

## Acne Vulgaris Profile: A study at a tertiary care centre in North India.

Dr. Prabhat Kumar<sup>1</sup>, Dr. Kumar Shubham<sup>2</sup>, Dr. Vejeta Rani<sup>3</sup>

<sup>1</sup>Associate Professor, Department of Dermatology, Venereology & Leprosy, RIMS Ranchi, India

<sup>2</sup>Junior Resident Academic, Department of Dermatology, Venereology & Leprosy, RIMS Ranchi, India

<sup>3</sup>Junior Resident Academic, Department of Dermatology, Venereology & Leprosy, RIMS Ranchi, India

Corresponding Author- Dr Kumar Shubham

### Abstract:-

**Background:** Acne is one of the most common diseases of skin. It mainly affects adolescent, however chronic course is also seen. The study was done to assess the pattern of acne vulgaris in the community.

**Materials and Methods:** It was a hospital based study done from June 2019 to February 2020 for a period of 9 months. All patients presenting with Acne Vulgaris who gave consent were included in the study. Patients with acneiform eruptions were excluded.

**Results:** Our study comprised of 605 patients of which 427 were females and 178 males. The age group of 16-20 yrs had most no of cases (370) followed by 10-15 yrs age group (108) Clinical examination revealed that there were 194 cases of Grade 1 acne, 270 cases of Grade 2 acne, 83 cases of Grade 3 acne & 58 cases of Grade 4 acne. Face was the most common site involved with cheek being the most affected in face. Around 17.8% of patients (108) showed seasonal variations. 64 patient of these had winter worsening. Complications such as post inflammatory hyperpigmentation and post acne scarring was assessed, with former seen in 51.9% and latter in 12.7% of cases. Among women members in our study group, premenstrual flare was seen in 41.4%(177). High grade of acne was seen more commonly in patients with habit of smoking.

**Conclusion:** Acne Vulgaris, with its common nature and psychosocial impact, is a significant problem in the community. Proper counselling and better awareness will help a long way to tackle the same.

**Keywords:-** Acne Vulgaris, Adolescent, Clinical Grade, Post inflammatory hyperpigmentation, Post Acne scarring, Premenstrual flare, Psychosocial impact.

Date of Submission: 04-06-2020

Date of Acceptance: 20-06-2020

### I. Introduction

Acne Vulgaris is a chronic inflammatory disease of the pilo-sebaceous units.<sup>1</sup> The oil that normally lubricate the skin gets trapped in blocked oil ducts and results in what we know as pimples, blackheads, whiteheads on the surface of skin.<sup>2</sup>

In day to day clinical practice, Acne Vulgaris is one of the most frequently encountered dermatosis. The condition usually starts in adolescence, peaks at the age of 14-19 yrs and frequently resolves by mid-twenties.<sup>3</sup> Although considered to be a self limiting condition, Acne Vulgaris has all the characteristics of a chronic disorder as defined by WHO viz a prolonged course, pattern of recurrence or relapse and a psychological and social impact on the individual's quality of life.<sup>4</sup> It usually presents with non inflammatory and/or inflammatory lesions such as open/closed comedones, papules, pustules & nodules over face and sometimes over trunk. The disease creates cosmetic, physical and psychological scarring, fuelling anxiety, depression and other emotional trauma that threatens the quality of life.<sup>5</sup>

The present study was conducted to study the epidemiological profile of Acne Vulgaris which would help in assessing the social burden; distribution of disease in the community and its social and psychological impact. During the study, proper counselling and information regarding acne was provided with the aim of creating awareness and help address its psychosocial impact.

### II. Materials & Methods

The study was an observational study done in the outpatient department of Dermatology, Venereology and Leprosy of a tertiary care centre in Northern India. The study was done for a period of 9 months from June 2019 to February 2020.

Patients with Acne Vulgaris, irrespective of their age and sex, attending the outpatient department were included in our study after informed consent. Patients having drug induced acne and other acneiform eruptions were excluded. Detailed history and clinical examination was carried out for each patient. Age, gender, duration

of lesion, site of lesion & clinical grading was noted. Acne Vulgaris was graded according to the predominant lesion into 4 grades:<sup>6</sup>

*Grade 1*-Comedones, occasional papules.

