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Original Article

Pattern of Skin Diseases in Children Attending Dermatology Outpatient Department of a Tertiary Care Hospital

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ABSTRACT

Objective: To determine the pattern and frequency of skin disorders in children attending Dermatology Department of a Tertiary Care Hospital.

Study Design: Cross-sectional study.

Place and Duration of Study: Dermatology Department, Combined Military Hospital Bahawalpur, from Mar to Aug 2023.

Methodology: Three thousand eight hundred and eleven (3811) children reporting to dermatology outdoor department with skin diseases during the study period were included in this study. All cases were diagnosed by a consultant dermatologist. Data regarding patient age and sex was collected for each patient. Diseases were categorized into various groups depending on aetiology and cutaneous structure affected by the disease.

Results: The mean age of patients was 8.03+4.40 years. Most common diseases were infections (n=1607, 42.2%), followed by parasitic diseases (n=843, 22.1%), dermatitis and eczematous disorders (n=497, 13.0%) and inflammatory dermatoses (n=136(3.6%) in descending order of frequency. Together, these groups comprised 80.1% of total patients (n=3083). Infections and infestations were found in 64.3 % (n=2445).

Conclusion: Infections and infestations are the most commonly encountered disease groups. Scabies followed by pyodermas, dermatophytoses and atopic dermatitis were the four commonly encountered paediatric dermatoses in descending order of frequency, accounting for 54.3% of total number of paediatric patients.

Keywords: Dermatology Outpatient, Paediatric Dermatoses, Tertiary Care Hospital.

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INTRODUCTION

Dermatological diseases are common health problem worldwide and are the fourth leading cause of disease-related morbidity.[1] A total of 10% to 14% of all patients seen by family physicians have skin problems.[1-2] Dermatological problems of children constitute about one-third of all outpatient visits to dermatologists.[3-4] Socioeconomic factors, hygiene, dietary habits and literacy levels influence the pattern of skin diseases in children in any country.3-6 Socioeconomic factors, hygiene, dietary habits and literacy levels influence the pattern of skin diseases in children in any country.[3-6]

The prevalence of skin diseases differs from country to country.[6-8] In developing countries where there is poverty and overcrowding, malnutrition and poor sanitation play an important role in acquiring common infections and infestations. While infections and infestations are most prevalent in developing countries acne, warts and eczematous disorders are most common in Western countries.[7-8] This can be attributed to differing climatic, cultural and socio-economic factors.[5-7]

Awareness of the pattern and frequency of various diseases in a population may be used for allocation of funds and other resources for treatment and prevention of diseases.[1-2] Population based studies are the best way to establish the prevalence and pattern of diseases in a country.[6-8] In developing countries like ours, such data is often not available.[1-2] Another way to know the pattern of diseases are hospital-based studies of skin diseases.[6-8] Such studies are available from different developing countries and can be used to make a rough estimate of prevalence diseases in the population.[4] However, there is paucity of such studies in Paediatric population in Pakistan which makes the planning of health actions difficult.[9,10]

For this purpose, a study was conducted at dermatology department of a tertiary hospital. The aim of the study was to know the pattern and frequency of dermatological diseases amongst

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children of different ages reporting to the dermatology outpatient department of a tertiary care hospital.

METHODOLOGY

This was a cross sectional study carried out at the dermatology outpatient of a Tertiary Care Hospital in Bahawalpur from March 2023 to August 2023, after getting approval from Ethical Review Committee. (Reference No. 09, 28 Feb 2023).

Inclusion Criteria: All the patients up to 15 years of age reporting to the outpatient department (OPD) with skin problems, during the study period were included in the study.

Exclusion Criteria: The patients reporting for second or subsequent visit for similar problem were excluded from the study.

After taking informed consent from the parents of study participants the patients were divided into three groups according to their age. The age groups included, group-1 with age <5 year, group-2 with age 5 to 10 years and group-3 with age 10 to 15 years.

Relevant history was obtained and physical examination was performed in each case. All cases were diagnosed by a consultant dermatologist. Data recorded included age and sex of the patients along with diagnosis. Diagnosis was essentially clinical. Diseases were further classified into groups. These groups included, eczema, infections, infestations, disorders affecting the sebaceous and apocrine glands, acquired pigmentary disorders, inflammatory disorders, diseases affecting the hair, disorders affecting the sweat glands, neoplastic disorders, diseases of oral mucosa. diseases affecting the nails, blistering diseases and miscellaneous group. Because of nonavailibility of contact patch testing, eczematous disorders were not further classified.

Statistical Package for Social Sciences (SPSS) version 23.0 was used to manage the data. The frequency of each disease group as well as the frequency of individual diseases were calculated. Chi-square test was used for the comparison of qualitative findings. A p-value ≤ 0.05 was considered significant.

