

# **PREVALENCE OF DERMATOLOGICAL PROBLEMS IN PRIMARY SCHOOL CHILDREN**

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**M.D. BRANCH – VII  
PAEDIATRICS**



**GOVT. STANLEY MEDICAL COLLEGE & HOSPITAL  
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## **CERTIFICATE**

This is to certify that the dissertation titled “**PREVALENCE OF DERMATOLOGICAL PROBLEMS IN PRIMARY SCHOOL CHILDREN**” of **Dr. N. SELVARASU**. in partial fulfillment of the requirements for **M.D. Branch – VII (Paediatrics)** Examination of the Tamilnadu Dr. M.G.R. Medical University to be held in February 2006. The period of study was from August 2004 to July 2005.

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## **DECLARATION**

I, **Dr. N. SELVARASU** solemnly declare that dissertation titled, **“PREVALENCE OF DERMATOLOGICAL PROBLEMS IN PRIMARY SCHOOL CHILDREN”** is a bonafide work done by me at Institute of Social Paediatrics, Govt. Stanley Medical College & Hospital during Aug. 2004 to July 2005 under the guidance and supervision of our Director **Prof. DR. T.K. VASANTHAMALLIGA, M.D., D.C.H.**

The dissertation is submitted to Tamilnadu, Dr. M.G.R. Medical University, towards partial fulfilment of requirement for the award of **M.D. Degree (Branch – VII) in Paediatrics.**

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## CONTENTS

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<i>SL.No.</i>	<i>TITLE</i>	<i>PAGE NO.</i>
1.	INTRODUCTION	1
2.	AIM OF THE STUDY	3
3.	MATERIALS AND METHODS	4
4.	REVIEW OF LITERATURE	7
5.	OBSERVATION AND RESULTS	33
6.	DISCUSSION	47
7.	CONCLUSION	58
8.	BIBLIOGRAPHY	60
8.	PROFORMA	
9.	MASTER CHART	
10.	KEY TO THE MASTER CHART	

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## KEY TO THE MASTER CHART

Sex	:	1 Male 2 Female
AGE	:	1 6 – 8 years 2 9 – 10 years
Nutritional Status	:	1 > 80% of the expected weight 2 80-70% of the expected weight Gr. I Malnutrition IAP 3 70-60% of the expected weight Gr. II Malnutrition IAP 4 60-50% of the expected weight Gr.III Malnutrition IAP 5 < 50% of the expected weight Gr. IV Malnutrition IAP
General Examination		1 Anaemia 2 Vit. B Complex deficiency 3 Vit. A Deficiency 4 Dental caries 5 Anaemia and B complex deficiencies
Bacterial Infection		1 Folliculitis 2 Furuncle 3 Impetigo
Fungal Infection		1 Tinea Corporis 2 Tinea versicolor 3 Tinea capitis
Viral infection		1 Molluscumcontagiosum 2 Wart
Infestations		1 Scabies 2 Pediculosis capitis
Miliaria rubra		1 Yes 2 No
Secondary Pyoderma		1 Yes 2 No
Hypopigmented Lesions		1 Pityriasis alba 2 Post inflammatory hypopigmentation 3 Lichen striatus 4 Vitiligo 5 Nevus anaemicus
Cutaneous nevus		1 Yes 2 No
Insect Bite allergy		1 Yes 2 No
Photosensitivity lesion		1 Yes 2 No

Phrenoderma	1 Yes 2 No
Hair Disorders	1 Alopecia areata
	2 Sparse hair
	3 Alopecia totalis
Hyperpigmented lesions	1 Café au lait spot
	2 Post inflammatory hyperpigmentation
Dermatitis	1 Contact Dermatitis
	2 Seborrheic Dermatitis
Miscellaneous	0 Psoriasis
	1 Hansen Disease
	2 Palmoplantar keratoderma
	3 Ectodermal dysplasia
	4 Keloid formation
	5 Branding mark
	6 Corn Foot
	7 Accessory nipple
	8 Pre auricular tag
	9 Mole
	10 Hyperhidrosis palm and soles
11 Ichthyosis	



# PROFORMA

## PREVALENCE OF DERMATOLOGICAL PROBLEMS IN PRIMARY SCHOOL CHILDREN

Name : Age : Sex : Wt :  
Father's Name :  
School Name :  
Standard :

### GENERAL EXAMINATION

Hair :  
Eye :  
Ears :  
Nose :  
Oral cavity :  
Neck :  
Central Nervous System :  
Cardiovascular system :  
Respiratory System :  
Abdomen :  
Vitamin Deficiency :  
Others :

### SKIN DIAGNOSIS :

How long it is present :  
Any treatment sought by parents :  
Affected family members if any :

## INTRODUCTION

Children are the assets of our nation. They will be the future architects of our country. Hence keeping them in good health will help us to have a healthy and wealthy nation. In view of supervising their health, school health visit programme started in our country in 1909<sup>11</sup>. Ist medical examination of school children was carried out in Baroda in 1909<sup>11</sup>. Subsequently many states of our country started implementing the programme.

Children spend most of the day time in school. In this new environment they are exposed to many communicable diseases and accidents. So, school is the best place to assess and monitor their health status.

Dermatological problems mainly as primary and secondary cutaneous complaints constitute atleast 30% of all outpatient visit to a pediatrician and 30% of all visit to dermatologists involve patients of pediatric age group<sup>35</sup>.

In this setting school based skin survey will be helpful in assessing the dermatological problems of children in the society for that age group. It also helps to assess the health status and hygiene of the society. School based skin survey will not only tell the prevalence of various dermatoses in early stage but also helps in identifying external markers of some serious systemic illness. Different studies from different parts of the country had recorded the prevalence of skin diseases amongst children in school surveys mostly between 8.7 to 35%<sup>26</sup>.

Hence this study was done to know the prevalence of common dermatoses in school going children.

## **AIM OF THE STUDY**

- ❖ To study the prevalence of various dermatological conditions in primary school going children that is in the age group of 6-10 years.
- ❖ To find out the relationship of dermatological conditions with vitamin deficiencies and nourishment of child.

# **MATERIALS AND METHODS**

## **STUDY DESIGN**

- Cross sectional study

## **STUDY PLACE**

- Corporation Primary Schools located in and around North Chennai.

## **STUDY DURATION**

- Aug. 2004 – July 2005.

## **STUDY POPULATION**

- 1) All children in the age groups of 6-10 years who are attending primary schools.
- 2) Children with systemic diseases also included.

## **SAMPLE SIZE**

- 5800 Children

## **METHODOLOGY**

Corporation schools situated in and around North Chennai were identified. All the children in the age group of 6-10 years were enrolled in the study. Care is taken to include those who were absent in one visit were seen in the subsequent visit. Survey was conducted in day time in bright sun light. Thorough clinical examination was done from head to foot to find out the dermatological illness. All children with dermatological manifestations were carefully examined for presence of nutritional deficiency and system abnormalities.

All children with hypo pigmented patch were examined for loss of sensation to rule out Hansen Disease.

Weight was recorded for all children using standard weighing machine to the accuracy of 50 grams.

School children with dermatological conditions where diagnosis is difficult was subjected to dermatologist opinion. Dermatologist final opinion was taken as the final diagnosis.

All the datas collected from patients were entered carefully into the proforma by applying appropriate statistical methods.