*Grade 2*-Papules, comedones, few pustules.

*Grade 3*- Predominant pustules, nodules, abscesses.

*Grade 4*- Mainly cysts, abscesses, widespread scarring.

Patients having associated complications like post acne scarring & post inflammatory hyperpigmentation were assessed. Seasonal variations, premenstrual flare, association with smoking was also studied.

Data collected were tabulated into pie chart and other tabulations using Microsoft Excel Office.

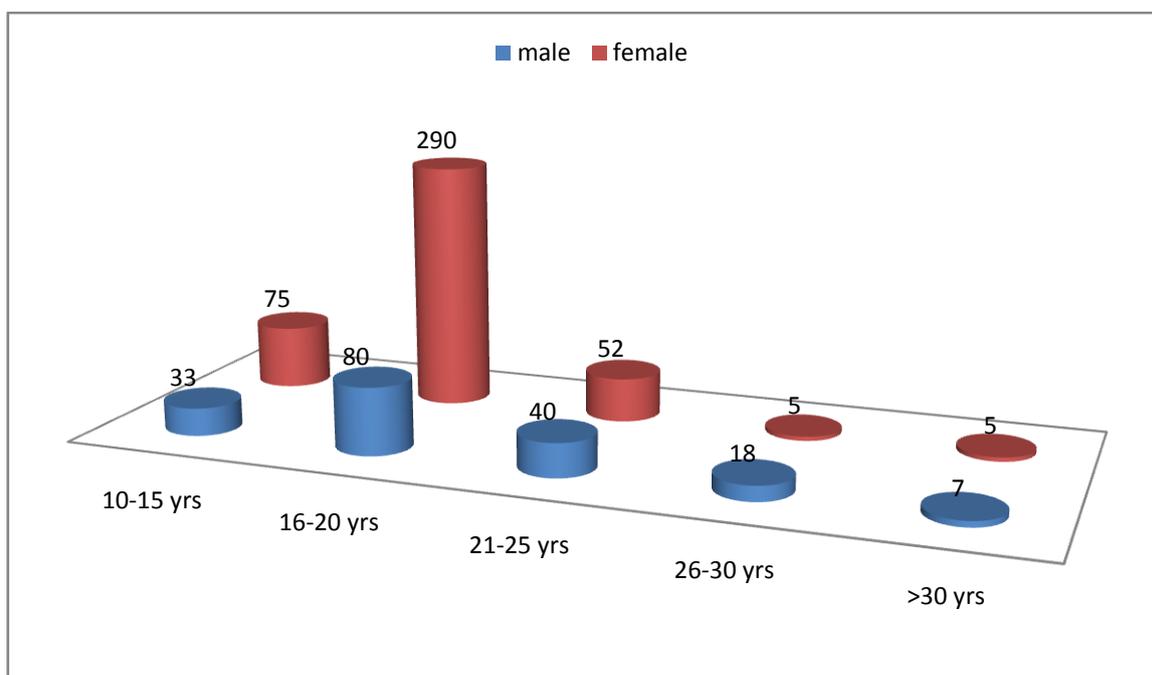
### III. Results

A total of 605 patients had Acne Vulgaris & were included in our study. Majority of them were females 427 (70.6%) compared to 178 males (29.4%). The M:F ratio was 1:2.39.

|                | Number (n) | Percentage(%) |
|----------------|------------|---------------|
| <b>Males</b>   | 178        | 29.4%         |
| <b>Females</b> | 427        | 70.6%         |

**Table 1-** Gender distribution among patients with Acne Vulgaris.

Cases of Acne Vulgaris were seen mostly in the age group of 16-20 yrs (370, 61.2%); followed by 108 in 10-15 yrs age group; 92 in 21-25 yrs age group; 23 in 26-30 yrs age group. 12 patients had age of more than 30 yrs.