RESULTS

A total of 11957 new patients reported to dermatology outpatient during the study period. Out of these 3811 new patients with age up to 15 years were included in the study. The children comprised 31.87 percent of the total number of cases. Depending on the age patients were assigned into three groups (Table-I).

Table-I: Age Distribution of the Patients(n=3811)

Age Group		Gender Number and % within Age group		Number and % of Total
		Male patients	Female patients	
Group 1	Less than 5 Years age	635(49.5%)	648(50.5%)	1283(33.7%)
Group 2	5 to 10 years age	601(5296%)	535(47.1%)	1136(29.8%)
Group 3	10 to 15 Years age	728(52.3%)	664(47.7%)	1392(36.5%)
	Total	1964(51.5%)	1847(48.5%)	3811(100.0%)

Out of 3811 cases, 1964(51.5%) were males and 1847(48.5%) were females with a male-to-female ratio of 1.06:1 (Table-I). The mean age of the patients was 8.0256+4.3977 years. Infections and infestations were the two most common disease groups which affected 64.2% of patients (n=2445) (Table- II).

Bacterial infections (n=604, 37.58%) were most common infections (Table-II).

Scabies followed by pyodermas, dermatophytoses and atopic dermatitis were the four most commonly encountered paediatric dermatoses accounting 54.3% of total patients (Table-III). The two most commonly observed diseases were scabies and bacterial infections comprising 36.1% (n=1376) of cases. Scabies was the most common dermatosis (n=772, 20.3%). Twenty most commonly observed diseases formed 92.3% (n=3516) of patients. Less commonly observed diseases accounted for remaining 7.7% of the cases (Table-III).

Abbreviations used: Acrodermatitis Enteropathica (AE), Cutaneous Leishmaniasis (CL), Erythema Multiforme (EM), Epidermodysplasia Verruciformis (EDV), Epidermolysis Bullosa (EB), Fixed Drug Eruption (FDE), Herpes Simplex (H Simplex), Lichen planus (LP), Melanocytic Naevi (MN), Molluscum Contagiosum (MC), Neurofibromatosis (NF 1), Pityriasis Rosea (P Rosea), Pityriasis Alba (P alba), Postinflammatory Hyperpigmentation (PIH), Recurrent Aphthous Stomatitis (RAS), Xeroderma Pigmentosum (XP),

Table-II: The Disease Groups Commonly Observed (n=3811)

Groups of diseases	Total	Gender (%age of Disease Group)		Diseases Subgroup (%age of Total in Disease group)	Gender (%age of Disease subgroup)		Total n (%age of diseases)
		Male	Female		Male	Female	
Infections	1607(42.2%)	847(52.7)	760(47.3)	Bacterial Infections (37.58%)	317(52.5%)	287(47.1%)	604(15.8%)
				Viral Infection (35.59%)	309(54.0%)	263(46.0%)	572(15.0%)
				Fungal Infections (26.82%)	221(51.3%)	210(48.7%)	431 (11.3%)
Parasitic diseases	843(22.1%)	441(52.3)	402(47.7)	Infestations (99.41%)	438(52.0%)	400(47.4%)	838(22.0%)
				Protozoal diseases (0.59%)	3(60.0%)	2(40.0%)	5 (0.1%)
Eczematous disorders	497(13.0%)	254(51.1)	243(48.9)	Eczemas	254(51.1%)	243(48.9%)	497(13.0%)
Inflammatory diseases	136(3.6%)	62(45.6)	74(54.4)	Papulosquamous Disease (94.85%)	57(91.9%)	72(97.3%	129(3.4%)
				Erythemas	5(71.4%)	2(28.57%)	7(0.2%)
Hair disorders	96(2.5%)	41(42.7)	55(57.3)	Hair disorders	41(42.7)	55(57.3)	96(2.5%)
Disorders of sweat glands	93(2.4%)	41(44.1)	52(55.9)	Disorders of sweat glands	41(44.1)	5 (55.9)	93(2.4%)
Urticaria	84(2.2%)	54(54.3%)	30(35.7%)	Urticaria	54(64.3.1%)	30(35.7%)	84(2.2%)
Insect bites	76(2.0%)	32(42.1%)	44(57.9%)	Insect bite	32(42.1%)	44(57.9%)	76(2.0%)
Acquired Pigmentary disorders	75(2.0%)	49(65.3%)	26(34.7%)	Hyperpigentations (26.66%)	6(12.2%)	14(53.8%)	20(0.5%)
				Hypopigmentations (73.33%)	43(87.8%)	12(46.2%)	55(1.4%)
Disorders of Sebaceous and apocrine glands	68(1.8%)	24(35.3%)	44(64.7%)	Sebaceous and Apocrine glands disorders	24(35.3%)	44(64.7%)	68(1.8%)
Neoplastic disorders	26(0.7%)	13(50.0%)	13(50.0%)	Benign Neoplasm	13(50.0%)	13(50.0%)	25(0.7%)
Oral diseases	18(0.5%)	12(66.7%)	6(33.3%)	Oral diseases	12(66.7%)	6(33.3%)	18(0.5%)
Blistering diseases	17(0.4%)	10(58.8%)	7(41.2%)	EB	9(0.2%)	6(0.2%)	15(0.4%)
				Other blistering disorders	1(0.0%)	1(0.0%)	2(0.1%)
Drug reactions	3(0.1%)	2(66.7%)	1 (33.3%)	Drug reactions	2(66.7%)	1(33.3%)	3(0.1%)
Nail disorders	3(0.1%)	1(33.3%)	2(66.7%)	Nail disorders	1(33.3%)	2(66.7%)	3(0.1%)
Genodermatoses	88(2.3%)	46(52.3%)	42(47.7%)	Genodermatoses	46(52.3%)	42(47.7%)	88(2.3%)
Other dermatoses	169(4.4%)	81(47.9%)	88(52.1%)	Other dermatoses	80(47.6%)	88(52.4%)	168(4.4%)
Total	3811	1964(51.5%)	1847(48.5%)				

