

## Original Research Article

# Skin disorders prevalent among orphanage children in Puducherry

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**Received:** 22 January 2021

**Accepted:** 26 February 2021

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### ABSTRACT

**Background:** Around 20 million children, about 4% of the total population of India, higher than the population of Delhi, are abandoned and most of them dwell in orphanages.

**Methods:** There are only few studies were carried out to analyse the spectrum of skin diseases in orphanage children and there is a paucity of data from orphanages in Puducherry. Hence this study was carried out to analyse the spectrum of skin disorders in orphanage children, in and around Puducherry. In this cross sectional study, three orphanages in and around Puducherry was chosen. Two dermatologists carried out the examination, including the skin, hair, nails and oral cavity of all the residents for a period of six months. Diagnoses were made clinically and recorded, treatment recommendations were offered.

**Results:** The data analysis was carried out using Graphpad Prism, a  $p < 0.05$  was considered significant. A total of 216 children were enrolled in this study, of which 203 (93.98%) were found to have skin diseases. Infectious dermatoses were observed in 148 (68.52%) children whereas non-infectious dermatosis was evident in 83 (32.43%). Among the infectious dermatoses infestation was the most common (37.50%), followed by fungal in 48 (22.22%), bacterial 12 (5.56%) and viral in 7 (3.20%). Acquired disorders such as acne, eczema and xerosis and pigmentary, papulosquamous and other miscellaneous dermatoses constituted the non-infectious group dermatoses.

**Conclusions:** Skin disorders in orphanage children are ought to be more common due to overcrowding, lack of personal hygiene etc, which is evident from higher incidence of contagious infectious dermatoses. Hence improving the standard of living, counseling and education to the care takers, and the children and good nutrition will help to bring down the skin diseases in orphanages.

**Keywords:** Orphanage, Orphans, Puducherry, Children, Epidemiological

### INTRODUCTION

Children are nature's gift and fountain of life. A child of today is the future adult citizen and leader of the community and the country as a whole in different spheres of Nation's life. The destiny of nation is determined by how perfectly they are moulded. Under the terms of the study, "orphan" is defined as a child under 18 years of age who has lost one or both parents to any cause of death by United Nations children's fund (UNICEF) and the Joint UN Programme on HIV/AIDS. By this definition, there were nearly 140 million orphans globally in 2015, including 61 million in Asia, 52 million

in Africa, 10 million in Latin America and the Caribbean, and 7.3 million in Eastern Europe and Central Asia.<sup>1</sup> In April 2018, it is estimated that 153 million children worldwide are orphans.<sup>2</sup> Everyday 5,760 more children become orphans.<sup>3</sup>

India is the second most populated country in the world with an estimated population of over 1.2 billion. Although the exact number of orphans is unknown, according to the study done by SOS survey (Hindustan Times 2011) India homes around 20 million orphan children out of which 99.7% were abandoned. That makes about 4% of their population in India and higher

than people living in Delhi. Of them, parents of only 0.3% children have died and rest have been abandoned.<sup>4</sup> Orphan children have been sympathized, ignored, vitrified or even hidden away in the community. These children face many issues such as emotional and behavioural because they are frequently exposed to abuse, exploitation, neglect, and lack of love and care of parents. They are likely to be emotionally needy, insecure, and poor. In addition to these factors, most of them are brought up in institutional homes where individual care is inadequate. These factors can impair these children emotionally and socially.<sup>5,6,7</sup> Orphanages are homes run by individuals who take responsibility of taking care of the abandoned children with help of the society.

Skin diseases are most common in these children and are often neglected. A proper study to assess skin disorders among orphan population is scarce. Therefore, our study was planned to assess the prevalence of skin lesions among the institutionalized orphan-children in Puducherry.

**METHODS**

A cross-sectional study was conducted in three orphanages at Puducherry, for a period of 6 months (April 2014 to September 2014). Approval from the governing bodies of the orphanages and signed informed consent from the orphanage officials who are the guardians of the children were obtained.

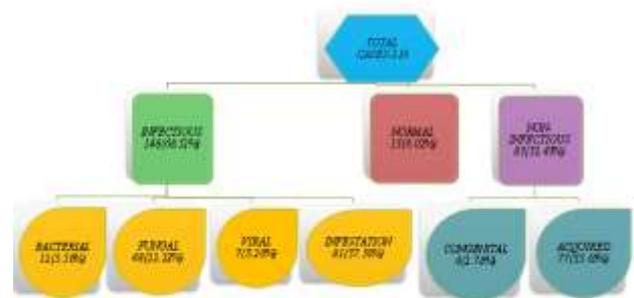
A total of 216 children aged between 2 to 14 years in three orphanages were enrolled in this study. A detailed history was taken followed by general physical examination and dermatological examination. Two dermatologists performed the clinical examination, including the skin, hair, nails and oral cavity in all the study participants. Diagnosis was made after consensus opinion of the two dermatologists and relevant bedside investigations were done. Statistical analysis of the collected data was done using Graphpad Prism 5 (Graphpad Prism, San Diego, USA),  $p < 0.05$  was considered significant.