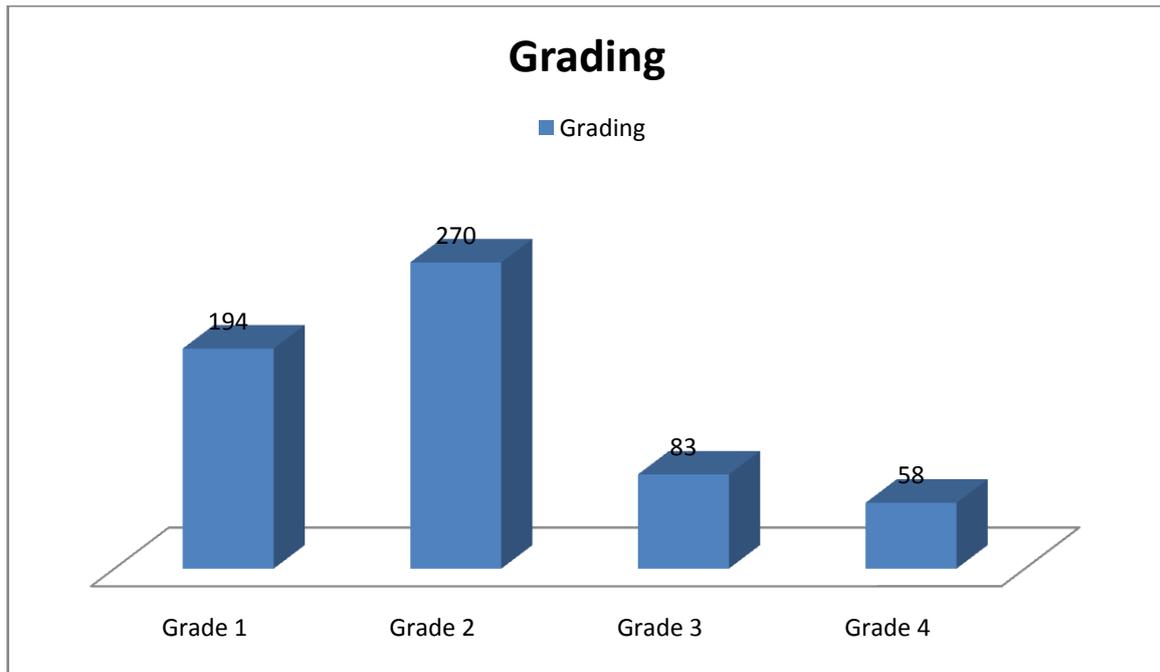
**Bar 1-** Age distribution among Acne Vulgaris patients.

Duration of Acne Vulgaris varied from 1 month to 12 years in our study. Majority of patients were found to have lesions for a period of <6 months 190 (31.4%).

| Duration                   | Number (n) | Percentage (%) |
|----------------------------|------------|----------------|
| <b>&lt;6 months</b>        | 190        | 31.4%          |
| <b>6 months – 1 year</b>   | 174        | 28.8%          |
| <b>1 year – 1.5 years</b>  | 111        | 18.3%          |
| <b>1.5 years – 2 years</b> | 90         | 14.9%          |
| <b>&gt;2 years</b>         | 40         | 6.6%           |

**Table 2 –** Disease Duration seen in the study population.

Upon clinical examination of study populations, the patients were graded according to predominant lesion. Grade 2 (270) was seen in most cases followed by Grade 1 (194), Grade 3 (83), & Grade 4 (58).



