

Original Research Article

Clinico-epidemiological study of facial dermatoses among adolescents

Manjunatha Hemalingiah, Raghuv eer Chekuri*, Veeresh

Department of Skin and STD, Vijayanagar Institute of Medical Sciences, Ballari, Karnataka, India

Received: 26 October 2019

Accepted: 12 November 2019

***Correspondence:**

Dr. Raghuv eer Chekuri,

E-mail: c_raghuv eer@yahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The obsession of getting a flawless skin is more for adolescents than in any other age group. But these problems are seldom given enough importance. Very common problem like acne vulgaris can cause serious psychological impact in them.

Methods: Four hundred consecutive adolescent (10-19 years) patients with facial dermatoses presenting to skin department, VIMS, Ballari were selected for the study. Study design was descriptive and cross sectional, conducted from January 2013 to December 2013.

Results: Eighty seven percentage of the study population was students and the rest were either labourers or drivers. Acne vulgaris was the diagnosis in 304 (76%) of cases. Second most common condition was seborrheic dermatitis accounting for 24 (6%) of cases.

Conclusions: Facial dermatoses are common among the adolescents. These dermatoses are of a major cosmetic concern in this age group. Early diagnosis and proper management with education of patients is important to prevent late disfiguring complications and psychological sequelae.

Keywords: Adolescents, Facial dermatoses, Acne vulgaris

INTRODUCTION

WHO defines adolescents as individuals in the 10-19 age group.¹ They constitute more than 1.2 billion worldwide, and about 21% of Indian population.² The transition from childhood to adulthood involves dramatic physical, sexual, psychological and social developmental changes, all taking place at the same time. The term adolescents embrace the events of puberty.³ The physiological changes associated with puberty bring about maturation of hair follicles, sebaceous glands and apocrine sweat glands. The pressure of coping with a maturing skin is acute for a girl who is persuaded by advertisers. Adolescence is a bad time to have skin disease especially on the face or on the extremities.³ Because in most societies the face is usually a body part that is visible, imperfections or flawed appearance bears the potential to

become a source of misery to some.⁴ This is emphasised by the fact that a very common disorder, acne vulgaris, can have far-reaching detrimental effects on self-image and self-esteem.⁵ The psychological impact these skin disorder can have on an adolescent is highly variable and unpredictable. These make the study of various facial dermatoses prevalent in the age group of 10-19 years, important socially as well as clinically. There are very limited number of studies in literature on adolescent facial dermatoses and thus the importance of our study.

METHODS

Four hundred consecutive adolescent (10-19 years) patients with facial dermatoses presenting to skin department, VIMS, Ballari were selected for the study. Study design was descriptive and cross sectional, conducted from January 2013 to December 2013.

Adolescents with symptoms of facial dermatoses, including leprosy were included in the study. Exclusion criteria were patients and/or their guardians not giving consent for the participation in the study, patients with drug reactions, those patients having non-genital STIs affecting the face and seriously ill patients. The sample size was based on the study period, i.e. the number of patients who fit in the inclusion criteria attending the department of Dermatology, Venereology and Leprology during the study period.

Hence data was collected from 400 cases. The sampling technique used was non-probability purposive sampling technique. All the patients who fit for inclusion criteria and attending the hospital during the study period were considered.

Method of data collection

After obtaining the informed written consent, a detailed clinical history including onset and evolution of lesions, socio economic factors and environment in which the patient is living were noted. A thorough clinical examination and relevant laboratory investigations if needed were done. The data thus collected was entered in to a specially designed case record form and photographs were taken when needed.

Statistical analysis

The data was entered in Microsoft excel and was analysed using SPSS 20.0 with the following statistical tests: Proportion: to find percentage, Mean: to find average, Standard deviation: to find dispersion, Chi square test: to compare proportion, Independent “t” test: to compare mean values.

Ethical approval

The protocol was approved by the Institutional Ethics Committee at the study site. The study was conducted in accordance with the ethical principles originating in the declaration of Helsinki. All the participants provided written and audio-visual informed consent to participate in the study.

RESULTS

Four hundred patients were enrolled for the study during the study period.

