

**A CLINICO-EPIDEMIOLOGICAL STUDY ON VARIOUS PATTERNS OF FACIAL DERMATOSES IN YOUNG ADULT FEMALES : A CROSS-SECTIONAL STUDY**

**Dr. Sujeet Kumar Singh, Dr. Purna Chandra Singh, Dr. Diptiranjani Bisoyi, Dr. Dharmendra Kumar Sahu, Dr. Prasenjeet Mohanty, Dr. Jayshree Mohanty, Dr. Debashisha Roy**

Senior Resident, Department of Dermatology ,  
SCB Medical college & Hospital, Cuttack , Odisha, India , 753007.  
Assistant Professor, Department of Dermatology ,  
SCB Medical college & Hospital, Cuttack , Odisha , India, 753007.  
Assistant Professor, Department of Dermatology ,  
SCB Medical college & Hospital, Cuttack , Odisha , India , 753007.  
Senior Resident, Department of Dermatology ,  
SCB Medical college & Hospital, Cuttack , Odisha , India, 753007.  
Professor, Department of Dermatology ,  
SCB Medical college & Hospital, Cuttack , Odisha , India, 753007.  
Professor, Department of Dermatology ,  
SCB Medical college & Hospital, Cuttack, Odisha , India, 753007.  
Associate Professor, Dept of General surgery  
SCB Medical college & Hospital, Cuttack , Odisha , India , 753007

Dr. Dharmendra Kumar Sahu ( **Corresponding Author** )  
[drdharmendrasahu33@gmail.com](mailto:drdharmendrasahu33@gmail.com)

**Abstract**

**INTRODUCTION**

The face, or countenance, extends superiorly from the adolescent position of hairline, inferiorly to the chin and the base of mandible and on each side to the auricle. The wellbeing of the human psyche and our self-regard often seems dependent on what we perceive is an attractive facial appearance. Apart from the visibility of facial skin and the major impact it has on the psychological wellbeing of the individual, one of the major reasons for the special nature of facial dermatoses is that, the facial skin differs markedly from the skin of the other regions of the body. This makes the facial dermatoses stand apart, both in terms of the clinical presentation as well as therapeutic approach.

**MATERIALS AND METHODS:**

This is a Hospital based cross sectional study was conducted in the Department of skin and VD, SCB medical College and Hospital, Cuttack. The cases presented in the study were young female patients attending with features of facial dermatoses. All young adult female patients presenting with complaints of facial dermatosis. A detailed clinical history including onset and evolution of lesion, socio-economic factors, and environment in which the patients were living was noted. A thorough clinical examination, dermoscopy and relevant laboratory investigations if needed were done. The data thus collected was entered into a specially designed case record and subjected two statistical analyses like proportion, Chi-Square test and independent 't-test.

**RESULTS**

Contact dermatitis 105(75%) was the most common eczematous disorder in this group, followed by seborrheic dermatitis 33(23.5%) and atopic dermatitis 2(1.5%). Most of the patients of contact dermatitis group were belonging to mid-economic status (49.5%) and cosmetic products 49 (46.6%) constituting major culprit followed by sindoor (16.19%). Pruritus was the most common symptom observed in majority of the patients. Total no of cases observed in this group was 32. Among them milia constituting maximum no of cases 13 (40.06%) followed by xanthelasma palpebrarum 8 (25%). Xanthelasma palpebrarum was observed in 8 cases. Most of them belong to the age group of 31-35 years (75%). History of diabetes mellitus was observed in 3 cases and family history was associated with 2 cases.

**CONCLUSION**

This study was undertaken to assess the various dermatoses affecting the face and their different presentations among young adult females. Compared with other skin disorders early identification and characterization of facial skin disorders were difficult. Many of the studies explained individual dermatoses of face. To conclude, a study with a wider and larger population is necessary to understand the epidemiology of facial dermatoses.

**Keywords:** Dermatoses, Xanthelasma palpebrarum, Eczematous.

**INTRODUCTION**

The face, or countenance, extends superiorly from the adolescent position of hairline, inferiorly to the chin and the base of mandible and on each side to the auricle.<sup>1</sup> The wellbeing of the human psyche and our self-regard often seems dependent on what we perceive is an attractive facial appearance.

