

Prevalence of Childhood Dermatological and Ocular Morbidities: A Cross-Sectional Study from Maharashtra

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ABSTRACT

Introduction: Screening many children within a certain age group for the presence of illnesses can be efficiently conducted through school surveys. This study aims to analyze the prevalence of dermatological and ocular morbidities in school children. **Methods:** A school-based cross-sectional observational study was conducted in Government and Private schools of Latur, involving 500 school children aged between 5-14 years. **Results:** The prevalence of dermatological morbidities in our research was found to be 69%, with boys showing a prevalence of 50.6% and girls 18.4%. Prevalence of ocular morbidities was 7.6%, with boys showing a prevalence of 4.2% and girls 3.4%. Among dermatological manifestations, infections and infestations were the most observed (44%), followed by eczema (dermatitis) (13%). Refractive error was the most common ocular morbidity observed in boys (33.3%), followed by Vitamin A deficiency (28.57%). In girls, refractive error was the most common ocular morbidity (35.29%), followed by Vitamin A deficiency (29.41%). **Conclusion:** Urgent attention is needed to address these health issues early on to improve children's overall well-being. The findings contribute valuable insights for future research and targeted public health interventions aimed at promoting the health of school children.

KEYWORDS: Prevalence, childhood, dermatological morbidities, ocular morbidities

INTRODUCTION:

Dermatological disorders are quite common in paediatric practise. Atopic dermatitis, contact dermatitis, birthmarks, and acne are few of most frequent paediatric skin problems. [1] Skin diseases particularly in children's, are frequently accompanied by feelings of low self-esteem and humiliation, having a substantial influence on quality of life. [2-5]

According to the Economic Survey 2022-23, 65% of India's population live in rural areas. In 2021, 25.69% of India's population was between the ages of 0 and 14, and 67.51%. Several studies conducted in metropolitan settings do not accurately represent the real condition of illnesses in community. [6]

According to estimates, there are 1.42 million blind children worldwide and 17.52 million children with moderate to severe vision impairment. Approximately 75% of these individuals reside in low- to middle-income nations, where the prevalence is as high as 1.5 per 1000 children, as opposed to 0.3 per 1000 in high-income nations. An estimated 500,000 children, or one every minute, lose their vision each year. [7, 8]

Most of the current research indicates corneal & lenticular disorders are most common reasons of blindness, but refractive errors are key reasons of blindness as well as visual impairment among children who do not attend blind schools. [9, 10]

Using a school survey, researchers aim to assess the prevalence and patterns of skin and eye problems among children

aged 5 to 14 in a rural service region. The study seeks to understand the level of health awareness and accessibility to healthcare services within the community. The findings will contribute to the development of healthcare policies tailored to meet the genuine needs of children in the area. The objective was to study prevalence of dermatological and ocular morbidities in school children.

MATERIALS AND METHODS:

Study Setting:

Population: The study included school children aged 5 to 14 years from Government and Private schools of Latur. **Sample:** A total of 500 participants were included in this school-based cross-sectional study. **Sampling Method:** Cluster Sampling Method. **Study Design:** The study employed a school-based cross-sectional design. **Study Period:** Data collection took place between June 2022 and September 2022.

Inclusion Criteria

1. Parents of students who volunteered to participate in the research.
2. Children of both sexes, aged 5 to 14 years.

Exclusion Criteria

1. Children with endocrine problems, physical, and mental defects.
2. Children who did not agree to participate in the study.

Participant Interviews and Questionnaire:

Participants meeting the inclusion criteria underwent interviews using a pre-designed questionnaire. The questionnaire collected information on skin lesions and eye manifestations. Prior permission was obtained from participants' schools, and parents were briefed on the study's objectives and procedures.

Data Collection Procedures:

Each participant was interviewed to gather data on age, residence, and any skin or eye-related issues. Hygiene assessment was conducted, followed by a comprehensive dermatological examination in daylight, of the skin, nails, hair, and mucosa. Diagnostic procedures such as KOH examination, Gram's stain, and Wood's lamp were employed for diagnosis confirmation. Digital photos were taken with consent. Additionally, participants underwent a thorough clinical eye evaluation to detect ocular morbidity.

Sample size estimation:

A sample size estimation was performed using the formula $\frac{Z^2 \times pq}{d^2}$, where n represents the sample size, Z is the critical

value for a given level of confidence and power (here, 2.76 for 80% power), p is the estimated prevalence from a pilot study (60%), q is the complement of p (40%), and d is the allowable error (6%). Substituting these values, the calculated minimum sample size needed was found to be 500 subjects. Therefore, 500 subjects were selected based on a 60% prevalence rate to achieve an 80% power of the study.

Statistical analysis and methods:

The data was entered into an MS Excel spreadsheet and evaluated using IBM's SPSS 23.0 edition. The qualitative data was presented in percentages and proportions. The average and standard deviation have been utilized to illustrate statistical data. Chi square test revealed an association between two qualitative variables. A p value of <0.05 was considered statistically substantial, whereas a p value of <0.001 was considered extremely significant.

