Prevalence of Skin Diseases among Primary School Children in Erbil City

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ABSTRACT

Background and Objectives: : Skin diseases constitute serious public health problems throught the world, especially in children. The aim of the study was to determine the prevalence of skin diseases in primary school children in Erbil city, and its relation to various socio-demographic factors.

Methods: A total of 6915 pupils aged 6-15 years were randomly selected from 32 primary schools using multistage random sampling technique. Data regarding general socio-demographic variables were collected from each student in a specially designed questionnaire. Children were clinically examined and the dermatological findings were recorded.

Results: The overall prevalence of skin diseases was 40.6%, Infectious dermatoses have the highest prevalence rate (15.27%), followed by eczematous skin diseases (13.13%). The overall prevalence of skin diseases and infectious dermatoses were significantly higher among females, younger age groups and those of low socio-economic status, while eczematous skin diseases were significantly higher among males.

Conclusions: Skin conditions are common among school children, which may reflect prevailing low socio-economic conditions. Relevant health education programs and preventive measures should be implemented.

Key words: Prevalence, Skin diseases, Primary school children, Erbil.

INTRODUCTION:

Diseases of the skin constitute a serious public health problem throughout the world. Its range is wide, involving inflammatory, infectious processes, and neoplastic disorders. The incidence and prevalence of these conditions are constantly changing, reflecting many variables, thus, understanding the epidemiology of these disorders is essential for prevention and implementation of various effective health care strategies that benefit all[1]. Prevalence surveys had shown that skin disorders may affect 20-30% of the general population at any one time[2].The prevalence of skin diseases in any community depends upon various factors, namely the genetic and racial constitution, the social and hygienic standards, customs and occupations, the nutritional status and age structure of the community, climatic factors, state of industrialization, etc. In addition, the diagnostic competence of doctors, special interest and expert of dermatologists, the availability of expert diagnostic facilities and new methods of therapy contribute to the higher incidence of certain skin diseases in a particular country or community [3]. In Ebil city, there is no published study about the prevalence of the skin diseases and little official data in this field are available which are necessary for future planning of better health services. This study was conducted to find out the prevalence of skin diseases among primary school children in Erbil city,

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And their relation to various socio-demographic and epidemiologic variables.

SUBJECTS AND METHODS:

Erbil city is the capital of Iraqi Kurdistan region with a population of 980,313 [4]. This is a cross-sectional study conducted from the 20th of September 2004 to the 30th of April 2005. According to the regional Ministry of Education there were 149 primary schools with 106218 pupils comprising 56644 males, and 49574 females during the academic year 2004-2005. A multi-stage cluster sampling technique was used to select 6915 children from 32 primary schools in Erbil city. In the first sampling stage Erbil city was divided into 4 quadrants. Using the appropriate allocation method of sampling; eight schools were randomly selected from each quadrant. In the second sampling stage one class was selected from each grade, where all pupils of the class were included. Sample size was determined using a confidence level of 95% with 5% degree of precision of the expected proportion and an estimated prevalence of 20%. A closed-end questionnaire was used for collection of data from each selected pupil. The data collected included socio-demographic information such as age, sex, residency area, number of household members, number of rooms and occupation and education level of parents. The data were collected by direct interview of the pupil or his parents, some of the data were obtained from the official school documents. Socio-economic status of the family was determined according to the occupation and educational level of parents, residential area, crowding index and family income. They were classified into three levels low, intermediate and high. The pupils were clinically examined and dermatological findings were recorded. All male pupils were asked to expose their covered parts of the body with the exception of the genital area, while female pupils having skin complaint were asked to expose their covered parts of the body with exception of the genital area and breasts. If the diagnosis was doubtful or required a laboratory confirmation the pupil was referred to the department of dermatology at Rizgary Teaching Hospital. The diseases were classified into 8 categories according to classifications adopted by other researchers [5, 6]. Infectious dermatoses included parasitic (pediculosis capitis and scabies), viral (herpes simplex, verrucae and chicken pox), fungal (tinea versicolor, tinea corporis, tinea capitis and tinea pedis) and bacterial diseases (impetigo), while eczematous diseases included pityriasis alba, atopic eczema and keratosis pilaris. Skin tumours included melanocytic nevi and vascular nevi). Pilosebaceous disease included acne vulgaris. Urticarial disorders included urticaria, popular urticaria and chilblain. Papulosquamous disorders included psoriasis. Pigmentary disorders included vitiligo and freckles, while hair disorders included alopecia areata only. Statistical Package for Social Science (SPSS) version 11.5 software was used for data entry and analysis, aided by Excel and Access programs for calculations and tabulations. Chi-square (x^2) was used for statistical analysis. P-value equal to or less than 0.05 was considered statistically significant.

