



A Clinical and Epidemiological Study on Adolescent Dermatoses in a Tertiary Care Center

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Abstract: Introduction: The term Adolescence was derived from the Latin term *adolescere*, which means “to grow up”. It is the transition phase from childhood to adulthood. Adolescence is a time of immense biological, psychological and social changes. The effects of these changes on skin are profound. Various dermatoses can affect their current and future adult health. An essential aspect of this particular age is the emerging sexuality and intimacy, which may be influenced dramatically by body image, self-esteem as well as peers. Dermatoses represent a significant public health burden, particularly in developing countries. Only a few studies were documented regarding the effect of skin diseases on health-related quality of life that too, in adults. Lack of research on adolescent population has raised interest in carrying out the present study. **Material and Methods:** This is a prospective and Hospital based cross sectional study conducted in the Department of Dermatology, Venerology and leprosy in Narayana Medical College Hospital, Nellore from January 2017 to December 2017. All consenting patients aged between 10 and 19 years with clinical evidence of skin disease were included. A detailed history of patient’s disease was taken and after getting an informed consent, a meticulous general and mucocutaneous examination was done. Any predisposing factors like drug intake, topical application of cosmetics and medicines, etc. were noted. Investigations like KOH mount, Tzanck smear, gram’ stain, Wood’s lamp examination, biopsy was done as and when needed. **Results:** In this study, there were a total no. of 500 patients in the adolescent age group i.e., 10-19 years out of which 255 (51%) were males and 245 (49%) were females. The incidence of various dermatoses in males in decreasing order of incidence is infections (11.4%), acne (9.2%), infestations eczematous lesions – pigmentoses each (4.2%) followed by hair disorders (3.6%), Papulosquamous (2.8%). The incidence of various dermatoses in females in decreasing order of incidence is infections (11.6%), acne (10.2%), infestations (5%), eczematous lesions (4.8%), pigmentoses (3%) followed by hair disorders (3%), Papulosquamous (1.4%) Among the infections, Fungal infections were most common (11.4%), followed by Infestations (9.2%), viral (6. %), and bacterial (3.8%). **Conclusion:** In our study, infections were the most common dermatoses, as seen in the previous studies done on adolescents. Acne vulgaris was the most common individual dermatoses owing to the hormonal changes with an impact on adolescent's quality of life. Lichen planus was common among all the papulosquamous disorders. Urticaria, alopecia areata, keloids, and insect bite reactions were the other commonly occurring dermatoses.

Keywords: Adolescent, Dermatoses, Fungal infections.

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INTRODUCTION

The term Adolescence was derived from the Latin term *adolescere*, which means “to grow up”. It is the transition phase from childhood to adulthood. Adolescence is a time of immense biological, psychological and social changes.¹ The effects of these changes on skin are profound. Various dermatoses can affect their current and future adult health. An essential aspect of this particular age is the emerging sexuality and intimacy, which may be influenced dramatically by body image, self-esteem as well as peers.²

The World Health Organization (WHO)³-defined adolescence as the period of age ranging between 10 and 19 years old. Adolescents constitute approximately one-fifth of the Indian people. Skin diseases are increasingly reported among the adolescent population all over the world.⁴ According to the Global Burden of Disease study conducted in 2013, dermatological affections are the second consultation motives for teenagers after ophthalmological affections. Different dermatoses have a remarkable impact on adolescent's health-related quality of life.⁵

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Dermatoses represent a significant public health burden, particularly in developing countries. Only a few studies were documented regarding the effect of skin diseases on health-related quality of life that too, in adults. Lack of research on adolescent population has raised interest in carrying out the present study.

The importance of this study lies in need for an epidemiological survey of dermatoses among adolescents, which will help in planning different preventive measures and establishing Adolescent Friendly Health Clinics. Furthermore, the study will increase awareness and helps in managing the upcoming risk factors, thus contributing to improvement in the productivity and quality of life. This study aims at studying the pattern and magnitude of various dermatoses among adolescents attending a tertiary care hospital in Nellore, a coastal area of southern India.

MATERIAL AND METHODS

This is a prospective and Hospital based cross sectional study conducted in the Department of Dermatology, Venerology and leprosy in Narayana Medical College Hospital, Nellore from January 2017 to December 2017.

INCLUSION CRITERIA

All consenting patients aged between 10 and 19 years with clinical evidence of skin disease were included.

A detailed history of patient's disease was taken and after getting an informed consent, a meticulous general and mucocutaneous examination was done. Any predisposing factors like drug intake, topical application of cosmetics and medicines, etc. were noted. Investigations like KOH mount, Tzanck smear, gram' stain, Wood's lamp examination, biopsy were done as and when needed.