RESULTS

Age group in years	Dermatological morbidities	Ocular morbidities
5 to 10	210 (42.0%)	18 (3.6%)
11 to 14	135 (27.0%)	20 (4.0%)
Total	345 (69.0%)	38 (7.6%)

Table 1: Distribution of dermatological and ocular morbidities according to Age

Out of 500 school children screened, 345 (69%) had dermatological morbidities and 38 (7.6%) had ocular morbidities. Our findings revealed prevalence of dermatological morbidities as 42% in age bracket of 5-10 years whereas 27% in age bracket of 11-14 years. Also the study revealed prevalence of ocular morbidities as 3.6% in age bracket of 5-10 years and 4% in age bracket of 11-14 years. Table 1

Gender	Dermatological morbidities	Ocular morbidities
Boys	253 (50.6%)	21 (4.2%)
Girls	92 (18.4%)	17 (3.4%)
Total	345 (69.0%)	38 (7.6%)

Table 2: Prevalence of dermatological and ocular morbidities according to gender

Our findings revealed prevalence of dermatological morbidities amongst boys as 50.6% whereas 18.4% in girls. Also, the findings revealed prevalence of ocular morbidities amongst boys as 4.2% whereas 3.4% in girls. Table 2

Type of dermatological Manifestations	Boys	Girls
Infectious and infestations	70 (27.7%)	27 (29.3%)
Non infectious	110 (43.5%)	15 (16.3%)
Nutritional deficiency	73 (28.9%)	50 (54.3%)
Total	253 (100%)	92 (100%)

Table 3: Distribution according to type of dermatological manifestations

Gender wise type of dermatological manifestations revealed that among boys, infectious & infestation type were 27.7%, non-infectious were 43.5% and nutritional deficiencies were 28.9%. Among girls, infectious type were 29.3%, non-infectious were 16.3% and nutritional deficiency were 54.3%. Table 3

The Figure 1 shows the range of skin conditions identified among school children within the study's sample. Nutritional disorders were the most common, affecting over a third of the cases at 35.65%. The second-highest category was infections and infestations, comprising 28.10% of the findings. Eczema, which is another term for dermatitis, was seen in 8.60% of the children. There were also a moderate number of cases involving the skin's keratinization (6.95%), scaly skin conditions known as papulosquamous disorders (6.08%), and hair disorders (5.21%). Less frequently observed were hypersensitivity reactions, affecting 3.47%, and disorders related to skin pigmentation and reactions to light, both at less than 3%. Sebaceous gland issues and nevi (moles) were the least common, each making up 1% of the total conditions noted.

Type of ocular manifestations	Boys (21)	Girls (17)
Refractive errors	7 (33.33%)	6 (35.29%)
Conjunctivitis	4 (19.04%)	4 (23.52%)
Vitamin A Deficiency	6 (28.57%)	5 (29.41%)
Ptosis	2 (9.52%)	1 (5.88%)
Pterygium	2 (9.52%)	1 (5.88%)
Total	21 (100%)	17 (100%)

Table 4: Distribution according to type of ocular manifestations

In boys, the study found refractive error to be the most common ocular manifestation at 33.33%. This was followed by Vitamin A Deficiency at 28.57%, Conjunctivitis at 19.04%, and both ptosis and pterygium at 9.52% each. Among girls, refractive error was also the most common, seen in 35.29%, with Vitamin A Deficiency at 29.41%, Conjunctivitis at 23.52%, and ptosis and pterygium both at 5.88%. Table 4

DISCUSSION

Out of 500 school children screened, 345 (69%) had dermatological morbidities and 38 (7.6%) had ocular morbidities.

In our study prevalence of dermatological morbidities amongst boys were 50.6% whereas 18.4% in girls. Also, the prevalence of ocular morbidities amongst boys was 4.2% followed by 3.4% in girls.

Jose G et al. into their research observed, rate of skin ailments was noticed to be higher in boys (34.7%) than in girls (33.5%), although this was not statistically significant. [11]

Gender wise type of dermatological manifestations revealed that among boys, infectious and infestation type was 27.7%, non-infectious were 43.5% and nutritional deficiencies were 28.9%. Among girls, infectious and infestation type was 29.3%, non-infectious were 16.3% and nutritional deficiencies were 54.3%.

In the Jose G et al.'s study [11], there were 346 (50.73%) infectious dermatoses, 253 (37.10%) non-infectious dermatoses and 83 (12.17%) nutritional deficient dermatoses. Almost 53 different forms of skin lesions were found amongst children, with 15 being infectious, 35 being non-infectious, and three being nutritional dermatoses. 54 children have many types of skin disorders, including Infections (28.1%), Eczema (dermatitis) (8.6%), Papulosquamous disorders (6.08%), Pigmentary disorders (2.6%), Hypersensitivity disorders (3.47%), Keratinization disorders (6.95%), Hair disorders (5.21%), Nutritional disorders (35.65%), Nevi (0.86%), Sebaceous gland disorders (0.86%), and Photo-dermatoses (1.44%).