Apart from the visibility of facial skin and the major impact it has on the psychological wellbeing of the individual, one of the major reasons for the special nature of facial dermatoses is that, the facial skin differs markedly from the skin of the other regions of the body. This makes the facial dermatoses stand apart, both in terms of the clinical presentation as well as therapeutic approach. The profusion of pilosebaceous units with exaggeration of the sebaceous glands at some sites along with the large terminal hairs and large number of adnexal structures each surrounded by its own plexus of ramifying vascular network also influence the expression of skin disease on the face.<sup>2</sup> The facial skin and hence the facial dermatoses are unique owing to the fact the facial skin is studded with the largest and most numerous sebaceous glands, making it prone to development of dermatoses associated with pilosebaceous units.<sup>3</sup>

The skin and soft tissue of the face receive their arterial supply from branches of the facial, maxillary, and superficial temporal arteries all of which are branches of External carotid artery. The exception is a mask-like area, including the central forehead, eyelids, and upper part of the nose which are supplied through the internal carotid system by the ophthalmic arteries. There is significant communication between the external and internal carotid artery systems around

the eye through several anastomoses.<sup>4</sup> The richness of the blood supply to facial skin and nearness of the superficial vascular plexuses to skin surface and the ready dilatation of its blood vessels, ensures that all inflammatory dermatoses affecting the face rapidly causes a deep erythema.<sup>2</sup>

Understanding this complex interaction, watershed areas, and danger areas is imperative in understanding patterns of disease spread involving the face.<sup>4</sup> Facial skin is characterized by the presence of smaller hair follicles than in the scalp and, particularly in the central facial area, large number of mature sebaceous glands. The epidermis is very thin and melanocytes are numerous. The rete ridges pattern at dermo epidermal junction is often very poorly developed, which makes a distinction between papillary and reticular dermis often difficult to assess.<sup>2</sup>

WHO defines 'youth' as individuals in the 15–24 year age group<sup>5</sup>. 'Young adults' belong to age group between 18-35 year<sup>6</sup>. These two overlapping age groups are combined in the group 'young adult female' covering the females of age range 15 to 35 years. In comparison to males, females are generally more concerned about facial appearance<sup>8</sup>. In a study it is found that women specifically middle-aged females disproportionately affected by psychological impact of skin diseases like anxiety, den than men.<sup>7</sup>

Further, exposure to the vagaries and vicissitudes of the climate has a major and obvious influence on the incidence, type and natural history of facial dermatoses. There are very few clinical studies of facial dermatoses in this age group and hence the need for this study.

#### **MATERIALS AND METHODS:**

The cases presented in the study were young female patients attending with features of facial dermatoses to department of Dermatology, SCB medical College and Hospital, Cuttack.

##### **Method of collection of data:**

- Study design: Hospital based cross sectional study
- Study setting: Department of skin and VD, SCB medical College and Hospital, Cuttack
- Study period: March 2021 to Sept 2022
- Study subjects: young adult females attending Department of Dermatology with features of Facial dermatoses.
- Sample size: based on number of patients attending department during the study period.
- Data collection: after informed written consent, A detailed clinical history including onset and evolution of lesion, socio-economic factors, and environment in which the patients were living was noted. A thorough clinical examination, dermoscopy and relevant laboratory investigations if needed were done.

The data thus collected was entered into a specially designed case record and subjected two statistical analyses like proportion, Chi-Square test and independent 't-test.

**Inclusion criteria:** All young adult female patients presenting with complaints of facial dermatosis.

**Exclusion criteria:** Not willing to participate.

**Investigations done:**

- Routine investigations
- KOH Mount
- Gram stain
- Bacterial/Fungal culture
- Slit skin smear
- Wood’s lamp
- Tzank smear
- Dermoscopy
- Refractive error testing
- Biopsy from body if involved

**RESULTS**

**TABLE 1: AGE WISE DISTRIBUTION OF FACIAL DERMATOSES**

AGE GROUPS	FREQUENCY	PERCENTAGE
15-20	203	20.3
21-25	337	33.7
26-30	261	26.1
>30	199	19.9
Total	1000	100

The maximum number of patients were observed in age group of 21 to 25 years (33.7%) and the next group observed were of 26 to 30 years (26.1%).