Table-III: Frequency and Gender Distribution of Encountered Diseases (n=3811)

Disease	Male	Female	Total	Sr	Disease	Male	Female	Total
Scabies	415(10.9%)	357(9.4%)	772(20.3%)	26	PIH	6(0.2%)	14(0.4%)	20(0.5%)
Pyoderma	317(8.3%)	287(7.5%)	604(15.8%)	27	Ichthyosis	12(0.3%)	5 (0.1%)	17(0.4%)
Tinea	183(4.8%)	195(5.1%)	378(9.9%)	28	Corns	12(0.3%)	6(0.2%)	18(0.5%)
Atopic Eczema	180(4.7%)	134(3.5%)	314(8.2%)	29	EB	9(0.2%)	6(0.2%)	15(0.4%)
Viral Warts	162(4.3%)	111(2.9%)	273(7.2%)	30	AE	3(0.1%)	4(0.1%)	7(0.2%)
Chicken Pox	64(1.7%)	55(1.4%)	119(3.1%)	31	RAS	6(0.2%)	6(0.2%)	12(03%)
MC	54(1.4%)	63(1.7%)	117(3.1%)	32	PPK	6(0.2%)	4(0.1%)	10 (03%)
P alba	37(1.0%)	68(1.8%)	105(2.8%)	33	Hyperhidrosis	4(0.1%)	3(0.1%)	7(0.2%)
Miliaria	37(1.0%)	49(1.3%)	86(2.3%)	34	Oral Candidiasis	6(0.2%)	1(0.0%)	7(0.2%)
Psoriasis	43(1.1%)	43(1.1%)	86(2.3%)	35	EM	5(0.1%)	2(0.1%)	7(0.2%)
Urticaria	54(1.4%)	30(0.8%)	84(2.2%)	36	Viral Exanthem	3(0.1%)	4(0.1%)	7(0.2%)
Papular Urticaria	32(0.8%)	44(1.2%)	76(2.0%)	37	CL	3(0.1%)	2(0.1%)	5(0.1%)
Alopecia areata	35(0.9%)	41(1.1%)	76(2.0%)	38	Keratosis Pilaris	2(0.1%)	2(0.1%)	4(0.1%)
Perniosis	31(0.8%)	42(1.1%)	73(1.9%)	39	Epidermal nevus	2(0.1%)	1(0.0%)	3(0.1%)
Acne	24(0.6%)	44(1.2%)	68(1.8%)	40	P Rosea	2(0.1%)	1(0.0%)	3(0.1%)
Pediculosis	23(0.6%)	43(1.1%)	66(1.7%)	41	FDE	2(0.1%)	1(0.0%)	3(0.1%)
Other Eczema	30(0.8%)	27(0.7%)	57(1.5%)	42	NF 1	2(0.1%)	1(0.0%)	3(0.1%)
Vitiligo	43(1.1%)	12(0.3%)	55 (1.4%)	43	Nail Dystrophy	1(0.0%)	2(0.1%)	3(0.1%)
Herpes Zoster	25(0.7%)	29(0.8%)	54(1.4%)	44	EDV	2(0.1%)	1(0.0%)	3(0.1%)
P Versicolor	38(1.0%)	15(0.4%)	53(1.4%)	45	Aplasia Cutis	1(0.0%)	1(0.0%)	2(0.1%)
LP	12(0.3%)	28(0.7%)	40(1.0%)	46	Keloid	0(0.0%)	2(0.1%)	2(0.1%)
Haemangiomas	9(0.2%)	22(0.6%)	31(0.8)	47	H Simplex	1(0.0%)	1(0.0%)	2(0.1%)
MN	11(0.3%)	12(0.3%)	23(0.6%)	48	XP	1(0.0%)	1(0.0%)	2(0.1%)
Seborrheic Eczema	7(0.2%)	14(0.4%)	21(0.6%)	49	Other blistering disorders	1(0.0%)	1(0.0%)	2(0.1%)
Premature canities	6(0.2%)	14(0.4%)	20(0.5%)	50	Porphyria	2(0.1%)	0	2(0.1%)
Total	1964(51.5%)	1847(48.5%)	3811					