Eighty-seven percentage of the study population were students and the rest were either labourers or drivers. Two hundred and twelve patients out of 400, that is 53% were residing in urban area and rest in semi urban or rural areas. In 368 (92%) of cases, the lesions were asymptomatic and only 32 (8%) patients were having symptoms in the form of itching, burning or pain. Eighty-one percentage of patients, that is 324 cases had lesions

only on the face. Majority of patients approached the hospital with complaints of more than 2 years duration.

Table 1: Demographic data of the study subjects (n=400).

Characteristics	Number of patients	Percentage (%)
Gender		
Male	244	61
Female	156	39
Age (in years)		
10-11	12	03
12-13	24	06
14-15	66	16.5
16-17	110	27.5
18-19	188	47.0
Urban	212	53
Rural	188	47
Students	348	87
Others	52	13
Duration (in years)		
<2	60	15
2-5	134	33.5
>5	206	51.5
Asymptomatic	368	92
Symptomatic	32	08



Figure 1: Acne vulgaris with a) open and b) closed comedones.



Figure 2: Tinea faciei over right eyebrow.

Table 2: Predominant lesions over the face in the study subjects (n=400).

Predominant lesions	Number	Percentage (%)
Comedones	272	68
Papules	66	16.5
Hypopigmented patch	38	9.5
Annular patch	12	03
Macule	04	01
Vesicle	02	0.5
Hyperpigmented patch	06	1.5



Figure 3: Melanocytic naevus over left side of forehead.



Figure 4: Verruca plana over the forehead.

The predominant lesion over the face in 272 (68%) patients was comedones. Sixty-six (16.5%) patients had

papules as predominant lesions. Others had hypopigmented patch, annular patch, macules, vesicles and hyperpigmented lesions.



Figure 5: Dermatitis artifacta below the left eye.



Figure 6: Molluscum contagiosum over right cheek and upper lip.

Acne vulgaris was the diagnosis in 76% of cases, that is 304 out of 400 patients. One hundred and fifty-two (50%) acne cases were in the age group of 18-19 years and 92 (30.3%) were in 16-17 years. Most of the patients had milder forms of acne.

Second most common condition was seborrheic dermatitis, accounting for 24 (6%) cases. Apart from these, patients had polymorphic light eruption, congenital melanocytic nevi, tinea faciei, vitiligo, Hansen's disease,

verruca vulgaris, contact dermatitis, pityriasis versicolor, freckles, furuncle, etc.

Table 3: Various diagnosis among the adolescents (n=400).

Diagnosis	Number of patients	Percentage (%)
Acne vulgaris	304	76
Seborrheic dermatitis	24	06
PMLE	10	2.5
Congenital melanocytic naevi	08	02
Tinea faciei	06	1.5
Contact dermatitis	06	1.5
verucca	04	01
PIH	04	01
P. versicolor	04	01
Molluscum contagiosum	04	01
Miliaria	04	01
Vitiligo	04	01
Freckles	04	01
Herpes zoster	02	0.5
Furuncle	02	0.5
Syringoma	02	0.5
DPN	02	0.5
Dermatitis artifacta	02	0.5
Hansens disease	02	0.5
Alopecia areata	02	0.5

Table 4: Demographic characteristics of patients with acne vulgaris (n=304).

Characteristics	Number of patients	Percentage (%)
Gender		
Male	202	66.4
Female	102	33.6
Age (in years)		
10-11	0	0
12-13	12	3.9
14-15	48	15.8
16-17	92	30.3
18-19	152	50
Grades of acne		
Grade 1	272	89.5
Grade 2	18	05.9
Grade 3	08	02.6
Grade 4	06	01.9

DISCUSSION

This study conducted over a period of one year included 400 patients; of which 244 (61%) were males and 156 (39%) were females. This is in accordance with the study

by Bhagwat et al, who in their study on facial dermatoses found that 52% of patients were males.⁶

A female preponderance (57.2%) was noted in a study by Henshaw et al, on teenage adolescents in Nigeria, in contrast to our study.⁷ The male preponderance in our study maybe due to more chance for male teenagers to get medical help because of their mobility in our society than females.

Most patients were in 18-19 years age group. Lesions were asymptomatic in 368 (92%) cases and only 32 (8%) patients complained of itching or pain. A study by Halvorsen et al have noticed that adolescents of age 18 years and more seem to regard their skin problems as more serious than the dermatologists.⁸ They have also shown that self-reported skin complaints are more prevalent than objective signs in this age group as in our study. Two hundred and twelve (53%) patients were from urban area and 188 (47%) from rural parts of Ballari. This finding of almost equal number of adolescents from rural areas in our study shows the increased awareness among adolescents in villages too, regarding facial lesions and their associated cosmetic concerns. This proves that appearance of face and its skin is extremely important in any society and culture.