## **STATISTICAL METHODS USED**

- Prevalence of skin disease were given in percentage with 95% confidence interval.
- Demographic variables with type of dermatoses were expressed in frequencies and percentage.
- Association between demographic variables with type of dermatoses were analysed by using Pearson's chi-squared test and odds ratio with 95% confidence interval.

## **REVIEW OF LITERATURE**

Skin is the largest and most superficial organ of the body and is a complete visual medium.<sup>39</sup> Preschool and school going age is an important period in which a variety of cutaneous lesions may develop which are clues to the presence of a underlying dermatoses<sup>39</sup>. the most important aspect of recognizing these is the early detection and diagnosis of these condition, most of which are associated with multi system involvement. Dermatological problems manifesting as primary and secondary cutaneous complaints constitutes at least 30% of all out patient visit to a paediatrician and 30% of all visits to dermatologist involve patients of paediatric age group<sup>12</sup>. The following table shows the classification of common paediatric dermatoses.

### **CLASSIFICATION OF COMMON PEDIATRIC DERMATOSES**

#### 1) Infestations and infections

- a. Parasitic infestations – Pediculosis capitis, scabies.
- b. Bacterialinfections – Pyoderma
- c. Viral infections – Molluscum contagiosum, warts, herpes simplex, chicken pox, herpes zoster.
- d. Fungal infections – Tinea capitis, tinea corporis, pityriasis versicolor, candidiasis.



- 2) Dermatitis and eczema – Infantile seborrheic dermatitis, diaper or napkin dermatitis, atopic dermatitis, infective dermatitis.
- 3) Urticaria
- 4) Exanthems - Viral exanthemes (Measles, rubella, roseola infantum, erythema infectiosum)
- 5) Drug eruptions
- 6) Pigmentary disorders – Postinflammatory pigmentation, hypopigmentary disorders (Pityriasis alba, vitiligo, leprosy, nevus achromicus, ash leaf macule, albinism), hyperpigmentary disorders (Mongolian spots, café au lait macules).
- 7) Diseases of hair and nails – Tinea capitis, alopecia areata, diffuse alopecia, twenty nail dystrophy.
- 8) Genetic diseases of the skin – Ichthyoses, acrodermatitis enteropathica.
- 9) Collagen vascular diseases – Connective tissue diseases (Lupus erythematosus, scleroderma, and dermatomyositis) and vasculitic syndromes (Henoch-Schonlein purpura, acute hemorrhagic edema of infancy, and polyarteritis nodosa).
- 10) Miscellaneous conditions – Papular urticaria, miliaria rubra, miliaria crystallina, psoriasis, hemangiomas, chilblains.

## **COMMON DERMATOLOGICAL PROBLEMS OF CHILDREN**

## **SUPERFICIAL INFECTION OF SKIN**

### **IMPETIGO**

It is a superficial infection of skin accounts for 1-2% of all visit to pediatricians. It comprises approximately 10% of the all skin problems in Children and 50-60% of all bacterial skin infection making it as the most common bacterial skin infection in children.

#### **There are two types of impetigo**

*Non bullous impetigo* : This accounts for 70% of cases of impetigo and occurs most commonly in regions with warm humid climate.

Staphylococcus aureus is responsible pathogen in approximately 50-60% cases whereas in 30% cases streptococcal pyogens is the causative factor.

Impetigo begins as a tiny vesicle or pustule which rapidly develops into a honey colour crusted plaque of < 2cm in diameter. Lesions are associated with little or no pain with surrounding erythema. No other constitutional symptoms present. Regional adenopathy is found in 90% of cases. Leukocytosis is noted in 50% of the cases.

*Bullous impetigo* : This occurs sporadically in neonates, infants and young children. It is commonly occurring during summer months in tropical climates. Unlike non-bullous impetigo it is always caused by coagulase positive staphylococcus aureus. It usually present with flaccid, transparent bullae most commonly in skin of moist areas.

Potential but very rare complications of either non bullous / bullous impetigo include osteomyelitis, septic arthritis, pneumonia and septicemia. Infections with nephritogenic strains of Groups A  $\beta$  hemolytic streptococcus may result in acute post streptococcal glomerulonephritis.

## **FURUNCLE**

This is a superficial skin infection caused almost by staphylococcus aureus. This is more common in male than female. This presents as deep seated, tender, erythematous perifollicular papules that evolve into nodules. Intense pain will be there particularly if situated in areas where skin is relatively fixed (External auditory canal, nasal cartilage). There is no constitutional symptoms. This is more common in anaemic individuals. In conditions like, Diabetes mellitus, malnutrition, HIV infection, immunodeficiency status, furunculosis more common.

Recurrent furunculosis frequently associated with carriage of staphylococcus aureus in the nares, axilla and perineum.

Hair bearing areas on the face, neck, axilla, buttocks and groin usually affected.

Warm humid environment, hyperhidrosis, maceration, friction preexisting dermatitis are predisposing factors.

## **FOLLICULITIS**

This superficial infection of hair follicle most often caused by staphylococcus aureus (Bockhart Impetigo). Moist environment, maceration, poor hygiene, drainage from adjacent wounds and abscess are predisposing factors. Favoured sites include the scalp, buttocks and extremities.

They present as discrete, dome shaped pustules with an erythematous base, located at the ostium of the pilosebaceous canals. Lesions often asymptomatic to mildly tender.

Folliculitis caused by gram negative organisms occurs primarily in patients with Acne vulgaris treated long term with broad spectrum systemic antibiotic. A superficial pustular form caused by klebsiella, enterobacter, e-coli or pseudomonas aeruginosa occurs around the nose and spreads to the cheeks and chin.

A deeper nodular form of folliculitis on the face and trunk is caused by proteus.

**Sycosis Barbae** is a deeper, more severe recurrent inflammatory form of folliculitis caused by Staphylococcus aureus that involves the entire depth of the follicle.

One more variety of folliculitis 'Hot tub folliculitis' is caused by p.aeruginosa.

Occasionally extends into deeper structure and form abscess.

## **HANSEN DISEASE**

Leprosy is caused by mycobacterium leprae an acid fast bacilli that most commonly affect nerves and skin. Other areas involved are upper respiratory tract, eyes and testis.

India is one among the five countries having largest number of leprosy cases in the world. India alone contributes 2/3<sup>rd</sup> of the global load of leprosy. It is transmitted through droplets from infectious or open cases. Upper respiratory tract is considered the most probable site of entry of the organism in to the human body. Average incubation period is 2-5 years. Earliest sign is a non-itchy patch in the skin lighter in colour compared with surrounding part. There is loss of feeling to light touch, temperature and pain. Cutaneous lesion range from apparently innocuous looking lesion to extensive involvement of skin, mucous membrane with lesions of divergent nature. Skin is thick, red and shiny, especially on the face and hands.

It is clinically classified into lepromatous, borderline, indeterminate, maculoanaesthetic, tuberculoid and polyneuritic while lepromatous and tuberculoid represent the LL and TT types of immunological classification. Maculoanaesthetic group may comprise of the BT and TT variants. Borderline group represent BT, BB and BL variants.

**Diagnosis :**

A case of leprosy is defined as a person having one / more of the following features who has yet to complete a full course of treatment.

- i) Hypopigmented or reddish skin lesion(s) with definite loss of sensation.
- ii) Involvement of peripheral nerves demonstrated by definite thickening with loss of sensation and
- iii) Skin smear positive for acid fast bacilli.

disease should not be diagnosed if only nerve thickening is present without any accompanying symptoms or signs. Diagnostic evaluation include physical examination plus examination of skin smear. The physical examinations should includes evaluation of skin lesion palpation of peripheral nerves together with sensory and motor evaluation.