**Bar 2-** Clinical Grading of patients suffering from Acne Vulgaris.

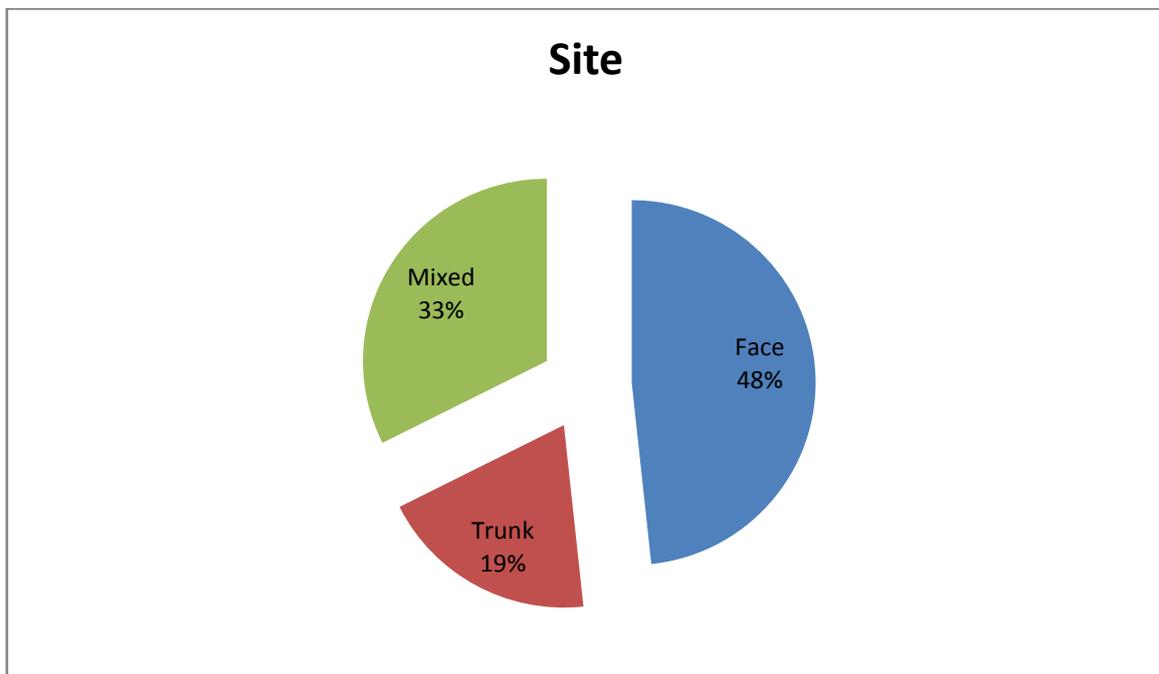


**Figure 1-** A patient with predominant papules ( Grade 2 Acne Vulgaris)



**Figure 2-A** case of Grade 4 Acne Vulgaris with cysts, abscesses & scarring.

Face was the most common site involved, seen in almost all patients (80.7%). In 292 patients (48.3%), face alone was involved while trunk involvement was seen in 19.3% of the cases. Among face, lesions were most commonly seen in cheeks.



**Pie 1-** Sites involved in cases of Acne Vulgaris.

In our study seasonal variation was seen in 108 patients (17.8%). 64 patients showed exacerbations in winter followed by 29 patients in rainy seasons and 15 patients in summer. Post inflammatory hyperpigmentation was found in 314 patients (51.9%) in our study while 77 patients (12.7%) had post acne scarring. Among scars, ice pick scars were most commonly encountered.



**Figure 3-Patient having widespread post inflammatory hyperpigmentation.**



**Figure 4-Post acne scarring seen as a sequelae to Acne Vulgaris in a patient.**

The study revealed that 177 of our female patients (41.4%) had premenstrual flare. Smoking as a habit was seen in 52 cases. It was observed that 75% of patients with smoking had higher grade (Grade 3 and above) of acne.

#### **IV. Discussion**

Acne Vulgaris is a condition plaguing almost all adolescents. An individual is more likely to develop acne than any other disease.<sup>1</sup>

In our study majority of patients were female – 70.6%. A study by Khunger et al on adult acne showed similar result with majority of patients being female 82.1% and remaining 17.9% males.<sup>7</sup> However a study by Adityan B &Thappa DM showed predominant male patients 55.7% as compared to 44.3% females.<sup>3</sup> A study in Saudi Arabia also showed higher female patients compared to male.<sup>8</sup>

Al-Ameen& Al-Aklaby in their study observed that most cases were in the age group of 16-20 yrs, which was similar to finding of our study.<sup>8</sup> According to our study, females had an earlier onset of lesions compared to males, probably as a result of gaining puberty at an early age.