Statistical Analysis:

Data was entered into Microsoft Excel (Windows 7; Version 2010) and an analysis was done using the Statistical Package for Social Sciences (SPSS) for Windows software (version 22.0; SPSS Inc.). Descriptive statistics such as mean and standard deviation (SD) for continuous variables, frequencies and percentages were calculated for categorical Variables were determined. Association between Variables was analyzed by using Chi-Square test for categorical Variables. Bar charts were used for visual representation of the analyzed data. Level of significance was set at 0.05. The prevalence of various skin disorders and the clinical characteristics of different Adolescent dermatoses was studied.

RESULTS

In this study, there were a total no. of 500 patients in the adolescent age group i.e., 10-19 years out of which 255 (51%) were males and 245 (49%) were females.

Table 1. Sex Distribution of study population

	Males (%)	Females (%)
Adolescents (10 -19 yrs)	255 (51%)	245 (49%)

Table no.2 Distribution of Study Subjects according to their Age Group (N = 500)

Age (in Years)	No.	Percent
10-13	145	29%
14-16	141	28.2%
17-19	214	42.8%
Mean (SD)	15.38 (2.78)	
Range	10-19	

In this study, distribution subjects among various age groups was 10-13 years were 145(29%), 14-16 years were 141(28.2%) and 17-19 years were 214(42.8%). Age group 17-19 years constituting more no. of subjects 214(42.8%).

Table no.3 Sex distribution of various Dermatoses

DERMATOSES	Males (%)	Females (%)
Infections	57 (11.40%)	58 (11.60%)
Acne	46 (9.20%)	51 (10.20%)
Infestations	21 (4.20%)	25 (5%)
Eczematous lesions	21(4.2%)	24 (4.8%)
Pigmentoses	21 (4.2%)	15 (3%)
Hair disorders	18 (3.6%)	15 (3%)
Papulosquamous disorders	14 (2.80%)	7 (1.4%)
Urticaria	10 (2%)	3 (0.60%)
Aesthetic	6 (1.20%)	7 (1.4%)
Disorders of Sweat and Sebaceous glands	7 (1.40%)	5 (1%)
Congenital	6 (1.20%)	3 (0.60%)
Others	10 (2%)	14 (2.80%)

The incidence of various dermatoses in males in decreasing order of incidence is infections (11.4%), acne (9.2%), infestations eczematous lesions – pigmentoses each (4.2%) followed by hair disorders (3.6%), Papulosquamous (2.8%). The incidence of various dermatoses in females in decreasing order of incidence is infections (11.6%), acne (10.2%), infestations (5%),eczematous lesions (4.8%), pigmentoses (3%) followed by hair disorders (3%), Papulosquamous (1.4%)

Table No 4. Incidence of various types of infections:

• INFECTIONS	• 23%
• FUNGAL	• 11.4%
• VIRAL	• 6.8%
• BACTERIAL	• 3.8%
• INFESTATIONS	• 9.2%

Among the infections, Fungal infections were most common (11.4%), followed by Infestations (9.2%), viral (6.%), and bacterial (3.8%). Table(7) chart (7)

Table no.5 Association between Gender and Acne Vulgaris (N = 500)

Gender	Acne Vulgaris		Total
	Yes	No	
Female	51 (20.8)	194 (79.2)	245
Male	46 (18.1)	209 (81.9)	255

Chi-Square Test, P Value = 0.432, Not Significant

From the above Table no.5 Association between Gender and Acne Vulgaris was not significant with p value 0.432



MILD ACNE



MODERATE ACNE



SEVERE ACNE



TRUNCAL ACNE



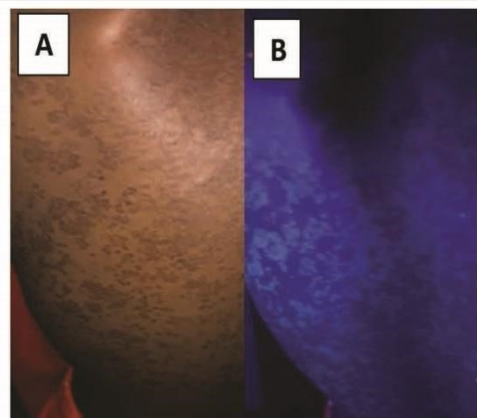
ACNE CONGLOBATA



STEROID ACNE



TINEA FACIEI



**A. HYPERPIGMENTED PITYRIASIS
B. PALE YELLOW FLUORESCENCE
ON WOODS LAMP**



TINEA CAPITIS (KERION)



VARICELLA



ECTHYMA



SUB UNGAL WART

DISCUSSION

The study includes 500 patients between ages 10 to 19 years. Of them, incidence of dermatoses is higher among 17-19 years age group (42.8%), followed by 10-13 years age group (29%), followed by 14-16 years age group (28.2%). The majority belonged to late adolescence. Hmar et al.,⁶ Singh et al.⁷ found a similar preponderance in their study.