## **PARASITIC INFESTATIONS**

### **PEDICULOSIS**

This is an important parasitic infestation of childhood. Three types of lice are obligate parasite of human host. Body / clothing lice (*Pediculus humanus corporis*), Head lice (*pediculus humanus capitis*) and pubic or crab lice (*phthirus pubis*) only the body louse serves as a vector of human disease.. Lice are obligate parasites of man and highly host specific. The entire life cycle is completed in 1 month.

The Hallmark of all types of pediculosis is pruritus.

### **PEDICULOSIS CAPITIS**

Is an intensely pruritic infestation of lice in the scalp hair. It affects all transcending social status. Healthy children between ages of 3 & 10 years are primarily affected. Girls more affected than boys<sup>35</sup>. Head to head contact as well as fomites are important modes of transmission. Translucent 0.5mm eggs are laid near the proximal portion of the hair shaft and become adherent to one side of the hair shaft.

Secondary pyoderma due to scratching may result in matting together of the hair and cervical and occipital lymphadenopathy. Hair loss if at all occurs is due to secondary pyoderma. Head lice are a major cause of numerous pyoderma of the scalp particularly in tropical environments. Lice are not

always visible but nits are detectable on the hairs of occipital region and the areas above the ears. Dermatitis may also be noted on the neck and pinna.

**Pediculosis corporis is rare in children.**

**Pediculosis pubis** is usually encountered in adolescents although small children may occasionally acquire pubic lice on the eye lashes. It is transmitted by skin to skin or sexual contact with an infested individual. The chance of acquiring the lice by one sexual exposure is approximately 95%.

**SCABIES :**

Scabies is an important infestation of children. Highest prevalence rate may be seen in children especially below 2 years of age <sup>35</sup>. It is a disease of poverty <sup>37</sup>. The point prevalence in the general population of rural community in India is about 5% <sup>38</sup>.

This is caused by burrowing and release of toxic or antigenic substances by the female mite *sarcoptes scabiei* var. *hominis*. The important predisposing factors are crowding, poor hygiene, population shift and immigration. The most important factor that determines spread of scabies is the extent and duration of physical contact with an affected individual. The children are most at risk. Scabies is rarely transmitted by fomites because the isolated mite dies within 2-3 days.

The first signs of lesions consist of 1-2mm red papules some of which are excoriated, crusted or scaling. Thread like burrows, are the classic lesion of



scabies. Intense itching that too in the night time is the main symptom. The lesions are noticed in interdigital spaces, wrist flexors, anterior axillary folds, ankles, buttocks, umbilicus and belt line, groin and genitals in men and areola of the breast in women. The head, neck, palms and soles are generally spared.

### **Nodular Scabies**

This is a less common variant of scabies characterized by red brown nodules most often located in covered areas such as axillae, groin and genitals.

Untreated scabies may lead to eczematous dermatitis, impetigo, erythema, folliculitis, furunculosis, cellulites, lymphangitis and id reaction. Streptococcal impetiginization of scabies some times may lead to glomerulonephritis. In some tropical areas scabies is the predominant underlying cause of pyoderma.

Diagnosis made clinically but is confirmed by microscopic identification of mites, ova, and scybala in epithelial debris.

### **Norwegian Scabies**

This variant of human scabies is highly contagious and occurs mainly in individuals, who are mentally and physically debilitated. This also occurs in patients with poor cutaneous sensation such as leprosy, syringomyelia, in patients with leukemia, diabetes and HIV infection. This infestation often accompanied by generalized lymphadenopathy and eosinophilia. Patients with down syndrome also prone to develop norwegian scabies.

## **Canine Scabies**

This is caused by *S.scabie var canis*, the dog mite that is associated with mange. The eruption in humans which is most frequently acquired by cuddling an infested puppy consists of tiny papules, vesicles, wheals, and excoriated eczematous plaques. Burrows are not present because the mite infrequently inhabits human *statum carneum*. The rash is pruritic and has a predilection for the arms, chest, and abdomen the usual sites of contact with dogs. The disease is self limited.

## **MILIARIA RUBRA**

This is a sweat gland disorder. This results from retention of sweat in occluded eccrine sweat ducts as a result of keratinous plug in the sweat duct. Retrograde pressure may result in rupture of the duct and leakage of sweat into the epidermis / dermis. This eruption is most often induced by hot humid weather but it may also be caused by high fever.

Miliaria Rubra is characterized by erythematous, minute papulovesicles that may impart a prickling sensation. Hence it is termed as prickly heat. The lesion are usually localized to sites of occlusion or to flexural areas such as the neck, groin and axillae, where friction may have a role in their pathogenesis. Involved skin may become macerated and eroded. Itching over the lesion may sometimes lead to secondary bacterial infections.

## **MOLLOSCUM CONTAGIOSUM**

This is caused by type 1 pox virus. Disease acquired by direct contact with an infected person or from fomites and is spread by autoinoculation. School aged children who are otherwise well and individual who are immunosuppressed are affected most commonly. This presents as discrete, pearly, skin coloured, dome shaped smooth papules vary in size from 1-5mm. Central umbilication will be there, from which cheesy material can be expressed. They occur most commonly in face, neck, eyelid, axillae and thighs. This may be also found in clusters on the genitals or in the groin of adolescent and may be associated with other venereal diseases. Lesions may occur in genital area in children. Lesions on patients with AIDS tend to be large and numerous particularly on the face. Exuberant lesions may also be found in children with leukemia and other immunodeficiencies.

## **COMMON WART**

Caused by Human papilloma virus type 2 & 4. Incidence of all types of warts is highest in children and adolescents. They spread by direct contact, autoinoculation and by fomites.

Cutaneous warts develop in 5-10% of children. They occur most frequently on fingers, dorsum of hands, paronychia areas, face, knees, and elbows. They are well circumscribed papules with a roughened keratotic, irregular surface when the surface is pared away many black dots representing

thrombosed dermal capillary loops are often visible. Periungual and plantar warts are painful.

Plantar warts are usually flushed with the surface of the sole because of the constant pressure from weight bearing. Similar lesions (Palmar) can also occur on the palms. They are sharply demarcated often with a ring of thick callus. Several contiguous warts may fuse to form a large plaque the so called 'mosaic wart'.

## **DERMATOPHYTOSES**

Dermatophytosis are caused by a group of closely related filamentous fungi with a propensity for invading the stratum corneum, hair and nails. The three principle genera responsible for infections are Trichophyton, mcirsporom, and epidermophyton.

Trichophyton rubrum cause lesion over skin, nail and hair. Microsporom species principally invade the hair. Epidermophyton species invade the intertriginous skin. Dermatophyte infections are designated by the word 'Tinea' followed by the latin word for the anatomic site of involvement.

## **TINEA CORPORIS**

Infection of the glabrous skin excluding the palms, soles, and groin can be caused by most of the dermatophyte species. Although T. rubrum and T. mantagrophytes are the most prevalent etiology organism. Tinea corporis can be acquired by direct contact with infected persons and by contact with infected

scales or hairs deposited on environmental surfaces. The most typical clinical lesions begin as a dry mildly erythematous, elevated scaly papules or plaque that spreads centrifugally as it clears centrally to form the characteristic annular lesion responsible for the designation 'ring worm'. Most lesions clear spontaneously within several months but some may become chronic.