The predominant type of lesion was comedones in more than 50% of cases i.e. 272 (68%) patients and papules in 66 (16.5%) cases. The study by Bajaj et al, on adolescent females found that grade 2 acne with comedones and few papules were the predominant lesions similar to our study.⁹

Acne vulgaris was the diagnosis in 76% of cases that is 304 out of 400 patients. Majority of adolescents with acne i.e. 244 (80.3%), belong to the age group of 16-19 years. This is in concordance to the study done by Hmar et al, where in more number of mid and late adolescents suffered from acne.¹⁰ The reason for more number of acne patients presenting late in adolescence may be due to a tendency to delay professional advice as a result of ready availability of many over the counter medications and commercial products. Males, 202 (66.4%), accounted for a higher number of acne patients compared to females. Similar finding was noted in a study by Henshaw et al.⁷

It was noticed in our study that face was the primary site involved in all patients with acne (100%). Upper back was involved in 31%, chest in 18% and arms in 16% of cases. These findings are in accordance with a study by Gupta et al, where in 93% of patients with acne showed facial involvement and 30% showed involvement of the trunk.¹¹

Most of the cases with acne were suffering from mild to moderate disease, severe forms affecting only 4.5% of the cases. Closed comedones were more common in our study. These findings were in accordance with the study by Adityan et al, in which grade 1 and grade 2 acne together constituted 87.7% of the total acne patients and

the most common type of lesion was closed comedones present in all patients.¹²

Acne vulgaris is a chronic condition that is virtually universal in adolescence. An individual is more likely to develop acne than any other disease in this age group.¹³ Androgens have long been implicated in acne pathogenesis.¹⁴ They are known to regulate genes responsible for sebaceous gland growth and sebum production.¹⁵ Estrogen may exert its effects through several mechanisms: direct opposition effect on androgens, inhibition of androgen secretion or modulation of genes involved in sebaceous gland growth and function.^{13,16} Decreased levels of estrogen in patients with acne have been found in various studies.¹⁷ All these points can be concluded by the results of our study, showing acne as the predominant condition affecting the facial skin in the study group, that is adolescents.

Twenty-four (6%) patients had seborrheic dermatitis mostly affecting the nasolabial folds. Few had blepharitis and scales over medial part of eyebrows. This finding coincides with the study by Bajaj et al.⁹ Seborrheic dermatitis is generally seen only from adolescence onwards. An explanation of this may lie in alterations in sebum that appear to occur at puberty.¹⁸ Sebaceous glands are activated at puberty under the control of circulating androgens resulting in increased sebum secretion during adolescence.¹⁹

Pigmentary disorders were mainly congenital melanocytic nevi in 2% of cases, vitiligo in 1% and freckles in 1%. This is slightly lower than seen in studies by Sharma et al (6%) and Pinto et al.^{20,21}

Infectious disorders were mainly tinea faciei, verruca vulgaris, pityriasis versicolor, molluscum contagiosum, herpes zoster, Hansen's disease accounting to 5.5% of total patients. A higher percentage of infections were seen in a Nigerian study and the reason for this could be due to the climate and humidity of the place.⁷

CONCLUSION

We undertook this study to throw light on the various cosmetic problems' adolescents face owing to physiological and social factors. These various facial lesions can cause more psychological impact in this age group than expected by a dermatologist. Most patients had milder disease of longer duration. Males were more affected by acne and comedones were the predominant lesion and on the face. These conditions in spite of being chronic, can be effectively managed improving the appearance of face and thereby increasing the self-esteem and confidence of an individual.