RESULT:

The age range of selected pupils was 6-15 years (mean ± SD = 8.2 ± 3.27) with male to female ratio of 1.02:1. A total of 2806 cases were detected among the 6915 school children giving an overall prevalence of 40.6%. Infectious dermatoses and eczematous diseases have the highest prevalence rates (15.27% and 13.13%, respectively) and the overall prevalence of non-infectious dermatoses was25.3% as shown in (Table 1). The overall prevalence of skin diseases was significantly higher among younger than older age groups (P <0.001). A significantly higher prevalence of infective dermatoses

(P=0.01), parasitic diseases (P<0.001), eczematous diseases (P<0.001), urticarial disorders (P<0.001) and pigmentary disorders (P<0.001) among younger than older age groups was demonstrated, while a significantly lower prevalence of viral diseases (P<0.001) and pilosebaceous diseases (P<0.001), among younger than older age groups was demonstrated. Papulosquamous diseases show significant variation between age groups (P <0.01). Other disease categories and diseases have no significant variations. The overall prevalence of skin diseases was significantly higher (P<0.001) among females than males (42.83% and 38.37% respectively). Infectious dermatoses and parasitic diseases were significantly higher among females than males (P <0.001), while viral diseases, fungal diseases, eczematous diseases and papulosquamous diseases weresignificantly higher among males than females (p <0.05, <0.01, <0.001 and <0.05 respectively). Other skin diseases and disease categories showed no significant sex variation. These findings are shown in (Table 2).

Table (3) shows that the overall prevalence of skin diseases was significantly higher among low socio-economic groups than other socio-economic groups (P <0.001). A significantly higher prevalence of Infectious dermatoses (P<0.001), parasitic diseases (P<0.001), viral diseases (P<0.001), eczematous diseases (P<0.001) and urticarial disorders (P<0.05) were detected among lower socio-economic group than other socio economic groups, while the fungal diseases and pilosebaceous diseases showed significant variation (P <0.05 and <0.001 respectively) among the three socio-economic groups. Other diseases showed no significant variations.

Table 1: Age specific prevalence rate (%) of the skin diseases

Disease category	Age groups (years)								
	6-8 years		9-11 years		12-15 years		Total		P value
	No.	%	No	%	No	%	No.	%	
Infectious dermatoses	527	16.56	427	14.73	102	12.20	1056	15.27	<0.001
Parasitic	377	11.84	246	8.49	25	2.99	648	9.34	< 0.001
Viral	123	3.86	160	5.52	68	8.13	351	5.08	< 0.001
Fungal	11	0.34	15	0.51	7	0.83	33	0.52	0.173
Bacterial	16	0.5	6	0.27	2	0.23	24	0.29	0.127
Eczematous diseaseses	517	16.24	377	13.01	14	1.67	908	13.13	< 0.001
Skin tumours	181	5.68	190	6.55	65	7.77	436	6.67	< 0.001
Pilosebaceous diseases	0	0.00	62	2.14	94	11.24	156	2.30	< 0.001
Urticarial disorders	93	2.92	51	1.75	7	0.83	151	2.25	< 0.001
Papulo-squamous diseases	22	0.69	14	0.48	12	1.43	48	0.70	< 0.01
Pigmentary disorders	26	0.81	10	0.34	1	0.12	37	0.51	< 0.001
Hair disorders	5	0.15	7	0.24	2	0.24	14	0.30	0.7412
Total diseases	1371	43.9	1138	39.8	297	35.9	2806	40.6	< 0.001
Total sample	3182		2897		836		6915		

Table 2: Prevalence rate (%) of the skin diseases by sex.