**TABLE NO 2: SYMPTOMS IN FACIAL DERMATOSES**

SYMPTOMS	FREQUENCY	PERCENTAGE
Asymptomatic	289	28.9
Pigmentary changes	470	47
Pruritus	253	25.3
Burning pain	78	7.8
Photosensitivity	254	25.4

Patients with pigmentary changes were observed in 470 (47%) followed by pruritus in 253 (25.3%), pain /burning sensation in 78 (7.8%) and photosensitivity in 254 (25.4%) of patients. About 289(28.9%) patients were asymptomatic.

**TABLE 3: INCIDENCE OF VARIOUS FACIAL DERMATOSES**

<b>DISEASES</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
PILOSEBACEOUS DISEASES	205	20.5
PIGMENTARY DISEASES	200	20.0
INFECTIONS	169	16.9
ECZEMA	140	14.0
TSDF	128	12.8
SKIN TUMORS	33	3.3
PHOTODERMATOSES	42	4.2
PAPULOSQUAMOUS DISEASES	16	1.6
IMMUNOBULLOUS DISEASES	13	1.3
GENO DERMATOSES	8	0.8
CONNECTIVE TISSUE DISEASES	14	1.4
MISCELLANEUS	32	3.2

Diseases of pilosebaceous unit were the most common facial dermatoses seen in 27%, followed by pigmentary disorders in 26% of patients.

**TABLE 4: SITES OF DISTRIBUTION OF FACIAL DERMATOSES**

<b>SITE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Cheek	699	69.9
Nasal and perinasal	151	15.1
Forehead	301	30.1
Temple	172	17.2
Perioral and chin	105	10.5
Periocular	148	14.8

The most commonly affected site of involvement was cheeks (69.9%) followed by forehead (30.1%). The least common site of involvement was perioral and chin (10.5%).

**TABLE 5: SITES OF DISTRIBUTION OF ACNE**

<b>SITE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Cheek	184	96.33
Nasal and perinasal	22	11.5
Forehead	95	49.7
Temple	89	46.6
Perioral and chin	19	9.94

Periocular	1	0.5
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Most common site affected were cheeks (96.33%) followed by forehead (49.7%). Least common site affected was periocular area (0.5%).

**TABLE 6: GRADING OF ACNE**

GRADE	FREQUENCY	PERCENTAGE
Grade 1	36	18.8
Grade 2	73	38.2
Grade 3	48	25.1
Grade 4	34	17.8

Majority of the patients had grade II acne (38.2%) followed by grade III (25.1%), Grade I (18.8%) and grade IV (17.8%).

**TABLE NO 7: AGGRAVATING FACTORS OF ACNE**

AGGRAVATING FACTORS	FREQUENCY	PERCENTAGE
SEASONAL AGG.	84	43.9
FAMILY HISTORY	43	22.5
PREMENSTRURAL FLARE	59	30.8
TOPICAL COSMETICS	105	54.9
STRESS	55	28.7
MENSTRURAL IRR.	36	18.8
TOPICAL STEROID	34	17.8

Comedones were seen in 40 patients. Open comedones were more commonly observed than closed comedones.

**TABLE 8: INCIDENCE OF VARIOUS PIGMENTARY DISORDERS**

DISEASES	FREQUENCY	PERCENTAGE
VITILIGO	40	20
EPHELIDES	35	17.5
MELASMA	34	17
POH	30	15
LICHEN PLANUS PIGMENTOSUS	14	7
NEVUS OF OTA	09	4.5
ACANTHOSIS NIGRICANS	08	4
RIEHL'S MELANOSIS	07	3.5
LENTIGINES	06	3
NEVUS DEPIGMENTOSUS	06	3
FIXED DRUG ERUPTION	05	2.5

EXOGENOUS OCHRONOSIS	03	1.5
HORIS NEVUS	03	1.5

Out of 1000 patient pigmentary changes were observed in 200(20%). Most common pigmentary disorder seen in our study was vitiligo (20%), followed by ephelides (17.5%), melasma (17%) and periocular melanosis (15%).

Pigmentary changes were the primary symptom in all the cases.

Majority of the patients belong to the age group of 21 to 25 years (32%) followed by 31 to 35 years accounting for 28%.