**RESULTS**

A total of 216 children were enrolled in this study, of which (145 were males and 71 were females). Physical examination revealed dermatoses in 203 (93.98%) children. Multiple dermatoses were also found in many children. Among the diseased, 138 (63.41%) were males and 65 (30.09%) females with a male to female ratio of 2:1. Among the affected children, 148 (68.52%) had infectious and 83 (32.43%) had non-infectious dermatoses respectively (Figure 1).

Infestation (scabies, pediculosis) was common in the infectious group (N=81, 37.5%) followed by fungal infection (onychomycosis, cutaneous candidiasis,

pityriasis versicolor and dermatophytic infections) in 48 (22.22%) and bacterial infections (folliculitis, impetigo) in 12 (5.56%). Viral infections (molluscum contagiosum, verruca vulgaris) were seen only in 7 (3.20%). The various clinical presentations of the above mentioned dermatoses are given as figures (Figure 2-11).



**Figure 1: Classification of skin disorders observed in orphanage children based on the aetiologies.**



**Figure 2: Scabies with secondary infection.**



**Figure 3: Pediculosis.**



**Figure 4: Oral candidiasis.**



**Figure 5: Tinea corporis with cruris.**



**Figure 9: Segmental Vitiligo.**



**Figure 6: Molluscum contagiosum.**



**Figure 10: Phrynoderma.**



**Figure 7: Haemangioma.**



**Figure 11: Multiple Keloid.**



**Figure 8: Atopic dermatitis.**

In the non-infectious group, 6 (2.78%) had congenital and hereditary disorders (congenital melanocytic nevus, capillary haemangioma). Acne with seborrhoea, eczema (atopic dermatitis, allergic contact dermatitis, seborrheic dermatitis) and xerosis were common in acquired disorders. Pigmentary (vitiligo), papulosquamous (phrynoderma, lichenplanus) and other miscellaneous dermatoses (keloid, pyogenic granuloma) was observed in 8 children (3.72%).

#### **DISCUSSION**

The results of current cross-sectional study on children of orphanages provide a unique opportunity to analyse the health status in this left out population of society. There

have been very few studies carried out on the skin problems of orphan children which indicates that the overall skin condition/health status of these children is poor and there is a special need of care.

In the present study, it was observed that 203 (93.98%) children had skin diseases. Findings of current investigation were much higher than the reported incidence of 30-70% among school children in India. However, most of those studies were carried out in school children and hence the prevalence might be lesser, but our finding suggests that close contact, overcrowding, which is more common in orphanages might contribute to higher chances to acquire infectious dermatoses.<sup>8</sup>

Scabies and pediculosis were the most common infectious dermatoses (37%) observed in this group. Jawade et al have reported that scabies constituted 24.49% of the infectious skin disorders in paediatric patients at a tertiary care hospital in Gujarat.<sup>9</sup>

However, there have been reports on the incidence of scabies with a wide range between 8.7% to 87.5% in boarding schools at several countries. The major reason that could be attributed for the higher prevalence of scabies could be due to overcrowding, sharing of clothes, close contacts, lack of hygiene education, poor economic status etc.<sup>8,10</sup>

In the infectious group of dermatoses, fungal infection stood second and was seen in 48 (22.22%) children, which is much higher than the reports from various regions from India. The higher incidence of fungal infection in our study group might be due to the poor maturation of sweat gland in these age group, overcrowding and poor hygiene.<sup>9</sup>

In current study group, the incidence of bacterial infections (folliculitis, impetigo) in 12 (5.56%), and viral infections (molluscum contagiosum, verruca vulgaris) were 5.56% and 3.20% respectively. Among the bacterial impetigo and pyoderma were the most common dermatoses observed. Our findings are in tandem with the earlier report of Jawade et al.<sup>9</sup> With regard to the viral infections, current findings are in similar with several reports from India and other countries, in which molluscum contagiosum and warts were the most observed viral dermatoses in children.

Among the non-infectious dermatoses, in current study acne (11.57%) was found to be the commonest and next being eczema (6.48%). Congenital disorders just contributed to 2.77% of total cases. The incidence rate of eczema in our study group was much higher than the rate reported by Jawade et al.<sup>9</sup> However, an incidence rate of 18% to 34% was reported from the western world.<sup>10,11</sup> The factors associated with the incidence of eczema such as climate, genetics of the individual needs to be explored through larger cohort studies in these population.

The incidence rate of pigmentary disorders in current study group (3.72%) was in consent with the earlier reports in India (2.80% and 3.16%), but lesser than that reported by Patel et al in a North Indian Cohort.<sup>9,11</sup>

## CONCLUSION

In current study, the infectious dermatoses constituted the most, and it was mainly due to the precipitating factors such as overcrowding, poor hygiene, sharing of clothes, lack of health education, economic status etc. However, empowering the caretakers and the inmates on health and hygiene might result in reducing these contagious dermatoses.

## ACKNOWLEDGEMENTS

Authors would like to thank the Dean, AVMC, and the patron of the orphanage and patients for their support in conducting the study.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Kanagaraj P, Kaliyaperumal D, Paquirissamy O. Skin disorders prevalent among orphanage children in Puducherry. *Int J Res Dermatol*2021;7:395-9.