### **TINEA CAPITIS**

Is a dermatophyte infection of the scalp caused by *Trichophyton tonsurans*. The lesion is characterized initially by a small papule at the base of a hair follicle. The infection spreads peripherally forming an erythematous and scaly circular plaque (ring worm) within which the infected hairs become brittle and broken. Numerous confluent patches of alopecia develop and patients may complain of severe pruritus.

A severe inflammatory response produces elevated, boggy granulomatous masses called 'Kerions' which are often studded with pustules. Fever, pain, regional adenopathy and common and permanent scarring and alopecia may result.

### **TINEA CRURIS**

Infection of the groin occurs most often in adolescent males. Usually caused by *epidermophyton floccosum*. The characteristic lesion occurs in the crural region. Penis is not involved in the infection an important distinction from candidiasis. Pruritus may be severe initially but abates as the

inflammatory lesion subsides. Tinea cruris is more prevalent in obese persons and in those who perspire excessively and wear tight fitting clothing.

### **TINEA VERSICOLAR**

This common innocuous chronic fungal infection of the stratum corneum is caused by the dimorphic yeast *malassezia furfur*.

*Malassezia furfur* is part of the indigenous flora and is found particularly in areas of skin that are rich in sebum production. Predisposing factors include a warm humid environment, excessive sweating, occlusions, high plasma cortisol levels, immunosuppression and malnourishment. The disease is most prevalent in adolescents and young adults. The lesions vary widely in colour. In whites they are reddish brown whereas in blacks they may be either hypo pigmented or hyperpigmented. The characteristic macules are covered with a fine scale. They often begin in a perifollicular location enlarge and merge to form confluent patches. They occur most commonly on the neck, upper chest, back and upper arms. Lesions may also occur in the face, forearm and dorsum of hands. There may be little or no pruritus. Involved areas do not tan after sun exposure. Confirmation of diagnosis by Woodslamp examination and KOH preparation of scrapings from the lesion.

### **PITYRIASIS ALBA**

This is a type of non-specific dermatitis of unknown origin. Peak age of onset is 3 and 16 years with equal prevalence in both sexes. This occurs

mainly in children. The lesions are hypopigmented round or oval macules or slightly elevated patches with fine adherent scales. They may be mildly erythematous and relatively well defined but lack a sharply margined border. Lesions occur on the face, neck, upper trunk, and proximal portions of the arms. Itching is minimal or absent. The cause is unknown but the eruptions appears to be exacerbated by dryness and is often regarded as mild form of eczema. The lesions wax and wane but eventually disappear. Application of a lubricant may ameliorate the condition. If itching is more topical application of 1% hydrocortisone will be sufficient.

### **INSECT BITE ALLERGY (Papular Urticaria)**

This occurs principally in the first decade of life during the warmer months of the year. The most common culprits are species of fleas, mites, bed bugs, gnats, mosquitoes, chiggers and animal lice. Individuals with papular urticaria have predominantly transitional lesions in various stages of evolution between delayed onset papules and immediate onset wheals. The most characteristic lesion is a edematous red brown papule. An individual lesion frequently start as a wheal that in turn is replaced by a papules or urticarial plaques. The disorder is characterized by a temporary arrest at a transitional phase after a season or two, however the reaction progresses from transitional to a primarily immediate hypersensitivity urticarial reactions.

To know the prevalence of pediatric dermatoses various studies have been done in various places of our country. Studies were done in school level, community level and in to tertiary care center level. Herewith I give brief reports regarding some studies done during various periods.

School based skin survey conducted by Vijaykumar et al<sup>1</sup> during 1986 in a semiurban area of Pondicherry found that total prevalence of skin disease was 45%. In this study they found pediculosis capitis was the most common dermatoses. It accounts for 50.2% followed by miliaria rubra (15.1%), pityriasis alba (5%) and pyoderma (8.8%). The prevalence of leprosy and ichthyosis vulgaris was only 0.8 with 0.3% respectively. They have detected ichthyosis only in 5 children which in contrary to the belief that ichthyosis more common in South India.

A study was conducted by N.L. Sharma et al (2) during 1989 in a school located in high altitude tribal area of Himachal Pradesh. In that study they found all the children were having one or more type of skin lesions. Pediculosis capitis (74.1%) was the commonest dermatoses observed by them this is followed by Pityriasis alba (33.3%), wart (20.4%), scabies (12.5%). They found that 8.5% children having pyoderma, 7.5% children were found to have popular urticaria. Acral erythema associated with cold hand was seen in 7.5% children. This may be due to prolonged exposure to low temperature throughout the year. Prevalence of dermatophytoses and pityriasis versicolor is low due to low atmospheric humidity.



Valia RA et al<sup>3</sup> has conducted study at varanasi School children which was published in Indian Journal of Dermatology, venerology and leprosy in 1991. In their study they have examined about 12,481 children. In that they found more than half of the children had one or more skin disease. Most common dermatoses was pediculosis capitis (35%) followed by pityriasis alba (12%) and acne vulgaris (8%), Miliara rubra and pyoderma were found in 4% & 3% of children respectively.

A school survey was conducted by Rotti SB et al<sup>4</sup> during November 1982 – March 1983 in a rural block of coastal Karnataka. The study was done to know the prevalence of scabies among children. They found prevalence of scabies in 8.2% of children. Prevalence of scabies was higher among boys and children of backward community and children from Muslim religion. Secondary pyoderma was observed in 16.59% of the cases.

Karthikeyan et al<sup>5</sup> has conducted a study at dermatology department of a referral centre in South India. The study was carried out between May 2001 – June 2002. In their study they observed that among 10,400 children who attended dermatology OP about 54.5% had skin infection and infestations. This is followed by dermatitis and eczema (8.6%) pigmentary disorders (5.7%), Insect bite reaction (5.27%), Hair nail disorder (5.2%), Miliaria (4.1%). Among the infective dermatoses pyoderma was the most common dermatoses (47.13%) followed by scabies(30.6%). Insect bite allergy and miliaria rubra were detected in 5.27% and 4.1% of cases respectively. This could be attributed to the tropical weather conditions in a coastal area. Genetic disorder

including ichthyosis and palmoplantar keratoderma contributed to 2.1% cases and this could be due to the high incidence of consanguineous marriage in the society.

R.C. Sharma et al<sup>6</sup> conducted a study during 1992 – 1994 on clinical profile of cutaneous infection and infestation in pediatric age group at paediatric dermatology OPD of the Kalawati Saran Children Hospital, New Delhi.. This was published in Indian journal of dermatology, Volume 44 year 1999. They screened 15, 955 children attended the OPD . Out of these 8176 (51.24%) patients were having various infections with parasitic infestations. Majority (38.7%) of the patients were in the school going age group. In that study he observed that incidence of parasitic infestation was the highest (53.66%) among paediatric dermatoses. In this scabies was the major parasitic infestations followed by pyoderma (34.05%) and fungal infections (8.42%).

Vikhas Bhatia <sup>7</sup> has conducted a house to house survey in rural areas of central India during July 1988 – June 1989 to assess the extent and pattern of paediatric dermatoses in children. This article was published in Indian Journal of Dermatology and leprosy 1997 issue vol.63. They have examined 666 children in the age group of 0-14 years in 5 villages of Wardha district in Maharashtra. They found that 51.95% children had one or more dermatoses. Infective dermatoses contributed 63.5% while non-infective, nutritional deficiency dermatoses were responsible for 21.2% and 15.2% respectively. Pediculosis capitis was seen in 136 children (20.4%) followed by pyoderma in 107 (16.07%) and dermatophytoses in 44 (6.61%). They also concluded that

pediculosiscapitis, pyoderma and fungal infection shared 58% of all skin diseases.