Limitations

Main limitation was a limited study period of 1 year, resulting in a less study population. The sample should

have been population based rather than hospital based so as to extrapolate to general population and thus to know the actual extent of the problem.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Goodburn EA, Ross DA. A picture of health? A review and annotated bibliography of the health of young people in developing countries. Geneva, Switzerland: World Health Organization, World Health Organization, Adolescent Health Programme; 1995. Available at: <https://extranet.who.int/iris/restricted/handle/10665/62500>. Accessed on 22 March 2014.
2. Sivagurunathan C, Umadevi R, Rama R, Gopalakrishnan S. Adolescent health: Present status and its related programmes in India. Are we in the right direction? *J Clin Diagn Res.* 2015;9:1-6.
3. Millington GWM, Graham-Brown RAC. Skin and skin diseases throughout life. In: Burns T, Breathnach S, Cox N, Griffiths C, eds. *Rooks textbook of dermatology* 8th ed. Oxford: Blackwell Science; 2010: 4.
4. Gupta AK. Perioral dermatitis. In: Williams H, Bigby M, Diepgen T, Herxheimer A, Nadir L, Rzany B, eds. *Evidence-based Dermatology* 2nd Ed. Malden, Massachusetts: Blackwell Publishing; 2008: 110-111.
5. Chang MW. Skin changes across the span of life, from birth to old age. In: Goldsmith LA, Katz SI, Gilchrist BA, Paller AS, Leffell DJ, Wolff K, editors. *Fitzpatrick's Dermatology in General Medicine* 8th ed. McGraw-Hill education; 2012: 1200.
6. Bhagwat PV, Chhangte MZ, Kudligi C. A clinical study of facial dermatoses. *Int J Res Dermatol.* 2019;5(1):40-4.
7. Henshaw EB, Olosode OA, Ogebege EE, Etuk I. Dermatologic conditions in teenage adolescents in Nigeria. *Adolesc Health Med Ther.* 2014;5:79-87.
8. Halvorsen JA, Olesen AB, Thoreson M, Holm J, Bjertness E, Dalgard F. Comparison of self reported skin complaints with objective skin signs among adolescents. *Acta Derm Venereol.* 2008;88:573-7.
9. Bajaj DR, Devrajani BR, Ghouri RA, Matlani BL. Pattern of skin disorders among adolescent female students at Hyderabad, Sindh. *J Pak Assoc Derma.* 2009;19:79-85.
10. Hmar V, Singh N, Devi TB, Bacharpatimayum R, Subbu DM, Verma K. Pattern of dermatoses among adolescents attending a tertiary care centre in Northeast India. *Indian J Paediatr Dermatol.* 2017;3:214-6.
11. Gupta A, Sharma YK, Dash KN, Chaudari ND, Jethani S. Quality of life in acne vulgaris:

- Relationship to clinical severity and demographic data. *Indian J Dermatol Venereol Leprol.* 2016;82:292-7.
12. Adityan B, Thappa DM. Profile of acne vulgaris: A hospital-based study from south India. *Indian J Dermatol Venereol Leprol.* 2009;75:272-8.
 13. Simpson NB, Cunliffe WJ. Disorders of sebaceous glands. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. *Rooks textbook of dermatology*, 7th ed, Oxford: Blackwell Publishing; 2004: 1-75.
 14. George R, Clarke S, Thiboutot D. Hormonal therapy for acne. *Semin Cutan Med Surg.* 2008;27:188-96.
 15. Zouboulis CC. Acne and sebaceous gland function. *Clin Dermatol.* 2004;22:360-6.
 16. Thiboutot D. Hormones and acne: pathophysiology, clinical evaluation and therapies. *Semin Cutan Med Surg.* 2001;20:144-53.
 17. Russell JJ. Topical therapy for acne. *Am Fam Physician.* 2000;61:357-66.
 18. Simpson NB, Cunliffe WJ. Disorders of sebaceous glands. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. *Rooks textbook of dermatology*, 7th ed, Oxford: Blackwell Publishing; 2004: 1-75.
 19. Millington GWM, Graham-Brown RAC. Skin and skin diseases throughout life. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. *Rooks textbook of dermatology* 8th ed. Oxford: Blackwell Science; 2010: 7.
 20. Sharma NF, Garg BK, Geol M. Pattern of skin diseases in urban school children. *Indian J Dermatol Venereol Leprol.* 1986;52:330-1.
 21. Pinto FJ, Bologna JL. Disorders of hypo pigmentation in children. *Pediatr Clin N Am.* 1991;38(4):991-1017.

Cite this article as: Hemalingiah M, Chekuri R, Veeresh. Clinico-epidemiological study of facial dermatoses among adolescents. *Int J Res Dermatol* 2020;6:25-30.