In the present study, males constituted 51 % and females 49 % of the study population. Males outnumbered females. Jawadeet al.,⁸ Narsimharao et al.,⁹ Mendalawi¹⁰ found a similar male preponderance in their study whereas Anoop et al.,¹² and Hmar et al.,⁶ reported a female preponderance in their study.

The most common dermatoses in our study were infections observed in 22% of the study population. This is in concordance with the study conducted in Kerala by Anoop et al.¹², that reported infections to be the most common dermatoses (33.8%). Other studies by Hmar et al.,⁶ Narsimha Rao et al.,⁹ Mendalawi et al.,¹⁰ also reported infections and infestations as the predominant dermatoses in the adolescent age group.

Among infections and infestations, Fungal infections (11.4%) were most common followed by Parasitic infestations (9.2%) and viral (6.8%) infections. Dermatophytosis (11.4%) was the most common individual infectious dermatoses. Scabies alone constituted the majority of infestation, making 7.8 % of the total dermatoses. Being a coastal area, high humidity, high temperatures around a year, lack of health education has been attributed to the increased incidence of fungal infections.

A similar result was seen in the study by Hmar V et al.,⁶ Singh N et al.⁷ in which Fungal infections representing 13.6% of all the dermatoses, followed by parasitic infections representing 7.3% and bacterial infections forming 6.3 % of the total dermatoses.

In the study by Nadia et al.,¹³ viral infections were the predominant group (15.7%) followed by fungal (13.5%) and bacterial (10.8%) infections. The treating dermatologists must provide health education to the patients, parents, and attendees in preventing the resurgence of chronic and chronic relapsing tinea infections. A note on the use of over the counter topical medications containing antifungal, steroid combinations in worsening the disease course to be addressed.

Application of topical antifungal 2cms outside the affected area and on to the lesional skin, twice a day application, continuation of antifungal treatment 2 weeks beyond clearance is advised. Patient advice must include twice a day bath, personal and family hygiene,

avoidance of tight-fitting clothes, avoidance of jeans, proper washing, and drying of clothes.

The viral infections constituted 6.8 % of total dermatoses of our study. Verruca (3.8%) was the most common viral disease followed by varicella, Molluscum contagiosum, and herpeslabialis. We observed that viral warts were more common in the adolescent group, similar to observations in previous studies.^{16,17}

Among bacterial infections, furunculosis (1.2%) is the most common cause of pyoderma in the current study. The occurrence of Hansen's disease is 0.8 % of the total dermatoses. It gains significance in this era of elimination of Hansen's disease, especially in endemic countries like India. The detection of new cases in children and adolescents signifies the active circulation of bacillus, with its continued transmission and the failure of the health system to control the disease. Household contacts serve as the primary source of infection. Knowledge of the behavior and course of leprosy in children under 15 years of age is a must and should figure with other differential diagnoses, not only by the dermatologist but also other professionals involved in providing medical care to children and adolescents.¹⁸

The early diagnosis of leprosy is essential in the prevention of deformities, whose consequences are still more catastrophic when treating children under 15 years. Lack of education, social backwardness, lack of sanitation, overcrowding, excess pollution, lack of health care facilities in the rural area contribute to the increased incidence of infectious disorders, and various dermatoses in India.

The next most common condition was acne, which was seen in 19.4% of the study population. Our study group included patients in the adolescent age; a higher incidence of acne was noticed among them. Similarly, in a study by Hmar V⁶ and Singh N et al.,⁷ found acne in 22.72% of the adolescent study population.

CONCLUSION

In our study, infections were the most common dermatoses, as seen in the previous studies done on adolescents. Acne vulgaris was the most common individual dermatoses owing to the hormonal changes with an impact on adolescent's quality of life. Lichen planus was common among all the papulosquamous disorders. Urticaria, alopecia areata, keloids, and insect bite reactions were the other commonly occurring dermatoses. The present study provides the characteristic clinical pattern and prevalence of various skin diseases of the adolescent population. It emphasizes the importance of knowing the commonly occurring dermatological conditions affecting

adolescent age group and providing proper care to the patients accordingly in the form of early diagnosis and treatment, good health education and increasing health awareness regarding prevention of these diseases, and emphasizing the importance of maintaining personal hygiene and cleanliness.

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