaris respectively.

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Sex	DD+	DD-	Total
Males	7(53.9%)	6(46.1%)	13
Females	70(80.5%)	17(19.5%)	87
Total	**77**	**23**	**100**

TABLE 2

Chi-square=4.52, P = 0.033 (<0.05), significant

HOSTEL RESIDENCE (Table 3): out of 44 students residing in hostel, 39(88.6%) were suffering from dermatological disorder; while out of 56 non-hostlers 38(67.9%) had dermatological disorders. A higher proportion of students with dermatological disorders were hostlers which is statistically significant (chi-square=6.01, p<0.05). As most of the hostlers were taking bath irregularly and due to overcrowding, scabies and Pediculosis capitis were more common among them.

Residence	DD+	DD-	Total
Hostlers	39(88.6%)	5(11.4%)	44
Non-hostlers	38(67.9%)	18(32.1%)	56
Total	**77**	**23**	**100**

TABLE 3

Chi-square=6.01, P=0.014(<0.05), significant.

OCCUPATION (Table 4): Among the total no. of students suffering from dermatological disorders (77 students), 12(66.7%) students had fathers who are sedentary workers and 65 (79.3%) students had fathers who are heavy workers. A higher proportion of students whose fathers are heavy workers are suffering from dermatological disorder when compared to other group.

Similarly, among total no. of students who have working mothers (59), 49 (83.1%) are suffering from dermatological disorders. Among the students whose mothers are housewives (41), 28 (68.3%) have dermatological disorders. A higher proportion of students with dermatological disorders belonged to mothers who are working.

The above findings were falling short of any statistical significance.

Occupation	DD+	DD-	Total	Chi-square	P value	Significance
Father's Occupation				1.323	0.249	Not significant
Sedentary workers	12 (66.7%)	6 (33.3%)	18			
Heavy workers	65 (79.3%)	17 (20.7%)	82			
Mother's occupation				2.975	0.084	Not significant
Working	49(83.1%)	10(16.9%)	59			
Housewife	28(68.3%)	13(31.7%)	41			

TABLE 4

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BMI-FOR-AGE (Table 5): The total no. of students with dermatological disorders who were underweight were 5 (62.5%), whose proportion was almost similar to normal/overweight students i.e. 72 (78.3%). Yet no statistically significant association was found.

BMI-for-Age	DD+	DD-	Total
Normal & Overweight	72(78.3%)	20(21.7%)	92
Underweight	5(62.5%)	3(37.5%)	8
Total	77	23	100

TABLE 5

Chi-square= 1.032, P=0.309(>0.05), not significant

PERSONAL HYGEINE (Table 6): Almost all the students (90/100) were using soap for washing hands before eating and after using toilet. Among the total no. of students with dermatological disorders, the proportion of children who were washing hands with soap and without soap was almost similar.

Out of 45 students who were regularly bathing and out of 55 students who were irregularly bathing, the no. of students with dermatological disorders were 37 (82.2%) and 40 (72.7%) respectively which was almost similar.

Out of 37 students who were taking head bath >/= 3 times/week, 25 (67.6%) had dermatological disorders while out of 63 students who were taking head bath <3 times/week, 52 (82.5%) were suffering from dermatological disorders. A higher proportion of children who were taking infrequent head bath were suffering from dermatological disorder.

All the above three findings were falling short of statistical significance.

PERSONAL HYGEINE	DD+	DD-	Total	Chi-square	P value	Significance
Hand wash				0.056	0.812	Not significant
With soap	69(76.7%)	21(23.3%)	90			
Without soap	8(80%)	2(20%)	10			
Bathing				1.259	0.261	Not significant
Regular	37(82.2%)	8(17.8%)	45			
Irregular	40(72.7%)	15(27.3%)	55			
Head Bath				2.950	0.085	Not significant
>or =3 times in a week	25(67.6%)	12(32.4%)	37			
<3 times in a week	52(82.5%)	11(17.5%)	63			

TABLE 6

CONCLUSION: Prevalence of dermatological disorders is considerably high among high school children. Most common skin morbidities elicited were Pytiriasis simplex, Acne, Pediculosis capitis, P. alba and scabies. The significant socio-demographic determinants of dermatological disorders in high school children were mid-adolescent age group (14-16 yrs), female gender and hostel residence. Majority of the children with dermatological disorders belong to working mothers, may be due to

lack of monitoring regarding personal hygiene practices. Nutritional status of the children does not have any relation with skin morbidities in this age group. Children who have infrequent head bath and those who were not using soap for hand wash had more dermatological disorders when compared to others.

RECOMMENDATIONS: School Health Programme should focus on screening for dermatological disorders with special focus on mid-adolescents as this age group is important for cultivating good personal hygiene practices. Hostlers should be encouraged to take bath regularly and improve their health seeking behavior. Working mothers have to put extra efforts in teaching their children about hygienic practices due to lack of time when compared to housewives. Finally, regular school health check-ups combined with health education and proper treatment facilities will improve the health status of this most vulnerable yet vital segment of our population.

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