Disease category	Male		Female		Total		P value
	No.	%	No.	%	No.	%	
Infectious dermatoses	372	10.62	684	20.02	1056	15.27	<0.001
Parasitic	130	3.71	518	15.16	648	9.4	< 0.001
Viral	201	5.74	150	4.39	351	5.1	< 0.05
Fungal	25	0.71	8	0.23	33	0.5	< 0.01
Bacterial	16	0.45	8	0.23	24	0.3	0.1151
Eczematous dis.	535	15.28	373	10.92	908	13.1	< 0.001
Skin tumours	226	6.45	210	6.14	436	6.3	0.5898
Pilosebaceous dis.	75	2.14	81	2.37	156	2.3	0.5213
Urticarial disorders	80	2.28	71	2.07	151	2.2	0.5566
Papulo-squamous dis,	32	0.91	16	0.46	48	0.7	< 0.05
Pigmentary disorders	18	0.51	19	0.55	37	0.5	0.810
Hair disorders	5	0.14	9	0.26	14	0.2	0.264
Total diseases	1343	38.37	1463	42.83	2806	40.6	< 0.001
Total sample	3500		3415		6915		

Table 3: Prevalence rate (%) of skin diseases by socio-economic status

Disease category	Socio-demographic groups						Total		P value
	Low		Intermediate		High				
	No.	%	No	%	No	%	No.	%	
Infectious dermatoses	669	26.48	231	10.38	156	7.2	1056	15.3	< 0.001
Parasitic	450	17.81	121	5.44	77	3.55	648	9.4	< 0.001
Viral	190	7.52	90	4.04	71	3.27	351	5.1	< 0.001
Fungal	15	0.59	15	0.67	3	0.13	33	0.5	< 0.05
Bacterial	14	0.55	5	0.22	5	0.23	24	0.3	0.697
Eczematous dis.	434	17.18	256	11.51	218	10.06	908	13.1	< 0.001
Skin tumours	154	6.09	130	5.84	152	7.02	436	6.3	0.239
Pailosebaceous dis.	79	3.12	33	1.48	44	2.03	156	2.3	< 0.001
Urticarial disorders	71	2.81	43	1.93	37	1.7	151	2.2	< 0.05
Papulosquamo. ls.	24	0.95	13	0.58	11	0.5	48	0.7	0.1
Pigmentary disorders	13	0.51	10	0.44	14	0.64	37	0.5	0.54
Hair disorders	4	0.15	5	0.22	5	0.23	14	0.2	0.6
Total diseases	1448	57.3	721	32.4	637	29.4	2806	40.6	< 0.001
Total sample	2526		2224		2165		6915		

DISCUSSION:

This study revealed an overall prevalence of skin diseases of 40.6%. This finding is close to that reported by other workers in Baghdad (40.9%) [7]. and higher than that reported in Basra, Iraq among primary school children (31.8%) [8]. It is twice than that reported in Jordan (19.3%) [9], much higher than that reported in Romania (22.8%) [10] and slightly higher than that reported in Malaysia (34.4%) [11], India (38.8%) [12], Hong Kong (31.3%) [13], Nigeria (35.17%) [14] and Mali (34.4%) [11]. This rate is lower than that reported in Turkey (49.3%) [15] and much lower than that reported among Ethiopian school children (96.8%) [16]. These variations in the prevalence of skin diseases may be related to genetic and racial constitution, social and hygienic elements, nutritional status, climatic factors, state of industrialization, age structure of the study sample and other socio- economic factors [6]. In this study the prevalence of infectious dermatoses was 15.3%. It is higher than that reported in Baghdad (8.8%) [7], and Basra, Iraq (12.65%) [8], but lower than that reported in Ethiopia [16] and Ghana [17].These differences could be explained also on the basis of variation in personal and environmental hygiene and exposure. The prevalence of non-infectious dermatoses was 25.3% which is lower than that reported in Saudi Arabia (82.3%) [18] and Turkey (57.55%) [15] and in Hong Kong (27%) [13].This could be due to differences in the way clinical examination was performed and the differences in genetic and racial factors. The higher prevalence of skin diseases in younger than older age groups, agrees with the finding of another study in Nigeria [19], while disagrees with absence of association with age in Iraq [8] and Romania [10]. The decrease in the prevalence of infectious dermatoses with age may be attributed to better personal hygiene and health care practiced by older school children. The finding that the prevalence of parasitic disease especially pediculosis capitis decreasing with age in our study is coincident with the results of studies done in New York, Georgia, and Florida [20] and Poland [21]. The increasing prevalence of skin tumours with age agrees with the studies in Portugal [22, 23]. The higher prevalence of acne in 12-15 years age group than the lower age groups is expected as acne is a disease of adolescents, and 90% of teenagers being affected to some degree [24], and it agrees with the studies done in UK [2] and Sweden [25]. Increasing viral infections with the age revealed by this study coincides with published studies on common warts which increases during school years and reaches a peak between the ages of 12 and 16 years [26]. The significant variation of prevalence of psoriasis with age is supported by the fact that the peak age of onset of psoriasis is between 10 and 20 years [27, 28]. This study revealed a significantly higher prevalence of skin diseases among females than males (42.83%, 38.37%). This finding is in agreement with that of other studies in Baghdad [29], and Mosul, Iraq [5], Saudi Arabia [18] and Kuwait [30]. However a higher rate was reported in males than females by other study in Iraq [31] with no significant sex variation in Romania [10]. The higher rate in females is attributed to the higher rate of pediculosis capitis which was the commonest encountered parasitic infection; in females the long hair played a major risk factor for distribution of this infestation. The higher rate of pediculosis capitis in females agrees with that revealed by other workers in Mosul [32], Chile [33], New York [34], Libya [35], India [12], Poland [21], Turkey [15], Brazil [36] and Australia [37]. However a study from Georgia, USA [38] revealed no sex variation. The finding of higher prevalence of eczematous diseases in males agrees with that reported in Mosul [5], Saudi Arabia [6], Romania [10], Berlin [39] and Brazil [36]. In this study, low socioeconomic groups had a higher prevalence of skin diseases than other groups which could be attributed to the high prevalence of infectious diseases in lower socioeconomic group as it revealed by other studies in

Basra [7], Nigeria [19], Turkey [15] and Brazil [36]. The higher rate of infectious dermatoses in this group is due to low hygiene, poverty, and over crowding. High prevalence rates were, also, reported in poor developing countries which may reflect a prevailing low socio-economic condition in such areas [16, 40-42]. The higher rate of eczematous skin diseases in low socioeconomic group agrees with the findings of other studies in Mosul [5], Saudi Arabia [6] and Turkey [15], this may be due to bad living conditions (humidity and/or mildew at home), passive tobacco smoking, presence of pets at home, neglect and lack of therapy, exposure to irritants and unnecessary soaping.

CONCLUSION:

Skin diseases were common among primary school children in Erbil city, more among younger children, females, and those of low socio-economic status which may reflect a poor level of awareness of these diseases or their health implications by the parents and teachers. Improved school health programs would lead to decline in the prevalence of such diseases among the school children. Routine inspection of pupils for skin disorders by their teachers and school health personals should be incorporated in such a program.

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