In our hospital based study, majority of cases were Grade-2 (44.6%). Kane et al in their study found Grade-1 (predominantly comedones) to be the most common presentation in Acne Vulgaris patients.<sup>9</sup> Similar findings were seen by Adityan B &Thappa DM.<sup>3</sup>

Sites with pilosebaceous units in abundance has Acne Vulgaris lesions more commonly. It was found in our study that face (alone or along with other sites) was the most common site of acne lesions. This was in accordance with data from Zaenglein et al and Amado et al.<sup>10,11</sup> Kilkenny et al and Cunliffe et al reported comedones as the most common lesion encountered.<sup>12,13</sup> Papules were the most common lesions in our study population followed by comedones which were the second most common.

Conventionally, improvement of acne in summer and exacerbation in winter is seen. Seasonal variation was seen in 108 patients in our study (17.8%). 64 patients (10.5%) showed worsening in winter similar to findings of a Saudi Arabian study.<sup>8</sup> Sardana et al showed exacerbation during summer.<sup>14</sup>

Post inflammatory hyperpigmentation is seen quite commonly as a complication especially in pigmented skin. Yeung et al & Taylor et al found in their study that 52.6% of their patients had hyperpigmentation.<sup>15,16</sup> In our study it was seen in 314 cases (51.9%).

Post acne scarring is other complication frequently encountered. Only 12.7% of patients in our study had post acne scarring. Kilkenny et al reported 25% of their patients having scarring while Taylor et al found scarring in only 5.9% of their cases.<sup>12,16</sup>

It has been seen that during days 15-20 of menstrual cycle the pilosebaceous duct becomes smaller which may predispose to premenstrual acne flare.<sup>3</sup> The mechanism behind this is unknown.<sup>17</sup> Of all the female patients in our study, 41.4% - 177 cases had premenstrual flare. Stoll et al reported an overall 44% prevalence of premenstrual flare.<sup>18</sup>

Smoking and Acne Vulgaris has a controversial relationship. Mills et al & Rombouts et al found that Acne Vulgaris was lower in smokers than non smokers.<sup>19,20</sup> On the other hand, Schafer et al & Chuh et al established a positive correlation between smoking and acne.<sup>21,22</sup> According to our study, around 52 patients had positive history of smoking. Interestingly of these, 39 cases (75%) had severe grade of acne. However this is too small a sample to derive a valid conclusion.

#### **V. Limitations**

Being an OPD based study, its limitation was that it may or may not be an accurate representation of community data. Clinical markers of androgenicity was not explored in our study. Moreover the profile of acne patients in a population with different demography and awareness level may vary from our study.

#### **VI. Conclusion**

The study highlights the burden of Acne Vulgaris in the community. Although characteristically thought to be a problem of adolescence, Acne Vulgaris is seen to persist into adulthood. The disease with its complications puts a heavy toll on the youth in terms of poor body image, anxiety, depression, anger, frustration etc. To conclude, along with treating the disease, we also have a responsibility to create awareness and provide proper counselling to the adolescent age group in order to help them cope and prevent any untoward effect on their social and academic performance.

#### **References**

- [1]. Simpson NB, Cunliffe WJ. Disorders of sebaceous glands. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. Rook's Textbook of Dermatology, 7<sup>th</sup> ed., Oxford:Blackwell Publishing; 2004. p.43.1-43.75.
- [2]. Ali G, Mehtab K, Sheikh ZA, Ali HG, Abdel Kader S, Mansoor H, et al. Beliefs and perceptions of acne among a sample of students from Sindh medical college, Karachi. J Pak Med Assoc 2010;60:51-4.
- [3]. Adityan B, Thappa DM. Profile of acne vulgaris- A hospital based study from south India. Indian J Dermatol Venerol Leprol 2009;75:272-8.
- [4]. Centre for disease control. Classifications of diseases and functioning and disability. In: Classifications of diseases and Functioning and Disability. Definition of Disability Reference. Maryland: National Center for Health Statistics; 2001.
- [5]. Al Natour SH. Acne Vulgaris: Perceptions and beliefs of Saudi adolescent males. J Family Community Med 2017;24:34-43.