An abstract of a study done by Ghosh SK, Saha DK, Roy AK<sup>8</sup> on clinico etiological study of dermatoses in paediatric age group published in Indian Journal of Dermatology 1995 volume 40. Study was undertaken in departments of dermatology and paediatrics R.G. Kar Medical College., Calcutta shows the following observations. 500 patients of the age group 0-12 years were studied for dermatoses. Pyoderma (35.6%) scabies (22.4%) and eczema (17.6%) were the most common dermatological condition followed by Molluscum contagiosum (4.6%), IBA (4%), Vitiligo (3.4%), miliaria (2.8%) and Neuvus (1.6%), Miscellaneous conditions constitute around 8% of remaining cases.

An article published in Indian pediatrics 2001 volume 38 on pattern of skin disease in children of Garhwal region of U.P. This study was conducted by K.S. Negi, S.D. Kandpal, D. Prasad<sup>9</sup> in dermatology OPD of the Himalayan Institute Hospital Jolly Grant Dehradun UP during January 1998 – December 1998. About 1754 children in the age group of 0-14 were studied. In this study they found infective dermatoses were observed in 50.9%. Non infective and nutritional deficiency disorders were seen in 31.6% and 17.5% children respectively. Among the infective dermatoses pediculosis capitis was found in 22.6%. Other common diagnosis were pyoderma in 383 (15.6%) followed by scabies in 125 (5.1%) and dermatophytoses in 106 (4.3%) subjects. Among non-infective dermatoses pityriasis alba (10.4%), eczema (8.1%) were major

presentation. Nutritional deficiency manifested as sparse hair and pigmented disorder.

Renu B. Patel, Rekha, H. Udani & Sushma. A Khanna<sup>10</sup> conducted a house to house survey of 1890 children under six years of age in Bombay slums. This study was done during December 1977 to January 1978. They have observed the following things. Pityriasis alba (11.9%) topped the list followed by scabies in 8.2%, pyoderma in 4.2% children. Phrenoderma detected in 3.4% cases. 2 cases of leprosy detected. In all the age groups severely malnourished children showed higher incidence of dermatoses than normal or mildly malnourished children. This achieved statistical significance for scabies and pityriasis alba ( $p < 0.001$  for both). They also concluded that to eradicate diseases like scabies, pyoderma infections, house to house visit to be made to identify and treat the infected persons in the family. They also stressed health education regarding nutrition and vitamin deficiencies.

A study on morbidity pattern, nutritional status and various defects of urban primary school children was done at Delhi by N.D. Dhatta<sup>11</sup>, Bank et al during May 1968 – April 1969. This article was published in Indian Journal of Pediatrics vol.37, 1970. In this study they studied 2773 children between 5-10 years of age from 24 primary schools selected from an urban community in Delhi, for morbidity pattern. Skin diseases in one among the principal causes of morbidity. Among 2773 children they observed clinical abnormality in 56.2%. Among that skin disease contributed about 18% of the total morbidity pattern.



## **OBSERVATION AND RESULTS**

In the present study total no. of school children screened were 5800 (Male 3006, female 2794).

Out of them 2419 children were found to have Dermatological problems. This gives the prevalence rate as 41.7%..

Total male children with dermatoses 1278 (52.8%).

Total female children with dermatoses 1141 (47.2%).

6-8 years age group were 1376 in number that accounts for 56.9%.

9-10 years age group were 1043 in number that accounts for 43.1%

The following were the pattern of dermatoses noted in the study group.

**TABLE 1**

**LIST OF COMMON DERMATOSES FOUND IN PRIMARY SCHOOL CHILDREN**

<b>Sl.No.</b>	<b>Name of the Dermatoses</b>	<b>No. of Cases</b>	<b>Percentage</b>
1.	Infection & Infestation	1211	50.06%
2.	Sweat Gland disorder	711	29.39%
3.	Hypo pigmented lesions	181	7.48%
4.	Dermatitis and Allergy	138	5.70%
5.	Cosmetically important lesions	126	5.20%
6.	Hair disorders	17	0.75%
7.	Other skin disorders	35	1.44%

In the present study infection and infestation was found in 50.06% of the children. This is the most common dermatoses found in children. This is followed by sweat gland disorders that accounts for 29.39%. About 181 children were found to have hypo pigmented lesion which accounts for 7.48%. In dermatitis and allergy group there were 138 cases accounting for 5.70%. Cosmetically important lesions were found in 126 children (5.6%). 0.75% of the children had hair disorders. Other skin conditions which does not fit in to the above groups were found in 35 children accounting for 1.44%.

**TABLE 2**  
**PREVALENCE OF INFECTIONS AND INFESTATIONS**

Total number of cases with infection and infestations were 1211 that accounts for 50.06%.

<b>Sl.No.</b>	<b>Name of the Dermatoses</b>	<b>No. of Cases</b>	<b>Percentage (n=2419)</b>
1.	Bacterial Infections	653	26.9%
	a) Impetigo	353	14.5%
	b) Secondary pyoderma	237	9.8%
	c) Folliculitis	39	1.6%
	d) Furuncle	22	0.9%
	e) Hansen Disease	2	0.1%
2.	Fungal infections	179	7.4%
	a) Tinea versicolor	143	5.9%
	b) Tinea corporis	26	1.1%
	c) Tinea Capitis	10	0.4%
3.	Viral Infections	70	2.9%
	a) Molluscum contagiosum	29	1.2%
	b) Common wart	41	1.7%
4.	Infestations	309	12.7%
	a) Pediculosis	233	9.6%
	b) Scabies	76	3.1%

Among the infection and infestation bacterial infection was the most common one. It was diagnosed in 653 children that accounts for 26.9%.

Among the bacterial infection impetigo constitutes 353 cases (14.5%) followed by secondary pyoderma 237 cases (9.8%). Folliculitis and frunculosis were found in 1.6% and 0.9% of the children respectively.



## **HANSEN DISEASE**

In the present study 2 new cases of Hansen disease were diagnosed. One child (female) had hypopigmented and anaesthetic patch over left forearm with thickened ulnar nerves. Another child (male) had patch over the right leg associated with loss of sensation and thickening of lateral peroneal nerve and posterior tibial nerve. Both of the children were brought to department of dermatology for confirmation of diagnosis. It was confirmed by appropriate investigations and finally the children were registered for multi drug treatment.

In this infective dermatoses fungal infection constitutes 7.4% of the total cases. Totally 179 children were found to have fungal infection. Tinea versicolor was found in 5.9% children followed by tinea corporis in 1.1% children.

Viral infections was present in 70 children that accounts for 2.9%. Among these common wart was found in 41 children followed by molluscum contagiosum in 29 cases.

Parasitic infestations was diagnosed in 309 children that accounts for 12.7%. Among these pediculosis capitis was most common one that accounts for 9.6% followed by scabies in 3.6%.

### **TABLE 3 PREVALENCE OF SWEAT GLAND DISORDERS**

Total NO. of children with sweat gland disorders was 711 that accounts for 29.3%.

<b>Sl.No.</b>	<b>Name of the Dermatoses</b>	<b>No. of Cases</b>	<b>Percentage (n=2419)</b>
1.	Miliaria Rubra	704	29.1%
2.	Hyperhidrosis of palms and soles	7	0.2%

In the present study it found 711 children were having sweat gland disorder. Out of these Miliaria rubra was the most common one followed by hyperhidrosis of palms and soles.