DISCUSSION

In our study the mean age of patients was 8.03+4.40 years. Most common diseases were infections followed by parasitic diseases dermatitis, eczematous disorders and Inflammatory dermatoses in descending order of frequency. Together, these

groups comprised 80.1% of total patients (n=3083). Infections and Infestations were found in 64.3 % (n=2445). The study was conducted to explore the frequency and pattern of pediatric dermatoses in children attending dermatology outdoors of a Tertiary Hospital in the South Punjab, Pakistan. This study is in agreement with most of the local studies.[11-13] A similar pattern has previously been reported from other developing countries.[14-15] The pattern and frequency of paediatric dermatosis was different in the US and European populations.

The pattern of diseases in a population is influenced by a variety of socioeconomic factors.[16-18] Infections and infestations were the most commonly encountered diseases in our outpatient. In the developing countries like ours where poverty, malnutrition, illiteracy, overcrowding and poor sanitation are very common, infections and infestations are rampant.[18] In wealthier countries infections and infestations are very less frequently encountered.[19-20] In the United States, eczematous disorders, acne, skin and soft-tissue infections and viral warts were the most prevalent skin diseases.[6,8] Atopic dermatitis was most frequently encountered disease in the pediatric population referred to the outpatient clinics in Switzerland[7], and Greece. Other commonly encountered diseases in these countries included pigmented nevi and viral infections.[19-20] Our findings were similar to most of the studies reported from developing countries.[20-23] Dermatitis and eczematous disorders were the third commonly observed group of skin disorders in our outpatients This was in concordance with the local studies.[13-15] Studies from other developing countries reported similar findings.[21-22]

Bacterial infections ((37.58%) were the most commonly encountered infections. Viral infections (n=572, 35.59%) were second most common type of infection followed by fungal infections (n=431, 26.82%). Viral warts were the commonest viral infection followed by Chicken Pox and Molluscum Contagiosum. This is in agreement with previous local studies,[14-16] and studies from other developing countries.[22-24]

In study from Greece where infections and infestations were less frequently reported (19%), viral infections were five times more common than bacterial infection.[24] Similar findings were reported by Prindaville *et al.*,[16] and Ho *et a.*,*l*[18] from United States.

Scabies was the most common (20.3%) disease encountered in children reporting to dermatology outdoors which is in line with the previous studies as similar findings have been reported by most of the local studies.[14-16] The frequency of scabies reported in local studies ranged from 13.7% to 32.4%.[10-14] Shahzeen *et al.*,[15] reported much lower (5.8%) frequency of scabies in their patients. This may be due to small sample size. Our findings were also in concordance with those of Prajapati *et al.*,[18] from Gujarat, India and with those of Kamruzzaman *et al.*,[20] from Bangladesh. Other Indian authors have reported lower frequency of scabies in their dermatology outdoors.[19] Similarly, Kiprono *et al.*,[21] and Miotto *et al.*,[22] have reported lower frequency of 7.4% from Tanzania and 3.4% from Brazil respectively. Scabies is uncommon in the developed world and Prindaville *et al.*,[6] Wenk *et al.*,[17] have reported frequency of 1.9% from the United States, 1.6% from Switzerland and 1.3% from Greece. The high prevalence of infections and infestations in developing countries like ours is related to poverty, malnutrition, illiteracy, overcrowding and poor sanitation.[5-24]

CONCLUSION

Infections and infestations are the commonly encountered disease groups. Scabies followed by Pyodermas, Dermatophytoses and Atopic Dermatitis were the four commonly encountered paediatric dermatoses in descending order of frequency accounting for 54.3% of total number of paediatric patients. The majority of skin diseases of children are easily preventable and treatable. Educating general public regarding personal hygiene along with availability of dermatological care can help to lessen the burden of paediatric dermatoses.

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Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

AH & RBA: Data acquisition, data analysis, drafting the manuscript, critical review, approval of the final version to be published.

HN & AA: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

MMA & AAB: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity

of any part of the work are appropriately investigated and resolved.

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