- [6]. Tutakne MA, Chari KV. Acne, rosacea and perioral dermatitis. In: Valia RG, Valia AR, editors. IADVL Textbook and atlas of dermatology, 2<sup>nd</sup> ed., Mumbai: Bhalani Publishing House; 2003 p. 689-710.
- [7]. Khunger N, Kumar C. A clinico-epidemiological study of adult acne: Is it different from adolescent acne?. *Indian J DermatolVenerolLepr* 2012;78:335-41.
- [8]. Al-Ameer AM, Al-Akloby OM. Demographic features and seasonal variations in patients with acne vulgaris in Saudi Arabia: A hospital-based study. *Int J Dermatol* 2002;41:870-1.
- [9]. Kane A, Niang SO, Diagne AC, LY f, Ndiaye B. Epidemiological, clinical, and therapeutic features of acne in Dakar, Senegal. *Int J Dermatol* 2007;46:36-8.
- [10]. Zaenglein AL, Graber EM, Thiboutot DM, Strauss JS. Acne vulgaris and acneiform eruptions. In: Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ, editors. *Fitzpatrick's Dermatology in General Medicine*, 7<sup>th</sup>ed., New York: McGraw Hill Publishing; 2008. p.690-703.
- [11]. Amado JM, Matos ME, Abreu AM, Loureiro L, Oliveira J, Verde A, et al. The prevalence of acne in the north of Portugal. *J EurAcadDermatolVenereol* 2006;20:1287-95.
- [12]. Kilkenny M, Merlin K, Plunkett A, Marks R. The prevalence of common skin conditions in Australian school students:3, Acne vulgaris. *Br J Dermatol* 1998;139:840-5.
- [13]. Cunliffe WJ, Holland DB, Clark SM, Stables GI. Comedogenesis: some new aetiological, clinical and therapeutic strategies. *Br J Dermatol* 2000;142:1084-91.
- [14]. Sardana K, Sharma RC, Sarkar R. Seasonal variation in acne vulgaris- myth or reality. *J Dermatol* 2002;29:484-8.
- [15]. Yeung CK, Teo LH, Xiang LH, Chan HH. A community-based epidemiological study of acne vulgaris in Hong Kong adolescents. *ActaDermatolVenereol* 2002;82:104-7.
- [16]. Taylor SC, Cook-Bolden F, Rahman Z, Strachan D. Acne Vulgaris in skin of color. *J Am AcadDermatol* 2002;46:S98-106.
- [17]. Williams M, Cunliffe WJ. Explanation for premenstrual acne. *Lancet* 1973;2:1055-7.
- [18]. Stoll S, Shalita AR, Webster GF, Kaplan R, Danesh S, Penstein A. The effect of the menstrual cycle on acne. *J Am AcadDermatol* 2001;45:957-60.
- [19]. Mills CM, Peters TJ, Finlay AY. Does smoking influence acne? *ClinExpDermatol* 1993;18:100-1.
- [20]. Rombouts S, Nijsten T, Lambert J. Cigarette smoking and acne in adolescents: Results from a cross sectional study. *J EurAcadDermatolVenereol* 2007;21:326-33.
- [21]. Schafer T, Nienhaus A, Vieluf D, Berger J, Ring J. Epidemiology of acne in the general populations: The risk of smoking. *Br J Dermatol* 2001;145:100-4.
- [22]. Chuh AA, Zawar V, Wong WC, Lee A. The association of smoking and acne in men in Hong Kong and in India: A retrospective case-control study in primary care settings. *ClinExpDermatol* 2004;29:597-99.

Dr Kumar Shubham, et. al. "Acne Vulgaris Profile: A study at a tertiary care centre in North India." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(6), 2020, pp. 40-46.