**TABLE 4**  
**PREVALENCE OF HYPOPIGMENTED LESIONS**

Total number of children found to have hypopigmented lesions were 181 that accounts for 7.48%.

<b>Sl.No.</b>	<b>Name of Diseases</b>	<b>No. of Cases</b>	<b>Percentage (n=2419)</b>
1.	Pityriasis Alba	135	5.6%
2.	Post inflammatory Hypopigmentation	17	0.7%
3.	Nevous Anaemicus	15	0.6%
4.	Lichen Striatus	8	0.3%
5.	Vitiligo	6	0.2%

In the present study it found hypopigmented lesion were present in 181 children that accounts for 7.4%. Out of these pityriasis alba contributes more. About 135 children were having pityriasis alba that accounts for 5.6%. Post inflammatory hypopigmentation was diagnosed in 17 children (0.7%) Nevus anaemicus was noted in 15 children (0.6%), 8 children were diagnosed to have lichen striatus, Vitiligo was present in 6 children (0.2%).

**TABLE 5**  
**PREVALANCE OF DERMATITIS AND ALLERGY**

Total No. of children comes under this group were 138 that accounts for 5.7%.

<b>Sl.No.</b>	<b>Name of the dermatoses</b>	<b>No. of cases</b>	<b>Percentage (n=2419)</b>
1.	Contact dermatitis	9	0.4%
2.	Seborrheic dermatitis	20	0.8%
3.	Insect bite allergy	46	1.9%
4.	Polymorphus light eruption	63	2.6%

In this group polymorphus light eruption was diagnosed in 63 children that accounts for 2.6%. Insect bite allergy was present in 46 children accounting for 1.9%. 20 children (0.8%) were found to have seborrheic dermatitis and 9 children (0.4%) were found to have contact dermatitis.

**TABLE 6**  
**PREVALENCE OF COSMETICALLY IMPORTANT LESIONS.**

About 126 children were found to have any one of the following cosmetically important lesion which account for 5.2%.

<b>Sl.No.</b>	<b>Name of the dermatoses</b>	<b>No. of cases</b>	<b>Percentage (n=2419)</b>
1.	Café au lait spots	57	2.35%
2.	Cutaneous nevus	35	1.44%
3.	Keloid	15	0.62%
4.	Post inflammatory hyperpigmentation	10	0.4%
5.	Preauricular tag	4	0.2%
6.	Branding mark	3	0.1%
7.	Accessory nipple	2	0.1%

In the present study it found 126 children having cosmetically important skin lesions. Out of this café au lait spots were found in 57 children followed by cutaneous nevus in 35 children. Post inflammatory hyperpigmentation was noted in 10 cases. Pre auricular tag and branding mark were noticed in 3, 2 children respectively. Accessory nipple was diagnosed in 2 children.

**TABLE 7**  
**PREVALENCE OF HAIR DISORDERS**

<b>Sl. No.</b>	<b>Name of the Lesion</b>	<b>No. of Cases</b>	<b>Percentage (n=2419)</b>
1.	Alopecia Aerata	12	0.5%
2.	Sparse hair	4	0.2%
3.	Alopecia totalis	1	0.0%

In the present study it found 17 children to have hair disorders. Among these alopecia areata was diagnosed in 12 children. Sparse hair was noted in 4 children. 1 case of alopecia totalis was diagnosed.

**TABLE 8**  
**PREVALENCE OF OTHER SKIN DISORDERS**

Totally 35 children were found to have skin condition which doesn't fit into any group.

<b>Sl.No.</b>	<b>Name of the Dermatoses</b>	<b>No. of Cases</b>	<b>Percentage (n=2419)</b>
1.	Phrenoderma	23	1%
2.	Corn foot	4	0.2%
3.	Psoriasis	3	0.1%
4.	Palmo plantar keratoderma	3	0.1%
5.	Icthyosis	1	0.0%
6.	Ectodermal dysplasia	1	0.0%

In the present study it found 23 cases of phrenoderma which accounts for 1%. 4 cases of corn foot was diagnosed. Psoriasis was diagnosed in 3 children and 3 children were found to have Palmo plantar keratoderma. Icthyosis and ectodermal dysplasia were diagnosed in one child each.

**TABLE 9**  
**SEX WISE DISTRIBUTION OF DERMATOSES**

Sl. No.	Name of the Dermatoses	Male (1278)		Female (1141)		Statistical Analysis
		No. of cases	Percent age	No. of Cases	Percentage	
1.	Bacterial infections	395	30.9%	258	22.6%	$X^2 = 21.05$ P = 0.001
2.	Fungal infections	86	6.7%	93	8.2%	$X^2 = 6.9$ P = 0.05
3.	Viral infections	31	2.4%	39	3.5%	$X^2 = 5.7$ P = 0.05
4.	Infestations					$X^2 = 11$
	Scabies	52	4.1%	24	2.1%	P = 0.001
	Pediculosis	48	3.8%	185	16.2%	
5.	Miliaria Rubra	399	31.2%	305	26.7%	$X^2 = 5.89$ P = 0.02
6.	Phrenoderma	7	0.5%	16	1.4%	$X^2 = 4.7$ P = 0.03
7.	Hair Disorders	12	1%	4	0.4%	$X^2 = 9.7$ P = 0.02
8.	Café lu ait spot	38	3%	19	1.7%	$X^2 = 7.5$ P = 0.02
9.	Dermatitis					$X^2 = 7.5$
	Contact dermatitis	1	0.1%	8	0.7%	P = 0.02
	Seborrheic Dermatitis	13	1%	7	0.6%	
10.	Hypopigmented lesion	92	7.2%	89	7.7	$X^2 = 6.5$ P = 0.26
11.	Cutaneous Nevus	16	1.3%	19	1.7%	$X^2 = 1.9$ P = 0.38
12.	Inset bite allergy	30	2.3%	16	1.4%	$X^2 = 2.9$ P = 0.09
13.	Photosensitivity lesion	31	2.4%	32	2.8%	$X^2 = 0.34$ P = 0.56

In the present study it found dermatological conditions like bacterial infections, scabies, miliaria rubra, hair disorders, café lu ait spot, seborrheic

dermatitis were found higher in proportion among the dermatoses in male children than female children. Other dermatoses like fungal infections, viral infection, pediculoses, phrenoderma were found higher in proportion among the dermatoses in female than male.

This shows statistically significant difference between male and female. This is confirmed by Pearson's chi-squared test.

Conditions like hypopigmented lesions, cutaneous nevus, insect bite allergy and photosensitivity lesions do not show any significant difference in distribution among both sexes.