Chitapur UG et al. [12] reported that commonest occurrence of dermatoses observed were infections & infestations constituting 40.5% (223 cases), followed by eczema/dermatitis constituting 14.4% (79 cases). Of the total of 223 (40.5%) children having infections and infestations, fungal infections were predominant affecting 77 children (14%) closely, followed by parasitic infestations seen in 76 children (13.8%).

Contrasting findings were observed in the studies by Baskaran et al. [13], Sangameshwara et al. [14], Poudyal Y et al. [15], Reddy and Narasimha Rao [16], Gupta AK et al. [17]. In all these studies, most prevalent infection was fungal infection. Parasitic was second most common in studies conducted by Baskaran et al. [13], Poudyal et al. [15], Reddy and Narasimha Rao [16], and Gupta et al. [17] as noted into our research. Increased frequency of fungal infection in the elderly might be one of the explanations for the comparable increased incidence in youngsters.

Gender wise type of ocular manifestations revealed that among boys, refractive error was seen commonly in 33.33%, followed by Vitamin A Deficiency in 28.57%, Conjunctivitis in 19.04%, ptosis in 9.52% and pterygium in 9.52% cases. Among girls, refractive error was seen commonly in 35.29%,

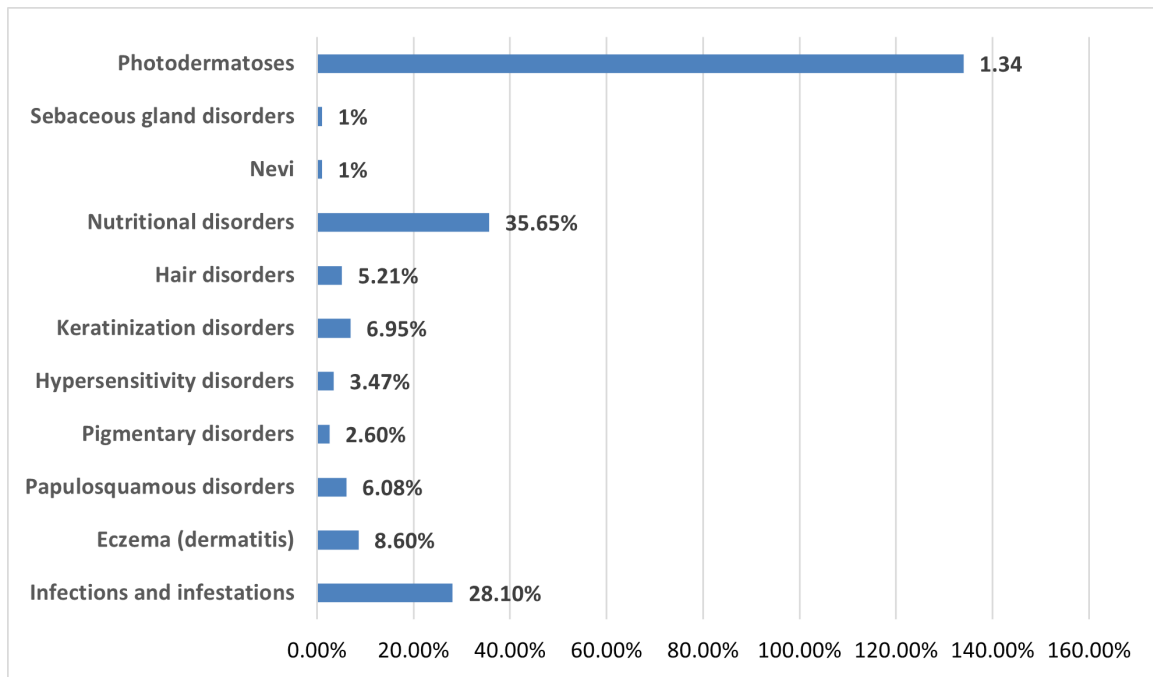


Figure 1: Distribution according to Pattern of Dermatoses

followed by Vitamin A Deficiency in 29.41%, Conjunctivitis in 23.52%, ptosis in 5.88% and pterygium in 5.88% cases.

Singh V et al. as per their study, the total rate of ocular morbidity was 29.35%. A total of 4838 pupils were tested. There were 2271 men and 2567 women. The overall incidence of ocular morbidity was 29.35%, with men accounting for 29.33% and females accounting for 29.37%.^[18]

These findings were comparable to those of research done in Delhi by Kumar et al., as he observed 22.7% prevalence.^[19] Gupta M et al.^[20] and Chaturvedi et al.^[21] found prevalence as 31.6% and 40% respectively. International investigations in Tibet by Lu et al. and Shrestha et al. found an overall prevalence of ocular morbidity as 18.36% and 34.2%, correspondingly, similar to our findings.^[22, 23]

CONCLUSION:

The study's findings stress the importance of early detection and intervention for skin and eye conditions among school children in rural Maharashtra. Boys often face non-infectious skin issues, while girls commonly experience nutritional deficiencies. Eye problems like refractive errors and conjunctivitis are prevalent, indicating a need for regular screening. This underscores the necessity for broader public health initiatives to prevent and manage these issues, ultimately contributing to stronger communities.

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