**TABLE NO 9: DISTRIBUTION PATTERN OF MELASMA**

TYPES	FREQUENCY	PERCENTAGE
MALAR	20	58.8
CENTROFACIAL	12	35.29
MANDIBULAR	2	5.8

- Most common clinical pattern of melasma, observed in our study was malar pattern (58.8%), followed by Centro-facial pattern (35.29%) and the least common was mandibular pattern (5.8%).

**TABLE NO 11: TYPES OF VITILIGO**

TYPES	FREQUENCY	PERCENTAGE
LIP VITILIGO	23	58
GENERALISED	3	8
ACROFACIAL	13	33
SEGMENTAL	1	3

Among the 40 cases,23 had lip(mucosal) vitiligo, 3 had generalized vitiligo,13 had acrofacial vitiligo and 1 had segmental vitiligo involving right side of face.

**TABLE NO 12: INCIDENCE WISE DISTRIBUTION OF INFECTIONS**

TYPES	FREQUENCY	PERCENTAGE
FUNGAL	125	73.9
VIRAL	33	19.5
BACTERIAL	11	6.5
TOTAL	169	100

- Most common infections were fungal infections (73.9%) followed by viral infections (19.5%) and bacterial infections (6.5%).

**TABLE NO 12: ALLERGENS ASSOCIATED WITH CONTACT DERMATITIS**

ALLERGENS	FREQUENCY	PERCENTAGE
Cosmetic products	49	46.6
Cement	5	4.76
Fragrance	3	2.8
Sindoor	17	16.19
Metal	7	6.66
Medicaments	3	2.85
Sunscreen	7	6.66
Parthenium	6	5.71
Others	8	7.61

Contact dermatitis 105(75%) was the most common eczematous disorder in this group, followed by seborrheic dermatitis 33(23.5%) and atopic dermatitis 2(1.5%).

Most of the patients of contact dermatitis group were belonging to mid-economic status (49.5%) and cosmetic products 49 (46.6%) constituting major culprit followed by sindoor (16.19%). Pruritus was the most common symptom observed in majority of the patients.

**TABLE NO 14: SYMPTOMS ASSOCIATED WITH TSDF**

SYMPTOMS	FREQUENCY	PERCENTAGE
Acneform eruption	76	59.3
Pigmentary changes	81	63.2
Pruritus	63	49.2
Burning pain	49	38.2
Photosensitivity	85	66.4
Hirsutism	39	30.4
Erythema	103	80.4

**TABLE 15: INCIDENCE OF SKIN TUMORS**

CASES	FREQUENCY	PERCENTAGE
DPN	16	48.48



NEVI	11	33.33
SYRINGOMA	6	18.18

**TABLE NO 16: INCIDENCE OF MISCELLANEOUS DISEASES**

DISEASES	FREQUENCY	PERCENTAGE
Keloid	2	6.2
Milia	13	40.6
Xanthelasma palpebrarum	8	25
Urticaria	3	9.3
Portwine stain	6	18.75

Total no of cases observed in this group was 32. Among them milia constituting maximum no of cases 13 (40.06%) followed by xanthelasma palpebrarum 8 (25%).

Xanthelasma palpebrarum was observed in 8 cases. Most of them belong to the age group of 31-35 years (75%). History of diabetes mellitus was observed in 3 cases and family history was associated with 2 cases.

**DISCUSSION**

Most common facial dermatoses in our study were pilosebaceous diseases 20.5%, followed by pigmentary disorders (20%) and infections (16.9%). This in contrast to study by Pradeep et al <sup>9</sup> where infection was most common, and in study by Mayuri Jain et al <sup>10</sup> where pigmentary disorders were most common followed by pilosebaceous diseases.

Acne (93.1%) was the most common dermatoses encountered in this group followed by rosacea (6.8%). Most common age group reported in this study was 21-25 years (35.6%), similar to studies of Arjun Singh et al. <sup>11</sup> and M Jain et al. <sup>10</sup>

Majority of them were students (49.2%) followed by housewives (28.7%) which was opposite to Lakshminarayana et al study in which housewives more common than students.

In our study most common site was cheeks (96.3%), followed by forehead (49.7%). A similar study was done by Lakshminarayana et al.<sup>12</sup> where they found cheeks was the most common site involved followed by perioral area. Swathi et al <sup>13</sup> also found that cheeks were the most common site followed by chin involvement.