**TABLE 10**  
**AGE GROUPWISE DISTRIBUTION OF DERMATOSES**

Sl. No.	Name of the Dermatoses	6-8 years (1376)		9-10 years (1043)		Statistical Analysis
		No. of cases	Percent age	No. of Cases	Percentage	
1.	Fungal Infections	86	6.3%	93	8.9%	$X^2 = 8.4$ $P = 0.04$
2.	Miliaria rubra	434	31.5%	270	25.9%	$X^2 = 9.19$ $P = 0.02$ $OR = 1.3$ (95% CI = 1.1 – 1.6)
3.	Dermatitis					$X^2 = 6.08$ $P = 0.05$
	Contact dermatitis	8	0.6%	1	0.1%	
	Seborrheic Dermatitis	8	0.6%	12	1.2%	
4.	Cutaneous Nevus	26	1.8%	9	0.9%	$X^2 = 4.39$ $P = 0.04$ $OR = 2.1$ (95% CI = 1-4.9)
5.	Bacterial Infection	373	27.10%	280	26.84 %	$X^2 = 0.02$ $P = 0.88$
6.	Parasitic infestations	164	11.9%	145	13.9%	$X^2 = 2.1$ $P = 0.3$
7.	Hypopigmented Lesions	107	7.7%	74%	7.2%	$X^2 = 1.6$ $P = 0.9$
8.	Insect Bite allergy	28	2%	18	1.7%	$X^2 = 0.3$ $P = 0.6$



9.	Photo sensitivity lesion	33	2.4%	30	2.9%	$X^2 = 0.5$ P = 0.5
10	Phrenoderma	15	1.1%	8	0.8%	$X^2 = 0.7$ P = 0.4

Dermatological conditions like Miliaria rubra, contact dermatitis and cutaneous nevus were found higher in proportion among the dermatoses in 6-8 years age group. Conditions like fungal infections, seborrheic dermatitis were found in higher proportion among dermatoses in 9-10 years age group.

This shows statistically significant difference between 6-8 and 9-10 age groups. This is confirmed by Pearson's Chi-Squared test.

Other conditions like bacterial infection, parasitic infestation, hair disorders, insect bite allergy, phrenoderma, hypopigmented lesions, viral infections, photo sensitivity lesions do not show any difference in distribution among these two age groups.

**TABLE 11**  
**NUTRITIONAL DEFICIENCIES NOTED IN CHILDREN WITH**  
**DERMATOSES.**

During the skin survey all children with skin manifestations (2419) were carefully looked for vitamin deficiencies and system abnormalities. Among these 2419 children 51% of the children (1242) had various nutritional deficiencies and dental caries.

(Total No. of Cases 2419)

<b>S.No.</b>	<b>Nutritional Deficiency</b>	<b>No. of Cases</b>	<b>Percentage</b>
1.	Anaemia	382	15.8%
2.	Vit. B Complex deficiency	257	10.6%
3.	Vit. A Deficiency	27	1.1%
4.	Dental caries	262	10.8%
5.	Anaemia with Vitamin B complex deficiencies	314	12.9%

In the present study anaemia was the most common nutritional deficiency noted in studied population. 382 children were suffering from anaemia. It is followed by B complex deficiency that accounts for 10.6%. Vit. A deficiency in the form conjunctival xerosis, bitot spot was noted in 27 children (1.1%). 262 children were found to have dental caries. Both anaemia and B complex deficiency noted in 314 children that accounts for 12.9%.

**TABLE 12**  
**NUTRITIONAL STATUS OF CHILDREN WITH DERMATOSES**

<b>Nutritional Status</b>	<b>Total N. of Children</b>	<b>Percentage (n=2419)</b>
Normal Nutritional Status	1560	64.5%
Grade I Malnutrition	521	21.5%
Grade II Malnutrition	338	14%

In the present study among the 2419 children with dermatoses. 1560 children were having normal nutritional status.

Children with malnutrition were 859 (35.5%). Among this 859, children with Grade I malnutrition was 521 (21.5%) followed by children with Grade II malnutrition were 338 (14%).

## DISCUSSION

In the present study it found that among the total 5800 children screened 2419 were found to have dermatological diseases. This gives the prevalence of Dermatoses in primary school children as 41.7%.

### PREVALENCE OF PAEDIATRIC DERMATOSES IN DIFFERENT STUDIES

Sl.No.	Study	Results
1.	Sharma NK (1986)	35%
2.	Vijaykumar et al (1988)	49.1%
3.	Vikas Bhatia (1989)	51.95%
4.	Valia et al (1991)	54%
5.	R.C. Sharma (1994)	51.2%
<b>6.</b>	<b>PRESENT STUDY (2004-2005)</b>	<b>41.7%</b>

Studies done by different authors in different parts of our country had shown the prevalence of dermatoses ranging from 35-54%.

In coming to the most common dermatoses the present study found that infections and infestations was the most common dermatoses in the primary school children. This account for 50%.

**PREVALENCE OF INFECTION AND INFESTATION IN DIFFERENT STUDIES.**

<b>S.No.</b>	<b>Name of the Study</b>	<b>Results</b>
1)	R.C. Sharma et al (1994)	51.24%
2)	Negi et al (1998)	50.9%
3)	K. Karthikeyan et al (2002)	54.5%
<b>4)</b>	<b>PRESENT STUDY (2004-2005)</b>	<b>50%</b>

Observations by the present study is in agreement with other studies done by above mentioned authors.

Immature immune system and enhanced exposure to sub clinical infectious carrier in the school and family render children more susceptible to cutaneous infection and infestation. Majority of our children in the study group belong to low socioeconomic group and also they live in congested slum areas with unhygienic environment. These may be the reasons for the more incidence of infection and infestations.

Among the total cases of infection and infestation, bacterial skin infections was the leading one. About 26.7% children were diagnosed to have bacterial infection.

**PREVALENCE OF BACTERIAL SKIN INFECTION IN DIFFERENT STUDIES.**

<b>Sl. No.</b>	<b>Study</b>	<b>Results</b>
1.	Vikash Bhatia (1989)	16.1%
2.	R.C. Sharma et al (1994)	34.0%
3.	Ghosh SK et al (1995)	35.6%
4.	K.S. Negi et al (1998)	15.6%
5.	Kartikeyan et al (2002)	47.13%
<b>6.</b>	<b>PRESENT STUDY (2004-2005)</b>	<b>26.9%</b>

In the present study it found bacterial infection in 26.9% of children. Various other studies done by various authors found the prevalence of bacterial infections ranging from 15.6% - 47.13%.

Parasitic Infestations comes next to the infection and this constitutes 12.7% of cases. Among the infestation pediculosis capitis constitutes more and it accounts for 9.6% of cases.

#### **PREVALENCE OF PEDICULOSIS CAPITIS IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Vijaykumar (1986)	50.2%
2.	Vikash Bhatia (1989)	20.4%
3.	N.L. Sharma et al (1989)	74.1%
4.	Valia et al (1991)	35%
5.	Negi et al (1998)	22.6%
6.	Karthikeyan et al (2002)	2.4%
7.	<b>PRESENT STUDY (2004-2005)</b>	<b>9.6%</b>

The present study found 9.6% of children suffering from pediculosis capitis. Majority of other studies found high prevalence of pediculosis capitis. During the school surveys most of the class teachers asserted that their children were maintaining good personal hygiene and frequent washing of their hairs. This may be the reason for the low prevalence of pediculosis capitis among the studied population.

Scabies was diagnosed in 3.1% of children.

#### **PREVALENCE OF SCABIES IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Rotti SB et al (1983)	8.2%
2.	Vijaykumar et al (1986)	1.5%
3.	Vikhash Batia (1989)	2.25%
4.	K.S. Negi et al (1998)	5.1%
<b>5.</b>	<b>PRESENT STUDY (2004-2005)</b>	<b>3.1%</b>

Observation by the present study is in parallel with many of the studies except that one done by Rotti SB et al who found incidence of scabies as 8.2%.

In the present study fungal infection was present in 7.4% of the children

#### **PREVALENCE OF FUNGAL INFECTION IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Vijaykumar et al (1986)	2.2%
2.	Vikash Bhatia et al (1989)	6.6%
3.	R.C. Sharma et al (1994)	8.4%
4.	K.S. Negi et al (1998)	4.3%
5.	K. Karthikeyan et al (2002)	6.9%
<b>6.</b>	<b>PRESENT STUDY (2004 – 2005)</b>	<b>7.4%</b>

Observations made by the present study was in parallel with most of the studies done by different authors.