Majority of them belongs to grade 2 acne (38.2%) followed by grade 3 acne (25.1%) which was similar to Lakshminarayana et al study. <sup>12</sup> But Swathi et al study <sup>13</sup> showed grade 2 acne was the most common followed by grade 1 acne.

In our study most common aggravating factor was use of cosmetics (54.9%), followed by seasonal variations (43.9%), premenstrual flare (28.7%) and topical steroids (34%). This is in contrast to Lakshminarayana et al. <sup>12</sup> study where stress was the most common aggravating factor followed by cosmetics use.

In our study, hirsutism was associated with acne in 16.2 % and AA with acne in 4.7 % which was comparable to Swathi et al <sup>13</sup> study. In our study inflammatory acne was more common than non-inflammatory acne which was in concordance with the study conducted by Jain et al. <sup>10</sup>

In our study majority of the patients with pigmentary disorders, most common age group reported was 21-25 (32%) years, majority of them were housewives (38%), similar to Avula Rajamma et al.<sup>14</sup> study.

Most common pigmentary disorder reported in our study was vitiligo (20%) followed by ephelids (17.5%), melasma (17%), POH (15%) and LPP (7%). While Avula Rajamma et al study<sup>14</sup> reported melasma was the most common pigmentary disorder followed by PIH, POM and ephelides.

In melasma, most common age group affected was 31-35 years with peak incidence at 27 years of age and majority of them were housewives (61.7%). All the above findings were comparable to kavya et al<sup>15</sup> study. Aggravation following sun exposure in our study was 70.5% which is comparable to Sabina et al.<sup>16</sup> study.

In our study, majority of them were asymptomatic (70.5%), followed by photosensitivity (20.5%), and pruritus (5.8%) which is similar to kavya et al.<sup>15</sup> study.

Most common clinical pattern of melasma seen in our study was malar type. A similar finding was observed in Sabina et al.<sup>16</sup> study. Other studies reported centro facial pattern as common presentation.

In our study, 50% of vitiligo patients had early age of onset and 55% of patients had h/o thyroid disorder which is in concordance with the study of hassan et al.<sup>17</sup>

In our study, infection (16.9%) was the third commonest entity after acne and pigmentary disorders which was similar to Jain et al.<sup>10</sup> study. Majority of them were fungal infections (73.9%) followed by viral infections (19.5%) and bacterial infections (6.5%). Majority of the patients were outdoor working women. Most common symptom was itching. Above findings were similar to Pradeep et al.<sup>9</sup>. In Jain et al study<sup>10</sup>, viral infection was the most common infection followed by fungal and bacterial infection.

Eczematous disorders were seen in 14% of facial dermatoses in our study. Most common was contact allergic dermatitis 75%, followed by seborrheic dermatitis. Most common age group affected was 21-25 years (45%).

Above findings were comparable with study of Pradeep et al.<sup>9</sup> Cosmetic products (46.6%) was the commonest allergen followed by sindoor (16.19%) reported in our study compared to study of Jain et al<sup>10</sup> in which sindoor was most common.

TSDf was seen in 12.8% of facial dermatoses in our study. Majority age group in our study group belongs to 21–25 year age group (39.06%) which is earlier as compared to Sethi S et al.<sup>95</sup> but similar to Dayamay Pal et al.<sup>18</sup>

Most common clinical finding noted in our study was erythema (80.4%) which was similar to Sethi S et al.<sup>19</sup>

Skin tumors were seen in 3.3% of facial dermatoses in our study. DPN (48.48%) was the most common skin tumour in our study which is similar as compared to Jain et al study.<sup>10</sup>

In our study photodermatoses constitutes 4.2% of patients which was similar to study by Pradeep et al.<sup>9</sup>

Our study also found that connective tissue diseases (1.4%) and immune bullous diseases (1.3%) involving the face were similar to Jain et al study.<sup>10</sup>

**CONCLUSION**

This study was undertaken to assess the various dermatoses affecting the face and their different presentations among young adult females. Compared with other skin disorders early identification and characterization of facial skin disorders were difficult. Many of the studies explained individual dermatoses of face. This study provides insight into various facial dermatoses that are encountered in a day-to-day practice.

A study compiled in one department, can never reflect in full measure, the true magnitude of the problem. However, the study does serve, to give a perspective of the problem and to gain insight into the subject. To conclude, a study with a wider and larger population is necessary to understand the epidemiology of facial dermatoses.

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