Present study found that viral infection was present in 2.9% of the children.

Among these viral infections common wart contributes 1.7% followed by molluscum contagiosum (1.25%).

#### **PREVALENCE OF VIRAL INFECTION IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
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1.	Vijaykumar et al (1986)	3.5%
2.	Vikash Bhatia et al (1989)	0.9%
3.	R.C. Sharma et al (1994)	2.87%
4.	K.S. Negi et al (1998)	2.6%
5.	k> Karthikeyan et al (2002)	3.3%
<b>6.</b>	<b>PRESENT STUDY (2004 – 2005)</b>	<b>2.9%</b>

Observation from the present study is in agreement with findings of other studies.

In the present study it found sweat gland disorders was the second most common dermatoses diagnosed in the studied population.

It found 28.1% of the children were suffering from miliaria rubra. The high incidence of miliaria rubra could be due to hot and humid climate of Chennai that prevails during the most of the year when comparing with other parts of our country.

#### **PREVALENCE OF MILIARIA RUBRA IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Vijaykumar et al (1986)	4.3%
2.	Valia RA (1991)	3%
3.	K. Karthikeyan et al (2002)	4.1%
<b>4.</b>	<b>PRESENT STUDY (2004-2005)</b>	<b>28.1%</b>

Observation by the study is much higher than the other studies. The low incidence noted in other studies could be due to various climatic conditions prevailed in that locality that may not have favoured for the occurrence of miliaria rubra.

Present study found hypopigmented lesions in 7.4% of children. Among these pityriasis alba was the leading one which accounts for 5.6% of the cases.

#### **PREVALENCE OF PITYRIASIS ALBA IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Vijaykumar et al (1986)	3.15%
2.	N.L. Sharma et al (1989)	33.3%
3.	Valia RA et al (1991)	12%
4.	K.S. Negi et al (1998)	10.4%
<b>5.</b>	<b>PRESENT STUDY (2004 – 2005)</b>	<b>5.6%</b>

Present study noted pityriasis alba in 5.6% children many other studies done by different authors had found incidence of pityriasis alba in the range of 3.15% - 33.3%.

Present study noted vitiligo patches in 0.2% of the cases.

#### **PREVALENCE OF VITILIGO IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Vijaykumar et al (1986)	0.1%
2.	N.L. Sharma (1989)	1%
3.	K.S. NegI et al (1998)	2.9%
<b>4.</b>	<b>PRESENT STUDY (2004 – 2005)</b>	<b>0.2%</b>

Observation by the present study is in parallel with two of the studies.

K.S. Negi et al in his study found incidence of vitiligo was 2.9%.

Present study found Insect bite allergy in 1.9% of children.

#### **PREVALENCE OF INSECT BITE ALLERGY IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Ghosh et al (1995)	4%
2.	K. Karthikeyan et al (2002)	5.27%
<b>3.</b>	<b>PRESENT STUDY (2004 – 2005)</b>	<b>1.9%</b>

Observation by the present study is nearly parallel to the above mentioned studies.

Present study found Phrenoderma in 1% of the children.

### **PREVALENCE OF PHRENODERMA IN DIFFERENT STUDIES**

<b>Sl.No.</b>	<b>Study</b>	<b>Results</b>
1.	Vijaykumar et al (1986)	0.5%
2.	Vikash Bhattia (1989)	0.4%
<b>3.</b>	<b>PRESENT STUDY (2004 – 2005)</b>	<b>1%</b>

Observation by the present study is in agreement with above mentioned studies.

Present study found that prevalence of dermatitis in children was 1.2%. Among these seborrheic dermatitis constitutes 50% of the cases. This is particularly noted more in the age group of 9-10 years.

Present study also found that cosmetically important lesions in 5.7% of children. Among these café au lait spot constitutes 45% cases. Vijaykumar et al (1986) in their study found prevalence of café au lait spot in 0.3% of cases.

In the present study cutaneous nevus was diagnosed in 1.9% children. Gosh et al (1995) in his study found the same in 1.6% of the children.

Keloid was found 0.3% of children by the present study. This is in agreement with study done by Vijaykumar et al during 1988 who found keloid in 0.3% of children.

Interestingly this study found 'Branding Mark' in 0.1% of the children. 3 children were found to have Branding Marks over the dorsum of their hand. In a study done by Mohapatara SS 1991 (34) among neonates they found

branding mark in the abdomen of 7.9% neonates. In all these cases of present study it was noted that Branding was made as a curative step towards elimination of jaundice. This indicates false belief among parents and lack of awareness regarding consequences of these sort of harmful procedures.

## CONCLUSION

This study concludes that,

- 41.7% of primary school children had dermatological diseases. Out of these male accounts for 52.8% and female accounts for 47.2%.
- Commonest dermatoses was infections and infestations (50%) followed by miliaria rubra (29.3%), hypopigmented lesions (7.48%) and dermatitis and allergies (5.7%).
- Among the infection and infestations bacterial infection was the commonest one that accounts for 26.9% followed by fungal infection (7.4%) and viral infections (2.9%).
- Hansen disease was present in 0.1% of children which was first time identified during the study.
- Skin conditions like bacterial infection, scabies, miliaria rubra, hair disorders, café au lait spot, seborrheic dermatitis were more common in males. Skin conditions like fungal infection, viral infection, pediculosis, phrenoderma were more common in females. Other conditions like hypopigmented lesions, cutaneous nevus, insect bite allergy and photo sensitivity do not show any difference among male and female.
- Dermatological conditions like miliaria rubra, contact dermatitis, cutaneous nevus were more common in the age group of 6-8 years. Skin

condition like fungal infection, seborrheic dermatitis were more common in the age group of 9-10 years.

- In children with dermatoses, concomitant anaemia, vit. B complex deficiency, Vit. A deficiency and dental carries was noted in 15.8%, 10.6%, 1.1% and 10.8% respectively.
- 21.5% of children with dermatoses suffering from Grade I malnutrition and 13.97% children with dermatoses suffering from Grade II malnutrition.



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**KERION**



**ALOPECIA AREATA**



**PITYRIASIS VERICOLOR**



**TINEA CORPORIS**



**ECTODERMAL DYSPLASIA**



**PALMAR KERATODERMA**



**ACCESSORY NIPPLE**



**PSORIASIS**



**SCABIES**



**COMMON WART**



**MOSAIC WART**



**MOLLUSCUM CONTAGIOSUM**





**PALMO PLANTAR  
HYPERHYDROSIS**



**CONTACT DERMATITIS**



**INSECT BITE ALLERGY**



**POLYMORPHUS LIGHT  
ERUPTION**



**CAFÉ LU AIT SPOT**



**KELOID**



**CHILDWITH HANSEN  
DISEASE PATCH**



**SAME CHILD STARTED ON MDT**



**MILIARIA RUBRA**



**VERRUCAL EPIDERMAL NEVUS**



**SEBORRHEIC DERMATITIS**



**CONGENITAL MELANOCYTIC NEVUS**



**SECONDARY PYODERMA**



**MR WITH EXFOLIATION WITH FOLLICULITIS**



**IMPETIGO**



**FURUNCULOSIS**









































































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## PREVALENCE OF COMMON DERMATOSES

